



South Carolina Department of Health  
and Environmental Control

# ***National Pollutant Discharge Elimination System Permit***

for Discharge to Surface Waters

This Permit Certifies That

***SCE&G Virgil C. Summer Nuclear Station***

has been granted permission to discharge from a facility located at

***Jenkinsville, Fairfield County, South Carolina***

to receiving waters named

***Monticello Reservoir and Broad River***

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), Regulation 61-9 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  
Industrial, Agricultural, and Storm Water Permitting Division  
Bureau of Water

Issued: *September 29, 1997*

Expires: *September 30, 2002*

Effective: *October 1, 1997*

Permit No.: *SC0030856*

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PDR ADDCK 05000395  
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Modification: *April 1, 1998*

# 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) 001: once through noncontact cooling water to Monticello Reservoir.

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         | Maximum     |            |
| Flow                                      |  | N/A                   | N/A                   | MR, MGD                 | MR, MGD     | Estimate*  |
| Intake Temperature <sup>4b</sup>          |  | N/A                   | N/A                   | MR, MGD                 | MR, MGD     | Continuous |
| Plume Temperature <sup>4c</sup> (°F)      |  | N/A                   | N/A                   | 32.2(90)                | MR          | Continuous |
| Discharge Temperature <sup>4a</sup> (°F)  |  | N/A                   | N/A                   | MR                      | 45(113)     | Continuous |
| Plume Temperature Rise <sup>4d</sup> (°F) |  | N/A                   | N/A                   | 1.66(3.0)               | MR          | Continuous |

(\*) See Part III, special condition 11. MR = Monitor and Report

2. 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.
3. There shall be no addition of chlorine to the main condenser cooling water.
4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following locations:
  - a. Discharge temperature shall be monitored at the outlet corresponding to an individual unit prior to mixing with the receiving stream.
  - b. Intake temperature shall be measured on the inlet side of the main condenser.
  - c. Plume temperatures shall be taken at the intake structure of Fairfield Pumped Storage Facility when the Fairfield Pumped Storage Facility is generating.
  - d. The points of the plume temperature rise monitoring shall be: (A) at the intake structure of the Fairfield Pumped Storage Facility in the most practicable and representative point at a depth of one foot and (B) on the south side of S.C. Highway No. 99 dam, as close to the dam as practicable at a depth of one foot. The plume temperature rise is equal to temperature at point A minus temperature at point B (ambient) when the Fairfield Pumped Storage Facility is generating.
5. The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units and shall be monitored by grab sample at a frequency of 1/month.



# 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) 001: once through cooling water to Monticello Reservoir.

| <u>EFFLUENT CHARACTERISTICS</u>             | <u>DISCHARGE LIMITATIONS</u> |               | <u>MONITORING REQUIREMENTS</u> |             |
|---|------------------------------|---------------|--------------------------------|-------------|
|   | Monthly Average              | Daily Maximum | Measurement Frequency          | Sample Type |
| (1) Whole Effluent Chronic Toxicity Testing |                              |               |                                |             |
| Percent Increase Mortality                  | 20%                          | 50%           | 1/quarter <sup>(1)</sup>       | Grab        |
| Percent Reduction in Reproduction           | 20%                          | 50%           | 1/quarter <sup>(1)</sup>       | Grab        |

(1) See Part III Special Condition 12 a.b

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
Prior to mixing with the receiving waters.

# A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- 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) 002: house service water for cooling of emergency generators, cooling heat exchangers and reactor building cooling units to Monticello Reservoir.

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)<br>Monthly<br>Average | Inst.<br>Maximum | Other Units<br>Monthly<br>Average | Measurement<br>Frequency | Sample<br>Type |
| Flow-m3/day (MGD)               | N/A                                    | N/A              | MR, MGD                           | 1/occurrence             | Estimate***    |
| Total Suspended Solids          | N/A                                    | N/A              | 30 mg/l                           | 1/occurrence             | Grab           |
| Oil and Grease                  | N/A                                    | N/A              | 15 mg/l                           | 1/occurrence             | Grab           |
| TRC*, **                        | N/A                                    | N/A              | 0.011 mg/l                        | 1/occurrence             | Grab           |
| Discharge Temperature           | N/A                                    | N/A              | N/A                               | 1/occurrence             | Continuous     |

(\*) Total residual chlorine samples shall be taken 1/occurrence whenever any wastestreams that contribute to Outfall 002 are being chlorinated and Outfall 002 is discharging to the Monticello Reservoir. All other samples are required to be taken 1/occurrence(1/occurrence shall be defined as whenever Outfall 002 is directly discharging to the Monticello Reservoir), with a maximum frequency of 1/month. Where the duration of discharge exceeds 1 month, monitoring shall be required 1/month.

(\*\*) See Part III, special condition 17.

(\*\*\*) See part III, special condition 11.

MR = Monitor and Report

- The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored by grab sample at a frequency of 1/occurrence, with a maximum frequency of 1/month. Where the duration of the discharge exceeds 1 month, monitoring shall be conducted 1/month.
- 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): Nearest accessible point after the discharge from the house service pond, but prior to mixing with the receiving waters.

# A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this Permit and lasting through the expiration date the Permittee is authorized to discharge from outfall(s) serial number(s) 002: house service water for cooling of emergency generators, cooling heat exchangers, and reactor building units to Monticello Reservoir.

| EFFLUENT CHARACTERISTICS                   | DISCHARGE LIMITATIONS |               | MONITORING REQUIREMENTS     |             |
|--|-----------------------|---------------|-----------------------------|-------------|
|  | Monthly Average       | Daily Maximum | Measurement Frequency       | Sample Type |
| (1)Whole Effluent Chronic Toxicity Testing |                       |               |                             |             |
| Percent Increase Mortality                 | 20%                   | 50%           | 1/occurrence <sup>(1)</sup> | Grab        |
| Percent Reduction in Reproduction          | 20%                   | 50%           | 1/occurrence <sup>(1)</sup> | Grab        |

Samples are required to be taken 1/occurrence of the discharge via Outfall 002 to the Monticello Reservoir. Where the duration of discharge exceeds 1 month, monitoring shall be required 1/month.

(1) See Part III Special Condition 12 a,b

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Nearest accessible point after the discharge from the house service pond, but prior to mixing with the receiving waters.



# A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting through the expiration date, the permittee is authorized to discharge from outfall(s) serial number(s) 003: low level radiological wastes to Broad River.

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)<br>Monthly<br>Average | Inst.<br>Maximum | Other Units (Specify)<br>Monthly<br>Average | Measurement<br>Frequency | Sample<br>Type |
| Flow-m <sup>3</sup> /day (MGD)  | N/A                                    | N/A              | MR, MGD                                     | 1/occurrence             | Estimate*      |
| Total Suspended Solids          | N/A                                    | N/A              | 30 mg/l                                     | 1/occurrence             | Grab           |
| Oil and Grease                  | N/A                                    | N/A              | 15 mg/l                                     | 1/occurrence             | Grab           |

(\*) See Part III, special condition 11.

MR = Monitor and Report

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
Nearest accessible point after the discharge from the Liquid Waste Processing System or the Waste Monitor Tanks, but prior to mixing with 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: steam generator blowdown via Outfall 001 to Monticello Reservoir or Outfall 003 to Broad River.

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)             | Inst.   | Other Units                    | Measurement  | Sample      |
|                                 | Monthly                      | Maximum | Monthly                        | Frequency    | Type        |
|                                 | Average                      |         | Average                        |              |             |
| Flow-m3/day (MGD)               | N/A                          | N/A     | MR, MGD                        | 1/occurrence | Continuous* |
| Total Suspended Solids          | N/A                          | N/A     | 30 mg/l                        | 1/occurrence | Grab        |
| Oil and Grease                  | N/A                          | N/A     | 15 mg/l                        | 1/occurrence | Grab        |

(\*) See Part III, special condition 11.

MR = Monitor and Report

3. Samples shall be taken at least once per occurrence but need not be taken more than once per month.
4. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
After discharge of steam generator blowdown, but prior to commingling with any other wastestream or 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 internal outfall(s) serial number(s) 005: sanitary sewerage via Outfall 014 to the Monticello Reservoir.

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

| <u>EFFLUENT CHARACTERISTICS</u> | <u>DISCHARGE LIMITATIONS</u>           |                  | <u>Other Units (Specify)</u> |                  | <u>MONITORING REQUIREMENTS</u> |                   |                   |
|---------------------------------|--|------------------|------------------------------|------------------|--------------------------------|-------------------|-------------------|
|                                 | kg/day (lbs/day)<br>Monthly<br>Average | Daily<br>Maximum | Monthly<br>Average           | Daily<br>Maximum | Measurement<br>Frequency       | Sample<br>Type    | Inst. *           |
| Flow-m3/day (MGD)               | N/A                                    | N/A              | MR, MGD                      | MR, MGD          | 1/month                        | 24-hour composite | 24-hour composite |
| BOD <sub>5</sub>                | N/A                                    | N/A              | 30 mg/l                      | 45 mg/l          | 1/month                        | 24-hour composite | 24-hour composite |
| TSS                             | N/A                                    | N/A              | 30 mg/l                      | 45 mg/l          | 1/month                        | 24-hour composite | 24-hour composite |
| Fecal coliform                  | N/A                                    | N/A              | 200/100 mls                  | 400/100 mls      | 2/month                        | Grab              | Grab              |

MR = Monitor and Report

(\*) See Part III, special condition 11.

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
After discharge from the chlorine contact chamber, but prior to commingling with other internal wastestreams.



# 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 internal outfall(s) serial number(s) 06A: low volume wastes from the Alum Sludge Basin (06A) via Outfall 014 to the Monticello Reservoir.

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

| <u>EFFLUENT CHARACTERISTICS</u> | <u>DISCHARGE LIMITATIONS</u>           |                  | <u>Other Units (Specify)</u> |                  | <u>MONITORING REQUIREMENTS</u> |                |  |
|---------------------------------|--|------------------|------------------------------|------------------|--------------------------------|----------------|--|
|                                 | kg/day (lbs/day)<br>Monthly<br>Average | Inst.<br>Maximum | Monthly<br>Average           | Daily<br>Maximum | Measurement<br>Frequency       | Sample<br>Type |  |
| Flow-m3/day (MGD)               | N/A                                    | N/A              | MR, MGD                      | MR, MGD          | 1/month                        | Inst.*         |  |
| Total Suspended Solids          | N/A                                    | N/A              | 30 mg/l                      | 100 mg/l         | 1/month                        | Grab           |  |
| Oil and Grease                  | N/A                                    | N/A              | 15 mg/l                      | 20 mg/l          | 1/month                        | Grab           |  |

MR = Monitor and Report

(\*) See Part III, special condition 11.

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
After discharge from the sedimentation basin, but prior to commingling with other internal wastestreams.

# A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- During the period beginning on the effective date of this permit and lasting through the expiration date, the permittee is authorized to discharge from internal outfall(s) serial number(s) 06B: low volume wastes and storm water from sumps in the transformer and fuel oil storage and handling areas via Outfall 014 to the Monticello Reservoir.

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)             |               | Other Units (Specify)          | Measurement Frequency | Sample Type |
|                                 | Monthly Average              | Daily Maximum | Monthly Average                |                       |             |
| Flow-m3/day (MGD)               | N/A                          | N/A           | MR. MGD                        | 1/month               | Inst.*      |
| Total Suspended Solids          | N/A                          | N/A           | 30 mg/l                        | 1/month               | Grab        |
| Oil and Grease                  | N/A                          | N/A           | 15 mg/l                        | 1/month               | Grab        |

MR = Monitor and Report

(\*) See Part III. special condition 11.

- Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
After discharge from the retention basin, but prior to commingling with other internal wastestreams.

# A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of the permit and lasting through the expiration date, the permittee is authorized to discharge from outfall(s) serial number(s) 007: low volume wastes from ion exchange regeneration and from sumps in the chemical feed equipment, caustic tank, and "D" battery room areas to the Monticello Reservoir.

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

| <u>EFFLUENT CHARACTERISTICS</u> | <u>DISCHARGE LIMITATIONS</u>           |                  | <u>Other Units (Specify)</u> |                  | <u>MONITORING REQUIREMENTS</u> |                |           |
|---------------------------------|--|------------------|------------------------------|------------------|--------------------------------|----------------|-----------|
|                                 | kg/day (lbs/day)<br>Monthly<br>Average | Inst.<br>Maximum | Monthly<br>Average           | Daily<br>Maximum | Measurement<br>Frequency       | Sample<br>Type | Estimate* |
| Flow-m3/day (MGD)               | N/A                                    | N/A              | MR, MGD                      | MR, MGD          | 1/month                        |                |           |
| Total Suspended Solids          | N/A                                    | N/A              | 30 mg/l                      | 100 mg/l         | 1/month                        | Grab           | Grab      |
| Oil and Grease                  | N/A                                    | N/A              | 15 mg/l                      | 20 mg/l          | 1/month                        | Grab           | Grab      |

(\*) See Part III, special condition 11.

MR = Monitor and Report

2. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored by grab sample at a frequency of 1/month.
3. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
After discharge from the neutralization basin, but prior to commingling with the receiving stream.



# 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 internal outfall(s) serial number(s) 008: metal cleaning wastewaters via Outfall 014 to the Monticello Reservoir.

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       | Inst. Maximum | Other Units (Specify)   | Measurement Frequency | Sample Type |
| Flow-m3/day (MGD)        | N/A              |                       | N/A           | MR, MGD                 | 1/day                 | Inst.*      |
| Total Suspended Solids   | N/A              |                       | N/A           | 30 mg/l                 | 1/occurrence          | Grab        |
| Oil and Grease           | N/A              |                       | N/A           | 15 mg/l                 | 1/occurrence          | Grab        |
| Total Copper             | N/A              |                       | N/A           | 1.0 mg/l                | 1/occurrence          | Grab        |
| Total Iron               | N/A              |                       | N/A           | 1.0 mg/l                | 1/occurrence          | Grab        |

MR = Monitor and Report

(\*) See Part III, special condition 11.

2. Samples shall be taken at least once per occurrence; should the duration of the discharge exceed one week the discharge shall be sampled on a weekly basis until the end of discharge.
3. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): After discharge from the Plant Startup Holding Basin, but prior to commingling with other internal wastestreams.

# 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 internal outfall(s) serial number(s) 012: yard drains in the north/northwest area of the plant site and Internal Outfalls 09A and 09B discharges to the Broad River via this outfall.

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)<br>Monthly<br>Average | Daily<br>Maximum | Other Units (Specify)<br>Monthly<br>Average | Measurement<br>Frequency | Sample<br>Type |
| Flow-m <sup>3</sup> /day (MGD)  | N/A                                    | N/A              | MR, MGD                                     | 1/month                  | Estimate*      |
| Total Suspended Solids          | N/A                                    | N/A              | 26 mg/l                                     | 1/month                  | Grab           |
| Oil and Grease                  | N/A                                    | N/A              | 9 mg/l                                      | 1/month                  | Grab           |

MR = Monitor and Report

(\*) See Part III, special condition 11.

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
After discharge, but prior to commingling with any other wastestream.
3. The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units and shall be monitored by grab sample at a frequency of 1/month.

# 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) 012: yard drains in the north/northwest area of the plant site and Internal Outfalls 09A and 09B discharges to the Broad River via this outfall.

| EFFLUENT CHARACTERISTICS  | DISCHARGE LIMITATIONS |               | MONITORING REQUIREMENTS  |             |
|---|-----------------------|---------------|--------------------------|-------------|
|   | Monthly Average       | Daily Maximum | Measurement Frequency    | Sample Type |
| (1) Whole Effluent Acute Toxicity Testing Percent Increased Mortality | 20%                   | 50%           | 1/quarter <sup>(1)</sup> | Grab        |

(1) See Part III Special Condition 13 a.b

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
After discharge, but prior to commingling with the receiving stream.



# 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 internal outfall(s) serial number(s) 013: yard drains in the southeast area of the plant site

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)<br>Monthly<br>Average | Other Units (Specify)<br>Monthly<br>Average | Measurement<br>Frequency       | Sample<br>Type |
| Flow-m3/day (MGD)               | N/A                                    | MR, MGD                                     | 2/year                         | Estimate*      |
| Total Suspended Solids          | N/A                                    | MR, mg/l                                    | 2/year                         | Grab           |

MR = Monitor and Report

(\*) See Part III, special condition 11.

2. The pH shall be monitored by grab sample at a frequency of 2/year.
3. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
After discharge, but prior to commingling with the receiving stream.

# A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- During the period beginning on the effective date of this permit and lasting through (see Part I.C.1), the permittee is authorized to discharge from outfall(s) serial number(s) 014: Combination of Internal Outfalls 005, 06A, 06B, and 008 to Monticello Reservoir.

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

| EFFLUENT CHARACTERISTICS                 | DISCHARGE LIMITATIONS                  |                  | MONITORING REQUIREMENTS                     |                          |                |
|--|--|------------------|---|--------------------------|----------------|
|  | kg/day (lbs/day)<br>Monthly<br>Average | Daily<br>Maximum | Other Units (Specify)<br>Monthly<br>Average | Measurement<br>Frequency | Sample<br>Type |
| Flow-m3/day (MGD)                        | N/A                                    | N/A              | MR, MGD                                     | Continuous               | Continuous**   |
| Total Residual Chlorine*                 | N/A                                    | N/A              | 0.011 mg/l                                  | 1/month                  | Grab           |
| Ammonia                                  | N/A                                    | N/A              | 2.1 mg/l                                    | 1/month                  | Grab           |
| Copper*                                  | N/A                                    | N/A              | 0.028 mg/l                                  | 1/month                  | Grab           |
| Zinc                                     | N/A                                    | N/A              | 0.039 mg/l                                  | 1/month                  | Grab           |
| (*) See Part III, special condition 17.  |  |                  | 0.065 mg/l                                  | 1/month                  | Grab           |
| (**) See Part III, special condition 11. |  |                  |   |                          |                |

MR = Monitor and Report

- The pH shall not be less than 6.0 standard units nor greater than 8.5 standard units and shall be monitored by grab sample at a frequency of 1/month.
- Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): After discharge, but prior to commingling with the receiving stream.

# 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) 014: Combination of Internal Outfalls 005, 06A, 06B, and 008 to Monticello Reservoir.

| <u>EFFLUENT CHARACTERISTICS</u>             | <u>DISCHARGE LIMITATIONS</u> |               | <u>MONITORING REQUIREMENTS</u> |             |
|---|------------------------------|---------------|--------------------------------|-------------|
|   | Monthly Average              | Daily Maximum | Measurement Frequency          | Sample Type |
| (1) Whole Effluent Chronic Toxicity Testing |                              |               |                                |             |
| Percent Increase Mortality                  | 20%                          | 50%           | 1/quarter <sup>(1)</sup>       | Grab        |
| Percent Reduction in Reproduction           | 20%                          | 50%           | 1/quarter <sup>(1)</sup>       | Grab        |

(1) See Part III Special Condition 12 a.b

2. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):  
After discharge, but prior to commingling with the receiving stream.



B. GROUNDWATER MONITORING REQUIREMENTS

1. During the period beginning on the effective date of this permit and lasting through the expiration date, each of the monitoring wells (wells GW 8, 9, 12, 13A & 15) shall be sampled by the permittee as specified below:

| <u>PARAMETER</u>            | <u>MEASUREMENT FREQUENCY</u> | <u>SAMPLE METHOD</u> |
|-----------------------------|------------------------------|----------------------|
| Water Level, tenth/feet     | Semiannually                 | Pump Method          |
| Ammonia                     | Semiannually                 | Pump Method          |
| Field pH                    | Semiannually                 | Pump Method          |
| Field Specific Conductivity | Semiannually                 | Pump Method          |
| Iron, total                 | Semiannually                 | Pump Method          |
| Lead, total                 | Semiannually                 | Pump Method          |
| Nitrate                     | Semiannually                 | Pump Method          |
| Sulfate                     | Semiannually                 | Pump Method          |
| Total Dissolved Solids      | Semiannually                 | Pump Method          |

2. Sample collection methods shall be in accordance with EPA publication Standard Operating Procedures - Quality Assurance Manual, 1991, and V.C. Summer Groundwater Monitoring plan.
3. All groundwater monitoring wells must be properly maintained at all times.
4. On an annual basis, the wells shall be sampled for Volatile Organic Compounds - EPA Method 8260.

C. SCHEDULE OF COMPLIANCE

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

N/A

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 noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

#### D. 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 ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to ensure 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

- a. 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  
Bureau of Water  
ATTN: Compliance Assurance Division  
2600 Bull Street  
Columbia, South Carolina 29201

- b. Groundwater monitoring results must be reported on a Groundwater Monitoring Report Form (DHEC 2110) postmarked no later than the 28th day of the month following the completed reporting period. Two copies of the reports shall be submitted to the Department:

S.C. Department of Health and Environmental Control  
Bureau of Water  
ATTN: BOW/Compliance Assurance Division  
2600 Bull Street  
Columbia, South Carolina 29201

##### 4. Test Procedures

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

##### 5. Recording of Results



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

- a. the exact place, date and time of sampling;
- b. the dates and times the analyses were performed;
- c. the person(s) who performed the analyses and the laboratory certification number where applicable;
- d. the analytical techniques or methods used; and
- e. the results of all required analyses.

6. Additional Monitoring by Permittee

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

7. Records Retention

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

8. Definitions

- a. The "monthly average", other than for fecal coliform, is the arithmetic mean of all samples collected in a calendar month period. The monthly average for fecal coliform bacteria is the geometric mean of all samples collected in a calendar month period. The monthly average loading is the arithmetic average of all individual loading determinations made during the month.
- b. "Weekly average", other than for fecal coliform, is the arithmetic mean of all the samples collected during a one-week period. The weekly average for fecal coliform is the geometric mean of all samples collected during a one-week period. For self-monitoring purposes, weekly periods in a calendar month are defined as three (3) consecutive seven day intervals starting with the first day of the calendar month and a fourth interval containing seven (7) days plus those days beyond the 28th day in a calendar month. The value to be reported is the single highest of the four (4) 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. "Daily maximum" is the highest average value recorded of samples collected on any

single day during the calendar month.

- d. The "instantaneous maximum or minimum" is the highest or lowest value recorded of all samples collected during the calendar month.
- e. The "arithmetic mean" of any set of values is the summation of the individual values divided by the number of individual values.
- f. 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. The "Department" shall refer to the South Carolina Department of Health and Environmental Control.
- h. The "Act" shall refer to the Clean Water Act (Formerly referred to as the Federal Water Pollution Control Act) Public Law 92-500, as amended.
- i. A "grab sample" is 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. A "composite sample" shall be defined as one of the following four types:
  - (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 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: An instantaneous flow measurement should be taken each time a grab sample is collected. At the end of the sampling period, the instantaneous flow measurements should be summed to obtain a total flow. The instantaneous flow measurement can then be divided by the total flow to determine the percentage of each grab sample to be combined. These combined samples form 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. In other words, 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, proportional to flow, collected at regular (equal) time intervals over a specified period of time.

All samples shall be properly preserved in accordance with Part I.C.4. 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 of 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 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 pollutant 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 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 III.3. 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 effluent limitations and prohibitions of this permit, the permittee shall either:

- a. In accordance with the Schedule of Compliance contained in Part I.B., provide an alternative power source sufficient to operate the wastewater control facilities;  
or, if such alternative power source is not in existence, and no date for its implementation appears in Part I.B., have a plan of operation which will:
- b. Halt, reduce, or otherwise control production and/or all discharges upon the reduction, loss, or failure of the primary source of power to the wastewater control facilities.

#### 5. Removed Substances

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



Part III

A. OTHER REQUIREMENTS

1. The permittee shall maintain at the permitted facility a complete Operations and Maintenance Manual for the waste treatment plant. The manual shall be made available for on-site review during normal working hours. The manual shall contain operation and maintenance instructions for all equipment and appurtenances associated with the waste treatment plant. The manual shall contain a general description of the treatment process(es), operating characteristics that will produce maximum treatment efficiency, and corrective action to be taken should operating difficulties be encountered.
2. The permittee shall provide for the performance of routine daily treatment plant inspections by a certified operator of the appropriate grade as defined in Part II.C.1. The inspection shall include, but is not limited to, areas which require a visual observation to determine efficient operations and for which immediate corrective measures can be taken using the O & M manual as a guide. All inspections shall be recorded and shall include the date, time and name of the person making the inspection, corrective measures taken, and routine equipment maintenance, repair, or replacement performed. The permittee shall maintain all records of inspections at the permitted facility as required by Part I.C.7., and the records shall be made available for on-site review during normal working hours.
3. The wastewater treatment plant has been assigned a classification of Group III-Bio in the Permits to Construct which are issued by the Department. This classification corresponds to an operator with a Grade of P-Bio 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 in accordance with the sampling plan to be submitted by the permittee, 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.
8. Unless authorized elsewhere in this permit, the permittee shall meet the following requirements concerning maintenance chemicals for the following waste streams: once-through noncontact 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:

1. Name and general composition of the maintenance chemical
2. Quantities to be used
3. Frequency of use
4. Proposed discharge concentration
5. EPA registration number, if applicable
6. 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, including the intake screen backwash. 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 permittee shall maintain at the permitted facility a record of the method(s) used in measuring the discharge flow:

Estimate - Pump Curve, Production Chart, Water Use Records

Instantaneous - Bucket and Watch, Weir and Gauge, Parshall Flume

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.

12. a. A three-brood chronic toxicity test shall be conducted using a control and the instream waste concentration (IWC) of 100% at Outfalls 001, 002, and 014. The test shall be performed at the frequencies indicated in Part I.A. 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/600/4-91/002) 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 superseding document. Toxicity test results need to be reported on DHEC Form 3420, "DMR Attachment for Toxicity Test Results", in accordance with Part I(C)(3) of the permit. The test must be performed by a DHEC certified laboratory.
- b. If the test results indicate a quarterly average of 20% reduction in reproduction or survival from the control or a single test exceeds 50% reduction in reproduction or survival from the control group, the test shall be deemed a failure. A minimum of one test per monitoring period must be conducted. If a test result exceeds the average limit in any monitoring period, the permittee may conduct additional tests as appropriate to better define the toxicity. Additional results should be included in the average. A single exceedance of the maximum limit will be considered a violation.
13. a. A 48 hour static acute toxicity test shall be conducted using a control and 100% effluent at Outfall 012 at the frequency indicated in Part I.A, using a control and 100% effluent. The test shall be conducted using Ceriodaphnia dubia as the test organism and in accordance with the most recent "Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms" (EPA/600/4-90/027) or superseding document. Toxicity test results need to be reported on DHEC Form 3420, "DMR Attachment for Toxicity Test Results", in accordance with Part I(C)(3) of the permit. The test must be performed by a DHEC certified laboratory.
- b. If the test results indicate a monthly average of 20% reduction in survival from the control or a single test exceeds 50% reduction in survival from the control group, the test shall be deemed a failure. A minimum of one test per monitoring period must be conducted. If a test result exceeds the average limit in any monitoring period, the permittee may conduct additional tests as appropriate to better define the toxicity. Additional results should be included in the average. A single exceedance of the maximum limit will be considered a violation.



14. The Permittee shall not store 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.
15. 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.
  - (2) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitation if the requirements of paragraph (3) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
  - (3) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
    - (i) An upset occurred and that the permittee can identify the cause(s) of the upset;
    - (ii) The permitted facility was at the time being properly operated; and
    - (iii) The permittee submitted notice of the upset as required in paragraph Part II.B.2 of this permit (24 hour notice).
    - (iv) The permittee complied with any remedial measures required by Part II.C.3 of this permit (duty to mitigate).
  - (4) Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

16. Discharge of any waste resulting from the combustion of chemical metal cleaning wastes, toxic wastes, or hazardous wastes to any waste stream which ultimately discharges to waters of the United States is prohibited, unless specifically authorized elsewhere in this permit.
17. The Water Quality-Based Effluent Limitations (WQBEL) for the parameters listed are not quantifiable using EPA-approved analytical methods. Therefore, the Department has set forth a reporting threshold to measure the highest acceptable quantification level for these parameters. This reporting threshold does not authorize the discharge of any pollutant in excess of the WQBEL.
- a. For purposes of reporting, the Permittee shall use the reporting threshold equivalent to the detection limit listed below and conduct analyses in accordance with the method specified below:

| <u>Parameter</u>              | <u>Analytical Method</u> | <u>ML</u>  |
|-------------------------------|--------------------------|------------|
| Total Residual Chlorine (TRC) | 330.1*                   | 0.05 mg/l  |
| Copper, total                 | 200.7                    | 0.010 mg/l |

\*An alternate EPA approved method may be used if the sensitivity and minimum detection level are comparable to method 330.1.

- b. For the purposes of reporting on the Discharge Monitoring Report (DMR), actual analytical results should be reported whenever possible. All analytical values at or above the detection limit shall be reported as the measured value. When results cannot be quantified, values below the detection limit shall be reported as "0".
- c. In the "Comment Section" of the DMR, the Permittee shall report the lowest calibration standard used, the detection limit achieved, and the number of times non-detectable results were reported as "0".

Rationale  
South Carolina Electric and Gas Company  
Summer Nuclear Station  
NPDES Permit No. SC0030856

This is a renewal of the above referenced NPDES permit.

A. General Information

The South Carolina Electric and Gas Company, Summer Nuclear Station (hereinafter referred to as the Permittee), operates a nuclear powered electric power generating facility (SIC 4911) located at Highway 215, Jenkinsville, South Carolina. The plant has a total rated electric generating capacity of 945 megawatts (MW) per day.

The following is a description of the discharges from the facility:

Once-through cooling water is discharged through Outfall 001 to the Monticello Reservoir. Outfall 001 is located at latitude 034° 17' 44" and longitude 081° 18' 31".

Low volume wastes (house service water for cooling of emergency generators, cooling heat exchangers, and reactor building cooling units) are discharged through Outfall 002. Outfall 002 is an internal outfall that discharges via Outfall 001 normally or via the Circulating Water Intake to Monticello Reservoir when circulating pumps are secured. Outfall 002 is located at latitude 034° 17' 58" and longitude 081° 18' 53".

Low level radiological wastes are discharged via Outfall 003 to Broad River. Outfall 003 is located at latitude 034° 17' 54" and longitude 081° 18' 55".

Low volume wastes (steam generator blowdown) are discharged via Outfall 004. Outfall 004 is an internal outfall that ultimately discharges via Outfall 001 to Monticello Reservoir. Outfall 004 is located at latitude 034° 17' 54" and longitude 081° 18' 56". Treated sanitary sewerage is discharged via Internal Outfall 005 located at latitude 034° 17' 41" and longitude 081° 18' 40". Ultimately, wastewaters are discharged via Outfall 014 to the Monticello Reservoir.

Low volume wastes (water treatment wastewaters) are discharged via Internal Outfall 006A located at latitude 034° 17' 40" and longitude 081° 18' 39". Ultimately, wastewaters are discharged via Outfall 014 to the Monticello Reservoir.

Low volume wastes and storm water from sumps in the transformer and fuel oil storage and handling areas) are discharged via Internal Outfall 006B located at



latitude 034° 17' 40" and longitude 081° 18' 37". Ultimately, wastewaters are discharged via Outfall 014 to the Monticello Reservoir.

Low volume wastes (ion exchange regeneration and wastes from sumps located in the chemical feed equipment, caustic tank, and "D" battery room areas) are discharged via Outfall 007. Outfall 007 is an internal outfall that discharges via Outfall 001 to the Monticello Reservoir. Outfall 007 is located at latitude 034° 17' 52" and longitude 081° 18' 52".

Chemical metal cleaning wastes are discharged via Internal Outfall 008 located at latitude 034° 17' 40" and longitude 081° 18' 40". Ultimately, wastewaters are discharged via Outfall 014 to the Monticello Reservoir.

Wastewaters from yard drains in the north/northwest area of the plant site and industrial cooler water are discharged via Outfall 012 located at latitude 034° 17' 54" and longitude 081° 19' 19". Outfall 012 discharges to the Broad River.

Wastewaters from yard drains in the southeast area of the plant site are discharged from Outfall 013 to the Broad River. Outfall 013 is located at latitude 034° 17' 39" and longitude 081° 18' 32".

Combined wastewater from internal Outfalls 005, 006A, 006b, and 008 is discharged through Outfall 014 to the Monticello Reservoir. Outfall 014 is located at latitude 34° 17' 44" and longitude 081° 18' 31".

The effluent from this facility is subject to the Steam Electric Power Generating Point Source Category (40 CFR Part 423).

The Monticello Reservoir is classified as a tributary to a Class FW water by the South Carolina Department of Health and Environmental Control. For purposes of this permit, Monticello Reservoir will also be classified as a Class FW water, designated as freshwaters suitable for primary and secondary contact recreation and as a source for drinking water after conventional treatment. The waters are suitable for fishing and the survival and propagation of a balanced indigenous aquatic community of fauna and flora, as well as for industrial and agricultural uses.

The Broad River segment receiving discharge from the Permittee is classified as a Class FW water by the South Carolina Department of Health and Environmental Control.

The facility contact and mailing address follows:

Gary Taylor  
Vice President  
Nuclear Operations  
South Carolina Electric & Gas Company  
P.O. Box 88  
Jenkinsville, South Carolina 29065

B. Derivation of Limitations

Discharge limitations will be based on 1) the Steam Electric Effluent Guidelines, 40 CFR Part 423; 2) State Water Quality Criteria set forth in The South Carolina Department of Health and Environmental Control (SCDHEC) Toxic Control Strategy for Wastewater Discharges (Draft), South Carolina Department of Health and Environmental Control, October 1990; 3) the Water Classification and Standards (Regulation 61-68); Classified Waters (Regulations 61-69), South Carolina Department of Health and Environmental Control, April 27, 1990; and 4) Guidance for NPDES Permits Issued to Steam Electric Power Plants, Rebecca W. Hammer, Office of Water Enforcement and Permits, USEPA, August 22, 1985.

C. Proposed Effluent Limitations

The total flow (Q) from the facility to Monticello Reservoir follows:

|   |                    |
|---|--------------------|
| Outfall 001 (once-through cooling water)  | = 769 MGD          |
| Outfall 002 (low volume wastes)   | = 13.5 MGD         |
| Outfall 004 (low volume wastes)   | = 0.144 MGD        |
| Outfall 007 (low volume wastes)   | = 0.08 MGD         |
| Outfall 014 (sanitary sewerage from Outfall 005, low volume wastes from Outfalls 006A and 006B, metal cleaning wastes from Outfall 008, and sanitary sewerage from Outfall 011) | = <u>0.140 MGD</u> |
| Total   | = 782.864 MGD      |

The following dilution is provided for Outfalls 001, 002, 004, 007, and 014 discharges to Monticello Reservoir:

Monticello Reservoir 7Q10 = 0 cfs = 0 MGD  
Monticello Reservoir annual average = 0 cfs = 0 MGD

Therefore,

$$\text{Dilution factor} = \frac{\text{Stream flow} + \text{Plant Discharge}}{\text{Plant Discharge}}$$

$$7Q10 \text{ Dilution factor} = \frac{(0 + 782.9386) \text{ MGD}}{782.9386 \text{ MGD}} = 1.0$$

$$\text{Annual average dilution factor} = \frac{(0 + 782.9386) \text{ MGD}}{782.9386 \text{ MGD}} = 1.0$$

The total flow (Q) from the facility to the Broad River follows:

|   |               |
|---|---------------|
| Outfall 003 (low level radiological wastes) | = 0.02 MGD    |
| Outfall 013 (storm water)                   | = 0.00144 MGD |
| Outfall 012 (yard drains, service water)    | = 0.014 MGD   |
| Total                                       | = 0.0354 MGD  |

The following dilution is provided for Outfalls 003, 013, and 015 discharges to Broad River:

$$\begin{aligned}\text{Broad River } 7Q10 &= 901 \text{ cfs} = 582 \text{ MGD} \\ \text{Broad River annual average} &= 6037 \text{ cfs} = 3901.8 \text{ MGD}\end{aligned}$$

Therefore,

$$\text{Dilution factor} = \frac{\text{Stream flow} + \text{Plant Discharge}}{\text{Plant Discharge}}$$

$$7Q10 \text{ Dilution factor} = \frac{(582 + 0.0354) \text{ MGD}}{0.0354 \text{ MGD}} = 10899$$

$$\text{Annual average dilution factor} = \frac{(3901.8 + 0.0354) \text{ MGD}}{0.0354 \text{ MGD}} = 110221$$

#### Outfall 001

Description of Discharge: Outfall 001 discharges once-through cooling water at an average rate of 769 MGD. Applicable effluent guidelines for this Outfall are the Steam Electric Point Source Category for existing sources, which provide the following limitations:



1. There shall be no discharge of PCBs.
2. Once-through cooling water

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

3. Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted.

Flow

1. Form 2C Value: 769 MGD average, 769 MGD daily maximum.
2. Previous Permit: Monitor and report.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: The flow shall be monitored continuously by pump logs or recorder. This requirement is retained from the previous permit.

Total Residual Chlorine (TRC)

1. Form 2C Value: Reported as believed absent.
2. Previous Permit: 0.2 mg/l instantaneous maximum.
3. Effluent Guidelines: 0.20 mg/l instantaneous maximum.
4. Water quality criteria: 0.011 mg/l chronic, 0.019 mg/l acute allowable freshwater instream waste concentration.
5. Human Health Consideration: Not applicable.
6. Detection Limit: <0.1 mg/l.
7. Conclusion: The permittee has indicated that chlorine is not presently added to the cooling water. In lieu of monitoring, a statement will be placed on the limits page prohibiting the addition of chlorine.

pH

1. Form 2C Value: 7.64 s.u. minimum, 7.64 s.u. maximum.
2. Previous Permit: Not regulated.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria(S.C. Regulation 61-69): The pH of the receiving waters shall be maintained between 6.0 standard units and 8.5 standard units.
5. Human Health Consideration: Not applicable.

6. Detection Limit: Not applicable.
7. Conclusion: Based on Reg. 61-69, pH will be limited to the range 6.0 s.u. to 8.5 s.u. at this outfall.

Aluminum

1. Form 2C Value: 0.238 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 0.087 mg/l (ave)  
0.75 mg/l (max)
5. Human Health Consideration: none
6. Detection Limit: 0.05 mg/l
7. Conclusion: Analysis of intake water indicates an aluminum level of 0.248 mg/l. The aluminum present appears to be due to the intake water and reflects ambient conditions in the lake. Therefore, there will be no proposed limit for aluminum.

Iron

1. Form 2C Value: 0.486 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 1.0 mg/l (ave)  
2.0 mg/l (max)
5. Organoleptic: 0.3 mg/l
6. Detection Limit: 0.02 mg/l
7. Conclusion: Analysis of intake water indicates an iron level of 0.379 mg/l. The iron present appears to be due to the intake water and reflects ambient conditions in the lake. Therefore, there will be no proposed limit for iron.

Magnesium

1. Form 2C Value: 1.67 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 3.0 mg/l (ave)  
6.0 mg/l (max)
5. Organoleptic: 100 mg/l
6. Detection Limit: 0.05 mg/l
7. Conclusion: Analysis of intake water indicates a magnesium level of 1.68 mg/l. The magnesium present appears to be due to the intake water and reflects ambient conditions in the lake. Therefore, there will be no proposed limit for iron.

Manganese

1. Form 2C Value: 0.0136 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 1.0 mg/l (ave)

2.0 mg/l (max)

5. Human Health: 0.05 mg/l
6. Detection Limit: 0.01 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for manganese will be proposed.

#### Flouride

1. Form 2C Value: 0.123 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL: 4.0 mg/l
6. Detection Limit: 0.01 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for flouride will be proposed.

#### Sulfate

1. Form 2C Value: 6.14 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL: 250 mg/l
6. Detection Limit: 0.005 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for sulfate will be proposed.

#### Nitrate-nitrite

1. Form 2C Value: 0.36 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL: 10 mg/l
6. Detection Limit: 0.02 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for nitrate-nitrite will be proposed.

#### 1. 316(a)

The thermal component of the discharge from this facility is subject to compliance with South Carolina Water Classifications and Standards (Reg. 61-68). Section D.(8)(a) of the standards stipulates that the water temperature of all Class A waters "shall not be increased more than 5°F(2.8°C) above natural temperature conditions or exceed a maximum of 90°F(32.2°C) as a result of the discharge of heated liquids," unless a different temperature standard has been established, a mixing zone has been established, or a Section 316(a) determination under the Federal Clean Water Act (the Act) has been completed. Section 316(a) of the Act allows the permitting authority to impose alternative and less stringent thermal limitations after demonstration that the water quality standards limitations are more



stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the receiving water.

On April 7, 1975, as a part of permitting activities of the original NPDES permit, SCE&G provided information to support its request that alternative thermal effluent limitations be allowed under Section 316(a) of the Act. In April 30, 1976, a determination was made that the permittee had submitted adequate information to demonstrate that the alternative limitations for the thermal component of the discharge would assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the Monticello Reservoir. The alternate maximum discharge temperature for Outfall 001 is 45°C(113°F). A maximum thermal plume temperature of 32.2°C(90°F) and temperature rise of 1.66°C(3.0°F) is also imposed.

On July 1, 1984 a continuation of the 316(a) variance was allowed by the reissuance of the NPDES permit. On January 3, 1989, a request to continue the variance was included as part of the application for reissuance of the NPDES Permit. To support the request, the permittee has indicated there has been no change in facility operation and no change in the biological community. A tentative determination was made that continuation of the 316(a) variance was appropriate in the reissuance of this permit.

On April 3, 1997, the permittee submitted an application for reissuance of the permit. A request to continue the 316(a) variance was included as part of the application. On June 19, 1997, the Department determined that continuance was appropriate.

## 2. Section 316(b)

Section 316(b) of the Act requires that the location, design, construction, and capacity of a cooling water intake structure reflect the best technology available for minimizing environmental impact.

On April 19, 1985, a determination was made, in accordance with Section 316(b) of the Act, that the location, design, construction, and capacity of the cooling water intake structure(s) reflects the best technology available for minimizing adverse environmental impact. This determination was based on information submitted by SCE&G in a 316(b) Demonstration (March 1977).

### Outfall 002

Outfall 002 consists of house service water for cooling of emergency generators, cooling heat exchangers and reactor building cooling units and is discharged at

an average rate of 13.5 MGD. These wastewaters are considered house service waters, a low volume waste. The facility occasionally adds biocides and corrosion inhibitors to the water supply.

Wastewaters are settled in the house service pond and periodically discharged to the Monticello Reservoir. The house service pond also serves as the backup source for emergency feed water. Applicable effluent guidelines for this Outfall are the Steam Electric Point Source Category for existing sources, which provide the following limitations:

1. The pH of all discharges, except once-through cooling water, shall be within the range of 6.0 standard units to 9.0 standard units.
2. There shall be no discharge of PCBs.
3. Low volume wastes

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

#### Flow

1. Form 2C Value: 3.62 MGD average, 10.27 MGD daily maximum.
2. Previous Permit: Monitor and report.
4. Effluent Guidelines: Not applicable.
5. Water Quality Criteria: Not applicable.
6. Human Health Consideration: Not applicable.
7. Detection Limit: Not applicable.
8. Conclusion: Flow conditions at this outfall are similar to those during the previous permit's term. Since this discharge is intermittent, the flow monitoring requirements of an instantaneous measurement taken 1/occurrence, as in the previous permit, remain.

#### pH

1. Form 2C Value: 7.03 s.u. minimum, 7.24 s.u. maximum.
2. Previous Permit: 6.0 s.u. - 9.0 s.u.
3. Effluent Guidelines: 6.0 s.u. minimum, 9.0 s.u. maximum.
4. Water Quality Criteria(S.C. Regulation 61-69): The pH of the receiving waters shall be maintained between 6.0 standard units and 8.5 standard units.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: The Water Quality Criteria limit of 6-8.5 s.u. is proposed. Since this discharge is intermittent, monitoring requirements of 1/occurrence by grab sample are adopted.

Total Suspended Solids (TSS)

1. Form 2C Value: 2 mg/l
2. Previous Permit: 30 mg/l ave., 100 mg/l max.
3. Effluent Guidelines: 30.0 mg/l monthly average and 100.00 mg/l daily max.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.01 mg/l.
7. Conclusion: The discharge from Outfall 002 consists entirely of house service water, a low volume wastes. Therefore, low volume wastes limitations of 30 mg/l daily average and 100 mg/l daily maximum are applicable and are adopted in the permit. Since this discharge is intermittent, monitoring requirements of 1/occurrence by grab sample are adopted.

Oil and Grease

1. Form 2C Value: 7 mg/l
2. Previous Permit: 15 mg/l ave., 20 mg/l max.
3. Effluent Guidelines: 15 mg/l monthly average and 20 mg/l daily
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <5 mg/l.
7. Conclusion: The discharge from Outfall 002 consists entirely of house service water, a low volume wastes. Therefore, low volume wastes limitations of 15 mg/l daily average and 20 mg/l daily maximum are applicable and are adopted in the permit. Since this discharge is intermittent, monitoring requirements of 1/occurrence by grab sample are adopted.

Total Residual Chlorine

1. Form 2C Value: Reported as believed absent.
2. Previous Permit: 0.2 mg/l instantaneous maximum.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: 0.011 mg/l chronic, 0.019 mg/l acute allowable freshwater instream waste concentration.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.05 mg/l.
7. Conclusion: The previous permit provides a limit of 0.2 mg/l instantaneous maximum which is less stringent than the water quality-based limitations (See Other Pollutants for a discussion of the derivation of these limits). Therefore, the water quality-based limits of 0.011 mg/l monthly average and 0.019 mg/l daily maximum are imposed. However, the State's achievable detection level for total residual chlorine is higher than water quality limitations. Therefore, the permittee must report down to the minimum detection level of <0.05 mg/l will be imposed as the monthly average and daily maximum limits. Since there is a possibility that chlorination occurs, monitoring requirements of 1/occurrence of chlorination by grab sample, as in the previous permit, remain appropriate and are



adopted.

Aluminum

1. Form 2C Value: 0.0685 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 0.087 mg/l (ave)  
0.75 mg/l (max)
5. Human Health Consideration: none
6. Detection Limit: 0.05 mg/l
7. Conclusion: Analysis of intake water indicates an aluminum level of 0.248 mg/l. The aluminum present appears to be due to the intake water and reflects ambient conditions in the lake. Therefore, there will be no proposed limit for aluminum.

Barium

1. Form 2C Value: 0.016 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 50 mg/l (ave)  
100 mg/l (max)
5. Human Health Consideration: 1.0 mg/l
6. Drinking Water MCL: 0.002 mg/l
7. Detection Limit: 0.05 mg/l
8. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for barium will be proposed.

Iron

1. Form 2C Value: 0.143 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 1.0 mg/l (ave)  
2.0 mg/l (max)
5. Organoleptic: 0.3 mg/l
6. Detection Limit: 0.02 mg/l
7. Conclusion: Analysis of intake water indicates an iron level of 0.379 mg/l. The iron present appears to be due to the intake water and reflects ambient conditions in the lake. Therefore, there will be no proposed limit for iron.

Magnesium

1. Form 2C Value: 1.63 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 3.0 mg/l (ave)  
6.0 mg/l (max)
5. Organoleptic: 100 mg/l
6. Detection Limit: 0.05 mg/l
7. Conclusion: Analysis of intake water indicates a magnesium level of

1.68 mg/l. The magnesium present appears to be due to the intake water and reflects ambient conditions in the lake. Therefore, there will be no proposed limit for magnesium.

Flouride

1. Form 2C Value: 0.129 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL: 4.0 mg/l
6. Detection Limit: 0.01 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for flouride will be proposed.

Nitrate-nitrite

1. Form 2C Value: 0.297 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL: 10 mg/l
6. Detection Limit: 0.02 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for nitrate-nitrite will be proposed.

Sulfate

1. Form Value: 6.63 mg/l
2. Previous Permit: Not regulated.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: 0.01 mg/l.
7. Conclusion: Based upon reasonable potential procedures, no limit will be proposed for sulfate.

Temperature

1. Form 2C Value: 17°C (winter)
2. Previous Permit: Monitor and report.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: The receiving water temperature may not be increased by more than 2.8°C or exceed a maximum of 32.2°C, unless a Section 316(a) determination has been completed.
5. Human Health Consideration: Not applicable.
6. Detection limit: Not applicable.
7. Conclusion: Based on historical data it does not appear that the temperature standard will be exceeded, therefore temperature will be monitored and reported as in the previous permit.

Outfall 003 consists of low level radiological wastes including reactor water, non-reactor grade floor drains, and laundry and shower drains intermittently discharged. Wastewaters are treated in the Liquid Waste Processing System by evaporation and ion exchange, and are held in Waste Monitor Tank Nos. 1 and 2 for wastewater monitoring to ensure the wastewater quality is within NPDES and NRC limits prior to discharging. Applicable effluent guidelines for this Outfall are the Steam Electric Point Source Category for existing sources, which provide the following limitations:

1. The pH of all discharges, except once-through cooling water, shall be within the range of 6.0 standard units to 9.0 standard units.
2. There shall be no discharge of PCBs.
3. Low volume wastes

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

#### Flow

1. Form 2C Value: 0.0042 MGD average, 0.005 MGD daily maximum.
2. Previous Permit: Monitor and report.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: Flow conditions at this outfall are similar to those during the previous permit's term. Since the discharge is intermittent, the flow monitoring requirements of an instantaneous measurement taken 1/occurrence, as in the previous permit, remain appropriate and are therefore imposed.

#### pH

1. Form 2C Value: 6.02 s.u. minimum, 8.85 s.u. maximum.
2. Previous Permit: 6.0 s.u. minimum, 9.0 s.u. maximum.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria(S.C. Regulation 61-69): The pH of the receiving waters shall be maintained between 6.0 and 8.5 standard units.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: This wastestream is discharged to the penstocks of Fairfield Hydro. Due to the high dilution and mixing in the



penstocks, it is unlikely that water quality criteria for pH will be exceeded. The proposed limit will be based on the effluent guidelines: 6.0 - 9.0 s.u..

Total Suspended Solids (TSS)

1. Form 2C Value: 6.3 mg/l daily maximum, 0.64 mg/l long term average.
2. Previous Permit: 30 mg/l monthly average, 100 mg/l instantaneous maximum.
3. Effluent Guidelines: 30 mg/l (ave), 100 mg/l (max)
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.01 mg/l.
7. Conclusion: Limitations of 30 mg/l monthly average and 100 mg/l instantaneous maximum are adopted based on effluent guidelines. Conditions at this outfall are similar to those during the previous permit's term. Since this discharge is intermittent, monitoring requirements of 1/occurrence by grab sample, as in the previous permit, remain appropriate and are adopted.

Oil and Grease

1. Form 2C Value: 13.1 mg/l daily maximum, 0.58 mg/l long term average.
2. Previous Permit: 15 mg/l monthly average, 20 mg/l instantaneous maximum.
3. Effluent Guidelines: 15 mg/l (ave), 20 mg/l(max)
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <5 mg/l.
7. Conclusion: Limitations of 15 mg/l monthly average and 20 mg/l instantaneous maximum are adopted based on effluent guidelines. Since this discharge is intermittent, monitoring requirements of 1/occurrence by grab sample, as in the previous permit, remain appropriate and are adopted.

Boron

1. Form 2C Value: 138 mg/l
2. Previous Permit: Monitor and report.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: (Drinking Water MCL)-20 mg/l(110221) = 2204426.8 mg/l
6. Detection limit: <0.01 mg/l.
7. Conclusion: Based on a comparison of the Boron concentration with the Human Health based limit, there will not be a limit for Boron.

Magnesium

1. Form 2C Value: 0.0194 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable

4. Water Quality Criteria:  $3.0 \text{ mg/l} \times 10899 = 32697 \text{ mg/l}$  (ave)  
 $6.0 \text{ mg/l} \times 10899 = 65394 \text{ mg/l}$  (max)
5. Organoleptic:  $100 \text{ mg/l} \times 110221 = 11022100 \text{ mg/l}$
6. Detection Limit:  $0.05 \text{ mg/l}$
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for magnesium will be proposed.

Molybdenum

1. Form 2C Value:  $0.0129 \text{ mg/l}$
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Detection Limit:  $0.02 \text{ mg/l}$
6. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for molybdenum will be proposed.

Zinc

1. Form 2C Value:  $20.7 \text{ ug/l}$
2. Previous Permit: Not regulated
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria:  $0.059 \text{ mg/l}(10899) = 643 \text{ mg/l}$  ave.  
 $0.065 \text{ mg/l}(10899) = 708 \text{ mg/l}$  max.
5. Human Health Consideration:  $50 \text{ mg/l}(110221) = 5511050 \text{ mg/l}$
6. Detection Limit:  $<0.01 \text{ mg/l}$
7. Conclusion: Based on a comparison between the 2C value and water quality based limits, no limit for zinc will be required.

Total Copper

1. Form 2C Value:  $0.0379 \text{ mg/l}$
2. Previous Permit:  $1.0 \text{ mg/l}$  monthly average,  $1.0 \text{ mg/l}$  instantaneous maximum.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria:  $0.0065 \text{ mg/l}(10899) = 70.8 \text{ mg/l}$  ave.  
 $0.0092 \text{ mg/l}(10899) = 100.3 \text{ mg/l}$  max.
5. Human Health Consideration:  $1.0 \text{ mg/l}(110221) = 110221 \text{ mg/l}$
6. Detection limit:  $<0.01 \text{ mg/l}$ .
7. Conclusion: Based on a comparison between the 2C value and water quality based limits, there will be no limit for copper.

Total Iron

1. Form 2C Value:  $0.146 \text{ mg/l}$
2. Previous Permit:  $1.0 \text{ mg/l}$  monthly average,  $1.0 \text{ mg/l}$  instantaneous maximum.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit:  $0.001 \text{ mg/l}$ .
7. Conclusion: Based on a comparison between the 2C value and water quality based limits, there will be no limit for iron.

Mercury

1. Form 2C Value: 0.000552 mg/l
2. Previous Permit: Not regulated
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria:  $0.012 \text{ ug/l} \times 10899 = 130.8 \text{ ug/l}$   
 $2.4 \text{ ug/l} \times 10899 = 26157.6 \text{ ug/l}$
5. Human Health Consideration(Drinking Water MCL):  $2.0 \text{ ug/l} \times 110221 = 220442 \text{ ug/l}$
6. Detection Limit: 0.005 mg/l
7. Conclusion: Based on the 2C sampling concentration and reasonable potential procedures, no limit will be required for selenium.

Outfall 004

Outfall 004 consists of steam generator blowdown discharged at an average rate of 0.144 MGD. Wastewaters are settled then discharged via Outfall 001 to Monticello Reservoir or via Outfall 003 (as low level radiological waste) to Broad River.

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

1. The pH of all discharges, except once-through cooling water, shall be within the range of 6.0 standard units to 9.0 standard units.
2. There shall be no discharge of PCBs.
3. Low volume wastes

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

Flow

1. Form 2C Value: 0.158 MGD average, 0.079 daily maximum.
2. Previous Permit: Monitor and report.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: Conditions at this outfall are similar to those during the previous permit's term. Therefore, monitoring



requirements of an instantaneous measurement taken 1/month, as in the previous permit, remain appropriate and are imposed.

pH

1. Form 2C Value: 7.07 s.u. minimum, 8.9 s.u. maximum.
2. Previous Permit: 6.0 s.u. minimum, 9.0 s.u. maximum.
3. Effluent Guidelines: 6.0 s.u. minimum, 9.0 s.u. maximum.
4. Water Quality Criteria(S.C. Regulation 61-69): The pH of the receiving waters shall be maintained between 6.0 and 8.5 standard units.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: Although the water quality standard is more stringent than the effluent guideline limits, this wastestream is combined with once through cooling water prior to discharge through Outfall 001. A water quality limit will be placed at the final outfall.

Total Suspended Solids (TSS)

1. Form 2C Value: 21 mg/l daily maximum, 3.81 mg/l long term average.
2. Previous Permit: 30 mg/l monthly average, 100 mg/l instantaneous maximum.
3. Effluent Guidelines: 30.0 mg/l monthly average and 100.00 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.01 mg/l.
7. Conclusion: Based on Effluent Guidelines, the proposed limit is 30 mg/l as a monthly ave. and 100 mg/l as a max..

Oil and Grease

1. Form 2C Value: 2.5 mg/l daily maximum, 0.98 mg/l long term average.
2. Previous Permit: 15 mg/l monthly average, 20 mg/l instantaneous maximum.
3. Effluent Guidelines: 15 mg/l monthly average and 20 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <5 mg/l.
7. Conclusion: Therefore, effluent guidelines-based limitations of 15 mg/l monthly average and 20 mg/l daily maximum are applicable to this discharge. However, the previous permit limit of 20 mg/l instantaneous maximum is more stringent than the effluent guidelines-based limit of 20 mg/l daily maximum. Therefore, limitations of 15 mg/l monthly average and 20 mg/l instantaneous maximum are adopted based on anti-backsliding.

Outfall 005 is an internal outfall consisting of treated sanitary sewerage with an average discharge flow of 0.005 MGD. Wastewaters are treated in an aeration pond, followed by a stabilization pond. Ultimately, effluent is chlorinated in a chlorine contact chamber prior to commingling with other wastewaters and discharging via Outfall 014 to the Monticello Reservoir.

Flow

1. Form 2C Value: 0.005017 MGD average, 0.0222 MGD daily maximum.
2. Previous Permit: Monitor and report.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: The monitoring requirements of instantaneous measurements taken 1/week, as in the previous permit, remain appropriate and are imposed.

5-Day Biochemical Oxygen Demand (BOD<sub>5</sub>)

1. Form 2C Value: 22.4 mg/l daily maximum, 10.4 mg/l long term average.
2. Previous Permit: 30 mg/l monthly average, 45 mg/l daily maximum.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <2 mg/l.
7. Conclusion: Limitations of 30 mg/l monthly average and 45 mg/l daily maximum are adopted based secondary treatment standards.

Total Suspended Solids (TSS)

1. Form 2C Value: 14.4 mg/l daily maximum, 5.9 mg/l long term average.
2. Previous Permit: 30 mg/l monthly average, 45 mg/l daily maximum.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.01 mg/l.
7. Conclusion: Limitations of 30 mg/l monthly average and 45 mg/l daily maximum are adopted based on secondary standards.

Fecal Coliform

1. Form 2C Value:
2. Previous Permit: 1.75#/100 ml monthly average, 19#/100 ml daily maximum.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <2/100 ml.
7. Conclusion: The previous permit limits of 200/100 ml monthly

average and 400/100 ml daily maximum are adopted based on Wasteload Allocation recommendations.

Total Residual Chlorine

1. Form 2C Value: Not available
2. Previous Permit: Not regulated.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.01 mg/l.
7. Conclusion: A limit for TRC will not be required at this outfall, since this is an internal outfall and the wastestream is not subject to the steam electric guidelines. A water quality limit for TRC will be applied at the final discharge point (Outfall 014) to the receiving water body.

Outfall 006A

Outfall 006A is an internal outfall consisting of low volume wastes discharging at an average rate of 0.08 MGD. Internal Outfall 006A discharges treated wastewater from the water treatment area referred to as the Alum Sludge Basin. Treatment consists of sedimentation prior to discharge. Wastewaters from Internal Outfall 006A is commingled with other wastewaters and discharged via newly designated Outfall 014 to Monticello Reservoir. Applicable effluent guidelines for this Outfall are the Steam Electric Point Source Category for existing sources, which provide the following limitations:

1. The pH of all discharges, except once-through cooling water, shall be within the range of 6.0 standard units to 9.0 standard units.
2. There shall be no discharge of PCBs.
3. Low volume wastes

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

Flow

1. Form 2C Value: 0.0207 MGD average, 0.0543 MGD daily maximum.
2. Previous Permit: Monitor and report.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.



6. Detection Limit: Not applicable.
7. Conclusion: Monitoring by instantaneous measurement, as in the previous permit, is proposed.

Total Suspended Solids (TSS)

1. Form 2C Value: 3.4 mg/l daily maximum, 1.18 mg/l average.
2. Previous Permit: 30 mg/l monthly average, 100 mg/l instantaneous maximum.
3. Effluent Guidelines: 30.0 mg/l monthly average and 100.00 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.01 mg/l.
7. Conclusion: Effluent guidelines-based limitations of 30 mg/l monthly average and 100 mg/l daily maximum are proposed for this discharge.

Oil and Grease

1. Form 2C Value: 3.5 mg/l maximum, 0.87 mg/l long term average.
2. Previous Permit: 15 mg/l monthly average, 20 mg/l instantaneous maximum.
3. Effluent Guidelines: 15 mg/l monthly average and 20 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <5 mg/l.
7. Conclusion: Effluent guidelines-based limitations of 15 mg/l monthly average and 20 mg/l daily maximum are proposed for this discharge.

Other Pollutants

Several other pollutants may be present in this outfall due to the addition of chemical additives. These include ammonia; morpholine; soda ash; aluminum sulfate; chlorine; boron; biocides including zinc sulfate, tetrasodium pyrophosphate, and polymer; and algicides containing copper. These pollutants were evaluated at the final discharge location: newly designated Outfall 014 to Monticello Reservoir.

Outfall 006B

Outfall 006B is an internal outfall consisting of low volume wastes discharging at an average flow of 0.064 MGD. Internal Outfall 006B discharges treated wastewater from various sumps in the transformer and fuel oil storage and handling areas. Treatment consists of oil skimming and sedimentation prior to discharge. Wastewaters from Internal Outfall 006B are commingled with other wastewaters and discharged via newly designated Outfall 014 to Monticello Reservoir. Applicable effluent guidelines for this Outfall are the Steam Electric Point Source Category for existing sources, which provide the following limitations:

1. The pH of all discharges, except once-through cooling water, shall be within the range of 6.0 standard units to 9.0 standard units.
2. There shall be no discharge of PCBs.
3. Low volume wastes

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

Flow

1. Form 2C Value: 0.064 MGD average, 0.286 MGD daily maximum.
2. Previous Permit: Monitor and report.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: Monitoring by instantaneous measurement, as in the previous permit, is proposed. To be consistent with other outfalls regulated in this permit, the monitoring frequency is reduced to 1/month.

Total Suspended Solids (TSS)

1. Form 2C Value: 17 mg/l daily maximum, 4.24 mg/l long term average.
2. Previous Permit: 30 mg/l monthly average, 98 mg/l instantaneous maximum.
3. Effluent Guidelines: 30.0 mg/l monthly average and 100.00 mg/l
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.01 mg/l.
7. Conclusion: The previous permit limits are more stringent than the effluent guideline based limits. Past monitoring data indicates that the permittee has been meeting the limits. Based on antibacksliding, the previous permit limits are proposed.

Oil and Grease

1. Form 2C Value: 3.93 mg/l daily maximum, 13.4 mg/l average.
2. Previous Permit: 15 mg/l monthly average, 19 mg/l maximum
3. Effluent Guidelines: 15 mg/l monthly average and 20 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: Not applicable.

5. Human Health Consideration: Not applicable.
6. Detection limit: <5 mg/l.
7. Conclusion: The previous permit limits are more stringent than the effluent guideline based limits. Past monitoring data indicates that the permittee has been meeting the limits. Based on antibacksliding, the previous permit limits are proposed.

#### Other Pollutants

Several other pollutants may be present in this outfall due to the addition of chemical additives. These include ammonia; sodium nitrate/sodium borate; and algicides containing copper. These pollutants were evaluated at the final discharge location: newly designated Outfall 014 to Monticello Reservoir.

#### Outfall 007

Outfall 007 consists of low volume wastes from ion exchange regeneration and from sumps Rationale located in the chemical feed equipment, caustic tank, and "D" battery room areas with a commingled average discharge flow of 0.08 MGD. Treatment consists of neutralization prior to commingling with other wastestreams and final discharge through Outfall 001 to Monticello Reservoir. Applicable effluent guidelines for this Outfall are the Steam Electric Point Source Category for existing sources, which provide the following limitations:

1. The pH of all discharges, except once-through cooling water, shall be within the range of 6.0 standard units to 9.0 standard units.
2. There shall be no discharge of PCBs.
3. Low volume wastes

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

#### Flow

1. Form 2C Value: 0.078 MGD average, 0.24 MGD daily maximum.
2. Previous Permit: Monitor and report.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.



6. Detection Limit: Not applicable.
7. Conclusion: The current method of monitoring fits the definition of "estimate" and will continue as such.

pH

1. Form 2C Value: 6.01 s.u. minimum, 8.9 s.u. maximum.
2. Previous Permit: 6.0 s.u. minimum, 9.0 s.u. maximum.
3. Effluent Guidelines: 6.0 s.u. minimum, 9.0 s.u. maximum.
4. Water Quality Criteria(S.C. Regulation 61-69): The pH of the receiving waters shall be maintained between 6.0 and 8.5 standard units.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: Since this wastestream is commingled with other wastestreams prior to the final discharge, water quality limits are not applicable. Effluent guideline based limits of 6.0 to 9.0 s.u., as in the previous permit, shall be imposed.

Total Suspended Solids (TSS)

1. Form 2C Value: 17.1 mg/l daily maximum, 3.37 mg/l long term average.
2. Previous Permit: 30 mg/l monthly average, 100 mg/l instantaneous maximum.
3. Effluent Guidelines: 30.0 mg/l monthly average and 100.00 mg/l
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.01 mg/l.
7. Conclusion: Effluent guidelines-based limitations of 30 mg/l monthly average and 100 mg/l daily maximum are applicable to this discharge.

Oil and Grease

1. Form 2C Value: 3.2 mg/l daily maximum, 1.26 mg/l average.
2. Previous Permit: 15 mg/l monthly average, 20 mg/l instantaneous maximum.
3. Effluent Guidelines: 15 mg/l monthly average and 20 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <5 mg/l.
7. Conclusion: Effluent guidelines-based limitations of 15 mg/l monthly average and 20 mg/l daily maximum are applicable to this discharge.

Outfall 008

Outfall 008 is an internal outfall which consists of chemical metal cleaning

wastes. Internal Outfall 008 discharges approximately 2 times per year from the Plant Startup Waste Holding Basin. The facility has reported 0 MGD as the average discharge flow rate from Internal Outfall 008. Treatment consists of neutralization and sedimentation prior to discharge. Wastewaters from Internal Outfall 008 are commingled with other wastewaters and discharged via newly designated Outfall 014 to Monticello Reservoir. Applicable effluent guidelines for this Outfall are the Steam Electric Point Source Category for existing sources, which provide the following limitations:

1. The pH of all discharges, except once-through cooling water, shall be within the range of 6.0 standard units to 9.0 standard units.
2. There shall be no discharge of PCBs.
3. Metal cleaning wastes

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

#### Flow

1. Form 2C Value: 0 MGD average, 0 MGD daily maximum.
2. Previous Permit: Monitor and report.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: Conditions at this outfall are similar to those during the previous permit term. Therefore, monitoring requirement of an instantaneous measurement 1/day, as in the previous permit, remain appropriate and are imposed.

#### pH

1. Form 2C Value: 10 s.u. minimum, 10 s.u. maximum.
2. Previous Permit: 6.0 s.u. minimum, 9.0 s.u. maximum.
3. Effluent Guidelines: 6.0 s.u. minimum, 9.0 s.u. maximum.
4. Water Quality Criteria(S.C. Regulation 61-69): The pH of the receiving waters shall be maintained between 6.0 and 8.5 standard units.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.

7. Conclusion: The stream standard based limit of 6.0 to 8.5 s.u. will be applied at the final discharge point (Outfall 014) since it is more stringent than the effluent guideline limit.

Total Suspended Solids (TSS)

1. Form 2C Value: 1.3 mg/l daily maximum.
2. Previous Permit: 30 mg/l monthly average, 100 mg/l instantaneous maximum.
3. Effluent Guidelines: 30.0 mg/l monthly average and 100.00 mg/l
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.01 mg/l.
7. Conclusion: Effluent guidelines-based limitations of 30 mg/l monthly average and 100 mg/l daily maximum are proposed for this discharge.

Oil and Grease

1. Form 2C Value: 0.05 mg/l daily maximum.
2. Previous Permit: 15 mg/l monthly average, 20 mg/l instantaneous maximum.
3. Effluent Guidelines: 15 mg/l monthly average and 20 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <5 mg/l.
7. Conclusion: Effluent guidelines-based limitations of 15 mg/l monthly average and 20 mg/l daily maximum are proposed for this discharge.

Total Copper

1. Form 2C Value: <0.01 mg/l
2. Previous Permit: 1.0 mg/l monthly average, 1.0 mg/l instantaneous maximum.
3. Effluent Guidelines: 1.0 mg/l monthly average and 1.0 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: 0.0065 mg/l monthly average, 0.0092 mg/l daily maximum
5. Human Health Consideration: 1.0 mg/l instream waste concentration
6. Detection limit: <0.01 mg/l.
7. Conclusion: Effluent guidelines-based limitations of 1.0 mg/l monthly average and 1.0 mg/l daily maximum are proposed for this discharge. Water quality limits of 0.0065 mg/l monthly average and 0.0092 mg/l daily maximum are applicable at the final discharge point 014.

Total Iron

1. Form 2C Value: 4.84 mg/l daily maximum.
2. Previous Permit: 1.0 mg/l monthly average, 1.0 mg/l instantaneous maximum.



3. Effluent Guidelines: 1.0 mg/l monthly average and 1.0 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: 1.0 mg/l
5. Human Health Consideration: 0.3 mg/l (domestic water supplies)
6. Detection limit: <0.01 mg/l.
7. Conclusion: Effluent guidelines-based limitations of 1.0 mg/l monthly average and 1.0 mg/l daily maximum are proposed for this discharge.

#### Other Pollutants

Several other pollutants may be present in this outfall due to the addition of chemical additives. These include hydrazine; morpholine; boron; gaseous chlorine; and sodium nitrate/sodium borate. These pollutants were evaluated at the final discharge location: newly designated Outfall 014 to Monticello Reservoir.

#### Outfall 012

Outfall 012 is an internal outfall which consists of storm water runoff from yard drains in the north/northwest area of the plant site and previously monitored house service water from Internal Outfalls 009A and 009B. No treatment is provided prior to discharge to the Broad River. Occasionally, chlorine is added at Internal Outfalls 009A and 009B. Applicable effluent guidelines for this Outfall are the Steam Electric Point Source Category for existing sources, which provide the following limitations:

1. The pH of all discharges, except once-through cooling water, shall be within the range of 6.0 standard units to 9.0 standard units.
2. There shall be no discharge of PCBs.
3. Low volume wastes

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

#### Flow

1. Form 2C Value: 0.033 MGD average, 0.039 MGD daily maximum.
2. Previous Permit: Not regulated.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.

7. Conclusion: Monitoring requirements of 1/month by estimate are adopted.

pH

1. Form 2C Value: 6.41 s.u. minimum, 7.7 s.u. maximum.
2. Previous Permit: 6.0 s.u. to 8.5 s.u.
3. Effluent Guidelines: 6.0 s.u. minimum, 9.0 s.u. maximum.
4. Water Quality Criteria(S.C. Regulation 61-69): The pH of the receiving waters shall be maintained between 6.0 and 8.5 standard units.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: The limit for pH will be 6.0 - 8.5 s.u., based on Water Quality Criteria. Sampling shall be performed once per month by grab sample.

Total Suspended Solids (TSS)

1. Form 2C Value: 5.1 mg/l maximum, 0.78 mg/l ave.
2. Previous Permit: 26 mg/l ave., 70 mg/ max.
3. Effluent Guidelines: 30.0 mg/l monthly average and 100.00 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.01 mg/l.
7. Conclusion: The discharge from Outfall 012 consists of low volume wastes from Outfalls 009A and 009B, and storm water runoff. Low volume wastes have total suspended solids limitations of 30 mg/l daily average and 100 mg/l daily maximum as per the Steam Electric Effluent Guidelines. Since the storm water runoff provides dilution, it must be accounted for via the following<sup>1</sup>:

|  | <u>Flow</u> | <u>30 day<br/>Average</u> | <u>Daily<br/>Maximum</u> |
|--|-------------|---------------------------|--------------------------|
| Total low volume<br>wastes process flows | 0.008 MGD   | 30 mg/l                   | 100 mg/l                 |
| Yard drain flows                         | 0.006 MGD   | 20 mg/l                   | 30 mg/l                  |
| Total flows                              | 0.014 MGD   |                           |                          |

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<sup>1</sup> The procedures and limitations for flow weighted averaging calculations when regulated wastestreams are commingled are taken from the August 22, 1985, memo entitled "Guidance for NPDES Permits Issued to Steam Electric Power Plants." The TSS values of 20 mg/l monthly average and 30 mg/l daily maximum for the yard drain component of the discharge come from this memo.

Using this data, the limitations at Outfall 012 are calculated as follows:

Total Suspended Solids Monthly Average Limit

$$\frac{0.008 (30) + 0.006 (20)}{0.014} = 25.7 \text{ mg/l (rounded to 26 mg/l)}$$

Total Suspended Solids Daily Maximum Limit

$$\frac{0.008 (100) + 0.006 (30)}{0.014} = 70 \text{ mg/l}$$

Since no exceedances of these limits are expected, monitoring is established at a frequency of 1/month by grab sample to be consistent with other outfalls discharging low volume wastes at this facility.

#### Oil and Grease

1. Form 2C Value: 2.7 mg/l max., 0.61 mg/l ave.
2. Previous Permit: 9 mg/l ave, 11 mg/l max
3. Effluent Guidelines: 15 mg/l monthly average and 20 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <5 mg/l.
7. Conclusion: The discharge from Outfall 012 consists of low volume wastes from Outfalls 009A and 009B, and storm water runoff. Low volume wastes have oil and grease limitations of 15 mg/l daily average and 20 mg/l daily maximum as per the Steam Electric Effluent Guidelines. Since the storm water runoff provides dilution, it must be accounted for via the following<sup>2</sup>:

|  | <u>Flow</u> | <u>30 day<br/>Average</u> | <u>Daily<br/>Maximum</u> |
|--|-------------|---------------------------|--------------------------|
| Total low volume<br>wastes process flows | 0.008 MGD   | 15 mg/l                   | 20 mg/l                  |
| Storm water flows                        | 0.006 MGD   | 0 mg/l                    | 0 mg/l                   |
| Total flows                              | 0.014 MGD   |                           |                          |

<sup>2</sup>

The procedures and limitations for flow weighted averaging calculations when regulated wastestreams are commingled are taken from the August 22, 1985, memo entitled "Guidance for NPDES Permits Issued to Steam Electric Power Plants." The oil and grease values of 0 mg/l monthly average and daily maximum for the yard drain component of the discharge come from this memo.



Using this data, the limitations at Outfall 012 are calculated as follows:

Oil and Grease Monthly Average Limit

$$\frac{0.008 (15) + 0.006 (0)}{0.014} = 8.6 \text{ mg/l (rounded to 9.0 mg/l)}$$

Oil and Grease Daily Maximum Limit

$$\frac{0.008 (20) + 0.006 (0)}{0.014} = 11.4 \text{ mg/l (rounded to 11.0 mg/l)}$$

Since no exceedances of these limits are expected, monitoring is established at a frequency of 1/month by grab sample to be consistent with other outfalls discharging low volume wastes at this facility.

Total Iron

1. Form 2C Value: 0.646 mg/l daily maximum.
2. Previous Permit: 1.0 mg/l monthly average, 1.0 mg/l instantaneous maximum.
3. Effluent Guidelines: 1.0 mg/l monthly average and 1.0 mg/l daily maximum with adjustments for dilution.
4. Water Quality Criteria: 1.0 mg/l
5. Human Health Consideration: 0.3 mg/l (domestic water supplies)
6. Detection limit: <0.01 mg/l.
7. Conclusion: Effluent guidelines-based limitations of 1.0 mg/l monthly average and 1.0 mg/l daily maximum are proposed for this discharge.

Nitrate-nitrite

1. Form 2C Value: 0.574 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL: 10 mg/l X 110221 = 1102210 mg/l
6. Detection Limit: 0.02 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for nitrate-nitrite will be proposed.

Flouride

1. Form 2C Value: 0.117 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL: 4.0 mg/l X 110221 = 440884 mg/l
6. Detection Limit: 0.01 mg/l
7. Conclusion: Based upon sampling data and reasonable potential

procedures, no limit for flouride will be proposed.

#### Sulfate

1. Form 2C Value: 33.1 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL:  $250 \text{ mg/l} \times 110221 = 27555250 \text{ mg/l}$
6. Detection Limit: 0.005 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for sulfate will be proposed.

#### Barium

1. Form 2C Value: 0.0353 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria:  $50 \text{ mg/l} \times 10899 = 544950 \text{ mg/l (ave)}$   
 $100 \text{ mg/l} \times 10899 = 1089900 \text{ mg/l (max)}$
5. Human Health Consideration:  $1.0 \text{ mg/l} \times 110221 = 110221 \text{ mg/l}$
6. Drinking Water MCL:  $0.002 \text{ mg/l} \times 110221 = 220.4 \text{ mg/l}$
7. Detection Limit: 0.05 mg/l
8. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for barium will be proposed.

#### Magnesium

1. Form 2C Value: 1.94 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria:  $3.0 \text{ mg/l} \times 10899 = 32697 \text{ mg/l (ave)}$   
 $6.0 \text{ mg/l} \times 10899 = 65394 \text{ mg/l (max)}$
5. Organoleptic:  $100 \text{ mg/l} \times 110221 = 11022100 \text{ mg/l}$
6. Detection Limit: 0.05 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for magnesium will be proposed.

#### Zinc

1. Form 2C Value: 0.182 mg/l
2. Previous Permit: Not regulated
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria:  $0.059 \text{ mg/l}(10899) = 643 \text{ mg/l ave.}$   
 $0.065 \text{ mg/l}(10899) = 708 \text{ mg/l max.}$
5. Human Health Consideration:  $50 \text{ mg/l}(110221) = 5511050 \text{ mg/l}$
6. Detection Limit:  $<0.01 \text{ mg/l}$
7. Conclusion: Based on a comparison between the 2C value and water quality based limits, no limit for zinc will be required.

#### Outfall 013

Outfall 013 discharges consist of storm water runoff from yard drains in the

southeast area of the plant site. Overflows of lake water which has been filtered, demineralized, and further purified may also occur. No treatment is provided prior to discharge to the Broad River. Runoff from the yard drains may contain suspended solids. Based on Best Professional Judgement (BPJ), monitoring for Total Suspended Solids (TSS) and pH will be required to evaluate any potential impacts on water quality. Sampling shall be required twice per year during a discharge from this outfall.

Flow

1. Form 2C Value: 0.0052 MGD average, 0.01 MGD daily maximum.
2. Previous Permit: Monitor and report.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: Monitoring requirements of estimate, taken twice per year as in the previous permit, remain appropriate and are imposed.

pH

1. Form 2C Value: 10 s.u. minimum, 10 s.u. maximum.
2. Previous Permit: Monitor and report
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria(S.C. Regulation 61-69): The pH of the receiving waters shall be maintained between 6.0 and 8.5 standard units.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: The previous permit requirement of monitor and report twice per year will remain.

Total Suspended Solids (TSS)

1. Form 2C Value: 2.0 mg/l maximum
2. Previous Permit: Monitor and report
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.01 mg/l.
7. Conclusion: Monitor and report, as in the previous permit, shall continue.

Nitrate-nitrite

1. Form 2C Value: 0.574 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL:  $10 \text{ mg/l} \times 110221 = 1102210 \text{ mg/l}$
6. Detection Limit: 0.02 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for nitrate-nitrite will be proposed.



Flouride

1. Form 2C Value: 0.117 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL:  $4.0 \text{ mg/l} \times 110221 = 440884 \text{ mg/l}$
6. Detection Limit: 0.01 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for flouride will be proposed.

Sulfate

1. Form 2C Value: 8.9 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL:  $250 \text{ mg/l} \times 110221 = 27555250 \text{ mg/l}$
6. Detection Limit: 0.005 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for sulfate will be proposed.

Barium

1. Form 2C Value: 0.0171 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria:  $50 \text{ mg/l} \times 10899 = 544950 \text{ mg/l (ave)}$   
 $100 \text{ mg/l} \times 10899 = 1089900 \text{ mg/l (max)}$
5. Human Health Consideration:  $1.0 \text{ mg/l} \times 110221 = 110221 \text{ mg/l}$
6. Drinking Water MCL:  $0.002 \text{ mg/l} \times 110221 = 220.4 \text{ mg/l}$
7. Detection Limit: 0.05 mg/l
8. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for barium will be proposed.

Magnesium

1. Form 2C Value: 1.94 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria:  $3.0 \text{ mg/l} \times 10899 = 32697 \text{ mg/l (ave)}$   
 $6.0 \text{ mg/l} \times 10899 = 65394 \text{ mg/l (max)}$
5. Organoleptic:  $100 \text{ mg/l} \times 110221 = 11022100 \text{ mg/l}$
6. Detection Limit: 0.05 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for magnesium will be proposed.

Manganese

1. Form 2C Value: 0.0666 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria:  $1.0 \text{ mg/l (ave)}$   
 $2.0 \text{ mg/l (max)}$

5. Human Health: 0.05 mg/l
6. Detection Limit: 0.01 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for manganese will be proposed.

Zinc

1. Form 2C Value: 0.0207 mg/l
2. Previous Permit: Not regulated
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 0.059 mg/l(10899) = 643 mg/l ave.  
0.065 mg/l(10899) = 708 mg/l max.
5. Human Health Consideration: 50 mg/l(110221) = 5511050 mg/l
6. Detection Limit: <0.01 mg/l
7. Conclusion: Based on a comparison between the 2C value and water quality based limits, no limit for zinc will be required.

Outfall 014

Outfall 014 has been created to represent the combined Internal Outfalls 005, 006A, 006B, 008, and 011 which consist of sanitary sewerage and low volume wastes discharged at an average rate of 0.14 MGD (the sum of the Internal Outfalls' flows). Outfall 014 will be used to apply water quality-based limitations prior to discharge to Monticello Reservoir.

Flow

1. Form 2C Value: 0.12 MGD ave., 2.0 MGD max.
2. Previous Permit: Not regulated
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: Not applicable.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: Continuous flow monitoring will be required, since an in-line flow meter is used at this outfall.

pH

1. Form 2C Value: 6.59 s.u. minimum, 7.85 s.u. maximum.
2. Previous Permit: 6.0 s.u. to 8.5 s.u.
3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria(S.C. Regulation 61-69): The pH of the receiving waters shall be maintained between 6.0 and 8.5 standard units.
5. Human Health Consideration: Not applicable.
6. Detection Limit: Not applicable.
7. Conclusion: Based on the stream standard, 6.0 s.u. minimum and 8.5 s.u. maximum is adopted in the permit.

Total Residual Chlorine

1. Form 2C Value: <0.1 mg/l
2. Previous Permit: <0.1 mg/l

3. Effluent Guidelines: Not applicable.
4. Water Quality Criteria: 0.011 mg/l chronic, 0.019 mg/l acute allowable freshwater instream waste concentration.
5. Human Health Consideration: Not applicable.
6. Detection limit: <0.05 mg/l.
7. Conclusion: The regulation of chlorine is being considered at this outfall as a result of the addition of chlorine containing chemicals at Internal Outfalls 005, 006A, and 011, which contribute to Outfall 014. Water quality-based limits of 0.011 mg/l monthly average and 0.019 mg/l daily maximum are proposed.

#### Copper

1. Form 2C Value: <0.01 mg/l
2. Previous Permit: 0.028 mg/l monthly average, 0.039 mg/l daily maximum.
3. Past DMR Data(95-97): 0.032 mg/l max.
4. Effluent Guidelines: NA
5. Water Quality Criteria: 0.0065 mg/l monthly average, 0.0092 mg/l daily maximum
6. Human Health Consideration: 1.0 mg/l instream waste concentration.
7. Detection limit: <0.01 mg/l.
8. Conclusion: Based on a comparison between the Water Quality Criteria and DMR data, a limit must be imposed. Water Quality limits of 0.0065 mg/l monthly average and 0.0092 mg/l daily maximum are proposed at this discharge point.

#### Zinc

1. Form 2C Value: <0.02 mg/l
2. Previous Permit: 0.059 mg/l (ave), 0.065 mg/l (max)
3. Past DMR Data(95-97): 0.046 mg/l max
4. Effluent Guidelines: Not applicable
5. Water Quality Criteria: 0.059 mg/l ave.  
0.065 mg/l max.
6. Human Health Consideration: 50 mg/l
7. Detection Limit: <0.01 mg/l
8. Conclusion: Based on a comparison between past sampling data and Water Quality Criteria, the limit for zinc will continue as in the previous permit.

#### Flouride

1. Form 2C Value: 0.119 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL: 4.0 mg/l
6. Detection Limit: 0.01 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for flouride will be proposed.



Nitrate-nitrite

1. Form 2C Value: 0.48 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL: 10 mg/l
6. Detection Limit: 0.02 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for nitrate-nitrite will be proposed.

Sulfate

1. Form 2C Value: 7.96 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: none
5. Drinking Water MCL: 250 mg/l
6. Detection Limit: 0.005 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for sulfate will be proposed.

Barium

1. Form 2C Value: 0.015 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 50 mg/l  
100 mg/l
5. Human Health Consideration: 1.0 mg/l
6. Drinking Water MCL: 0.002 mg/l (ave)
7. Detection Limit: 0.05 mg/l (max)
8. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for barium will be proposed.

Iron

1. Form 2C Value: 0.06 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 1.0 mg/l (ave)  
2.0 mg/l (max)
5. Organoleptic: 0.3 mg/l
6. Detection Limit: 0.02 mg/l
7. Conclusion: Based upon sampling data and reasonable potential procedures, no limit for iron will be proposed.

Magnesium

1. Form 2C Value: 1.59 mg/l
2. Previous Permit: none
3. Effluent Guidelines: Not applicable
4. Water Quality Criteria: 3.0 mg/l (ave)  
6.0 mg/l (max)

5. Organoleptic: 100 mg/l
6. Detection Limit: 0.05 mg/l
7. Conclusion: Based upon sampling data and Water Quality Criteria, 3.0 mg/l (ave) and 6.0 mg/l (max) will be proposed as a limit for Magnesium.

D. Chemical Additives

1. Water Additives

- a. The following chemicals have been forecasted to be used as cooling water additives over the life of this permit:

Ammonia: 006A, 006B

Hydrazine: 008

Chlorine compounds: 002, 014, 003

Sodium Hydroxide: 003, 007, 001

Sulfuric Acid: 001

Boron Compounds: 003, 008, 001, 014

Hydrogen Peroxide: 003

Benzotriazole: 003

Hydroxyethylidenediphosphonate (HEDP): 003

Sodium Bicarbonate: 003

Sodium Metasilicate: 003, 012, 014

Sodium Molybdate Dihydrate: 003

Sodium Nitrite: 003

Sodium Nitrate/Sodium Borate: 014, 006B, 008

Lithium Hydroxide: 003

Potassium Chromate, Potassium Hydroxide, Potassium Dichromate: 003

Duratek, D-261, D-230, D-70 (Sulfate containing resin): 003

Biocides

Betz CT-2: 001

Calgon-CS: 003

Slimicide C-77P:

Betz 1190 (Polymer): 008

- b. Biocides -- The facility shall notify the South Carolina Department of Health and Environmental Control in writing no later than (60) days prior to instituting use of any additional biocide or chemical used in the cooling system, which may be toxic to aquatic life other than those previously reported to the Environmental Protection Agency. Such notification shall include:

1. Name and general composition of biocide or chemical;
2. Quantities to be used;
3. Frequencies of use;
4. Proposed discharged concentration; and
5. EPA registration number if applicable.

2. Hazardous Substances

The Permittee has identified the compounds in 1.a. above as being possible discharges from the facility. Possible effects have been evaluated at each separate outfall.

E. Sludge Disposal

The Permittee will be required to obtain prior written approval for any sludge disposal activities at this facility.

F. Operator

The Permittee's present treatment system consists of sedimentation and neutralization. The highest classification of the operation of all treatment equipment is usually used to determine the operator requirement. Based on the wastewater treatment system classification, an operator with a Grade B-Bio or higher certification is required to accept the responsibility of inspections made by lower grade operators.

G. Co-Treatment

Where various wastes are combined for treatment and discharge, 40 CFR 423.13(h) requires that the quantity of each pollutant or pollutant property not exceed the specified limitation for that waste source.



Applicable effluent guidelines concentrations were flow weighted in calculating final effluent concentrations.

H. Toxicity Testing

Since the chemical specific approach does not address all specific chemicals and their interactions with other components in the wastestream, a more comprehensive testing requirement is needed. To ensure that water quality is not deteriorated, whole effluent toxicity testing is being required at Outfalls 001, 002, and 014 in accordance with procedures set out in The South Carolina Department of Health and Environmental Control Toxic Control Strategy for Wastewater Discharges, South Carolina Department of Health and Environmental Control, October 1990. These procedures require either acute or chronic toxicity testing based on whether a diffuser is used and the Instream Waste Concentration (IWC), which is calculated as follows:

IWC for Monticello Reservoir:

$$\begin{aligned} \text{IWC} &= (\text{Effluent flow} / (7Q10 \text{ flow} + \text{Effluent flow})) \times 100 \\ &= (782.9386 / (0 + 782.9386)) \\ &= 100\% \end{aligned}$$

Based on State procedures, if a diffuser is not installed and the IWC is between 80% and 100%, chronic toxicity testing is required.

IWC for Broad River:

$$\begin{aligned} \text{IWC} &= (\text{Effluent flow} / (7Q10 \text{ flow} + \text{Effluent flow})) \times 100 \\ &= (0.04744 / (629 + 0.04744)) \\ &= 0.01\% \end{aligned}$$

Based on State procedures, if a diffuser is not installed and the IWC is between 0% and 1%, acute toxicity testing is required.

Therefore, as in the previous permit, chronic toxicity at 100% effluent will be required to be conducted at Outfalls 001, 002 (when discharging directly to Monticello Reservoir only), 014 and acute toxicity screening at 100% effluent will be required to be conducted at Outfall 012. Acute testing will not be required at Outfall 003; this wastestream discharges to the penstocks of Fairfield Hydro where it is thoroughly mixed before final release to the Broad River. In the previous permit, testing was performed at a frequency of once per month. After twelve consecutive acceptable test results, the frequency may be reduced at the Department's discretion. Outfalls 001, 012, and 014 meet this criteria; therefore it is proposed that the sampling frequency be reduced to once per quarter. Sampling for 002 will continue as once per month. The frequency may be reduced later at the Department's discretion. The specific toxicity

testing language and requirements are included in Part III of the permit.

K. Other Requirements

1. 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.

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

FACT SHEET

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

Application No. SC0030856 Date: August 18, 1997

A. SYNOPSIS OF APPLICATION

1. Name and Address of Applicant

South Carolina Electric & Gas Company/V.C. Summer Nuclear Station  
P.O. Box 88  
Jenkinsville, South Carolina 29065

2. Description of Applicant's Operation

Nuclear Fuel Steam Electric Generation

3. Production Capacity of Facility

945 megawatts

4. Applicant's Receiving Waters

Monticello Reservoir & Broad River

For a sketch showing the location of the discharge(s)  
(See Figures).



5. Description of Existing Pollution Abatement Facilities

A wastewater treatment system consisting of sedimentation, neutralization, and precipitation. A wastewater treatment plant for sanitary wastewater consisting of sedimentation, activated sludge, disinfection, and filtration. A Liquid Radwaste treatment system consisting of filtration, ion exchange, and evaporation. A metal cleaning waste treatment system consisting of neutralization and precipitation.

6. Description of Discharges (as reported by applicant)

Outfalls 001 - 014 - (See Rationale)

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

Effluent Characteristics  
(See Rationale)

Reported Load

7. Proposed Effluent Limitations

Outfalls 001 - 014 - (See Part I.A.)

Effluent Characteristics  
(See Part I.A.)

Discharge Limitation  
(See Part I.A.)

8. MONITORING REQUIREMENTS

The applicant will be required to monitor regularly for flow and those parameters limited in Section 7 above with sufficient frequency to ensure compliance with the permit conditions. Frequency, methods of sampling, and reporting will be specified in the final permit.

9. Proposed compliance schedule for attaining effluent limitations  
(See Part I.B.)

10. Proposed special conditions which will have a significant impact on the discharge  
(See Part III.A)

11. Water quality standards and effluent standards applied to the discharge

This permit draft was written in conformance with EPA Guidelines for the Steam Electric Power Generating Point Source Category (40 CFR Part 423), Best Professional Judgement, Standard Bureau Operating Procedures, and Water Quality Considerations.

B. PROCEDURES FOR THE FORMULATION OF FINAL DETERMINATIONS

1. Comment Period

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

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

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

All comments received prior to (See Public Notice) will be considered in the formulation of final determinations with regard to this application.

2. Public Hearing

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

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

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

### 3. Adjudicatory Hearings

Any person may submit a request for an administrative adjudicatory hearing to consider the final permit and its conditions. If you wish to request an administrative adjudicatory hearing, such request must be made in accordance with Regulation 61-79, Volume 25, S.C. Code of Laws, 1976, as amended. As required by this regulation, two (2) copies of the request must be served on the South Carolina Board of Health and Environmental Control, 2600 Bull Street, South Carolina 29201, within fifteen (15) days following issuance of the permit. Service may be effected by personal delivery or by first class mail.

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

- a. A title indicating the nature of the proceeding and the parties involved;
- b. The complete name and address of the party filing the pleading and, if applicable, the organization(s) or interests which he represents;
- c. If the requesting party is to be represented by counsel, the name and address of the attorney;
- d. A clear and concise statement of the requesting party's affected interest;
- e. A clear and concise statement of the issues upon which the request is based and, where applicable, the contested sections of the permit. (It should be noted that any uncontested portions of the permit will become effective according to its terms on the effective date specified in the permit).
- f. A statement of the relief sought by the requesting party.

In the event that such a request is filed for review of a decision to renew a permit for an ongoing activity, the renewed permit is stayed and the previous permit remains in effect pending completion of administrative review. A petition for review of a decision to issue a new permit stays all actions for which the permit is a prerequisite. Final determination of permit conditions following an adjudicatory hearing will be in accordance with Regulation 61-72.



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

4. Issuance of the Permit when no Hearings are Held

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

If no hearing is held, but there have been substantial changes, public notice of DHEC's revised determination will be made. Following a 15-day comment period, the permit will be issued and become effective the first of the month following termination of the 15-day comment period and will be the final action of Department of Health and Environment Control, unless an adjudicatory hearing is granted.