

Duke Power Company  
Catawba Nuclear Generation Department  
4800 Concord Road  
York, SC 29745

WILLIAM R. MCCOLLUM, JR.  
Vice President  
(803) 831-3200 Office  
(803) 831-3426 Fax



**DUKE POWER**

April 25, 1996

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

Subject: Catawba Nuclear Station  
Docket Nos. 50-413 and 50-414  
Annual Environmental Operating Report  
Calendar Year 1995

Attached is the 1995 Annual Environmental Operating Report which is required by the Environmental Protection Plan (Appendix B to the Catawba Facility Operating License). The report consists of the following enclosures:

Enclosure I "Summaries and Analysis of Results of Activities Required by the Environmental Protection Plan (EPP)", and

Enclosure II "Copy of Non-routine Event Reports Sent to the South Carolina Department of Health and Environmental Control".

Very truly yours

A handwritten signature in cursive script, appearing to read 'W. R. McCollum', written over the printed name.

W. R. McCollum

JTH/AEOR 1995

020146

9605020262 951231  
PDR ADDCK 05000413  
R PDR

IE25 1/1

U. S. Nuclear Regulatory Commission

April 25, 1996

Page 2

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

R. J. Freudenberger w/o attachments  
Senior Resident Inspector

R. E. Martin, ONRR

**ENCLOSURE I**

**Summaries and Analysis of Results of Activities  
Required by the Environmental Protection Plan (EPP)**

**Summaries and Analysis of Results of Activities  
Required by the Environmental Protection Plan (EPP)**

**Section 4.2.1 - Aerial Remote Sensing**

This requirement of the Environmental Protection Plan is complete. Final reporting was submitted to the NRC in the 1993 Annual Environmental Operating Report.

**Section 4.2.2 - Sound Level Surveys**

This requirement of the Environmental Protection Plan is complete. Final reporting was submitted to the NRC in the 1988 Annual Environmental Operating Report.

**Section 4.2.3 - Fog Monitoring**

This requirement of the Environmental Protection Plan is complete. Final reporting was submitted to the NRC in the 1987 Annual Environmental Operating Report.

**Section 5.4.1(1) - EPP Non-Compliance and Corrective Actions**

1. There have been no non-compliances with the Environmental Protection Plan during this reporting period.
2. There have been no observations of harmful effects or evidence of trends toward irreversible damage to the environment.

**Section 5.4.1(2) - Changes in Station Design or Operation, Tests, and Experiments Which Involve a Potentially Significant Unreviewed Question**

No station changes were identified that involved a potentially significant unreviewed environmental question.

**Section 5.4.1(3) - Non-routine Reports Submitted in Accordance with Subsection 5.4.2 of the EPP**

**A copy of all items listed is included in Enclosure II.**

1. A request dated 1/4/95 was submitted to the South Carolina Department of Health and Environmental Control (SCDHEC) concerning the use of sodium bromide as a treatment chemical for use in the cooling towers. Approval for this request was received from SCDHEC 3/16/95. The NRC was copied on both the request and approval.



2. An oil spill to Lake Wylie occurred 2/9/95. Written notification was provided to both SCDHEC and the NRC 2/15/95.
3. A request dated 2/15/95 was submitted to SCDHEC concerning the use of Carbohydrazide, Nalco Dynacool 1389, dibromo-3-nitrilopropionamide (DBNPA), and 3-MPA as treatment chemicals in plant systems. Approval for this request was received from SCDHEC 3/15/95. The NRC was copied on both the request and approval.
4. A release of recirculating cooling water to Lake Wylie occurred 2/22/95 and 2/23/95 when an underground pipe developed a leak. Written notification was provided SCDHEC and the NRC 2/28/95.
5. A release of recirculating cooling water to Lake Wylie was discovered 3/21/95 due to an underground pipe leak. Written notification was provided SCDHEC and the NRC 4/19/95.
6. A request dated 5/10/95 was submitted to SCDHEC concerning a modification of the approval to use Carbohydrazide, Nalco Dynacool 1389, dibromo-3-nitrilopropionamide (DBNPA), and 3-MPA as treatment chemicals in plant systems which had been received 3/15/95. A modified approval from SCDHEC was received 5/26/95. The NRC was copied on both the request and approval.
7. A NPDES Application and Permit Update was submitted to SCDHEC on July 19, 1995. The NRC was copied at the time of submission.
8. A request to extend the approval for the use of sodium bromide in the cooling towers was submitted to SCDHEC 8/14/95. Approval for this extension was received from SCDHEC 9/6/95. The NRC was provided a copy of the request at the time of submittal. A copy of the approval is included in Enclosure II but was not submitted when received.
9. A request dated 9/20/95 was submitted to SCDHEC for the use of Dimethylamine in the feedwater system. Approval for this request was received from SCDHEC 12/6/95. The NRC was copied on both the request and approval.
10. A request dated 11/30/95 was submitted to SCDHEC concerning the use of a polyacrylate dispersant in plant cooling water systems. The NRC was copied on this request. Approval from SCDHEC was not received during 1995.

**Section 5.4.1(4) - NPDES Reports Related to Matters Identified in Section 2.1 of the EPP**

1. Discharge Monitoring Reports Submitted to SCDHEC

Date Submitted	Period Covered
February 28, 1995	January, 1995
March 28, 1995	February, 1995
April 28, 1995	March, 1995
May 26, 1995	April, 1995
June 28, 1995	May, 1995
July 26, 1995	June, 1995
August 28, 1995	July, 1995
September 21, 1995	August, 1995
October 23, 1995	September, 1995
November 28, 1995	October, 1995
December 28, 1995	November, 1995
January 19, 1996	December, 1995
February 28, 1996	August through December 1995 (Revisions)
April 10, 1996	March 1995 (Revision)

2. Groundwater Monitoring Reports Submitted to SCDHEC

Date Submitted	Period Covered
May 16, 1995	March 13, 1995 Sampling
November 29, 1995	September 5, 1995 Sampling

**ENCLOSURE II**

**Copy of Non-routine Event Reports Sent to the South Carolina Department of Health and Environmental Control As Listed In Section 5.4.1(3) - Non-routine Reports Submitted in Accordance with Subsection 5.4.2 of the EPP**

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**USED TO SEPARATE ITEMS**

Duke Power Company  
Electric System Support Department  
13319 Hagers Ferry Road  
Huntersville, NC 28078-7929



**DUKE POWER**

January 4, 1995

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 -NPDES Permit No. SC0004278  
Sodium Bromide Request for Permanent Approval  
File: CN-702.13

Dear Mr. Eleazer:

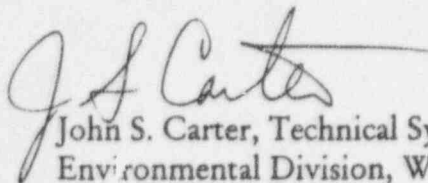
This letter is being written to request that sodium bromide be approved as a permanent treatment compound for the control of algae in the cooling towers at Catawba Nuclear station. As you may recall, Catawba has been using this compound on a temporary basis in order to determine the effectiveness of its use. The use of sodium bromide will allow the station to reduce the total amount of treatment chemicals used.

In your letter dated September 15, 1994, you stated that before sodium bromide can be used permanently as a maintenance chemical in the cooling towers, the NPDES permit will have to be modified to add Free Available Oxidant (FAO) to the permit.

We would like to propose that Free Available Chlorine (FAC) continue to be listed on the NPDES permit and that the permit not be modified until the next permit renewal. The actual analytical method will be unchanged regardless of whether the analysis is reported as FAC or FAO. Both sodium hypochlorite and sodium bromide are oxidants. Since sodium hypochlorite has historically been the only oxidant used, FAC has been more appropriate to report. Regardless of whether you report FAC or FAO the results are the same. The station monitors this outfall to ensure that the discharge is below permit limits prior to blowdown.

Please respond to this request at your earliest convenience. Should you have any questions concerning this letter please give John Estridge a call at (704) 875-5965.

Sincerely,

A handwritten signature in dark ink, appearing to read "J. S. Carter", with a long horizontal flourish extending to the right.

John S. Carter, Technical System Manager  
Environmental Division, Water Protection

jte/396

cc: Mr. Al Williams - Catawba EQC  
NRC Document Distribution List

March 17, 1995

A.P. Jackson - CN03CH

J.T. ~~Harris~~ - CN01EM

W.J. Davis - CN01CH

S.D. Davenport - EC07D

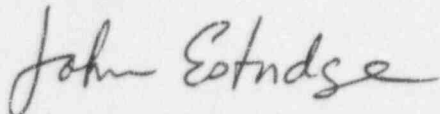
G.W. Sain - EC07D

Subject: Catawba Nuclear Station -NPDES Permit No. SC0004278  
SCDHEC Sodium Bromide Approval Until Sept. 1, 1995  
File: CN-702.13

Attached please find a letter from SCDHEC in response to our January 4, 1995 request to continue the use of sodium bromide in the cooling towers. This approval is only until September 1, 1995. The approval will become permanent when the State updates the NPDES permit later this year due to their basin permitting strategy.

Should you have any questions concerning this letter please give me a call at (704) 875-5965.

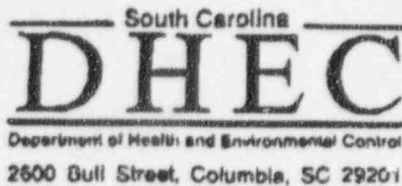
Sincerely,



John Estridge, Engineer  
Environmental Division, Water Protection

jte/433

cc: NRC Document Distribution List  
M.A. Lascara - MG03A5



Commissioner: Douglas E. Bryant

Board: Richard E. Jabbour, DDS, Chairman  
Robert J. Stripling, Jr., Vice Chairman  
Sandra J. Molander, Secretary

*Promoting Health. Protecting the Environment*

John M. Burries  
William M. Hull, Jr., MD  
Roger Leake, Jr.  
Burnett R. Maybank, III

March 16, 1995

Mr. John Estridge, P.E.  
Duke Power Company  
Environmental Division, Water Protection  
13339 Hagers Ferry Road  
Huntersville, N.C. 28078-7929

Re: Sodium Bromide Trial Extension  
Catawba Nuclear Station/Duke Power Co.  
York County

Dear Mr. Estridge:

Our Office has received your January 4, 1995 letter requesting approval to extend the maintenance chemical trial using sodium bromide for control of biological growth in the two (2) recirculating cooling towers systems at the Catawba Nuclear Station in York County. As we discussed by telephone, this extension is needed in order to evaluate the effectiveness of the sodium bromide during the summer months in conjunction with sodium hypochlorite which is presently used in the cooling towers. Based on a review of the information provided, our Office approves your request with the following conditions:

- 1) This trial extension is approved until September 1, 1995.
- 2) A minimum dilution of one (1) part RC cooling tower blowdown water to two (2) parts once through RL cooling water (1:2) must be maintained.
- 3) During the trial, Internal Outfall 005 shall be limited to a monthly average of 0.2 mg/l and a instantaneous maximum of 0.5 mg/l for Free Available Oxidants.

In accordance with the Basin Permitting Strategy, we are currently working on revisions to the Duke Power Company Catawba Nuclear Steam Station NPDES permit No. SC0004278. In updating this permit, we are planning to incorporate the permanent use of sodium bromide as a maintenance chemical to the cooling towers.



Duke Power Co./January 4, 1995 letter  
Page 2

If you should have any questions, please call me at (803)734-5247.

Sincerely,

*Timothy M. Elcazer*

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

TME/dukebr2

cc: Al Williams, Catawba EQC

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**USED TO SEPARATE ITEMS**



**DUKE POWER**

February 15, 1995

Mr. Steve Spigner  
South Carolina Department of Health and Environmental Control  
P.O. Box 100  
Fort Lawn, S.C. 29741

Subject: Catawba Nuclear Station  
Written Follow-up of Oil Sheen On Lake Wylie  
File: CN-720.01

Dear Mr. Spigner

This letter is to provide you written follow-up of our telephone conversation Friday, February 10, 1995. As we discussed, a visible oil sheen was noticed in our intake cove directly below and around our intake structure the evening of February 9, 1995.

A fire protection pipe on the intake structure burst and flowed water over the structure to the lake until it could be isolated. At the same time work was in progress on the structure to remove an intake pump for repair. Residual oil from this operation was washed into the lake when the fire protection pipe burst. The amount of oil reaching the lake is estimated to be a pint.

As a preventative measure we use two oil booms in this area. One is located around the intake structure itself and the other is located further up the intake cove. The oil caused a sheen on the lake which was contained within the boom system. Cleanup operations were implemented using absorbent pads and pillows. Notifications were made as follows:

National Response Center - Mr. Chen - 2/9/95 @ 1830  
Nuclear Regulatory Commission - Mr. Rich Freudenberger - 2/9/95 @ 1847.  
State Emergency Response Center - Michael Juras - 2/9/95 @ 1900  
SC Department of Health and Environmental Control - Mr. Steve Spigner -  
2/10/95 @ 0905.

If you have any questions please do not hesitate to contact me at 831-3656.

Sincerely,

*Tim Harris*

Tim Harris  
Scientist, Environmental Management

.cc Al Williams, SCDHEC - Catawba District  
NRC - Document Control Desk - Docket Nos: Unit 1 50-413 and Unit 2 50-414  
NRC - S. D. Ebner  
NRC - R. E. Martin  
NRC - R. J. Freudenberger  
B. J. Horsley - EC12T  
ELL - EC050  
NCMPA-1  
SREC  
PMPA  
NCEM

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**DUKE POWER**

February 15, 1995

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 -NPDES Permit No. SC0004278  
Request Approval for Use of Chemicals  
File: CN-702.13

Dear Mr. Eleazer:

Catawba Nuclear Station is requesting approval to use the following additional treatment chemicals.

1. Carbohydrazide
2. NALCO DYNACOOOL 1389
3. dibromo-3-nitrilopropionamide or DBNPA
4. 3-MPA or 3-methoxypropylamine

All of the chemical proposed for use will be discharged below aquatic toxicity levels. The MSDS sheets and supporting information is provided for each compound.

Approval of these chemicals is needed by March 24, 1995 in order to meet schedules. Therefore, please respond to this request at your earliest convenience. Should you have any questions concerning this letter please give John Estridge a call at (704) 875-5965.

Sincerely,

A handwritten signature in cursive script, appearing to read 'J. Carter'.

John S. Carter, Technical System Manager  
Environmental Division, Water Protection

jte/417

cc: Mr. Al Williams - Catawba EQC  
NRC Document Distribution List

March 16, 1995

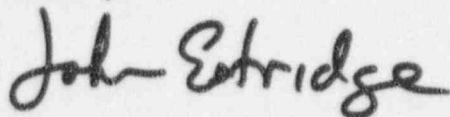
A.P. Jackson - CN03CH  
J.T. Harris - CN01EM  
W.J. Davis - CN01CH  
G.L. Ward - EC07D  
S.D. Davenport - EC07D  
S.W. Rodgers - CN03CH

Subject: Catawba Nuclear Station -NPDES Permit No. SC0004278  
SCDHEC Approval for Use of Chemicals  
File: CN-702.13

Attached please find a letter from SCDHEC in response to our February 15, 1995 request to use additional treatment chemicals. SCDHEC basically approved everything as it was requested in our letter.

Should you have any questions concerning this letter please give me a call at (704) 875-5965.

Sincerely,



John Estridge, Engineer  
Environmental Division, Water Protection

jte/432

cc: NRC Document Distribution List  
M.A. Lascara - MG03A5



South Carolina  
**DHEC**  
Department of Health and Environmental Control  
2800 Bull Street, Columbia, SC 28201

Commissioner: Douglas E. Bryant

Board: Richard E. Jabbour, DDS, Chairman  
Robert J. Stripling, Jr., Vice Chairman  
Sandra J. Molander, Secretary

John M. Burries  
William M. Hull, Jr., MD  
Roger Leaks, Jr.  
Burnet R. Maybank, III

Promoting Health, Protecting the Environment

March 15, 1995

Mr. John S. Carter, Technical System Manager  
Environmental Division  
Duke Power Company  
13339 Hagers Ferry Road  
Huntersville, N.C. 28078-7929

Re: Request Approval for Use of Chemicals  
Duke Power Co./Catawba Nuclear Station  
York County

Dear Mr. Carter:

Our Office has received your February 15, 1995 letter requesting approval to use additional treatment chemicals at the Duke Power Company/Catawba Nuclear Station in York County. Based on a review of the information provided, we approve your request to use the following treatment chemicals as indicated below:

- 1) Carbohydrazide (hydrazine substitute) shall be used as a corrosion inhibitor in the nuclear service water heat exchangers during wet layup and in the station's secondary chemistry system. The discharge of this parameter from Outfalls 001 and 002 shall be less than the 8.1 mg/l no observed effect concentration (NOEC) per occurrence.
- 2) NALCO DYNACOOOL 1389 (cooling water dispersant) shall be used to enhance the dispersion of mud and silt in the nuclear service heat exchangers during wet layup. The discharge of this parameter from Outfall 001 shall not exceed 0.3 mg/l per occurrence.
- 3) dibromo-3-nitrilopropionamide or DBNPA (microorganism control) shall be used to control microorganisms in the nuclear service water heat exchangers during wet layup. The discharge of this parameter from Outfall 001 shall not exceed 0 mg/l per occurrence since this product decays away within 72 hours of application.
- 4) 3-MPA or 3-methoxypropylamine (ethanolamine replacement) shall be used as a pH control additive to reduce the amount of low level radioactive waste generated at the site. The discharge of this parameter from Outfall 002 shall not exceed 0.1 mg/l per occurrence.

Duke Power Co./Catawba Nuclear Station  
2/15/95 letter  
Page 2

If you should have any questions, please call me at (803)734-5247.

Sincerely,

*Timothy M. Fleazer*  
Timothy M. Fleazer  
Environmental Engineer Associate  
Industrial and Agricultural  
Wastewater Division

TME/CAT

cc: Al Williams, Catawba EQC

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**DUKE POWER**

February 28, 1995

Mr. Lanny Robinson  
South Carolina Department of Health and Environmental Control  
P.O. Box 100  
Fort Lawn, S.C. 29741

Subject: Catawba Nuclear Site  
NPDES Permit #SC0004278  
Unauthorized Discharge  
File: CN-702.26

Dear Mr. Robinson:

Per your request this memo is a follow-up report on the unauthorized discharge of cooling water (via yard drain) to Lake Wylie that occurred on February 22 and 23, 1995 at Catawba Nuclear Station. There was no observed environmental impact during this discharge. This event will also be noted on the NPDES Discharge Monitoring Report pursuant to Part II. B. 3. of the subject permit.

On February 22, 1995, at approximately 4:30 p.m. water was observed to be seeping up from the ground at the Unit 2 cooling tower yard area. The flowrate was visually estimated to be thirty to fifty gallons per minute. Julie Lott of DHEC was notified via the 24 hour notification line at 5:30 p.m. on February 22.

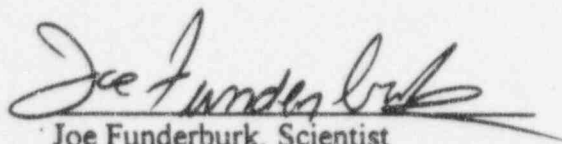
The system was last checked for chlorine content on February 21, 1995, by Environmental Chemistry and none was detected. At the point of rupture, the water was sampled for dispersant levels and temperature on February 22, 1995. It was found to contain 4 ppm of a dispersant (used to keep solids suspended in solution). The chemical used was BL-7071 (Duke Power MSDS number 19502). The chemical is identified by the manufacturer as not containing any SARA/CERCLA hazardous substances. The water contained no other chemicals. The temperature of the water was 72.5 degrees Fahrenheit.

The actual release occurred due to a stress crack in an underground pipe that is used to transport the Unit 2 condenser cooling water to the Unit 2 cooling towers. The stress crack was caused when a drop in temperature of the cooling water occurred as Unit 2 came off line. Unit 2 came off line on February 21, 1995 at 9:54 p.m. The flow was stopped by digging a pit to collect the water at 8:30 a.m. on February 23, 1995. The water was pumped from this pit to the Unit 2 C cooling tower. It is estimated that between twenty-nine thousand seven-hundred (29,700) and forty-nine thousand five-hundred (49,500) gallons of RC water flowed to Lake Wylie between the time the leak was identified and when the flow was stopped.

The underground pipe has been repaired, the system has been returned to service, and Unit 2 will be returned to service soon. The root cause of the pipe failure and possible corrective actions are still under investigation.

If you should have any questions concerning this matter or need additional information, please contact Joe Funderburk at (803) 831-3925 or Cheryl Peed at (803) 831-3361.

Sincerely,



Joe Funderburk, Scientist  
CNS Environmental Management

cc: Al Williams, SCDHEC - Catawba District  
NRC - Document Control Desk - Docket No: Unit 2 50-414  
NRC - S.D. Ebner  
NRC - R.E. Martin  
NRC - R.J. Freudenberger  
J.J. Horsley - EC12T  
ELL - EC050  
NCMPA-1  
SREC  
PMPA  
NCEMC

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**DUKE POWER**

April 19, 1995

Mr. Lanny Robinson  
South Carolina Dept. of Health and Environmental Control  
P.O. Box 100, Ft. Lawn, SC 29741

Subject: Catawba Nuclear Site Stormwater Permit Unauthorized Discharge  
File No.: CN- 702.20-2

Dear Mr. Robinson:

Per your request this letter will describe the discovery and corrective actions concerning the discharge of Cooling Tower water through a stormwater outfall, as reported to the Ft. Lawn office on March 21, 1995.

On March 13, Catawba Site Environmental personnel discovered a steady flow of water from Stormwater Outfall #15 while performing an annual "non-stormwater discharge" assessment. Due to recent rain, it was unclear to the observers whether the origin of the water was stormwater, or some other source. On March 20, Stormwater Outfall #15 was revisited. The amount of flow was the same, although there had been no significant rain in the interim. Flowrate was measured to be 15 gpm. The morning of March 21, chlorine was added to the Unit 2 Cooling Towers. By afternoon, chlorine was detectable at Stormwater Outfall #15. The Unit 2 Cooling Tower blowdown line was isolated, and flow ceased at Stormwater Outfall #15. Environmental Management personnel notified the SCDHEC Ft. Lawn office that afternoon.

Excavation ensued to find and repair the cause of the leak. The root cause of the leak at Stormwater Outfall #15 was discovered to be a through-hole in the Unit 2 Cooling Tower blowdown line. The assumption is that it was caused by drilling through with a "Geoprobe" groundwater monitor. (Geoprobe drilling was performed in this area on 12/15/94). Since the cooling tower blowdown line crosses over the stormwater line in the vicinity of the hole, it is assumed that the cooling tower water then "migrated" down the stormwater line ditch to the outfall. An additional "minor" leak was found at a vent pipe flange, as well as some "weepage" through the fiberglass pipe during pressure testing.

By April 6, all leaks were repaired and the blowdown line was returned to service.

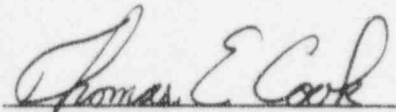


There is no evidence that the leakage of the cooling tower water caused any adverse environmental impact. Samples taken the afternoon of March 21, downstream of Stormwater Outfall #15, as the water entered Lake Wylie, indicated no detectable chlorine. This was after the Unit 2 Cooling Tower water had been chlorinated that morning.

As a final note, while the problem at Stormwater Outfall #15 was being investigated, leakage was also discovered at Stormwater Outfalls #17 and #18. We showed these to you during your visit on March 22. The source of this leakage is still being investigated. However, while we investigate, the water is being collected and returned to the waste treatment system. Sampling is also continuing on a daily basis. Catawba Site Environmental Management personnel will continue to keep SCDHEC informed of the progress of this investigation.

If you should have any additional questions or concerns regarding this matter, please contact me at (803) 831-3189, or Cheryl Peed at (803) 831-3361.

Sincerely,



Thomas E. Cook, Engineer  
CNS Environmental Management

cc: Al Williams, SCDHEC - Catawba District  
NRC - Document Control Desk Docket No: 50-414  
NRC - S.D. Ebnetter  
NRC - R.E. Martin  
NRC - R. J. Freudenberger  
B. J. Horsley - EC12T  
ELL - EC050  
NCMPA - 1  
SREC  
PMPA  
NCEM



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**DUKE POWER**

May 10, 1995

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 -NPDES Permit No. SC0004278  
Approval for Use of Chemicals  
File: CN-702.13

Dear Mr. Eleazer:

Catawba Nuclear Station received approval to use the following additional treatment chemicals in a letter from DHEC dated March 15, 1995 (copy attached):

1. Carbohydrazide
2. NALCO DYNACOOOL 1389
3. dibromo-3-nitrilopropionamide or DBNPA
4. 3-MPA or 3-methoxypropylamine

Upon review of this approval letter and the actual application of these compounds, we would like to request that the approval letter be modified and reissued. The reasons for this request are provided below:

- The approval to use NALCO DYNACOOOL 1389, DBNPA and 3-MPA provided an actual effluent limitation value which was based upon the anticipated discharge value and not the aquatic toxicity of the compounds as provided in the MSDS sheets. The usage of these compounds is well below the aquatic toxicity values. The anticipated discharge values were provided to show that the compounds would not be discharged in toxic concentrations.
- There does not exist a good analytical method to analyze for these compounds in low concentrations in a wastewater matrix. We can analyze for the compounds and come up

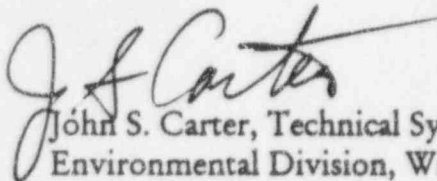
with an actual number in a cleanwater sample and therefore know the concentrations of the chemicals which are being added to the systems. The anticipated discharge values shown in the request were calculated values. Therefore, we will not be able to demonstrate by analytical means what the actual concentration of the product is at the discharge point.

For these reasons we would like to request that the letter be revised to provide a simple approval to use the compounds as described in the permit application and that a numerical effluent value not be assigned for each compound. We will discharge at or below NOEC concentrations for *C. dubia*. Our existing toxicity monitoring program will verify that these compounds are not being discharged in toxic concentrations. Additional toxicity testing shall be performed if the NOEC limit is approached.

Upon review of the usage of the 3-MPA, we have reworked the typical discharge concentration range to between 1 and 5 mg/l rather than 0.1 mg/l as shown in the application submitted on February 15, 1995. A revised copy of the proposed usage for this compound is attached for your review. The discharge concentration range of 1 to 5 mg/l is below the NOEC value for this compound.

Should you have any questions concerning this letter please give John Estridge a call at (704) 875-5965.

Sincerely,

  
John S. Carter, Technical System Manager  
Environmental Division, Water Protection

jte/444

cc: Mr. Al Williams - Catawba EQC  
NRC Document Distribution List

June 8, 1995

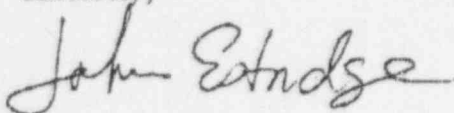
A.P. Jackson - CN03CH  
J.T. Harris - CN01EM  
W.J. Davis - CN01CH  
G.W. Sain - EC07D  
G.L. Ward - EC07D  
S.D. Davenport - EC07D  
S.W. Rodgers - CN03CH  
J.S. Velte-MG03A3  
C.T. Peed - CN01EM

Subject: Catawba Nuclear Station -NPDES Permit No. SC0004278  
DHEC Revision on Approval for Use of Chemicals  
File: CN-702.13

Attached please find the revised approval letter which replaces the March 15, 1995 approval letter from SCDHEC for the use of the four maintenance chemicals.

Should you have any questions concerning this letter please give me a call at 875-5965.

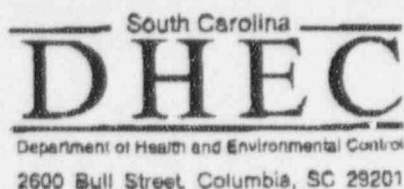
Sincerely,



John Estridge, Engineer.  
Environmental Division, Water Protection

jte/444

cc: NRC Document Distribution List  
M.A. Iascara - MF03A5



Commissioner: Douglas E. Bryant

Board: John M. Burris, Chairman  
Sandra J. Molander, SecretaryRichard E. Jabbour, DDS  
William M. Hull, Jr., MD  
Roger Leaks, Jr.

Promoting Health, Protecting the Environment

ENVIRONMENTAL PROTECTION SECTION

May 26, 1995

JUN 2 1995

☐ FILE \_\_\_\_\_☐ TICKLER DATE \_\_\_\_\_☐ COPY \_\_\_\_\_☐ ROUTE \_\_\_\_\_

Mr. John S. Carter, Technical System Manager  
Environmental Division  
Duke Power Company  
13339 Hagers Ferry Road  
Huntersville, N.C. 28078-7929

Re: Approval for Use of Chemicals \_\_\_\_\_  
Duke Power Co./Catawba Nuclear Station  
NPDES Permit No. SC0004278  
York County

Dear Mr. Carter:

Our Office has received your May 10, 1995 letter requesting a modification to the March 15, 1995 approval letter for the use of additional treatment chemicals at the Duke Power Company/Catawba Nuclear Station in York County. After reviewing your request, we approve the use of the following maintenance chemicals provided the discharge level for each parameter is less than the no observed effect concentration (NOEC) level for that parameter:

- 1) Carbohydrazide (hydrazine substitute)
- 2) NALCO DYNACOL 1389 (cooling water dispersant)
- 3) dibromo-3-nitrilopropionamide or DBNPA (microorganism control)
- 4) 3-MPA or 3-methoxypropylamine (ethanolamine replacement)

Also, as stated in your May 10, 1995 letter additional toxicity testing using Ceriodaphnia dubia shall be performed if the NOEC limit for the treatment chemicals is approached. This approval replaces our March 15, 1995 approval letter.

If you should have any questions, please call me at (803)734-4784.

Sincerely,

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

TME/CATZ

cc: Al Williams, Catawba EQC

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**USED TO SEPARATE ITEMS**



**DUKE POWER**

July 19, 1995

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 -NPDES Permit No. SC0004278  
Application and Permit Update  
File: CN-702.13

Dear Mr. Eleazer:

As you discussed recently with Mr. John Estridge, Duke Power is updating the Catawba Nuclear Station's NPDES permit application prior to the permit being reissued later this year, due to the State's watershed management strategy. This will allow for several items to be updated in the permit and application. In addition to updating these two documents, we wish to see the two adjudication issues resolved as well as the 316(a) demonstration receive final approval.

The following has been attached to this letter for your review and comment:

1. NPDES Supplemental Information Update to Application
2. Proposed rewrite of NPDES permit and supplemental information
3. Description of requested Permit changes
4. Marked up copy of existing permit showing changes

Representatives of Duke Power are available to meet and discuss these changes if necessary. Should you have any questions concerning this letter please give John Estridge a call at (704) 875-5965.

Sincerely,

A handwritten signature in cursive script that reads 'J. S. Carter'.

John S. Carter, Technical System Manager  
Environmental Division, Water Protection

jte/461

cc: NRC Document Distribution List



bc: M.A. Lascara - MF03A5 w/o attachments  
C.T. Peed - CN01EM  
A.P. Jackson - CN03CH  
J.T. Harris - CN01EM  
W.J. Davis - CN01CH  
J.M. Trepel - PB05E  
S.D. Davenport- EC07D

**CATAWBA NUCLEAR STATION**

**NPDES PERMIT #SC0004278**

**SUPPLEMENTAL INFORMATION**

**07/19/95**

1. General Station Description
2. Station Intakes
  - 2.1. RL Intake Structure
  - 2.2. RN Intake Structure
3. Outfall 001
  - 3.1. Inputs
    - 3.1.1. Low Pressure Service Water
    - 3.1.2. Liquid Radioactive Waste (WL) - Outfall 004
    - 3.1.3. Cooling Tower Blowdown (RC) - Internal Outfall 005
    - 3.1.4. Nuclear Service Water (RN)
  - 3.2. Flows
  - 3.3. Chemical & Characteristics
4. Outfall 002
  - 4.1. Description of Discharge
    - 4.1.1. Service Building Sump
    - 4.1.2. Water Treatment Room
    - 4.1.3. Diesel Generator Room Sumps
    - 4.1.4. Turbine Building Sumps
    - 4.1.5. Wet Lay-Up
    - 4.1.6. Auxiliary Building Floor Drain Sumps
    - 4.1.7. Turbine Building Floor Drains
    - 4.1.8. Diesel Generator Catchment Sumps

- 4.1.9. Step-up Transformers Base Drainage Sumps
  - 4.1.10. Sulfuric Acid Tank Containment Drainage Sump
  - 4.1.11. Secondary Containment Sumps
  - 4.1.12. Miscellaneous
- 4.2. Flows
- 4.3. Chemical & Characteristics
- 4.4. Treatment
- 5. Outfall 003
  - 5.1. Description of Discharge
  - 5.2. Flows
  - 5.3. Chemical & Characteristics
  - 5.4. Treatment
- 6. Outfall 004
  - 6.1. Description of Discharge
  - 6.2. Flows
  - 6.3. Chemicals & Characteristics
  - 6.4. Treatment
- 7. Outfall 005
  - 7.1. Description of Discharge
  - 7.2. Flows
  - 7.3. Chemicals & Characteristics
  - 7.4. Treatment

- 8. Miscellaneous Operations
  - 8.1. Fire System
  - 8.2. Drinking Water System
  - 8.3. Cooling Tower Drainage
  - 8.4. Miscellaneous System and Component Cleanings
  - 8.5. Stormwater Discharges
- 9. Other Environmental Permits
  - 9.1. Landfill
  - 9.2. Stormwater NPDES
  - 9.3. Air Permit
  - 9.4. RCRA Part A
  - 9.5. Underground Storage Tank Permits
  - 9.6. Asbestos
- 10. 311 Exemption
- 11. 316(a) Exemption
- 12. Site Layout and Drawings

## 1.0 GENERAL STATION DESCRIPTION

The Catawba Nuclear Station is a two unit nuclear fission steam electric generating station. It is owned by Duke Power Company, North Carolina Electric Membership Corporation, North Carolina Municipal Power Agency Number #1, Piedmont Municipal Power Agency, and the Saluda River Electric Cooperative, Inc. The facility is operated by Duke Power Company.

Each unit is a four loop pressurized water reactor. Reactor fuel is zircaloy clad sintered uranium oxide pellets. Reactor heat from each unit is absorbed by the reactor coolant system and produces steam in four steam generators sufficient to drive a turbine generator unit with a design net electrical rating of 1129 megawatts.

The nuclear reaction is controlled by control rods and chemical neutron absorption. Boric acid is used as a chemical neutron absorber and to provide borated water for safety injection. During reactor operation, changes are made in the reactor coolant boron concentration.

A schematic diagram of water use and discharges indicating average rates of flow for individual waste streams of Catawba Nuclear Station is attached. Actual flows through individual systems may vary significantly depending on need to operate and meteorological conditions. The following is a brief description of the major discharges for the station.

The station has 5 permitted outfalls, three of which discharge directly into Lake Wylie. Outfall 001 discharges once through cooling water from the Low Pressure Service water system. Outfall 002 discharges the Conventional Wastewater Treatment system which consists of station sumps and blowdown from various plant systems. Outfall 003 discharges sanitary wastewater from the various buildings on site. Outfall 004 is an internal outfall discharging low level radioactive effluents through outfall 001. Outfall 005 is also an internal outfall discharging cooling tower blowdown through outfall 001.

## 2.0 Station Intakes

There are two intake structures to withdraw raw water from Lake Wylie. One for the Low Pressure Service Water System and one for the Nuclear Service Water System. The locations of the intake points and discharge location is shown on Attachment #1.

Lake water enters each intake structure through trash racks. The trash racks remove large debris and then through traveling screens, which remove smaller debris.

## 2.1 Low Pressure Service Water Intake Structure

There are a total of six pumps on the Low Pressure Service Water intake structure. Three are for the Low Pressure Service Water System and three are for the Fire Protection System. Each Low Pressure Service Water pump is in a separate bay equipped with a trash rack and traveling screen. The three fire protection system pumps share a single bay. The trash racks and traveling screens remove trash and prevent debris from entering the pumps.

Accumulated trash is cleaned from the racks by hand and from the screens by a backwash system. The intake screens are backwashed manually, automatically, or as frequently as the differential level alarms on each pump bay indicate the need. Design flow is 560 gpm. Each screen is backwashed every eight hours for 45 minutes per screen. The water is returned to Lake Wylie at the intake bay. The trash and debris collected from the racks and screens are disposed in a permitted landfill. No chemicals are used in the backwash operation.

The three low pressure service water pumps are separated by precast concrete wall panels that form pump wells. Each pump withdraws water from its well and discharges to a common header. After leaving the common header, flow is divided into two main headers, A and B. Both headers are in service during normal operations, however a single header can provide sufficient flow to meet system demands with both units in operation.

Upon entering both headers A and B, flow passes through a strainer designed to remove still finer debris from the lake water. These strainers backwash automatically based upon either a set time interval or increase in differential pressure. This backwash water passes through a strainer basket which catches the refuse and allows the water to drain back to the lake.

## 2.2 Nuclear Service Water System Intake Structure

The Nuclear Service Water System is a once-through non-contact plant cooling water system. This system supplies cooling water to various heat loads in the Auxiliary and Reactor Buildings other than the secondary (steam) side of the station. It is served by two bodies of water - Lake Wylie and the Standby Nuclear Service Water Pond - but only one pump structure. The intake structure in each water body is completely submerged approximately 30 feet below the surface of the water. Normal



alignment is from Lake Wylie with the Standby Nuclear Service Water Pond as an assured back-up in case of low level in the pump structure.

The Standby Nuclear Service Water Pond (SNSWP) and the pump structure are seismically designed with sufficient water to bring the station to a cold shutdown in case of the loss of Lake Wylie Dam. The level of the pond is maintained via an overflow pipe to the lake and pumping capability from the lake. Water from either the pond or the lake is piped to the nuclear service water pump structure. The pump structure consists of two 330,000 gallon pits that serve to provide suction to the pumps. There are two pumps per pit for a total of four pumps inside the intake structure.

In normal Nuclear Service Water System operation, pump suction is from Lake Wylie. Pump suction can be switched to the Standby Nuclear Service Water Pond.

Additionally, during testing required by the Nuclear Regulatory Commission, in order to verify flow balance, and certain times during plant operation the Nuclear Service Water system is aligned to discharge to the Standby Nuclear Service Water Pond rather than outfall 001. When discharge is aligned in this manner, the pump suction can be either from the lake or the pond.

In order to maintain the temperature of the SNSWP within limits imposed by the Nuclear Regulatory Commission cooler water from Lake Wylie is periodically pumped to the pond. This is dependent on current weather conditions and the amount of time in such alignment will vary.

The typical temperature change of the water removed from and returned to the Standby Nuclear Service Water Pond is 2 °F. The temperature change is greater if alignment to the pond occurs during the process of shutdown. This alignment may also be required periodically during times when a diesel generator is inoperable. The discharge line to the pond splits and discharges flow to separate points of the pond to assure that cooling will be uniform across the surface.

Periodically to ensure operability, the nuclear service water pump bearings are cleaned to remove silt and sediment deposits which restrict pump cooling water flow. Approximately fifty gallons of cleaning solution are injected into the bearing cooling water flow path for each pump. A soda ash ( $\text{Na}_2\text{CO}_3$ ) solution is used for rinsing the pump bearings. The cleaning solutions are captured in drums and are used as treatment chemicals in the conventional treatment ponds. This cleaning is



not considered a chemical metal cleaning and does not attack the base metal of the piping.

### 3.0 Outfall 001

#### 3.1 Inputs

Outfall 001 discharges subsurface through a concrete structure directly into the Big Allison Creek arm of Lake Wylie and is comprised of the:

Low Pressure Service Water System (RL)  
Liquid Radioactive Waste (WL) Outfall 004  
Cooling Tower Blowdown (RC) Outfall 005  
Nuclear Service Water System (RN).

A detailed description of each input follows.

##### 3.1.1 Low Pressure Service Water

The Low Pressure Service Water System supplies raw water from Lake Wylie for makeup and cooling of various secondary plant systems. This system also receives discharges from the Nuclear Service Water System, Liquid Radwaste System (Outfall 004), and Cooling Tower Blowdown (Outfall 005).

As a result of macroinvertebrates (Corbicula: Asiatic clams) and microbiologically influenced corrosion (MIC), chemical addition is anticipated. Presently, flushing is the control method used to control the growth of the clams, however, chemical addition is anticipated to become necessary.

Chemicals anticipated to be added to control Corbicula and MIC include chlorine, biocides, dispersants, and corrosion inhibitors that include nitrite, silicates, molybdates, phosphates, polyphosphates, and borates. Chlorine addition at a level necessary to maintain a low level discharge concentration of total residual chlorine (TRC) is under evaluation. Discharges to Lake Wylie would be maintained at an approved discharge concentration

### 3.1.2 Liquid Radioactive Waste - Outfall 004

Outfall 004 discharges flow from the liquid radwaste system. This flow combines with plant once through cooling water before discharging through outfall 001.

The liquid radwaste system collects waste floor and equipment drains, laundry waste, and ventilation unit drains. All waste is processed to Nuclear Regulatory Commission (NRC) requirements (10 CFR Part 20 and 10 CFR Part 50) prior to release with the type of processing depending on the type of waste. The maximum discharge rate from radwaste is 250 gpm. Chemicals that may be present in the liquid radwaste system include:

Outfall 004 Inputs

boric acid	borax	nitrate
ammonia	morpholine	lithium hydroxide
ethylene glycol	benzotriazole(BZT)	nitrite/borax corrosion inhibitor
	nitrite/molybdate corrosion inhibitor	hydrazine
carbohydrazine	chlorine or hypochlorite	hydrogen peroxide
ethylene diamine tetracetic acid (EDTA)	3-mpa	organic phosphonates used in heat exchanger lay-up
pump bearing cleaning chemicals	laboratory chemicals detergents	surfactants
polyelectrolytes	industrial cleaning products	degreasers
defoamer*	dispersant	biocides

\*A defoamer is used to treat the wastewater to prevent foaming at outfall 001 during some discharge periods..

Normally noncontaminated sumps can become contaminated with radioactivity. When this occurs, the liquid can be pumped to liquid radioactive waste system for treatment. The decision on the method of treatment depends on the amount of waste needing treatment and the quality of the water being treated. When a sump

is diverted to the radwaste equipment, it is considered a part of Radwaste. Chemicals listed as being in the Turbine Building Sump (in Section Outfall 002) will be in Radwaste (outfall 004 when it is routed to this path). Solids or concentrated radioactive by-product generated in the treatment process are disposed of in a State and Nuclear Regulatory Commission licensed low level radioactive waste disposal facility.

### 3.1.3 Cooling Tower Blowdown - Outfall 005

The Condenser Circulating Water System provides the heat sink for the main condenser and the feedwater pump turbine condensers. This is a closed loop cooling system containing 7.5 million gallons of service water per unit.

After passing through condensers, the warm water is pumped to the top of the cooling towers. This water is distributed uniformly across the top to the three cooling towers (per unit) and cascades by gravity to the floor of the cooling tower. Falling water cascades over fill material which breaks the water into droplets. Fans on the top of the towers pull ambient air in from the sides and past the falling water. From the floor of the cooling tower water flows by gravity back to the condenser.

Because of the concentrating effect of evaporation, a blowdown rate of approximately 5000 gpm is maintained per unit. Blowdown rates can be higher or lower depending upon system water quality. The Low Pressure Service Water system provides makeup to maintain the system volume.

Chemical treatment of the cooling tower system consists of sulfuric acid, sodium hypochlorite, bromine based oxidant, an organic biocide, and a polyacrylate dispersant. Sulfuric acid is added for pH control of the towers. A polyacrylate dispersant is added for solids deposition control. Sodium hypochlorite and bromine based oxidants are added intermittently for biofouling control.

Normal chemical additions are to the cooling towers of one unit every other day with the other unit's cooling towers blowing down to Outfall 001. It is anticipated that during those times when blowdown is necessary to prevent scaling and control algae growth, when chlorine concentrations exceed discharge specifications, and when the Conventional Waste system cannot

handle the additional volume, it may become necessary to add either sodium sulfite or sodium nitrite to the cooling towers in stoichiometric proportions for dechlorination.

Additionally, because of restrictions on and of chlorine, an organic biocide is also added for biofouling control. Currently approved biocides are Calgon H640, Drew Biosperse 288, Betz Slimicide C79, Buckman Bulab 6002, Calgon H-130, and Drew Biosperse 216. Only one biocide is used at a time. Multiple approvals have been obtained for bidding purposes from different chemical manufacturers.

The cooling tower blowdown is normally to the Low Pressure Service Water system however, it can be aligned to the Conventional Waste system if necessary. Discharges of cooling tower blowdown are free of detectable amount of treatment chemicals and is discharged at concentrations of less than the No Observable Effect Concentration for *Ceriodaphnia dubia* after mixing with the low pressure service water prior to Lake Wylie. During unit outages, part or all of the Condenser Circulating Cooling system can be drained to outfall 001 and/or the Conventional Wastewater Treatment System, outfall 002.

#### 3.1.4 Nuclear Service Water

The Nuclear Service Water System is a once-through non-contact plant cooling water system. This system supplies cooling water to various heat loads in the Auxiliary and Reactor Buildings other than the secondary (steam) side of the station. It is served by Lake Wylie and the Standby Nuclear Service Water Pond - but only one pump structure.

Corrosion inhibitors are used in several system heat exchangers during wet layup conditions. Products used to perform the layup consist of carbohydrazide, nitrites, polysilicates, polyphosphates, phosphates, molybdates, and borates. These formulations would be used in conjunction with a dispersant and penetrant for deposit control and a biocide for biofouling control. These products would be used so that release concentrations would be below the No Observable Effect Concentration for *Ceriodaphnia dubia*.

Products used for wet layup and to control clam growth in the safety related nuclear service water system can be discharged to the

Standby Nuclear Service Water Pond during required system testing (below the NOEC concentration). Also, low concentrations of these products may be discharged to the pond if the discharge path to Lake Wylie automatically swaps the discharge to the pond. However, product biodegradation and system demand would minimize the discharge concentration.

### 3.2 Flows

#### Discharge

	5 Year Average (mgd)	5 Year Maximum (mgd)
Low Pressure Service Water and Nuclear Service Water	69.2	138.5
Liquid Radioactive Waste	0.04	1.77
Cooling Tower Blowdown	4.4	13.7
Total Flow Outfall 001	73.64	153.97

### 3.3 Chemical & Characteristics

This outfall consists primarily of raw water from Lake Wylie and is used for plant cooling and receives no treatment prior to discharge. Any chemical additions have been described previously and are monitored in accordance with the NPDES permit requirements.

## 4.0 Outfall 002

### 4.1 Description of Discharge

Outfall 002 discharges flow from the Conventional Wastewater Treatment system through a Parshall flume into the Big Allison Creek arm of Lake Wylie. This system consists of the following:

1 Initial Holdup Pond	Concrete	300,000 gallons
2 Settling Ponds	Clay Lined	5,000,000 gals each
1 Final Holdup Pond	Polymer Lined	1.5 million gallons

Normally, inputs are received in the Initial Holdup Pond (IHP) which serves a surge-dampening function to the settling ponds and also allows heavy solids to settle for periodic removal. Solids removed from the IHP

are dewatered and disposed in a licensed landfill. Inputs can bypass the Initial Holdup Pond and be directed to the in-service settling pond if necessary.

From the Initial Holdup Pond flow is directed to the in-service settling pond where chemical treatment, mixing, and aeration take place. Sulfuric acid and sodium hydroxide are added for pH control. Coagulants can also be added to facilitate the settling of small particles. Additionally, it may be necessary infrequently to oxidize persistent chemicals, with the use of hypochlorite (sodium or calcium) or hydrogen peroxide.

The settling ponds can discharge directly to Lake Wylie via outfall 002, or be directed to the Final Holdup Pond (FHP) for additional treatment or holdup capacity. Treatment in the WC System is on a batch basis. Discharge flowrates can range between 800 gpm and 2000 gpm. Recirculation capability is available for recirculation intra- or inter-basin.

The WC System receives inputs directly from the service building sump, turbine building sumps, diesel generator catchment sumps, step-up transformer base drainage sumps, sulfuric acid tank containment drainage sump, cooling tower blowdown, secondary containment sumps, and rainwater from various sources.

The WC system has an approved groundwater monitoring program which consists of four monitoring wells. Groundwater samples are collected, analyzed, and the results reported to SCDHEC in accordance with the approved groundwater monitoring plan.

#### 4.1.1 Service Building Sump

The Service Building Sump receives inputs from the water treatment room, diesel generator room sumps, and the service building floor drains. The sump has an approximate holding volume of 26,500 gallons and two pumps, each with a capacity of 1350 gpm. Normal alignment is to the Conventional Waste system directly, but can be through the turbine building sump.

The service building floor drains receive miscellaneous leakage and drainage. Chemical inputs include:



#### Service Building Sump Inputs

hydrazine	trisodium phosphate	ammonia
morpholine	sodium hydroxide	sulfuric acid
cationic polyelectrolytes	alum	ethylene glycol
Commercial prepared sodium nitrite/borax/ sodium benzotriazole (BZT) corrosion inhibitor or similar	sodium benzotriazole (BZT)	biocides (Calgon H-303, Calgon H-130) - or similar products
industrial cleaning products	laboratory chemicals	citric acid
ETA	oils	coagulants
3-MPA	Carbohydrazide	DMA

#### 4.1.2 Water Treatment Room

The Water Treatment Room produces filtered water and demineralized water. All chemicals used, all leakage and drainage, and all wastes produced go directly to the service building sump.

Filtered water is made by taking lake water, adding a coagulant, filtering up through one of two gravel-to-sand beds and chlorinating with chlorine gas to approximately 1.5 mg/l Free Available Chlorine (FAC). When solids are elevated in the lake, alum (aluminum sulfate) may also be used. The beds are flushed on pressure buildup with high velocity lake water.

Approximately quarterly, or when necessary, each bed is cleaned with approximately 200 gallons of 35% hydrogen peroxide and a surfactant. The peroxide and surfactant is added, the bed is air mixed, allowed to soak, and flushed. The peroxide/surfactant cleaning dissolves mud balls that may have formed. Yearly, approximately 1000 pounds of sand are replaced in each bed as a result of normal losses from backwash carryover.

Demineralized water is made by passing filtered water through a carbon bed or a reverse osmosis unit and then through a regenerative resin bed. There are two carbon beds, a reverse osmosis unit, and two resin beds. Each carbon bed contains 270 ft<sup>3</sup> and is replenished yearly. Each resin bed contains 510 ft<sup>3</sup> and is replenished every 3 to 5 years. To regenerate the resin, sulfuric acid and sodium hydroxide are flushed through the bed.

Each normal regeneration, at the present time, takes approximately 98 gallons of 93% sulfuric acid and 330 gallons of 50% sodium hydroxide. Regeneration occurs approximately once a month. The amounts of required acid and caustic will vary as dictated by operational requirements.

Approximately quarterly, each resin bed is surfactant cleaned to remove organic film on the resin.

#### 4.1.3 Diesel Generator Room Sumps

The diesel generator room sumps receive inputs from leakage or draining the diesel generator engine cooling water, fuel oil, and lubrication systems. Each of the four sumps has a volume of approximately 470 gallons and two pumps, each with a capacity of 50 gpm.

The diesel generator engine cooling water systems have a volume of 2240 gallons each. The systems are treated with a mixture of sodium nitrite, borax (sodium tetraborate), sodium bicarbonate and sodium mercaptobenzothiazole (MBT) to maintain a minimum concentration of 2000 mg/l as nitrite. To control bacteria, an approved biocide is added.

The diesel generator fuel oil and lubrication systems can drain to the sumps, but administrative controls block intentional draining. For emergency spills, an oil coalescing unit is installed between the sumps and the service building sump. Additionally, the fuel oil contains residual biocide to reduce bacterial breakdown of the oil.

#### 4.1.4 Turbine Building Sumps

The turbine building sumps receive inputs from steam generator wet lay-up chemicals, cooling tower drainage (unwatering), reverse osmosis treatment unit, auxiliary building floor drain sumps, and the turbine building floor drains. Each sump has an approximate capacity of 12,000 gallons and three pumps, each with a capacity of 1350 gpm. Normal alignment is directly to the Conventional Waste system. However, hose connections on the discharge of the pumps allow rerouting to other sumps for unusual circumstances.



#### 4.1.5 Wet Lay-up

During shutdowns, the steam generators and hotwell are placed in wet lay-up to prevent corrosion. Prior to start-up, the solution is drained. Steam generator and hotwell wet lay-up can be diverted to the turbine building sump. Each of the four steam generators per unit has a maximum volume of 30,000 gallons. Maximum chemical concentrations should be 200-300 mg/l for corrosion control using either hydrazine or carbohydrazide with the pH adjusted to 10.5 with ammonium hydroxide. The hotwell per unit will contain approximately 200,000 gallons. Maximum chemical concentrations should be approximately 50 mg/l hydrazine with the pH adjusted to 10.5 with ammonium hydroxide.

#### 4.1.6 Auxiliary Building Floor Drain Sumps

Auxiliary building floor drain sumps can be diverted to the turbine building sumps. Each sump has an approximate capacity of 500 gallons and two pumps, each with a capacity of 50 gpm. Inputs consist of equipment drainage, air handling unit condensate, sample line purge, floor wash water and lab drains. Chemicals that may be present include:

##### Auxiliary Building Floor Drain Sumps

boric acid	borax	nitrate
ammonia	morpholine	lithium hydroxide
ethylene glycol	benzotriazole(BZT)	nitrite/borax corrosion inhibitor
sodium carbonate	nitrite/molybdate corrosion inhibitor	hydrazine
carbohydrazine	chlorine or hypochlorite	hydrogen peroxide
ethylene diamine tetracetic acid (EDTA)	3-MPA, ETA, or DMA as amines in the secondary system	organic phosphonates used in heat exchanger lay-up
chemicals pump bearing cleaning chemicals	laboratory chemicals	surfactants
polyelectrolytes	industrial cleaning products	degreasers
sodium metasilicate	sodium hydroxide	phosphate
detergents	carbohydrazide	
defoamer	dispersant	biocides

#### 4.1.7 Turbine Building Floor Drains

The turbine building floor drains receive miscellaneous leakage and drainage. Inputs include:

Turbine Building Floor Drains

laboratory samples	industrial cleaning products	powdered or bead resin
oil	hydrazine	ammonia
morpholine	service building sump	boric acid
3-MPA	DMA	ETA
carbohydrazide	hypochlorite	bromine
molybdates	ethylene glycol	nitrites

#### 4.1.8 Diesel Generator Catchment Sumps

The diesel generator catchment sumps receive inputs from the fuel oil unloading pads, Containment Mechanical Equipment Building sumps, contaminated drum storage area sump, hydrogen/oxygen generator, standby shutdown facility, and rainwater. The Unit 2 sump pumps to the Unit 1 sump with each sump having two pumps. Each pump has a capacity of 250 gpm and 110 gpm, Unit 1 and 2, respectively. Unit 1 sump consists of two separate volumes - one to receive all flow and the other to house the pumps. A partial concrete wall separates the volumes, allowing flow under the wall only, which minimizes oil from getting to the pump suction.

Additional chemical inputs include a sodium nitrite/borax/sodium bicarbonate corrosion inhibitor (approximately 2000 mg/l) from leakage or drainage, ethylene glycol and nitrite/borax/hydroxide corrosion inhibitor from the Standby Shutdown Facility cooling system, and residual biocide in the fuel oil.

#### 4.1.9 Step-up Transformer Base Drainage Sumps

The step-up transformer base drainage pumps receive rainwater and oil leakage from the curbed bases under the main step-up, auxiliary step-up, and auxiliary electric boiler transformers. Each sump consists of two separate volumes, one to receive all flow and the other to house the pumps. A partial concrete wall separates the volumes, allowing flow under the wall only which

should minimize the possibility of oil getting to the suction of the pumps.

The required minimum fluid capacity in the oil holdup section is 12,716 gallons. The required minimum holding capacity in the water pump section is 6,358 gallons. Each sump has two pumps with a capacity of 800 gpm each.

#### 4.1.10 Sulfuric Acid Tank Containment Drainage Sump

The sulfuric acid tank containment drainage sump receives inputs from rainwater, laboratory drains, industrial strength cleaning chemicals, and tank containments. The approximate holding capacity is 225 gallons with pump capacity of 35 gpm.

Tank containments include:

15% sodium hypochlorite	16,000 gallons
50% sodium hydroxide	1,500 gallons
biocide	3,800 gallons
dispersant	7,600 gallons
93% sulfuric acid	30,000 gallons

Curbing provides secondary containment for each of these tanks. This curbing is sufficient to contain the entire contents of each tank in case of a leak.

#### 4.1.11 Secondary Containment Sumps

Secondary containment sumps receive input from the yard drains. Three 10,000 gallon sumps are available for spills or rainfalls less than 10,000 gallons. The sumps can pump to the initial or final holdup pond. By design, greater than 10,000 gallons will put the sump in overflow directly to Lake Wylie.

Other than spills or rainfall, actuation or testing of the chlorinated fire protection system in the yard could overflow a sump. The groundwater drainage system from the plant discharges to the yard drains. Additionally, the switchyard for the site contains two oil trap tanks. Rainfall collected from the switchyard flows through these tanks. These tanks will contain any oil spilled or leaked in the switchyard.

#### 4.1.12 Miscellaneous

A 2% solution of glutaraldehyde is used in cleaning respirators. This cleaning generates approximately 250 gallons of waste per year.

There are approximately 25 to 30 closed cooling systems within the station. The largest system has a volume of approximately 44,000 gallons. The main portions of these systems are constructed of carbon steel. Corrosion inhibitors consisting of nitrites, molybdates, ethylene glycol, carbohydrazide, borax, benzotriazole (BZT), carbonates and hydroxides are added for corrosion control. An organic biocide and a dispersant is added to control biofouling and a dispersant is also utilized.

#### 4.2 Flows

The settling ponds can discharge directly to Lake Wylie via outfall 002, or be directed to the Final Holdup Pond for additional treatment or holdup capacity. Discharge flowrates can range between 800 gpm and 2000 gpm. Recirculation capability is available for recirculation intra- or inter-basin.

Discharge for outfall 002 is by batch discharge. Flows are measured at outfall 002 for each discharge from the treatment system. The following flows are from the previous five years of operation. The average value shown is based upon the total volume discharged divided by the number of days that discharge occurred.

	5 Year Average (MGD)	5 Year Maximum (MGD)	Design Maximum (MGD)
Total Flow Outfall 002	1.29	2.45	2.88

#### 4.3 Chemicals and Characteristics

The expected chemical inputs to this outfall are described above.

#### 4.4 Treatment

Treatment in the WC System is on a batch basis.

#### 4.4.1 Initial Holdup Pond

Settling of large solids

#### 4.4.2 Settling Ponds A & B

Chemical treatment, mixing, and aeration. Sulfuric acid and sodium hydroxide are added for pH control. Coagulants can also be added to facilitate the settling of small particles. Additionally, it may be necessary infrequently to oxidize persistent chemicals, with the use of hypochlorite (sodium or calcium) or hydrogen peroxide. To control the use of algae an algicide, such as CUTRINE-PLUS, is used in the system.

### 5.0 Outfall 003

#### 5.1 Description of Discharge

Outfall 003 discharges flow from the Sanitary Waste Treatment System into the Big Allison Creek arm of Lake Wylie. The sewage treatment system consists of a 1.28 million gallon aeration basin that is divided into four sections and a 0.525 million gallon effluent polishing basin..

#### 5.2 Flows

Discharge from outfall 003 is continuous. The following flows are from the previous five years of operation. Design flow is 0.080 MGD

	5 Year Average (MGD)	5 Year Maximum (MGD)
Total Flow Outfall 003	0.035	1.77

#### 5.3 Chemical & Characteristics

The Sanitary Waste Treatment receives raw sewage from Catawba Nuclear Station, the Catawba Training Center, and other buildings located on the site, sink drains, shower drains and drinking water fountains. Soaps and industrial cleaning supplies are expected inputs to this system also.

This system also receives flow from the oil/water separator and drains located at the transportation garage located on site. The grease trap located at the site cafeteria also flows to this treatment system.

It may be necessary to periodically remove sludge from the system. The sludge will either be tanked to a municipal sewage treatment system or dewatered and disposed of in a State licensed landfill or landfarm.

Small amount of photographic waste (developer and rinse) are disposed of in the WT system. The components of these substances include:

acetic acid	potassium sulfite	potassium hydroxide
hydroquinone	1-phenyl-3-pyrazolidione	glutaraldehyde bisulfite
glutaraldehyde		

#### 5.4 Treatment

Inputs to the sewage treatment system pass through a grit chamber which allow heavy solids to settle out and a bar screen to remove large non-sewage objects and to break large particles. It then passes through a comminutor which cuts and shreds large solids into smaller particles which are more easily digested. From the comminutor, the sewage enters the four cell aeration lagoon where the sewage is decomposed by aerobic bacteria.

Aeration is provided by blowers/compressors. From the fourth cell, the sewage enters the effluent polishing basin or can be directly discharged to Lake Wylie through outfall 003 if of acceptable quality. The effluent polishing basin is also aerated by blowers which reduces suspended solids, nitrogen, and phosphorous levels. A soda ash solution is added to the effluent of the polishing pond as necessary for pH control.

The effluent flows through a Parshall flume to record discharge flow. After this flow passes through a tablet chlorinator, and a chlorine contact chamber, a tablet dechlorinator system, and a dechlorinator contact chamber before being discharge to Lake Wylie. The chlorinator system is not used unless it is necessary in order to meet the fecal coliform limits imposed by the permit.



## 6.0 Outfall 004

This outfall is described with outfall 001 (See Section 3.1.3) since it is an internal outfall which discharges to Lake Wylie through outfall 001.

## 7.0 Outfall 005

This outfall is described with outfall 001 (See Section 3.1.4) since it is an internal outfall which discharges to Lake Wylie through outfall 001. This outfall can also discharge to Lake Wylie via outfall 002.

## 8.0 Miscellaneous Operations

### 8.1 Fire System

Water supply for fire Protection is provided by three full capacity (250 gpm) fire pumps. In addition, two 25 gpm and one 200 gpm jockey pumps (supplied by the Filtered Water System) are provided to prevent frequent starting of the main fire pumps to maintain pressure in the yard mains. If system needs cannot be met with the jockey pumps, the main fire pumps start in sequence as the pressure in the yard mains drop. The system is chlorinated to prevent the survival of Corbicula within the system.

System operability is demonstrated by periodically performing specific tests on the system as described in the March 4, 1986 correspondence with SCDHEC.

Testing is performed in such a manner as to minimize the discharge of chlorine to Lake Wylie as described in the Department of Health and Environmental Control letter dated May 2, 1986.

### 8.2 Drinking Water System Flushes

Potable water is supplied to the station by York County. A municipal drinking water connection to the site occurred in 1993. Periodically, when new lines are disinfected or repairs are made to existing lines, the lines are flushed as required by the State drinking water regulations. Where possible, these discharges will be routed to a treatment system.

### 8.5 Cooling Tower Drainage

After the initial drainage of the Condenser Circulating Cooling system and during system maintenance, a pump is used to dewater any miscellaneous water which leaks into the system. This water, which is raw lake water, is

pumped into the yard drain system which discharges directly to Lake Wylie.

#### 8.4 Miscellaneous System/Component Cleaning

##### 8.4.1 Mechanical Cleanings

Heat exchanger and cooling water pipes are periodically mechanically cleaned with brushes, rods, high pressure water, hydrolaze and other physical means. No chemicals are used during these cleanings, solids are trapped or filtered at the source, and the water flow discharges to the various stations sumps described above.

##### 8.4.2 Chemical Cleanings

Systems may need to be cleaned periodically because of scaling or plugging. Other components will be cleaned as necessary for various fouling problems. Solutions utilized will be standard chemical cleaning methodologies. Chemicals utilized by these methodologies, alone or in combination, include the following:

	<b>Alkaline Boilout Solutions</b>	
non-ionic surfactants	cationic surfactants	sodium hydroxide
anionic surfactants	trisodium phosphate	sodium metasilicate
soda ash	monosodium phosphate	sodium bicarbonate
disodium phosphate		

	<b>Acid Solutions &amp; Additives</b>	
hydrochloric acid	sulfuric acid	phosphoric acid
formic acid	hydroxyacetic acid	sulfamic acid
citric acid	nitric acid	
ammonium bifluoride	oxalic acid	thiourea



	EDTA Compounds and HEDTA	
pH adjusted tetra-ammonium EDTA	tetra-ammonium EDTA	di-ammonium EDTA
hydroxyethylenedia minetriacetic acid	tetra-sodium EDTA	

	Miscellaneous Compounds	
sodium chloride	chlorine (hypochlorite)	potassium permanganate
aqua ammonia	ammonium persulfate	sodium nitrite
antifoam	sodium sulfite	corrosion inhibitors (e.g., phosphates, borax-nitrite, silicates, etc.)
organic biocides	chloroethene	

These solutions are described in the *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Steam Electric Power Generating Point Source Category* (Development Document).

The spent solvents from these cleanings will be treated in the WC System (Outfall 002) or the Radwaste System (Outfall 004). The acid compounds will be neutralized; the other compounds will be mixed, oxidized, and/or precipitated as necessary for treatment.

## 8.5 Stormwater Discharges

Stormwater discharges are regulated under NPDES General Permit for Stormwater Discharges Associated With Industrial Activity - Permit Number SCR000000.

## 9.0 Other Environmental Permits

### 9.1 Landfill

Permit #463303-1601 issued by South Carolina Department of Health and Environmental Control.

9.2 Stormwater

Permit #SCR000000 issued by South Carolina Department of Health and Environmental Control.

9.3 Air Permit

Permit #2440-0070 issued by South Carolina Department of Health and Environmental Control.

9.4 RCRA Part A (Interim Status)

9.5 Underground Storage Tank Permits

9.6 Asbestos

Permit #8044 issued by South Carolina Department of Health and Environmental Control.

10.0 Section 311 Exemption

The legislative/regulatory history of the Clean Water Act, Section 311, indicates that an exemption would be allowed where an on-site spill is processed through a treatment system capable of eliminating or abating the spill. A Section 311 exemption is therefore requested for the following substances:

15% sodium hypochlorite	10,000 gallons
50% sodium hydroxide	1,500 gallons
biocide	3,800 gallons
dispersant	7,000 gallons
93% sulfuric acid	30,000 gallons
caustic	5000 gallons

Curbing sufficient to contain the entire contents of the tank is provided. Drainage from the curbed area is to the WC system via the Service Building Sump.

As discussed, the entire contents of these tanks are contained and are routed to the WC system. The treatment system is capable of containing the spilled material along with normal process waste flows and of mitigating/abating the effects on the receiving water since the system treats the wastes by batch, treatment capacity is 5 million gallons per batch - much greater than any of the tank volumes, and has procedural safeguards to restrict inputs to a discharging basin.

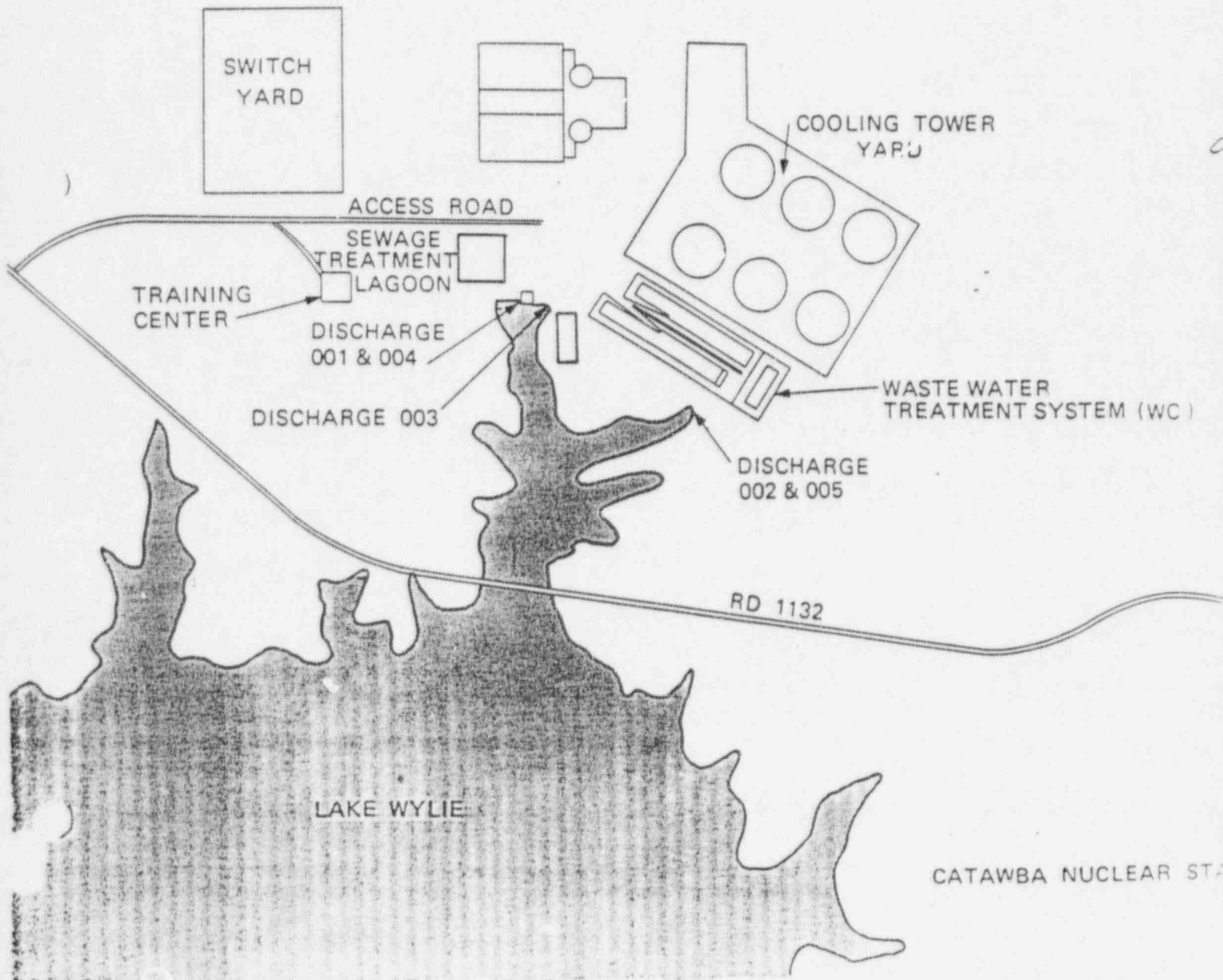
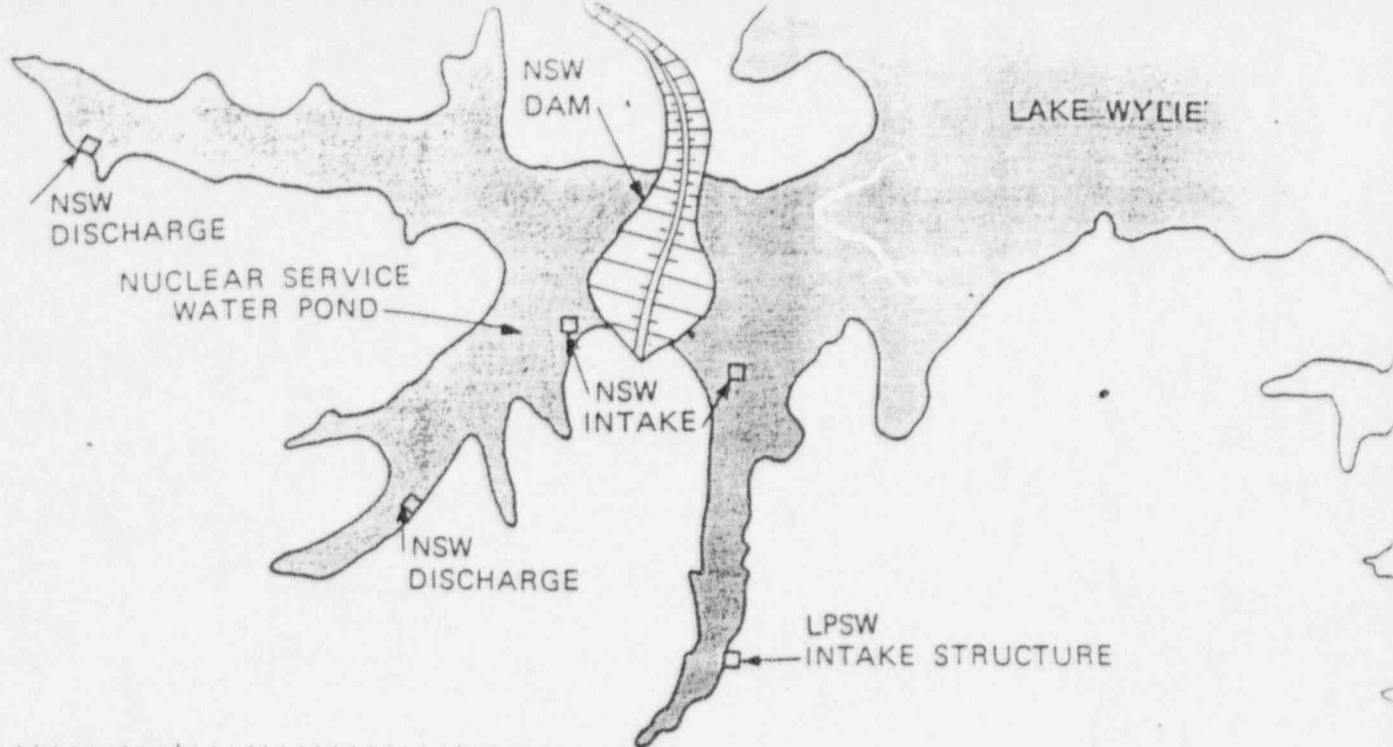
Therefore, in accordance with 40 CFR 117.12 and with the legislative/regulatory history, a Section 311 exemption is requested for these substances.

#### 11.0 Section 316(a) Exemption

A 316(a) demonstration has been submitted to the State. This study supports the thermal limitations established by the permit.

#### 12.0 Site Layouts and Drawings

##### 12.1 General Site Layout



1. GENERAL APPLIES TO ALL SECTIONS
  - 1.1. DELETE ALL REFERENCES TO PHASE I AND PHASE II
  - 1.2. ADD new effective date of permit to all sections
  - 1.3. Renumber as needed
2. OUTFALL 001
  - 2.1. ADD footnote (4) to reference 316a wording for temperature limitations
  - 2.2. ADD Biomonitoring to first page and delete second page for 001
    - 2.2.1. MODIFY footnote (1) to become (7) and delete a,b,c,d
  - 2.3. ADD Nitrite limit of 4.3 mg/l
  - 2.4. DELETE Temperature limitations per 316a
  - 2.5. MODIFY Total Residual Chlorine to Total Residual Oxidant
  - 2.6. MODIFY note 3 to add words 'due to station operation'.
  - 2.7. MODIFY average flow of 82.5 MGD to 73.6 MGD
3. OUTFALL 002
  - 3.1. DELETE 'and metal cleaning wastes' to description
  - 3.2. MODIFY Total Residual Chlorine to Total Residual Oxidant
    - 3.2.1. MODIFY footnote (3)
  - 3.3. DELETE Ethylene Glycol due to new RQ and toxicity information.
  - 3.4. MODIFY note 3 to add words 'due to station operation'.
  - 3.5. MODIFY average flow of 0.76 MGD to 1.29 MGD
  - 3.6. ADD Biomonitoring to first page and delete second page for 002. Carry Biomonitoring footnote 2. to first page and number as 5.
    - 3.6.1. MODIFY footnote (1) to become (3) and delete a,b,c,d
  - 3.7. MODIFY hydrazine limit to 0.077 mg/l from 0.43 mg/l per toxicity testing
4. OUTFALL 003
  - 4.1. MODIFY note 3 to add words 'due to station operation'.
  - 4.2. MODIFY average flow of 0.38 MGD to 0.35 MGD
5. OUTFALL 004
6. OUTFALL 005
  - 6.1. MODIFY Total Residual Chlorine to Total Residual Oxidant
  - 6.2. DELETE footnote 2. dealing with annual certification of chemical usage.
  - 6.3. MODIFY footnote numbering
7. Part I Section B.
  - 7.1. Delete all references to a schedule of compliance
8. Part I Section C.
  - 8.1. Condition #4. Add wording about analytical parameters that State does not certify for.
9. Part II Section C.
  - 9.1. Condition #4. Modify wording concerning alternative power source.
10. Part III Section A.
  - 10.1. Condition 3. Modify treatment plant classification and operator classification.
  - 10.2. Condition 8. add additional sentence on toxicity testing.
  - 10.3. Condition 11. Modify wording on 316a approval. Delete word tentative.
  - 10.4. Condition 10. Delete last sentence concerning submittal of sludge plan in 90 days

- 10.5.** Condition 12. Modify free available chlorine to free available oxidant.
- 10.6.** Condition 13.(a) change monthly to quarterly. Add wording to read 'or test protocol approved by the Department'.
- 10.7.** Condition 13(d) added wording on invalid samples
- 10.8.** Condition 13(c) and 13(e). Delete these items as they are no longer applicable.
- 10.9.** Condition 14. Delete item as not applicable.
- 10.10.** Condition 15. Modify month to quarter
- 10.11.** Condition 16. Modify Total and Free Available Chlorine residual to Total and Free Available Oxidant.
- 10.12.** Condition 18. Insert adjudication agreement wording.
- 10.13.** Condition 23. Modify item to state that groundwater shall be monitored in accordance with approved groundwater monitoring plan.

**CATAWBA NUCLEAR STATION**

**NPDES PERMIT #SC0004278**

**PERMIT UPDATE**

**07/18/95**

**(THIS SHEET TO BE REPLACED BY DHEC COVER SHEET  
WITH ISSUED DATE, EFFECTIVE DATE, AND EXPIRATION  
DATE)**



A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning insert new effective date 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) Monthly Average	Daily Max.	Other Units Monthly Average	(Specify) Daily Max.	Measurement Frequency	Sample Type
Flow-m <sup>3</sup> /day (MGD)	-	-	MR	MR	Daily	Continuous <sup>(2)</sup>
Total Residual Oxidant	-	-	less than 0.10 mg/l <sup>(3)</sup>		1/week	Multiple Grabs <sup>(1)</sup>
Intake Temperature	-	-	-	-	Daily	Continuous
Discharge Temperature	-	-	-	- <sup>(4)</sup>	Daily	Continuous <sup>(6)</sup>
Nitrite				4.3 mg/l (as NO <sub>2</sub> )	Per Occurrence <sup>(5)</sup>	Grab
Biological Monitoring (Whole Effluent Chronic Toxicity Testing)	-	-	-	0	1/quarter <sup>(7)</sup>	24 hour composite

- (1) See Part III, Special Condition #15  
 (2) See Part III, Special Condition #16  
 (3) See Part III, Special Condition #17  
 (4) The temperature of the effluent shall be such as not to exceed a weekly average temperature of 10° C (50°F) when the weekly average intake temperature is below 2.5° C (36.5°F), exceed two (2) times the weekly average intake temperature (°F) minus 23 when the weekly average intake temperature ranges from 2.5°C (36.5°F) to 12.8°C (55°F), exceed a weekly average temperature of 34°C (93.2°F), and exceed a daily average temperature of 35°C (95°F).  
 (5) Sampling shall occur at this outfall during release of nitrites from either 001 or 004.  
 (6) Manual sampling per shift will occur during periods when continuous monitor is out of service.  
 (7) See Part III, Special Condition #13

MR = Monitor and Report  
Based on an average flow of 73.6 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 due to station operations 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

- During the period beginning insert new effective date 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, and miscellaneous dilute wastewater to Lake Wylie.

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

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS			Sample Type
	kg/day	(lbs/day)	Other Units (Specify)		Measurement	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Frequency	
Flow-m3/day (MGD)	-	-	MR	MR	1/week	Instantaneous
*Total Residual Oxidant (TRO)	-	-	less than 0.10 mg/l		1/(2)	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)	
Iron, total	-	-	0.645 mg/l	0.645 mg/l	1/(2)	
Hydrazine	-	-	-	0.077 mg/l	1/(1)	Grab
Nitrite	-	-	4.3 mg/l(as NO2)	0 (4)	per occurrence(1)	Grab
Biological Monitoring (Whole Effluent Chronic Toxicity Testing)	-	-	-	0 (4)	1/quarter	24 hour composite

- Sampling shall be conducted once per occurrence of discharge of these substances through Outfall 002 but need not be more than twice per month.
- 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.
- After treatment with hypochlorite has occurred in a WC pond, sampling for TRO shall be conducted once per day over a two day period during discharge from the WC pond.
- See Part III, Special Condition #13

\*See Part III, Special Condition #17

Based on an average flow of 1.29 MGD  
MR = Monitor and Report

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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning insert new effective date 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)		Measurement	Sample
	Monthly	Daily	Monthly	Daily	Frequency	Type
	Average	Maximum	Average	Maximum		
Flow-m <sup>3</sup> /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 #16

MR = Monitor and Report  
Based on a flow of 0.035 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 due to station operations 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)		Measurement	Sample
	Monthly	Daily	Monthly	Daily	Frequency	Type
	Average	Maximum	Average	Maximum		
Flow-m <sup>3</sup> /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 #16

MR = Monitor and Report

Based on a flow of 0.009 MGD

(1) Sampling shall be conducted once per occurrence of hydrazine 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)		Measurement Frequency	Sample Type
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum		
Flow-m <sup>3</sup> /day (MGD)	-	-	MR	MR	Weekly	Estimate**
Free Available Oxidant	-	-	0.2 mg/l	0.5 mg/l	1/week	Multiple Grabs*

\*See Part III, Special Condition #15

\*\*See Part III, Special Condition #16

MR = Monitor and Report

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

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. 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.

## PART I

### B. SCHEDULE OF COMPLIANCE

1. n/a

### 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 +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).

Hydrazine is limited by this permit, however the State Environmental Certification Regulation 61-81 and the Federal Regulations 'Guidelines Establishing Test Procedures for the Analysis of Pollutants' 40 CFR 136 do not provide a certified test method for this compound. Therefore, the permittee shall monitor this parameter using test procedures which have been submitted to the Department. Other analysis which may be regulated by permit for which there is no approved regulatory method for analysis will be handled likewise.

#### 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 all 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.

## PART II

### 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. provide an alternative power source sufficient to operate the wastewater control facilities; or, have a plan of operation which
- 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. Friday, Saturday, Sunday and holiday inspections may be performed by an operator with a minimum classification of "D-Biol." certification. 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 as applicable. The facility designated "C-biol." operator will review and validate all inspection sheets generated by the "D-Biol." operator. Any unusual or significant problems encountered by the "D-Biol." operator shall be immediately corrected per the O & M manual and/or reported to the designated "C-Biol." . 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 II-B in the Permits to Construct which are issued by the Department. This classification corresponds to an operator with a Grade of C-biological 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 plan 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, 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, or by using the toxicity testing already required in the permit.

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.
11. The South Carolina Department of Health and Environmental Control has 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 of this permit assures the protection and propagation of a balanced, indigenous population of fish, shellfish, and wildlife
12. Neither free available oxidant nor total residual oxidant 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 oxidant 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 treatment.
13. (a) On a quarterly 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), or test protocol approved by the department. The raw data and results shall be submitted in accordance with Part I.(C)(3) of the permit for each 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) 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. Invalid tests will be reported with the letter "I" and resampling will occur as directed by the Department.
- 14. The permittee shall commence all toxicity testing consistent with conditions established by this permit during the first two (2) weeks of every quarter, unless otherwise approved by this Department.
  - 15. Multiple grabs shall consist of grab samples collected at the approximate beginning of the period of Total Residual Oxidant and/or Free Available Oxidant discharge and once every twenty (20) minutes until TRO or FAO is no longer present.
  - 16. The permittee shall maintain at the permitted facility a record of the method(s) used in measuring the discharge flow:

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

17. The applicable effluent limitation derived for total residual oxidant (TRO) shall be based on EPA Water Quality Criteria for total residual chlorine (TRC), which is 11.0 ppb average and 19.0 ppb maximum. The State's current lower limit of detection for TRC is 0.1 ppm. The wastewater must be analyzed to the lowest method detection limit achievable by a South Carolina certified laboratory which the permittee chooses to use. If the method detection limit of the certified laboratory is less than 0.1 ppm, then the limit for TRO will be the method detection limit. Should the method detection limit achieve 11.0 ppb or below, then the water quality limits of 11.0 ppb average and 19.0 ppb maximum shall apply.
18. 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.
19. 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.
20. 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.
21. 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.
22. The permittee shall monitor the groundwater around the chemical treatment ponds in accordance with the approved 'Groundwater Monitoring Plan'.



**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

Expires: SEP 30 1997

Effective: OCT 1 1992

Permit No.: SC0004278

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Phase I

EXP. REC.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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) Monthly Average	Daily Max.	Other Units (Specify) 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~~ Remove References to Phase I & II

- effective date of permit  
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.

Measurement Frequency	Sample Type
-----------------------	-------------

Flow-m3/day (MGD)

-

-

MR

MR

Daily

Continuous (2)

\*\*\*Total Residual ~~Chlorine~~ *oxidant*

-

-

less than 0.10 mg/l (2)

1/week

Multiple Grabs (1)

Intake Temperature

-

-

-

-

Daily

Continuous

Discharge Temperature

-

-

-

Daily

Continuous

*Nitrite*

Temperature rise (April-September)

-

-

~~5.6°C (10.0°F)~~

4.3 mg/l as (NO<sub>2</sub>) per occurrence  
Daily Calculation

Temperature rise (October-March)

-

-

~~7.8°C (14.0°F)~~

Daily

Calculation

*Biological Monitoring*

(1) See Part III, Special Condition #15/5

(2) See Part III, Special Condition #17/6

(3) See Part III, Special Condition #18/7

(4) (5) (6) (7) as shown on attached requested revisions

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.

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

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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)		Measurement Frequency	Sample Type
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum		
Biological Monitoring (Whole Effluent Chronic Toxicity Testing)	-	-	-	MR <sup>(1)</sup>	1/month <sup>(1)</sup>	(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.

Expired

↑ add to page 2 - delete this page

## 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)  
Monthly  
Average

Daily  
Maximum

Other Units (Specify)  
Monthly  
Average

Daily  
Maximum

Measurement  
Frequency

Sample  
Type

Biological Monitoring  
(Whole Effluent Chronic  
Toxicity Testing)

0<sup>(1)</sup>

1/quarter

Grab

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

↳ Footnote (7) on page 2

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.



Delete - Phase I expired

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 Monthly Average	(lbs/day) Daily Maximum	Other Units Monthly Average	(Specify) Daily Maximum	Measurement Frequency	Sample Type
Flow-m <sup>3</sup> /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 #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

~~Phase II~~

*effective date*

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)		Measurement Frequency	Sample Type
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum		
Flow-m3/day (MGD) <i>oxidant</i>	-	-	MR	MR	1/week	Instantaneous
*Total Residual <del>Chlorine</del> (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)	<del>Grab</del>
Hydrazine	-	-		0.45 mg/l	1/(1)	Grab
<i>Nitrite (NO2)</i>	-	-	4.3 mg/l	0.077	1/quarter	<i>Composite</i>
<i>Biological Monitoring</i>	-	-				

- (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 #1817

Based on a flow of <sup>1.29</sup>~~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.

5. Note on BATCH discharge for biological monitoring.

Delete Page

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) Monthly Average	Daily Maximum	Other Units (Specify) Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Biological Monitoring (Whole Effluent Chronic Toxicity Testing)					MR <sup>(1)</sup> 1/month <sup>(1)</sup>	(1)

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

MR = Monitor and Report

Note 5 on previous page

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.

put on previous page

~~Page 9 of 31~~ Delete Page and put on page 7

## 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)		Measurement Frequency	Sample Type
	Monthly	Daily	Monthly	Daily		
	<u>Average</u>	<u>Maximum</u>	<u>Average</u>	<u>Maximum</u>		
Biological Monitoring (Whole Effluent Chronic Toxicity Testing)	-	-	-	0 <sup>(1)</sup>	1/quarter	Grab

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

② Note 5 on Previous Page

- 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.

Delete Page due to Phase I

Phase I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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) Monthly Average	Daily Maximum	Other Units (Specify) Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow-m <sup>3</sup> /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~~

*effective permit date*

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:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS</u>	
	kg/day (lbs/day) Monthly Average	Daily Maximum	Other Units (Specify) Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow-m <sup>3</sup> /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 *AT 16*

MR = Monitor and Report  
Based on a flow of ~~0.038~~ MGD  
*0.035*

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:

<u>EFFLUENT CHARACTERISTICS</u>	<u>DISCHARGE LIMITATIONS</u>				<u>MONITORING REQUIREMENTS</u>	
	kg/day Monthly Average	(lbs/day) Daily Maximum	Other Units (Specify) 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 #1716

MR = Monitor and Report

Based on a flow of ~~0.007~~ MGD

0.009

(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:

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

\*See Part III, Special Condition ~~46~~ 15

\*\*See Part III, Special Condition ~~47~~ 16

MR = Monitor and Report

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

- ~~1. 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.~~
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. 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

Delete - all cooling towers compounds have been approved



B. SCHEDULE OF COMPLIANCE

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

N/a

- (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

→ Add wording on analysis for parameters not certified by State.

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.

Wording  
change



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. *Wording changes* ~~III-B~~ *II-B* 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-6~~ *C-Biological* or higher.
4. The Permittee shall maintain an all weather access road to the 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 plan 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 ~~previously~~ 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~~ <sup>oxidant</sup> nor total residual ~~chlorine~~ <sup>oxidant</sup> 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~~ <sup>quarterly</sup> 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.

or test protocol approval by the department

- (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.

Delete \* (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.

Modify \* (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. *add wording on invalid test samples*

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

Delete \* 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~~ *quarter* month, unless otherwise approved by this Department.

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

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.

Modify \* Insert wording on  
attached proposed changes  
for this item.

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).

\*  
MODIFY  
to say  
monitor  
in  
accordance  
with  
approved GW  
monitoring  
plan.

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**USED TO SEPARATE ITEMS**



Duke Power Corporation  
Electric System Support Department  
11379 Hagers Ferry Road  
Huntersville, NC 28078-7029



**DUKE POWER**

August 14, 1995

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 -NPDES Permit No. SC0004278  
Sodium Bromide Usage in Cooling Towers  
File: CN-702.13

Dear Mr. Eleazer:

Catawba Nuclear Station requests a six month extension to continue the use of sodium bromide in the cooling towers. Your letter dated March 16, 1995 (copy attached) indicates that the approval to use sodium bromide was approved until September 1, 1995. Please respond to this letter indicating if this request is approved.

Should you have any questions concerning this letter please give John Estridge a call at (704) 875-5965.

Sincerely,

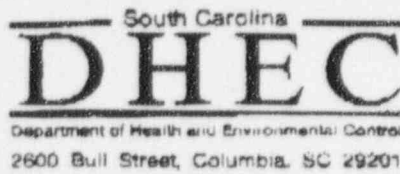
A handwritten signature in cursive script, reading 'John S. Carter'.

John S. Carter, Technical Systems Manager  
Environmental Division, Water Protection

jte/469

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Environmental Protection Section  
Rodney L. Grandy

SEP 11 1995

September 6, 1995

☐ FILE \_\_\_\_\_☐ CLERK DATE \_\_\_\_\_☐ COPY \_\_\_\_\_☒ ROUTE **IT** \_\_\_\_\_

Mr. John Carter, Technical Systems Manager  
Duke Power Company  
Environmental Division, Water Protection  
13339 Hagers Ferry Road  
Huntersville, N.C. 28078-7929

Re: Sodium Bromide Trial Extension  
Catawba Nuclear Station/Duke Power Co.  
York County

Dear Mr. Carter:

Our Office has received your August 14, 1995 letter requesting approval to extend the maintenance chemical trial using sodium bromide for control of biological growth in the two (2) recirculating cooling towers systems at the Catawba Nuclear Station in York County. Based on a review of the project, our Office approves your request with the following conditions:

- 1) This trial extension is approved until January 1, 1996.
- 2) A minimum dilution of one (1) part RC cooling tower blowdown water to two (2) parts once through RL cooling water (1:2) must be maintained.
- 3) During the trial, internal Outfall 005 shall be limited to a monthly average of 0.2 mg/l and a instantaneous maximum of 0.5 mg/l for Free Available Oxidants.

We are currently drafting the requested modifications to the Catawba Nuclear Steam Station NPDES Permit No. SC0004278. With these permit modifications, we are planning to incorporate the permanent use of sodium bromide as a maintenance chemical to the cooling towers.

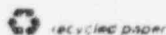
If you should have any questions, please call me at (803)734-5247.

Sincerely,

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

TMB/DUKEBRG

cc: Al Williams, Catawba EQC  
John Estridge, Duke Power Co.



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DUKE POWER

September 20, 1995

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 -NPDES Permit No. SC0004278  
Request for Maintenance Chemical Approval  
File: CN-702.13

Dear Mr. Eleazer:

Catawba Nuclear Station requests approval to begin using Dimethylamine (DMA) which will be discharged in non-toxic concentrations. This product will be used in the plants feedwater systems in order to reduce and prevent corrosion fouling.

Dimethylamine has an NOEC concentration of 20 ppm for ceriodaphnia dubia. The proprietary product to be used (Pre-Tect 9002) has a NOEC concentration of 1000 ppm. The product will be used in the system at concentration less than the NOEC and will be combined with other flows prior to discharging to Lake Wylie via outfall 002. Attached please find a Chronic Toxicity Study performed on Pre - Tect 9002 as well as an MSDS sheet for the product.

The SCDHEC Industrial Wastewater Division has approved the use of this product for Oconee Nuclear Station (See attached approval letter dated June 28, 1995). We are requesting a similar approval letter be issued for Catawba Nuclear Station. However, we are requesting that the approval letter reference dimethylamine (DMA) rather than the proprietary manufactures name in order to have flexibility in selecting different product suppliers without seeking additional approval.

Should you have any questions concerning this letter please give John Estridge a call at (704) 875-5965.

Sincerely,

*John S. Carter* L. JTE

John S. Carter, Technical Systems Manager  
Environmental Division, Water Protection

jte/469

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December 6, 1995

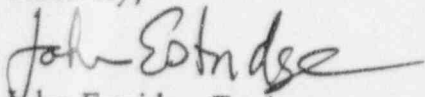
J.T. Harris - CN01EM  
A.P. Jackson - CN03CH  
W.J. Davis - CN01CH  
S.D. Davenport - EC07D

Subject: Catawba Nuclear Station -NPDES Permit No. SC0004278  
Dimethylamine (DMA) Approval By SCDHEC  
File: CN-702.13

Attached please find a letter from South Carolina Department of Health and Environmental Control approving the September 20, 1995 request to begin using Dimethylamine.

Should you have any questions concerning this letter please give me a call at 875-5965.

Sincerely,



John Estridge, Engineer  
Environmental Division, Water Protection

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ENVIRONMENTAL PROTECTION SECTION

DEC 5 1995

December 1, 1995

CN 702.13

CR DA

JTE

X JTE-File

Mr. John Carter, Technical Systems Manager  
Environmental Division, Water Protection  
Duke Power Company  
13339 Hagers Ferry Road  
Huntersville, N.C. 28078-7929

Re: September 20, 1995 Maintenance Chemical Request  
Duke Power Co./Catawba Nuclear Station  
York County

Dear Mr. Carter:

Our Office has received your September 20, 1995 request to use Dimethylamine (DMA) in the Catawba Nuclear Station's feedwater system to reduce and prevent corrosion fouling. Based on the results of the toxicity testing you have submitted, we approve your request. Our Office approves the use of Dimethylamine (DMA), provided that the concentration does not exceed the No Observable Effect Concentration (NOEC) of 20 ppm at Outfall 002.

If you should have any questions, please call me at (803)734-5247.

Sincerely,

*Timothy M. Eleazer*

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

TME/DUKE24.CAT

cc: Al Williams, Catawba EQC



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**DUKE POWER**

November 30, 1995

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 -NPDES Permit No. SC0004278  
Request for Maintenance Chemical Approval  
File: CN-702.13

Dear Mr. Eleazer:

Catawba Nuclear Station requests approval to begin using a polyacrylate dispersant for siltation control. This product will be used in the plants Nuclear Service Water (RN) and Low Pressure Service Water (RL) system and discharged at non-toxic concentrations to Lake Wylie from outfall 001.

A polyacrylate dispersant is presently being used in the cooling towers at Catawba and is being discharged via the blowdown line (outfall 005) to outfall 001. The concentrations to be discharged from outfall 001 from the combined cooling tower blowdown line, RN, and RL systems is estimated to be less than 10 ppm for a worst case scenario.

The information provided in a MSDS sheet for a typical polyacrylate dispersant shows the aquatic toxicity for the product to have a No Observed Effect Concentration (NOEC) of 1000 ppm for *Daphnia magna*. Attached please find the MSDS sheet for Nalco 23382 which is a typical polyacrylate dispersant. The attached MSDS for the Nalco product is typical of the polyacrylate dispersants which will be used. However, other suppliers or manufacturers for polyacrylate dispersant will also be used.

Should you have any questions concerning this letter please give John Estridge a call at (704) 875-5965.

Sincerely,

A handwritten signature in cursive script, reading 'John S. Carter'.

John S. Carter, Technical Systems Manager  
Environmental Division, Water Protection

jte/485

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