



**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  
Revised Thermal Limitation Request  
File: CN-702.13

Dear Mr. Eleazer:

Upon review of the proposed thermal limitations which were requested for outfall 001 it has been determined that the station will not be able to meet these limits during typical hot summer operational conditions. Therefore, we are requesting that the wording be changed to read as follows:

- The temperature of the effluent shall not exceed a weekly average temperature of 50°F when the weekly average intake temperature is below 36.5°F. The effluent shall not exceed two times the intake temperature minus 23 °F when the intake temperature ranges from 36.5 °F to 55 °F. When the intake temperature exceeds 55 °F the effluent shall not exceed a weekly average temperature of 95 °F.

We are requesting that the daily average temperature limitation of 95 °F be changed to a weekly average temperature. Attached for your use please find the original request submitted on October 14, 1994, that was based on station operational data through 1992.

This request is made based upon a review of the past three years of thermal data for the station. Please find attached a spreadsheet showing how the presently worded thermal limitation would effect the Catawba facility. This spreadsheet shows July and August temperature data from outfall 001 and compares this data with the limitations in the October 14, 1995 memo. This shaded portions of the spreadsheet shows days in which Catawba would not meet the limitation.

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There were a total of 29 days in 1995 and 22 days in 1993 that would have resulted in permit violations under the previously proposed wording. As can be seen on the table, we feel that these 51 days which were over the proposed limit are due primarily to warm intake temperatures which the station can not control. The temperature change contributed by the station was very low on many of the days which are shaded in the table.

On going environmental monitoring studies in Lake Wylie support this request. We are requesting that you meet with Bruce Gibson to discuss this matter. Should you have any questions concerning this letter please give John Estridge a call at (704) 875-5965.

Sincerely,

*J. S. Carter* <sup>6/27/95</sup>

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

jte/477

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# CATAWBA NUCLEAR STATION OUTFALL 001 TEMPERATURE EVALUATION

| DATE   | 1995     | 1995                 | 1995         | 1995                   | 1995              | 1994                 | 1994         | 1994                   | 1994              | 1993                 | 1993         | 1993                   | 1993              |
|--------|----------|----------------------|--------------|------------------------|-------------------|----------------------|--------------|------------------------|-------------------|----------------------|--------------|------------------------|-------------------|
|        | Intake T | 001<br>DISCH<br>TEMP | 7 DAY<br>AVG | 7 DAY<br>AVG<br>> 93.2 | DAILY<br>AVG > 95 | 001<br>DISCH<br>TEMP | 7 DAY<br>AVG | 7 DAY<br>AVG<br>> 93.2 | DAILY<br>AVG > 95 | 001<br>DISCH<br>TEMP | 7 DAY<br>AVG | 7 DAY<br>AVG<br>> 93.2 | DAILY<br>AVG > 95 |
| 1-Aug  | 90.68    | 94.04                | 331.28       | TRUE                   | FALSE             | 91.41                | 329.38       | TRUE                   | FALSE             | 94.20                | 332.20       | TRUE                   | FALSE             |
| 2-Aug  | 90.15    | 93.90                | 331.32       | TRUE                   | FALSE             | 91.66                | 329.32       | TRUE                   | FALSE             | 93.87                | 332.09       | TRUE                   | FALSE             |
| 3-Aug  | 89.34    | 94.16                | 331.51       | TRUE                   | FALSE             | 91.97                | 329.33       | TRUE                   | FALSE             | 93.85                | 331.99       | TRUE                   | FALSE             |
| 4-Aug  | 89.72    | 93.80                | 331.56       | TRUE                   | FALSE             | 92.10                | 329.44       | TRUE                   | FALSE             | 93.04                | 331.74       | TRUE                   | FALSE             |
| 5-Aug  | 88.29    | 93.74                | 331.56       | TRUE                   | FALSE             | 91.76                | 329.47       | TRUE                   | FALSE             | 92.71                | 331.38       | TRUE                   | FALSE             |
| 6-Aug  | 87.56    | 93.28                | 331.49       | TRUE                   | FALSE             | 91.52                | 329.49       | TRUE                   | FALSE             | 92.72                | 331.06       | TRUE                   | FALSE             |
| 7-Aug  | 87.49    | 92.91                | 93.69        | TRUE                   | FALSE             | 91.31                | 91.67        | FALSE                  | FALSE             | 91.40                | 93.11        | FALSE                  | FALSE             |
| 8-Aug  | 86.74    | 91.45                | 93.32        | TRUE                   | FALSE             | 91.33                | 91.66        | FALSE                  | FALSE             | 90.31                | 92.56        | FALSE                  | FALSE             |
| 9-Aug  | 86.55    | 91.66                | 93.00        | FALSE                  | FALSE             | 91.27                | 91.61        | FALSE                  | FALSE             | 90.46                | 92.07        | FALSE                  | FALSE             |
| 10-Aug | 87.45    | 92.61                | 92.78        | FALSE                  | FALSE             | 91.55                | 91.55        | FALSE                  | FALSE             | 90.76                | 91.63        | FALSE                  | FALSE             |
| 11-Aug | 88.66    | 93.22                | 92.70        | FALSE                  | FALSE             | 91.75                | 91.50        | FALSE                  | FALSE             | 90.70                | 91.29        | FALSE                  | FALSE             |
| 12-Aug | 90.46    | 93.24                | 92.63        | FALSE                  | FALSE             | 91.80                | 91.50        | FALSE                  | FALSE             | 89.39                | 90.82        | FALSE                  | FALSE             |
| 13-Aug | 91.02    | 93.60                | 92.67        | FALSE                  | FALSE             | 91.83                | 91.55        | FALSE                  | FALSE             | 90.51                | 90.50        | FALSE                  | FALSE             |
| 14-Aug | 92.07    | 93.95                | 92.82        | FALSE                  | FALSE             | 91.57                | 91.58        | FALSE                  | FALSE             | 90.43                | 90.36        | FALSE                  | FALSE             |
| 15-Aug | 92.73    | 94.10                | 93.20        | FALSE                  | FALSE             | 90.79                | 91.51        | FALSE                  | FALSE             | 91.04                | 90.47        | FALSE                  | FALSE             |
| 16-Aug | 92.29    | 94.96                | 93.67        | TRUE                   | FALSE             | 90.91                | 91.46        | FALSE                  | FALSE             | 90.98                | 90.54        | FALSE                  | FALSE             |
| 17-Aug | 92.52    | 94.76                | 93.97        | TRUE                   | FALSE             | 90.30                | 91.28        | FALSE                  | FALSE             | 91.32                | 90.62        | FALSE                  | FALSE             |
| 18-Aug | 92.71    | 95.23                | 94.26        | TRUE                   | TRUE              | 90.01                | 91.03        | FALSE                  | FALSE             | 92.31                | 90.85        | FALSE                  | FALSE             |
| 19-Aug | 91.03    | 94.87                | 94.50        | TRUE                   | FALSE             | 89.83                | 90.75        | FALSE                  | FALSE             | 92.16                | 91.25        | FALSE                  | FALSE             |
| 20-Aug | 89.38    | 94.20                | 94.58        | TRUE                   | FALSE             | 89.07                | 90.35        | FALSE                  | FALSE             | 91.75                | 91.43        | FALSE                  | FALSE             |
| 21-Aug | 88.81    | 93.01                | 94.45        | TRUE                   | FALSE             | 88.49                | 89.91        | FALSE                  | FALSE             | 91.51                | 91.58        | FALSE                  | FALSE             |
| 22-Aug | 89.44    | 92.84                | 94.27        | TRUE                   | FALSE             | 87.95                | 89.51        | FALSE                  | FALSE             | 92.33                | 91.77        | FALSE                  | FALSE             |
| 23-Aug | 89.61    | 93.97                | 94.13        | TRUE                   | FALSE             | 88.83                | 89.21        | FALSE                  | FALSE             | 91.91                | 91.90        | FALSE                  | FALSE             |
| 24-Aug | 88.66    | 93.81                | 93.99        | TRUE                   | FALSE             | 89.08                | 89.04        | FALSE                  | FALSE             | 91.79                | 91.97        | FALSE                  | FALSE             |
| 25-Aug | 88.25    | 93.75                | 93.78        | TRUE                   | FALSE             | 89.10                | 88.91        | FALSE                  | FALSE             | 91.58                | 91.86        | FALSE                  | FALSE             |
| 26-Aug | 87.11    | 93.06                | 93.52        | TRUE                   | FALSE             | 89.50                | 88.86        | FALSE                  | FALSE             | 91.81                | 91.81        | FALSE                  | FALSE             |
| 27-Aug | 85.32    | 91.36                | 93.11        | FALSE                  | FALSE             | 89.78                | 88.96        | FALSE                  | FALSE             | 92.45                | 91.91        | FALSE                  | FALSE             |
| 28-Aug | 84.41    | 90.30                | 92.73        | FALSE                  | FALSE             | 89.91                | 89.17        | FALSE                  | FALSE             | 92.06                | 91.99        | FALSE                  | FALSE             |
| 29-Aug | 85.73    | 90.59                | 92.41        | FALSE                  | FALSE             | 90.00                | 89.46        | FALSE                  | FALSE             | 92.28                | 91.98        | FALSE                  | FALSE             |
| 30-Aug | 87.53    | 90.18                | 91.86        | FALSE                  | FALSE             | 84.95                | 88.90        | FALSE                  | FALSE             | 93.23                | 92.17        | FALSE                  | FALSE             |
| 31-Aug | 84.92    | 90.58                | 91.40        | FALSE                  | FALSE             | 87.90                | 88.73        | FALSE                  | FALSE             | 93.91                | 92.47        | FALSE                  | FALSE             |
|        |          |                      |              | 19                     | 1                 |                      |              |                        |                   |                      |              | 22                     |                   |

Duke Power Company  
Generation Services Department  
13339 Hagers Ferry Road  
Huntersville, NC 28078-7929



**DUKE POWER**

October 14, 1994

Mr. Bruce Gibson  
Water Quality Assessment Division  
South Carolina Department of Health and Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201

Subject: Catawba Nuclear Station  
NPDES Permit #SC0004278  
316(a) Demonstration  
Meeting Summary  
File: CN-702.13

Dear Mr. Gibson:

Bruce, thank you for setting up the meeting on October 10, 1994, with you, Tim Eleazar of SCDHEC, Tim Harris of Catawba Nuclear Station (CNS), and me to review and discuss the 316(a) demonstration reports for CNS. The following is a summary of our meeting and proposed permit revisions. Our discussion focused on the substitution of the EPA nomograph for delta T limits in the present CNS permit, review of thermal plume data, and continuation of the on-going Lake Wylie environmental monitoring program. The following modifications of the thermal limits in the NPDES permit included the assignment of a thermal mixing zone at outfall 001 with the proposed limits:

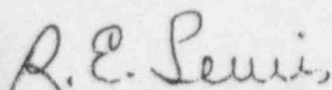
\*\*\*\* The temperature of the effluent shall be such as not to exceed a weekly average temperature of 10°C (50°F) when the weekly average intake temperature is below 2.5°C (36.5°F), exceed two times the intake temperature (°F) minus 23 when the weekly average intake temperature ranges from 2.5°C (36.5°F) 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).

A marked up copy of Part I page 3 of 31 for outfall 001 in the NPDES permit is attached with a suggested format for the permit modification. If you have any

questions or suggestions once you have reviewed these proposed thermal modifications, please call me (704-875-5968). For incorporation of these changes with other requested modifications of this permit, please contact John Estridge (704-875-5965).

Also thanks for sharing of your current monitoring program to determine metals and pesticide concentration in the tissue of largemouth bass and catfish. I will forward this information and your suggestions on environmental monitoring to our monitoring staff to consider inclusion in on-going environmental programs to address public concerns and support NPDES permitting of DPC facilities.

Sincerely,

A handwritten signature in cursive script that reads "R. E. Lewis".

Ronald E. Lewis, Scientist  
Environmental Division  
Generation Services Department

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Attachment

xc: Tim Eleazer, SCDHEC

# 1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

## Phase II

- 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) |            | Measurement Frequency | Sample Type            |
|---|---------------------------|------------|-----------------------|------------|-----------------------|------------------------|
|   | Monthly Average           | Daily Max. | Monthly Average       | Daily Max. |                       |                        |
| Flow-m3/day (MGD)                             | -                         | -          | MR                    | MR         | Daily                 | Continuous**           |
| ***Total Residual Chlorine                    | -                         | -          | less than 0.10 mg/l   |            | 1/week                | Multiple Grabs*        |
| Intake Temperature                            | -                         | -          | -                     | -          | Daily                 | Continuous             |
| ***Discharge Temperature                      | -                         | -          | -                     | -          | Daily                 | Continuous             |
| <del>Temperature rise (April-September)</del> | <del>5.6°C (10.0°F)</del> |            | <del></del>           |            | <del>Daily</del>      | <del>Calculation</del> |
| <del>Temperature rise (October-March)</del>   | <del>7.8°C (14.0°F)</del> |            | <del></del>           |            | <del>Daily</del>      | <del>Calculation</del> |

\*See Part III, Special Condition #16

\*\*See Part III, Special Condition #17

\*\*\*See Part III, Special Condition #18

MR = Monitor and Report

Based on a flow of 82.5 MGD

\*\*\* ← Insert proposed thermal limit language in letter.

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.