Permit No. TN0020168

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et. seq; the "ACT").

Tennessee Valley Authority
Environmental Quality Staff
Knoxville, Tennessee 37902

is authorized to discharge from a facility located at

Watts Bar Nuclear Plant
Units 1 and 2
Rhea County, Tennessee

to receiving waters named

Tennessee River and unnamed tributary of Yellow Creek from discharge points enumerated herein, as serial numbers 101 through 114

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof. The permit consists of this cover sheet, Part I 17 pages, Part II 15 pages, Part III 4 page(s), and Attachments 3.

This permit shall become effective on October 1, 1984.

This permit and the authorization to discharge shall expire at midnight, September 30, 1989.

SEP 27 1984
Date Signed

Paul J. Traina
Director
Water Management Division

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 101 - Diffuser discharge to the Tennessee River.

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

Effluent Characteristics	Discharge Limitations	Monitoring Requirements	
	Instantaneous Maximum	Measurement Frequency	Sample Type
Intake Flow-m^3/Day (MGD)	NA	Continuous	Pump logs
Discharge Flow-m^3/Day (MGD)	NA	Continuous	Recorder
Discharge Temperature °C (°F) 1/	35.0 (95.0)	Continuous	Recorder
Total Residual Chlorine (mg/L)	0.10	5/week 2/	Multiple grab 2/
Total Residual Chlorine (mg/L)	0.10	Continuous 3/	Recorder 3/
Total Chlorine Addition (lbs/hr) 4/	30.9	Daily	Logs

Chlorine may be discharged continuously; however, total residual chlorine shall not exceed a maximum instantaneous concentration of 0.10 mg/L. Additionally, continuous chlorination of the ERCW and RCW systems at a maximum concentration of 0.8 mg/L of total residual chlorine for the purpose of asiatic clam control is permitted when the system is operating at an intake temperature above 15.6°C (60°F). Intake temperature shall be monitored and data shall be retained but not reported on DMRs.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored at a frequency of 1/week.

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, and other floating matter other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): diffuser pipe prior to entry into the Tennessee River except that intake flow shall be monitored at the plant intake(s) and total chlorine addition at point of injection.

CONTINUED

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 101 - Diffuser discharge to the Tennessee River. Continued.

1/ Thermal monitoring at the diffuser pipe is not applicable until criticality of Unit 1. The receiving water shall not exceed (1) a maximum water temperature change of 3°C (5.4°F) relative to an upstream control point, (2) a maximum temperature of 30.5°C (86.9°F), except when the upstream temperature approaches or exceeds this value, and (3) a maximum rate of change of 2°C (3.6°F) per hour outside of a mixing zone which shall not exceed the following dimensions: (1) a maximum length of 240 feet downstream of the diffusers, and (2) a maximum width of 240 feet. Compliance will be demonstrated by means of field surveys. These surveys will be performed during the critical seasons of spring, summer, and fall of the first year of commercial operation of both Unit 1 and Unit 2 - not less than two surveys per season will be conducted. Measured temperature rise, downstream temperature, rate of temperature change, and the extent of the mixing zone will only be reported as the result of the field surveys.

2/ Multiple grab samples is defined as not less than four equally spaced grab samples during a one-hour period. The monitoring frequency for total residual chlorine shall be increased following significant operational changes which could cause an increase in concentration of chlorine discharged. After collecting adequate data to demonstrate ability to achieve compliance, permittee may request a reduction in monitoring frequency.

3/ Applicable only if condenser chlorination is instituted. Monitoring system and dechlorination facilities, if needed, shall be operational prior to start of condenser chlorination.

4/ Applicable only to RCW and ERCW system chlorination.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 102 - Yard Holding Pond effluent to the cooling tower blowdown line.

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

Effluent Characteristics	Discharge Limitations			Monitoring Requirements	
	Daily Avg.	Daily Max.	Instantaneous Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	NA	NA	NA	2/Week 1/	Instantaneous
Oil and Grease (mg/L)	15	20	NA	1/Week	Grab
Total Suspended Solids (mg/L)	30	100	NA	2/Week 1/	Grab
Total Residual Chlorine (mg/L)	NA	NA	0.10 2/	1/Day 2/	Grab 2/
Polychlorinated Biphenyl	NA	NA	See Part III.C	1/6 Months	Grab

Direct overflow from the Yard Holding Pond to the Tennessee River is allowed under emergency conditions to protect dike stability, but only to the minimum extent necessitated by the emergency. During any period of discharge, power generation shall be discontinued unless such discharge is due to a significant rainfall event. Discharge temperature shall not exceed 30.5°C (86.9°F). Verbal notification of such overflow shall be provided to the Director, Water Management Division, and to the State Director within five days after any occurrence with immediate followup by letter. On each occurrence, a grab sample(s) shall be collected daily for total suspended solids, oil and grease, temperature and total residual chlorine analysis and results of such analysis shall be reported either with the notification of overflow or within 30 days of the occurrence.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored at a frequency of 1/day. 2/

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, and other floating matter other than trace amounts.

Samples taken in compliance with monitoring requirements specified above shall be taken at the following location(s): Yard Holding Pond effluent prior to mixing with any other waste stream.

1/ Monitoring shall also be conducted during (or after) each rainfall exceeding two inches per day and shall be sampled during the period of maximum expected flow.

2/ Limitations and monitoring requirements are applicable only during periods of direct discharge to the Tennessee River.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the completion of the Low Volume Waste Treatment Pond and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 103 - Low Volume Waste Treatment Pond effluent to the Yard Holding Pond (OSN 102).

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

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	NA	NA	1/Day	Pump logs
Oil and Grease (mg/L)	15	20	1/Week 1/	Grab
Total Suspended Solids (mg/L)	30	100	2/Week 1/	Grab
Polychlorinated Biphenyl	See Part III. C.		1/6 months	Grab

Until completion of the Low Volume Waste Treatment Pond, the five million gallon unlined metal cleaning pond (one of the ponds covered in OSN 107) may be used as an interim waste treatment facility and receive waste from the turbine building sump, condensate demineralizer system, neutral waste tanks, and alum sludge waste supernatant and may be discharged subject to the above effluent limitations and monitoring requirements. Reporting shall be under OSN 103 (not OSN 107).

The pH shall not be less than NA standard units nor greater than NA standard units and shall be monitored at a frequency of NA.

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, and other floating matter in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Low Volume Waste Treatment Pond (or five-million gallon pond) discharge prior to mixing with any other waste stream except that flow shall be monitored at the turbine building sump. Alternate discharge pathway for the turbine building sump shall also be monitored 1/.

1/ In the event that the turbine building sump is discharged directly to the Yard Holding Pond, total suspended solids and oil and grease in the sump effluent shall be subject to the above effluent limitations and shall be monitored 5/week and also reported under OSN 103.

Note: See Attachment C for more stringent limitations and monitoring requirements.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 104 - Liquid Radwaste System effluent to the cooling tower blowdown line.

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

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	NA	NA	1/Batch	Calculation
Oil and Grease (mg/L)	15	20	2/Week	Grab
Total Suspended Solids (mg/L)	30	100	2/Week	Composite 1/

Note: The radioactive component of this discharge is regulated by the U.S. Nuclear Regulatory Commission under the requirements of the Atomic Energy Act and not by the Environmental Protection Agency under the Clean Water Act.

In the event metal cleaning waste are processed and discharged through the Liquid Radwaste System, the discharge shall comply with the limitations specified for Metal Cleaning Waste (OSN 107).

The pH shall not be less than NA standard units nor greater than NA standard units and shall be monitored at a frequency of NA.

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, or other floating matter other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Radwaste Treatment system prior to mixing with any other waste stream.

1/ One grab sample/batch composited for analysis over a 24-hour day.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 105 - Condensate Demineralizer Regeneration waste to the cooling tower blowdown line.

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

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	NA	NA	1/Batch	Calculation
Oil and Grease (mg/L)	15	20	1/Day	Grab
Total Suspended Solids (mg/L)	30	100	1/Batch	Composite 1/

Note: Limitations and monitoring requirements on this page are not applicable when discharge is directed to the Radwaste System (OSN 104) or the Low Volume Waste Treatment Pond (OSN 103).

The pH shall not be less than NA standard units nor greater than NA standard units and shall be monitored at a frequency of NA.

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, or other floating matter other than trace amounts.

Samples taken in compliance with monitoring requirements specified above shall be taken at the following location(s): Condensate Demineralizer Regeneration waste treatment facilities prior to mixing with any other waste stream.

1/ One grab sample/batch, composited for analysis over a 24-hour day.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 106 - Steam Generator Blowdown to condenser circulating water system.

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

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	NA	NA	1/Month	Instantaneous
Oil and Grease (mg/L)	15	20	1/Quarter	Grab
Total Suspended Solids (mg/L)	30	100	1/Month	Grab

Limitations and monitoring requirements on this page are not applicable if blowdown is discharged to the condensate demineralizer system (for recycle) or to the Liquid Radwaste System.

The pH shall not be less than NA standard units nor greater than NA standard units and shall be monitored at a frequency of NA.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): discharge from the Steam Generator Blowdown prior to mixing with any other waste stream.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 107 - Metal Cleaning Waste Pond effluent(s) to the Yard Holding Pond (OSN 102).

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

Effluent Characteristics	Discharge Limitations Daily Max. (mg/L)	Monitoring Requirements Measurement Frequency	Monitoring Requirements Sample Type
Flow-m^3/Day (MGD)	NA	1/Batch	Calculation
Oil and Grease	15	1/	Grab
Total Suspended Solids	30	1/	8-Hour Composite
Copper, Total	1.0	1/	8-Hour Composite
Iron, Total	1.0	1/	8-Hour Composite
Phosphorous as P 2/	1.0	1/	8-Hour Composite
Chem. Oxygen Demand 3/	100	1/	8-Hour Composite

Metal cleaning waste shall mean any cleaning compounds, rinse waters or any other waterborne residues derived from chemical cleaning any metal process equipment. NOTE: Standing water in pipes (which may or may not be chlorinated) is not metal cleaning waste if not associated with chemical cleaning and subsequent rinses of cleaning compounds.

Metal cleaning waste shall not be discharged into a pond(s) before all nonmetal cleaning liquids have been removed.

No wastes other than metal cleaning wastes shall be discharged into the Metal Cleaning Waste Ponds prior to complete discharge of metal cleaning wastes and complete removal of all solids deposited from metal cleaning waste treatment.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored by a grab sample. 1/

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, and other floating matter in other than trace amounts.

CONTINUED

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 107 - Metal Cleaning Waste Pond effluent to the Yard Holding Pond (OSN 102). Continued.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): discharge from the individual pond(s) prior to mixing with any other waste stream except that waste flow generated per batch shall also be determined.

1/ On start of discharge and for each complete 8-hour period thereafter up to one day (24 hours) with one grab sam taken immediately prior to termination of discharge. For discharge periods longer than one day a composite shall be required on start of discharge and once/week thereafter for a minimum of three 8-hour periods until termination of discharge with one grab sample taken immediately prior to termination of discharge.

2/ Limitation and monitoring requirements shall apply only if phosphorous bearing cleaning solutions are used.

3/ Limitation and monitoring requirements shall apply only if organic acid cleaning solutions are used.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 108 - Cooling Tower Desilting Basin effluent to the Yard Holding Pond (OSN 102).

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

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	NA	NA	1/Batch	Pump logs
Total Suspended Solids (mg/L)	30	100	2/Batch	Grabs 1/

The pH shall not be less than NA standard units nor greater than NA standard units and shall be monitored at a frequency of NA.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): discharge from Desilting Basin effluent prior to mixing with any other waste stream.

1/ Samples shall be collected on start of discharge and immediately prior to termination of discharge.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 109 - Neutral Waste Tank discharge to the condenser cooling water system.

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

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	NA	NA	1/Batch	Calculation
Oil and Grease (mg/L)	15	20	2/Month	Grab
Total Suspended Solids (mg/L)	30	100	1/Batch	Grab

Note: Limitations and monitoring requirements on this page are not applicable when discharge is directed to the Low Volume Waste Treatment Pond (OSN 103) via the turbine building sump. Limitations and monitoring are applicable if the turbine building sump discharges to the Yard Holding Pond (OSN 102).

The pH shall not be less than NA standard units nor greater than NA standard units and shall be monitored at a frequency of NA.

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, and other floating matter other than trace amounts.

Samples taken in compliance with monitoring requirements specified above shall be taken at the following location(s): Neutral Waste Tank discharge prior to mixing with any other waste stream.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 110 - Sewage Treatment Plant effluent to the condenser cooling water system.

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

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	45(0.012)	NA	5/Week	Totalizer
BOD_5 (mg/L)	30	45	2/Month	Grab
Total Suspended Solids (mg/L)	30	45	2/Month	Grab

The pH shall not be less than NA standard units nor greater than NA standard units and shall be monitored at a frequency of NA.

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, and other floating matter in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Sewage Treatment Plant effluent prior to mixing with any other waste stream.

Note: See Attachment C for more stringent limitations and monitoring requirements.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 111 - Combined Sewage Treatment Plant (four package plants in parallel) effluent to the Runoff Holding Pond (OSN 112).

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

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	1/	NA	Continuous	Recorder
BOD_5 (mg/L)	30	45	1/Week	Grab
Total Suspended Solids	30	45	1/Week	Grab
Settleable Solids (ml/L)	NA	1.0	5/Week	Grab
Total Residual Chlorine (mg/L)	NA	2.0	5/Week	Grab

The pH shall not be less than NA standard units or greater than NA standard units and shall be monitored at a frequency of NA.

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, and other floating matter in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Combined Sewage Treatment Plant effluent prior to mixing with any other waste stream.

1/ Individual units have design capacities of 45 (0.012), 45 (0.012), 45 (0.012), and 114 (0.030). No unit shall be hydraulically overloaded.

Note: See Attachment C for more stringent limitations and monitoring requirements.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on start of discharge and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 112 - Runoff Holding Pond (includes OSNs 111, 113, and 114) to unnamed tributary of Yellow Creek.

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

Effluent Characteristics	Discharge Limitations		Monitoring Requirements	
	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	NA	NA	1/Week 1/	Instantaneous
Total Suspended Solids (mg/L)	30 1/	100 1/	1/Week 1/	Grab
Settleable Solids (ml/L)	NA	NA	1/Week 1/	Grab

The pH shall not be less than NA standard units nor greater than NA standard units and shall be monitored at a frequency of NA.

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, or other floating matter in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): point(s) of discharge from the Holding Pond.

1/ After final stabilization of the 30-acre borrow area and completion of waste treatment ponds for OSN 113 and 114, discharge limitations on total suspended solids shall no longer be applicable, flow monitoring may be discontinued, and total suspended solids and settleable solids monitoring frequency reduced to 2/month applicable only during the period of March through October of each year. Sampling shall be conducted during the first significant rainfall of the week or on Friday if no significant rainfall occurred.

Note: See Attachment C for more stringent limitations and monitoring requirements.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on November 1, 1984 1/ and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 113 - Concrete Wash Plant Settling Pond effluent to Runoff Holding Pond (OSN 112) to unnamed tributary of Yellow Creek.

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

Effluent Characteristics	Discharge Limitations	Monitoring Requirements	
	Instantaneous Max.	Measurement Frequency	Sample Type
Flow-m^3/day (MGD)	NA	1/Week	Weir Reading(s)
Oil and Grease (mg/L)	20	1/Month	Grab
Total Suspended Solids (mg/L)	40	1/Week	Grab

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored at a frequency of 1/week and during any periods in which concrete wash wastes are discharged to the pond.

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, or other floating matter in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): discharge from Settling Pond prior to mixing with any other waste stream.

1/ Runoff Holding Pold (OSN 112) will provide interim treatment of this waste stream until construction is completed.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on November 1, 1984 1/ and lasting through expiration, the permittee is authorized to discharge from outfall(s) serial number(s) 114-Vehicle Wash Settling Pond effluent to Runoff Holding Pond (OSN 112) to unnamed tributary to Yellow Creek .

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

Effluent Characteristics	Discharge Limitations (mg/L except as noted)		Monitoring Requirements	
	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow-m^3/day (MGD)	NA	NA	1/Week	Weir Reading(s)
Oil and Grease	15	20	1/Week	Grab
Total Suspended Solids	30	40	1/Week	Grab
Settleable Solids (ml/L)	NA	0.5	1/Week	Grab

The pH shall not be less than 6.0 standard units or greater than 9.0 standard units and shall be monitored at a frequency of 1/month by a grab sample.

There shall be no distinct discharge of floating scum, solids, oil sheen, visible foam, and other floating matter in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Vehicle Wash Settling Pond effluent prior to mixing with any other waste stream.

1/ Runoff Holding Pond (OSN 112) will provide interim treatment of this waste stream until construction is completed.

B. SCHEDULE OF COMPLIANCE

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

   a. Compliance with effluent limitations - effective date or start of discharge as applicable.
   b. Plume report (III.E.) - 18 months after commercial operation date of Unit 2.
   c. Preoperational Aquatic Monitoring Program (III.F.)
      (1) Final Report Due - December 31, 1984, for 1973-1984 (if fuel load is delayed beyond October 1, 1984, the final report shall be extended appropriately).
   d. Operational aquatic monitoring program (III.G.)
      (1) Implement - Biological year that 100 percent power is predicted for Unit 1.
      (2) First report - 18 months after 100 percent power is achieved.
      (3) Subsequent reports - annually after the first report.
   e. Erosion and Sediment Control Report (III.I.)
      (1) Submit plan for approval - N/A
      (2) First report - December 31, 1984
      (3) Second report - June 30, 1985
      (4) Subsequent reports - annually after second report, as required.
   f. Discharge Chlorination Study (III.K.)
      (1) Submit report - December 31, 1984.
      (2) Operation of dechlorination system, if necessary - May 31, 1985.
   g. Concrete Wash Settling Pond (OSN 113)
      (1) Operational Date - October 31, 1984.
   h. Vehicle Wash Settling Pond (OSN 114)
      (1) Operational Date - October 31, 1984.
   i. Flow Calibration Report (III.L.)
      (1) Report Due - December 31, 1984.
   j. Priority Pollutant Data (III.N.)
      (1) First Report - 12 months after commercial operation date of Unit 1.
      (2) Second Report - 12 months after commercial operation date of Unit 2.

2. Permittee shall at all times provide the operation and maintenance necessary to operate the existing facilities at optimum efficiency.

3. 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, and remedial actions taken, and the probability of meeting the next scheduled requirement.

PART III

OTHER REQUIREMENTS

A. Reporting of Monitoring Results

Monitoring results obtained during the previous three month(s) shall be summarized for each month (each quarter if monitoring frequency is quarterly) and must be reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. The first report is due on 1/. Duplicate signed copies of these, and all other reports required by Section D of Part II, Reporting Requirement; and one copy of each item required by Part III Sections D, I, K, L, and N; shall be submitted to the Permit Issuing Authority and the State at the following addresses:

Environmental Protection Agency
Region IV
Facilities Performance Branch
Water Management Division
345 Courtland Street, NE.
Atlanta, Georgia 30365

Tennessee Department of
Health and Environment
Division of Water Management
150 Ninth Avenue, North
TERRA Building
Nashville, Tennessee 37203

Tennessee Department of
Health and Environment
Division of Water Management
2501 Milne Street
Chattanooga, Tennessee 37406

B. Reopener Clause

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C), and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

2. Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act when applicable.

C. There shall be no discharge of polychlorinated biphenyl (PCB) compounds such as those commonly used for transformer fluid. In the event that PCB-containing equipment is used onsite, administrative procedures shall be instituted to (1) maintain a detailed inventory of PCB use, (2) assure engineering design and construction to preclude release of PCBs to the environment, and (3) effectively detect the loss of PCBs from equipment.

1/ Continuation of previous reporting requirements.

D. The permittee shall notify the Director, Water Management Division, and State Director in writing not later than ninety (90) days prior to instituting use in cooling system(s) of any biocide or chemical which may be toxic to aquatic life, other than chlorine addition to the ERCW, RCW, or CCW systems. Such notification shall include:

1. Name and general composition of biocide or chemical,
2. Ninety-six hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge shall occur,
3. Quantities to be used,
4. Frequencies of use,
5. Proposed discharge concentrations, and
6. EPA registration number, if applicable.

E. Effluent diffuser shall be designed to assure a minimum dilution factor of 10 at all river flow conditions. Subsequent to commercial operation of Unit 2, field measurements (supplemented as necessary with modeling results) shall be conducted to determine three dimensional configuration of the thermal plumes, substantiate the dispersion modeling, and assure conformance with the assigned thermal mixing zone. The report on thermal plume and dispersion characteristics shall be submitted not later than 18 months after commercial operation of Unit 2 is achieved.

F. Not later than December 31, 1984, permittee shall submit results of preoperational monitoring for the period February 1973 through February 1984. However, if fuel load is delayed beyond October 1, 1984, the reporting period and date of report submission shall be extended appropriately.

NOTE: Nonradiological preoperational aquatic monitoring was conducted from 1973-77 (water quality/nonfish) and 1976-79 (fish), and results reported to EPA on April 15 and April 30, 1980, respectively. Permittee decided to resume these monitoring programs in March 1982 in order to update the preoperational data base.

Additional monitoring of the intake and diffuser gate discharge shall be once/month and shall include total, suspended, settleable, and dissolved solids; ammonia nitrogen; and total copper, iron, manganese, and zinc. This data shall be included in the annual reports and an assessment made as to whether the discharge is in compliance with Tennessee Water Quality Standards.

G. Not later than start of the biological year in which 100 percent power is predicted for Unit 1, permittee shall implement the nonradiological operational aquatic monitoring plan as submitted to EPA on August 31, 1977, with modifications to the fisheries program on March 24, 1980, and February 26, 1981, and to the nonfish/water quality program on October 12, 1979. Reports shall be submitted annually beginning 18 months after 100 percent power is achieved on Unit 1, the first report including data from commencement of operational monitoring until 12 months after 100 percent power achievement. The operational monitoring program shall continue for a period of not less than two years beyond the date that 100 percent power is achieved on Unit 2. In the event that fuel load for Unit 2 is delayed beyond two

years after 100 percent power is achieved on Unit 1, permittee may request of the permitting authority that the program be suspended until the start of the year in which 100 percent power is scheduled for Unit 2. Additionally, permittee may request that changes to the program and schedules be made during the term of the study as supported by study results. Upon approval by the permitting authority, suspension or modifications to the program may be instituted.

Additional monitoring of the intake and diffuser gate discharge shall be once/month and shall include total, suspended, settleable, and dissolved solids; ammonia nitrogen; and total copper, iron, manganese, and zinc. This data shall be included in the annual reports and an assessment made as to whether the discharge is in compliance with Tennessee Water Quality Standards.

H. Copies of all plans and reports submitted in accordance with Parts III. E., F., and G. shall be forwarded by the permittee as follows:

Number of Copies	Addressee
2	Director, Water Management Division, EPA (Atlanta)
1	Chief, Ecological Support Branch, EPA (Athens)
1	Director, Division of Licensing USNRC (Bethesda)
1	Regional Administrator, Region II, USNRC (Atlanta)
2	Regional Director, Fish and Wildlife Service (Atlanta)
1	Director, Tennessee Division of Water Management (Nashville)
1	Regional Engineer, Tennessee Division of Water Management (Chattanooga)

I. The permittee shall maintain and implement "best management practices" procedures to assure adequate control of rainfall runoff from the site as provided in the Erosion and Sediment Control Plan dated July 31, 1984, with modification dated September 7, 1984. Reports shall be submitted on December 31, 1984, and June 30, 1985, demonstrating the adequacy of the controls. Subsequent reporting is not necessary unless determined necessary by the Director, Water Management Division, or the State Director.

J. There shall be no discharge through the plant diffuser system when Tennessee River flows are less than 3,500 cubic feet per second. Positive interlocks with the Watts Bar Hydroelectric Plant shall be provided to assure compliance with this requirement.

K. Not later than December 31, 1984, permittee shall report results of an evaluation of chlorination practices for the raw cooling water and emergency raw cooling water systems. Maximum discharge concentrations of total residual chlorine shall be determined for all discharge flow paths.

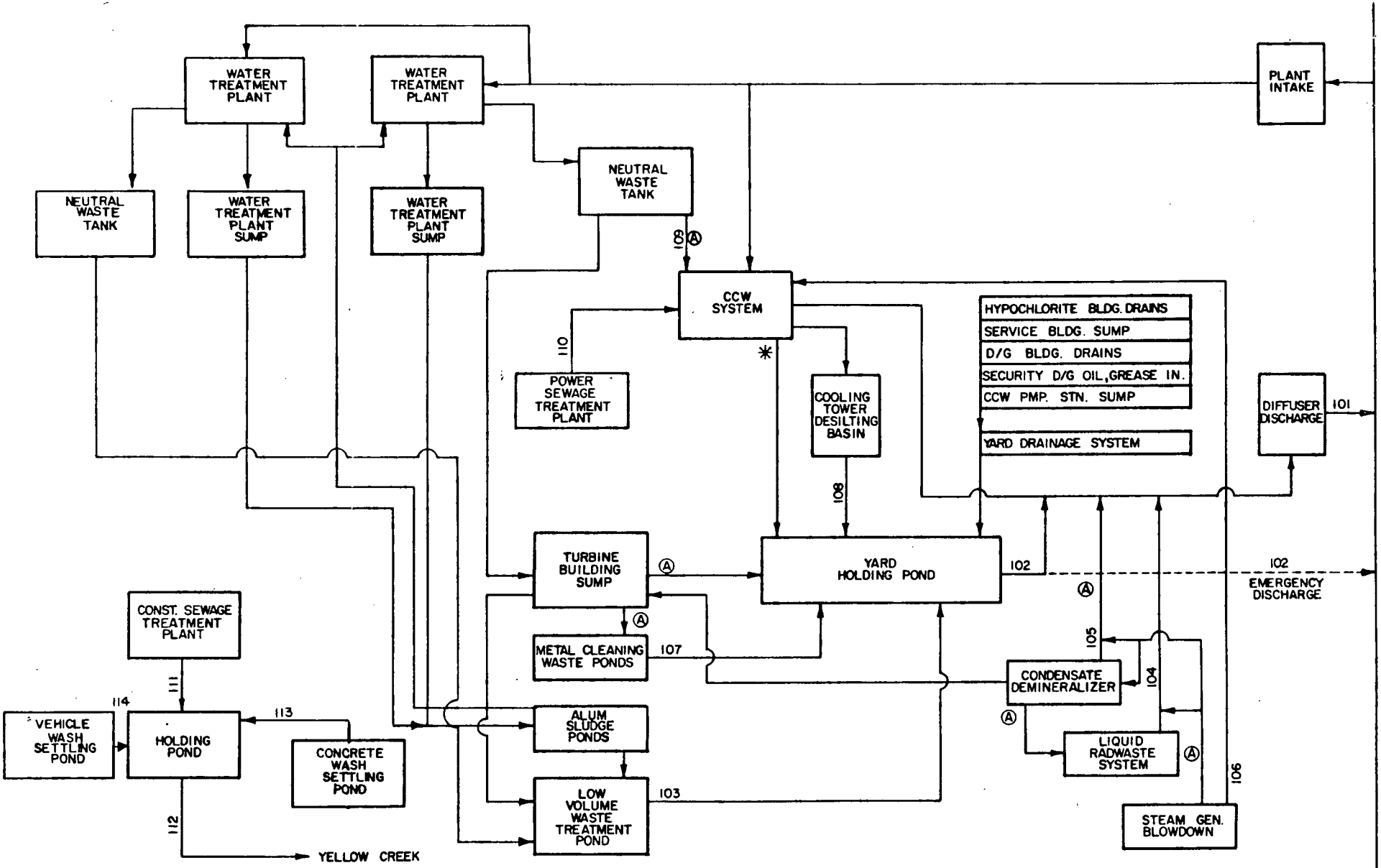
The results of this evaluation will determine the need to provide dechlorination to comply with the 0.10 mg/L total residual chlorine effluent limit under all operational modes and plant conditions. If dechlorination is required, a schedule to install the necessary facilities for sodium thiosulfate addition shall be provided with the report. Installation shall be completed and in operation no later than May 31, 1985, if needed.

L. Permittee shall demonstrate that wiers and other devices used to measure flow at all outfall serial numbers (other than approved use of pump logs) are capable of measuring flows within a maximum deviation of less than plus or minus 10 percent from the true discharge rates throughout the range of expected discharge flows. A report shall be submitted by December 31, 1984. Flow meters shall be calibrated not less than annually and documentation shall be maintained with NPDES records for the facility.

M. Alternate flow paths for the turbine building sump discharge directly to the yard holding pond (OSN 103), OSN 105, and OSN 109 shall be used only under direct authority of the plant superintendent.

N. Not more than 12 months after the commercial operation dates of Units 1 and 2, respectively, permittee shall submit representative data as provided in 40 CFR 122.21(g)(7)(ii), (iii), and (iv) for outfalls 101, 102, 103, and 112. In the event that any pollutant is present at an unacceptable level, this permit shall be modified, or alternatively revoked, and reissued to comply with any applicable provisions of the Clean Water Act.

O. The Tennessee Division of Water Management has certified the discharges covered by this permit with conditions (see Attachment C). Section 401 of the Act requires that conditions of certification shall become a condition of the permit. The monitoring and sampling shall be as indicated for those parameters included in the certification. Any effluent limits, and any additional requirements, specified in the attached State certification that are more stringent supersede any less stringent effluent limits provided herein. During any time period in which the more stringent state certification effluent limits are stayed or inoperable, the effluent limits provided herein shall be in effect and fully enforceable.



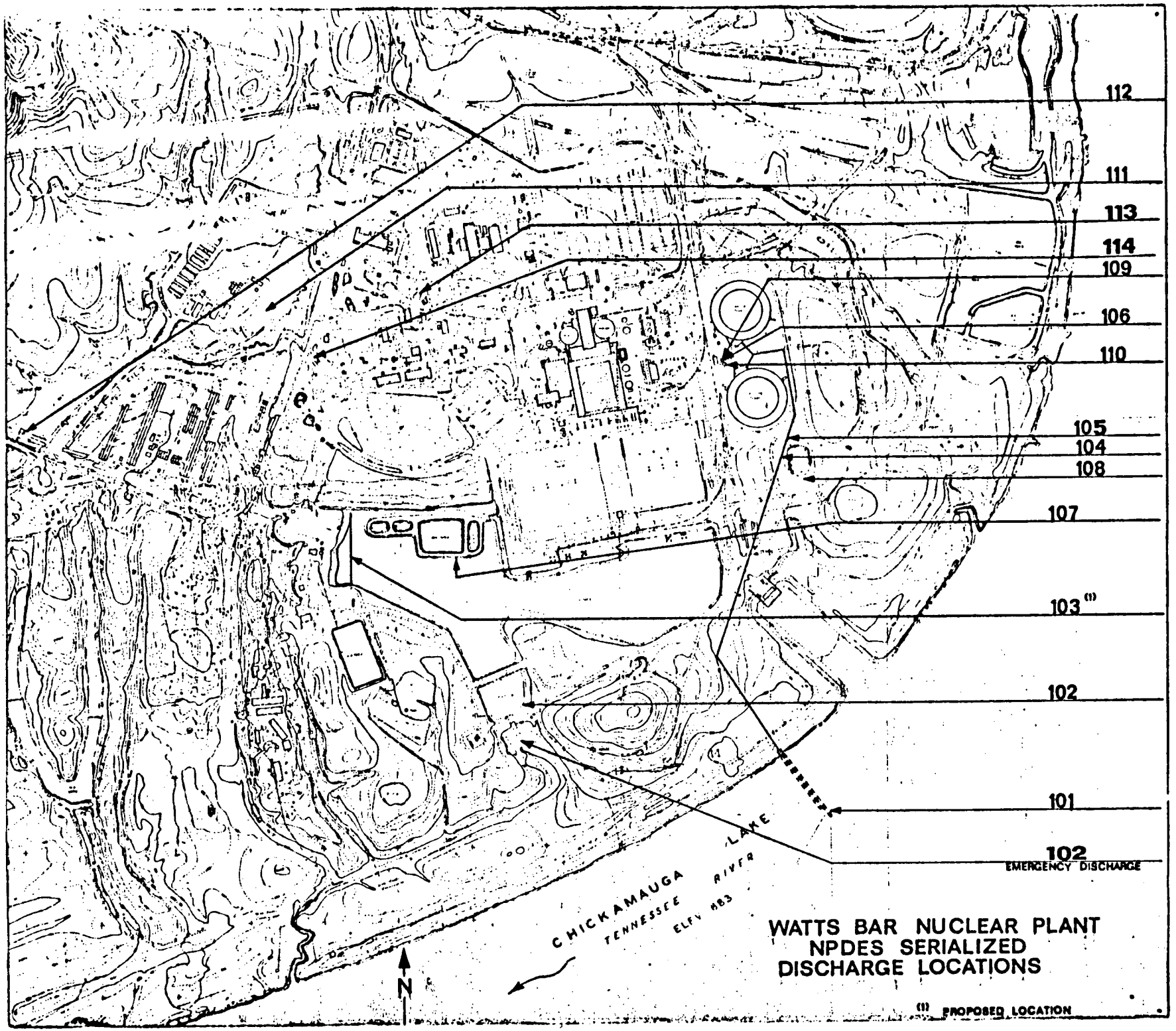
NOTE:

Ⓐ DENOTES ALTERNATE FLOW PATH TO BE USED BY AUTHORITY OF THE PLANT SUPERINTENDENT

* ADDITIONAL MAKE UP WATER FOR EVAPORATIVE LOSS, ETC. THROUGH THE COOLING TOWERS IS ROUTED TO THE YARD HOLDING POND ONLY WHEN THE RIVER FLOW IS LESS THAN 3500 (cfs) AND THE DIFFUSER DISCHARGE IS DISCONTINUED.

WATTS BAR NUCLEAR PLANT

ATTACHMENT A
Permit No. TN0020168



ATTACHMENT B
Permit No. TN0020168

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT
Bureau of Environment
T.E.R.R.A. BUILDING
150 NINTH AVENUE, NORTH
NASHVILLE, TENNESSEE 37203

September 14, 1983

Mr. Paul J. Traina, Director
Water Management Division, Region IV
Environmental Protection Agency
345 Courtland Street
Atlanta, Georgia 30365

Re: NPDES Permit No. TN0020168
State Certification
TVA-Watts Bar Nuclear Plant
Receiving Waters: Yellow Creek and the Tennessee River
Rhea County

Dear Mr. Traina:

Pursuant to Section 401 of the Federal Water Pollution Control Act (as amended by the Clean Water Act of 1977), 33 U.S.C. 1251, 1341, the State of Tennessee hereby issues certification to the subject applicant for a National Pollutant Discharge Elimination System (NPDES) Permit for a wastewater discharge.

The State of Tennessee is not aware of any condition or limitation under Section 301, Section 302, or Section 303 of the Federal Act that would be violated by issuance of the proposed NPDES Permit; additionally, the State of Tennessee is not aware of any standard of performance under Section 306 or Section 307 that would be violated by issuance of the proposed Permit.

This certification is contingent upon the following conditions:

1. Permittee is in no way relieved from any liability for damages which might result from the discharge of wastewater.

2. Permittee must additionally comply with all requirements, conditions, or limitations which may be imposed by any provision of the Tennessee Water Quality Control Act (T.C.A. Sections 70-324 through 70-342) or any regulations promulgated pursuant thereto.

3. The State of Tennessee reserves the right to modify or revoke this certification or to seek revocation or modification of the NPDES Permit issued subject to this certification should the State determine that the wastewater discharge violates the Tennessee Water Quality Control Act, or any applicable Water Quality Criteria, or any rules or regulations which may be promulgated pursuant to the Clean Water Act of 1977, Public Law 95-217.

4. The State of Tennessee, Division of Water Management, certifies this permit upon the following additional conditions:

   a. That the effluent quality of all the discharges in terms of radioactive constituents meet the requirements specified in the Operational Technical Specifications issued by the U.S. Nuclear Regulatory Commission for this facility under 10 CFR 20.

   b. That aluminum is added as a parameter on Discharge 103 with a sampling frequency of once per week and with an effluent limitation of 10.0 mg/L maximum. This is considered by Tennessee to be the technology based effluent requirement which is imposed on all similar dischargers accross the state. The point of monitoring shall be the effluent from the alum sludge ponds and the requirement shall be in effect anytime the effluent from the alum sludge ponds is discharged to a point other than the low volume waste treatment pond.

   c. That the following additional language be included for all discharges to govern the possible disposal of wastewater by means of land application or spray irrigation:

      "The permittee must obtain approval from the Tennessee Department of Health and Environment prior to any land disposal or spray irrigation of wastewater. Such approval shall be based upon site inspections and review of appropriate engineering submittals."

   d. That a Tennessee Grade I operator be employed for the operation of the wastewater treatment plants producing Discharges 110 and 111. Rule 1200-5-3-.08 of the Tennessee Department of Health and Environment, Division of Water Management, requires that a certified operator be employed for the operation of a sanitary wastewater treatment plant.

   e. That Monthly Operation Reports are submitted to the Division of Water Management Office in Chattanooga for the wastewater treatment plants producing Discharges 110 and 111. Rule 1200-4-5-.02(5) of the Tennessee Department of Health and Environment, Division of Water Management, states that regular monitoring and reporting necessary to assure compliance will be required. These reports satisfy this requirement.

   f. That mass limitations of 3.0 lb/d and 4.5 lb/d be added to both the BOD_5 and TSS for the daily average and daily maximum limits, respectively, on Discharge 110. These are the previous permit limits.

   g. That the following parameters and/or limitations are added on Discharge 111:

Parameter	Monthly Avg. Conc. mg/L	Monthly Avg. Amt. lb/d	Weekly Avg. Conc. mg/L	Weekly Avg. Amt. lb/d	Daily Max. Conc. mg/L	Daily Max. Amt. lb/d
BOD_5	30	16.5	40	22.0	45	24.8
Total Suspended Solids	30	16.5	40	22.0	45	24.8
Fecal Coliform*	--	--	--	--	--	--
Dissolved Oxygen	1.0 mg/L minimum					
Total Residual	--	--	--	--	0.5	--
Settleable Solids	--	--	--	--	1.0 ml/L	--
pH	6.0-9.0 Standard Units					

* The wastewater discharge must be disinfected to the extent that viable coliform organisms are effectively eliminated. The concentration of the fecal coliform group after disinfection shall not exceed 200 per 100 ml. as the geometric mean based on a minimum of 10 samples, collected from a given sampling site over a period of not more than 30 consecutive days with individual samples being collected at intervals not less than 12 hours. For the purpose of determining the geometric mean, individual samples being collected at intervals not less than 12 hours. for the purpose of determining the geometric mean, individual samples having fecal coliform group concentration of less than one (1) per 100 ml. shall be considered as having a concentration of one (1) per 100 ml. In addition, the concentration of the fecal coliform group in any individual sample shall not exceed 1,000 per 100 ml.

The geometric mean of fecal coliform samples shall not be determined unless 10 or more samples are taken in any month. Since the fecal coliform monitoring requirement for this permit is less than 10 samples per month, permittee shall report minimum, arithmetic average, and maximum values. Non-compliance with established fecal coliform limits shall be reported by the permittee only when the concentration of the fecal coliform group in any individual sample exceeds 1000 per 100 ml. Notwithstanding the above, the Division may monitor or may require that the permittee monitor the discharge in order to determine compliance with the geometric mean limitation.

These limitations are necessary to prevent dissolved oxygen depletion in the receiving stream, chlorine toxicity to the aquatic life, excessive solids in the effluent, pH impacts and to insure adequate disinfection.

h. That the following measurement frequencies and sample types be established for these parameters on Discharge 111:

Parameter	Measurement Frequency	Sample Type
Fecal Coliform	1/week	Grab
Dissolved Oxygen	5/week	Grab
pH	5/week	Grab

Such measurement frequencies are the minimum requirement for similiar facilities in Tennessee.

i. That the following parameters and limitations with measurement frequencies are added on Discharge 112:

Parameter	Monthly Avg. Conc. mg/L	Measurement Frequency	Sample Type
BOD_5	20	1/week	Grab
Ammonia	5	1/week	Grab
Dissolved Oxygen	5.0 mg/L min.	1/week	Grab
pH	--	1/week	Grab

These parameters and limitations are necessary to protect the receiving stream's classified uses. The Division will also require that the time the dissolved oxygen samples are taken be recorded with at least one sample per week taken in the morning to measure overnight depletation.

j. That plans and specifications for the wastewater treatment facilities for Discharge 113 and 114 be submitted to the Tennessee Division of Water Management and approved before construction begins. Rule 1200-4-2 of the Tennessee Department of Health and Environment, Division of Water Management requires that this be done. This also applies to any future construction of new wastewater treatment facilities or alterations to existing wastewater treatment facilities.

5. With regard to the various studies and reports required of the applicant pursuant to Part I B. of NPDES Permit, the State reserves the right to modify or revoke the certification or to seek revocation or modification of the NPDES Permit issued subject to the certification as may be required to protect water quality based upon the results of these studies and reports.

If you have any questions about this correspondence please contact Phil Simmons at 615-741-7883.

Very truly yours,

Paul E. Davis /pms

Paul E. Davis
Manager, Permits Section
Division of Water Management

PED/PMS/slk P/WAT-70

cc: Environmental Protection Agency
CBO