TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE 37902

MAR 31 1989

Mr. Garland P. Wiggins, Manager
Industrial Facilities Section
Division of Water Pollution Control
Tennessee Department of Health
and Environment
Bureau of Environment
TERRA Building
150 Ninth Avenue, North
Nashville, Tennessee 37219-5404

Dear Mr. Wiggins:

WATTS BAR NUCLEAR PLANT (WBN) - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NO. TN0020168 - RENEWAL APPLICATION

Enclosed are two copies of Environmental Protection Agency forms 3510-1, 3510-2C, and 3510-2E to support our request for reissuance of the WBN NPDES permit. Also enclosed for your use are:

- site map;
- pictorial identification of outfalls;
- plant discharge diagram;
- description of the boron sources and discharges;
- list of chemicals added to each discharge;
- description and analysis of the X-ray film processing waste;
- description of the raw water systems;
- description of a program to control microbiologically induced corrosion;
- summary of requested permit changes and justification; and
- reproduction of the current permit modified to reflect the proposed changes (Parts I, II, and III).

Please note that we have not submitted priority pollutant data for the Liquid Radwaste System/Outfall Serial Number 104 because the effluent from this source is discharged on a batch basis. We will be submitting these data as soon as the sampling and analysis are completed.

If you have any questions regarding the enclosed information, please call Abraham H. Loudermilk, Jr., at (615) 632-6656 in Knoxville.

Sincerely,

Robert J. Johnson
for M. Paul Schmierbach, Manager
Environmental Quality

C001
1/1

Enclosures
cc (Enclosures): See page 2

8904140088 890331
PDR ADOCK 05000390
A PDC

MAR 3 1 1989

Mr. Garland P. Wiggins

cc (Enclosures):
Mr. Bruce Barrett, Director
Water Management Division
U.S. Environmental Protection
Agency, Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

Mr. Philip L. Stewart, Manager
Chattanooga Field Office
Division of Water Pollution Control
2501 Milne Street
Chattanooga, Tennessee 37406-3399

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Ms. S. C. Black, Assistant Director
for Projects
TVA Projects Division
U. S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

Mr. Gary G. Zech, Assistant Director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
NMBB3206
Washington, D.C. 20555

DOCKET NO. 50-390/391 WATTS BAR, 1/2 TVA

RENEWAL APPLICATION OF NPDES PERMIT NO. TN0020168

Rec'd. w/ltr. 3/31/89.....8904140088

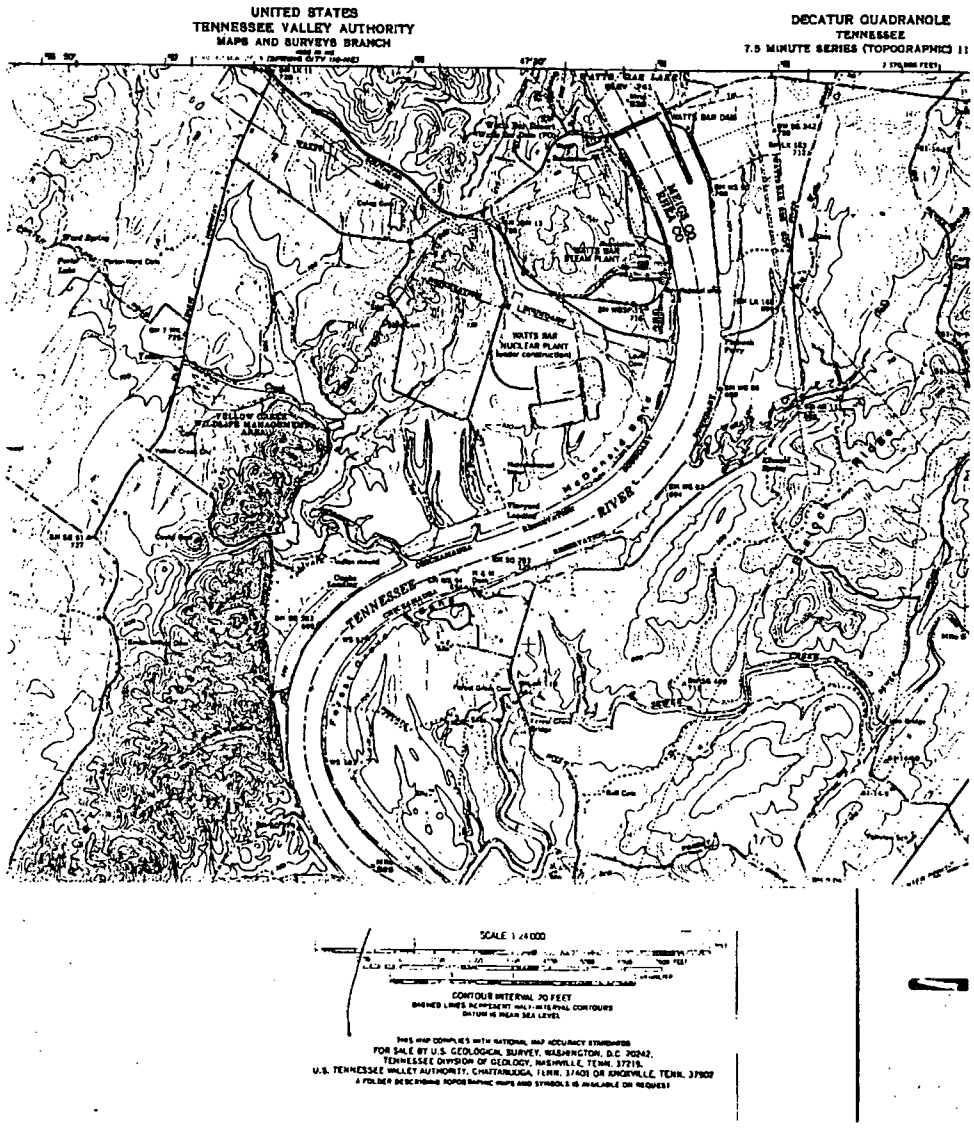
-NOTICE-

THE ATTACHED FILES ARE OFFICIAL RECORDS OF THE RECORDS & REPORTS MANAGEMENT BRANCH. THEY HAVE BEEN CHARGED TO YOU FOR A LIMITED TIME PERIOD AND MUST BE RETURNED TO THE RECORDS & ARCHIVES SERVICES SECTION P1-122 WHITE FLINT. PLEASE DO NOT SEND DOCUMENTS CHARGED OUT THROUGH THE MAIL. REMOVAL OF ANY PAGE(S) FROM DOCUMENT FOR REPRODUCTION MUST BE REFERRED TO FILE PERSONNEL.

-NOTICE-

SITE MAP

WATTS BAR NUCLEAR PLANT

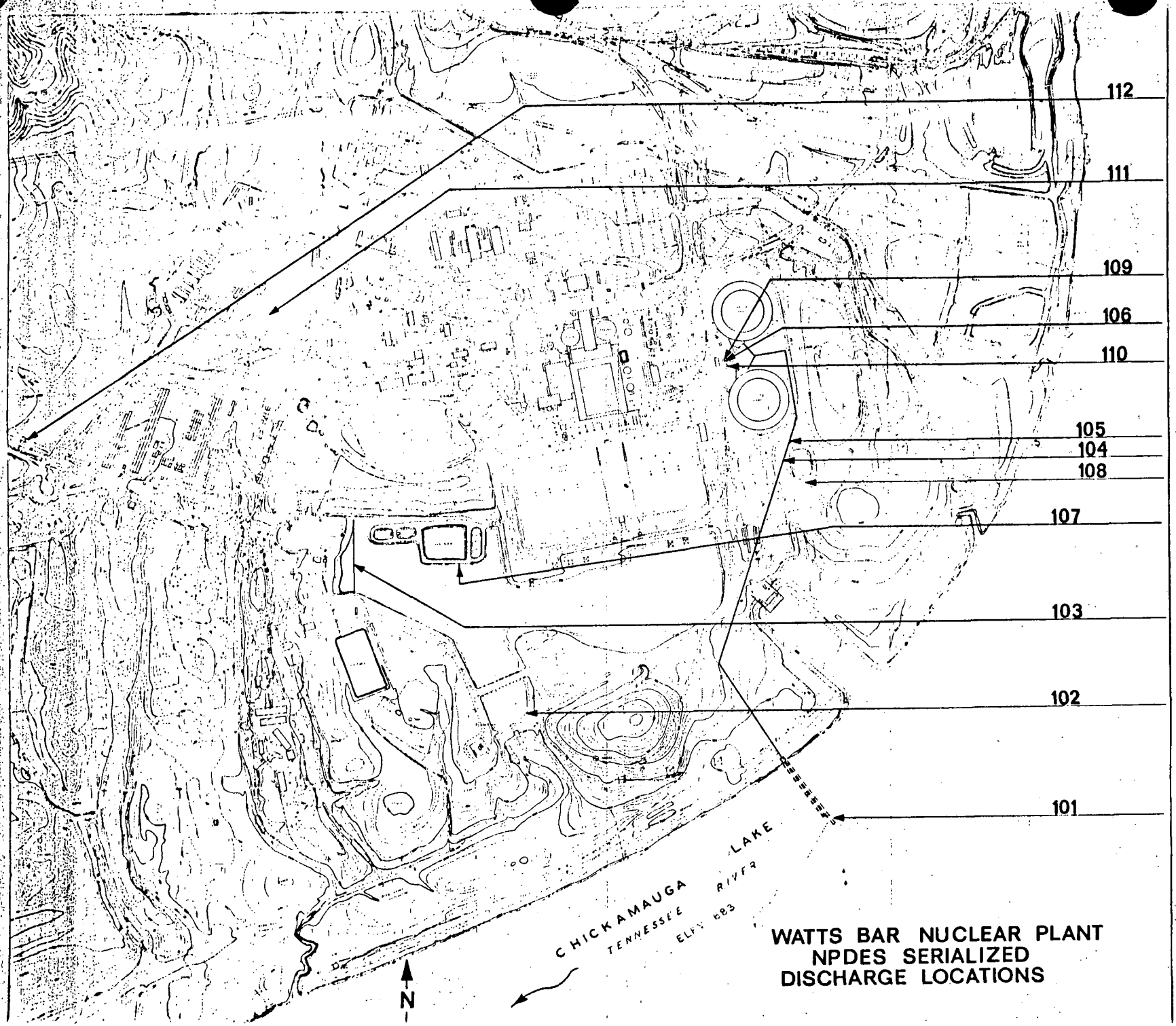


WATTS BAR NUCLEAR PLANT

Site Map

OUTFALL IDENTIFICATION

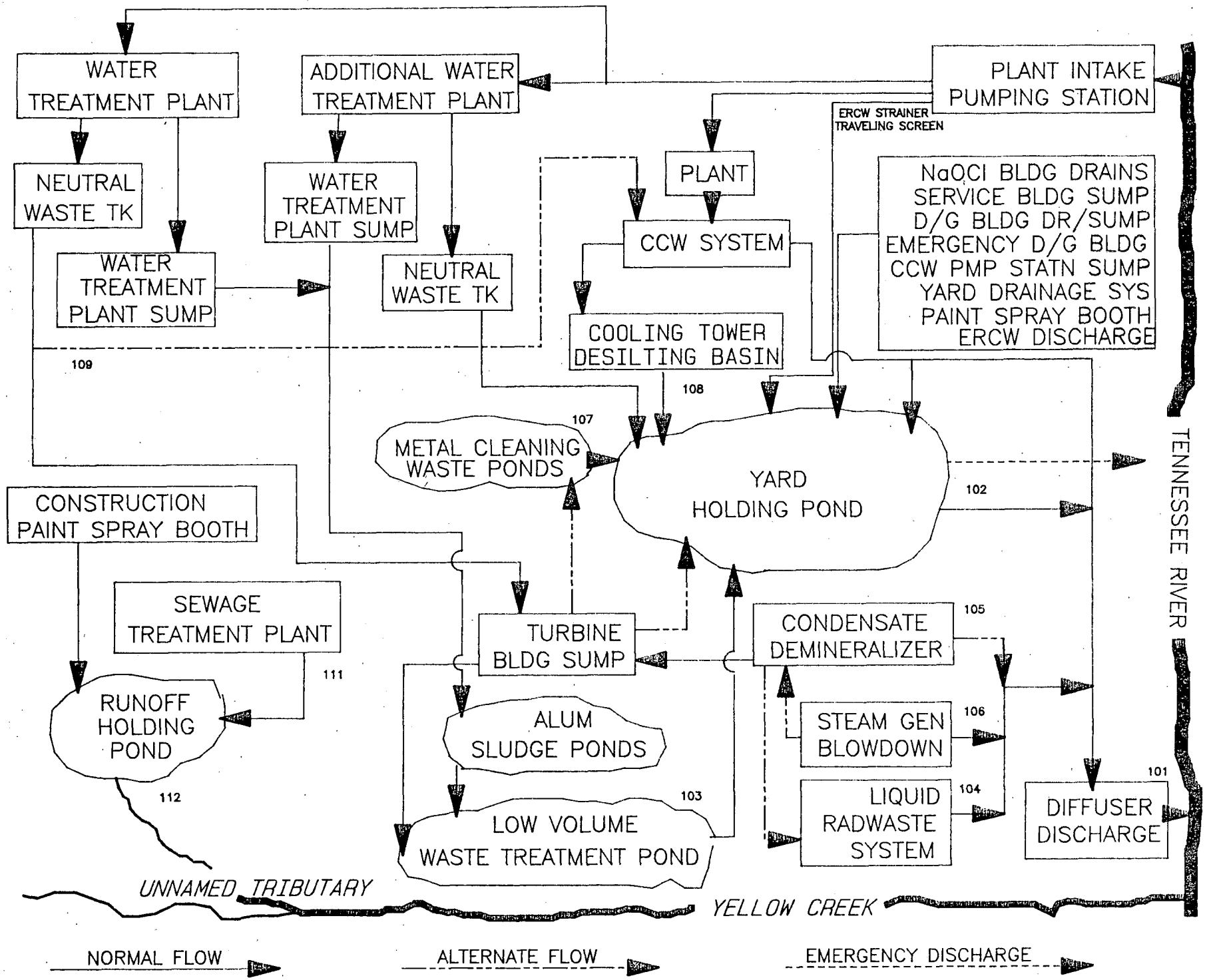
WATTS BAR NUCLEAR PLANT

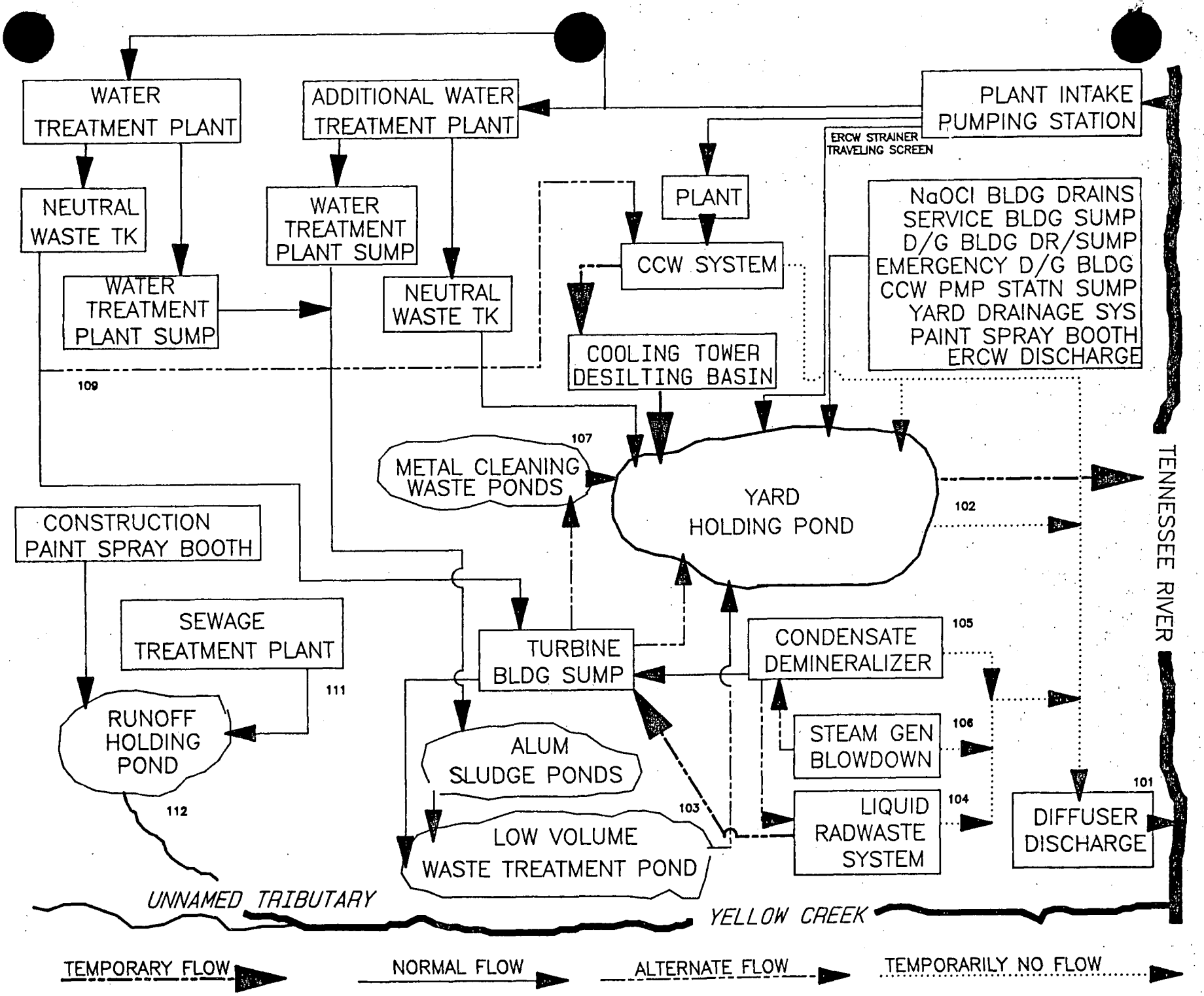


WATTS BAR NUCLEAR PLANT
NPDES SERIALIZED
DISCHARGE LOCATIONS

PLANT DISCHARGE DIAGRAM

WATTS BAR NUCLEAR


WATER TREATMENT PLANT
ADDITIONAL WATER TREATMENT PLANT
PLANT INTAKE PUMPING STATION
ERCW STRAINER TRAVELING SCREEN
NEUTRAL WASTE TK
WATER TREATMENT PLANT SUMP
WATER TREATMENT PLANT SUMP
NEUTRAL WASTE TK
PLANT
CCW SYSTEM
NaOCl BLDG DRAINS
SERVICE BLDG SUMP
D/G BLDG DR/SUMP
EMERGENCY D/G BLDG
CCW PMP STATN SUMP
YARD DRAINAGE SYS
PAINT SPRAY BOOTH
ERCW DISCHARGE
COOLING TOWER DESILTING BASIN
109
108
107
METAL CLEANING WASTE PONDS
YARD HOLDING POND
102
CONSTRUCTION PAINT SPRAY BOOTH
SEWAGE TREATMENT PLANT
111
TURBINE BLDG SUMP
CONDENSATE DEMINERALIZER
105
RUNOFF HOLDING POND
112
ALUM SLUDGE PONDS
STEAM GEN BLOWDOWN
106
LIQUID RADWASTE SYSTEM
104
DIFFUSER DISCHARGE
101
LOW VOLUME WASTE TREATMENT POND
103
UNNAMED TRIBUTARY
YELLOW CREEK
TENNESSEE RIVER
NORMAL FLOW
ALTERNATE FLOW
EMERGENCY DISCHARGE


WATER TREATMENT PLANT
ADDITIONAL WATER TREATMENT PLANT
PLANT INTAKE PUMPING STATION
ERCW STRAINER TRAVELING SCREEN
NEUTRAL WASTE TK
WATER TREATMENT PLANT SUMP
WATER TREATMENT PLANT SUMP
NEUTRAL WASTE TK
PLANT
CCW SYSTEM
NaOCl BLDG DRAINS
SERVICE BLDG SUMP
D/G BLDG DR/SUMP
EMERGENCY D/G BLDG
CCW PMP STATN SUMP
YARD DRAINAGE SYS
PAINT SPRAY BOOTH
ERCW DISCHARGE
COOLING TOWER DESILTING BASIN
109
107
METAL CLEANING WASTE PONDS
YARD HOLDING POND
102
TENNESSEE RIVER
CONSTRUCTION PAINT SPRAY BOOTH
SEWAGE TREATMENT PLANT
111
TURBINE BLDG SUMP
CONDENSATE DEMINERALIZER
105
RUNOFF HOLDING POND
112
ALUM SLUDGE PONDS
STEAM GEN BLOWDOWN
106
103
LIQUID RADWASTE SYSTEM
104
101
DIFFUSER DISCHARGE
LOW VOLUME WASTE TREATMENT POND
UNNAMED TRIBUTARY
YELLOW CREEK
TEMPORARY FLOW
NORMAL FLOW
ALTERNATE FLOW
TEMPORARILY NO FLOW

EPA FORMS

EPA FORM 3510-1
EPA FORM 3510-2C
EPA FORM 3510-2E

WATTS BAR NUCLEAR PLANT

(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F T N 0 0 2 0 1 6 8 D

LABEL ITEMS

I. EPA I.D. NUMBER

FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area*(s)* below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	X		X
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)		X	
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	
J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP W A T T S B A R N U C L E A R P L A N T

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*: M PAUL SCHMIERBACH MGR ENV QLT

B. PHONE *(area code & no.)*: 615 632 6578

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX: 3 201 SUMMER PLACE BUILDING

B. CITY OR TOWN: 4 KNOXVILLE

C. STATE: TN

D. ZIP CODE: 37902

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 5 PO BOX 800

B. COUNTY NAME: RHEA

C. CITY OR TOWN: 6 SPRING CITY

D. STATE: TN

E. ZIP CODE: 37381

F. COUNTY CODE *(if known)*:

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
7491 (specify) ELECTRICAL POWER GENERATION	7 (specify)
C. THIRD	**D. FOURTH**
(specify)	7 (specify)

VIII. OPERATOR INFORMATION

A. NAME: 8 TENNESSEE VALLEY AUTHORITY

B. Is the name listed in Item VIII-A also the owner? [X] YES [ ] NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)
F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC (other than federal or state)
O = OTHER (specify)

F (specify)

D. PHONE (area code & no.): A 615 632 6578

E. STREET OR P.O. BOX

F. CITY OR TOWN: B

G. STATE

H. ZIP CODE

IX. INDIAN LAND

Is the facility located on Indian lands? [ ] YES [X] NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water): 9 N TN0020168

B. UIC (Underground Injection of Fluids): 9 U

C. RCRA (Hazardous Wastes): 9 R

D. PSD (Air Emissions from Proposed Sources): 9 P

E. OTHER (specify): 9 (specify) see Attachment

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Production of electrical power via thermonuclear fission and associated operations

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
M. Paul Schmierbach, Manager Environmental Quality		

COMMENTS FOR OFFICIAL USE ONLY

☆ U.S. Government Printing Office : 1985 - 486-785/32991

EPA I.D. NUMBER (copy from Item 1 of Form 1) TN0020168

Please print or type in the unshaded areas only.

Form Approved OMB No. 158-R0173

FORM 2C NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE 1. DEG.	2. MIN.	3. SEC.	C. LONGITUDE 1. DEG.	2. MIN.	3. SEC.	D. RECEIVING WATER (name)
101	35	35	36	84	47	9	Tennessee River
112	35	36	04	84	48	11	Unnamed Tributary of Yellow Creek
102	35	35	45	84	47	30	Unnamed Tributaty
Emergency Overflow							

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined *(e.g., for certain mining activities)*, provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW a. OPERATION (list)	b. AVERAGE FLOW (include units)	3. TREATMENT a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
101	Diffuser Discharge which	20,000 gpm (min)	Mixing by submerged multi-	4	A
	receives flow from the	80,000 gpm (max)	port diffuser	1	0
	following:				
	1. Yard Holding Pond		(See OSN 102)		
	(OSN 102)				
	2. Liquid Rad Waste Treatment		(See OSN 104)		
	(OSN 104)				
	3. Condensate Demineralizer		(See OSN 105)		
	System (OSN 105) (A)				
	4. Steam Generator Blowdown		(See OSN 106)		
	(OSN 106)				
	5. Condenser Circulating	35,500 gpm (avg)	None		
	Water (CCW) which	40,000 gpm (max)			
	receives flow from the				
	following:				
	A. Raw Cooling Water	28,000 gpm	Treated with Biocide	2	F
	(RCW) System				
	B. Essential Raw Cool-	30,000 gpm	Treated with Biocide	2	F
	ing Water (ERCW)				
	System				
	C. Neutral Waste Tank		(See OSN 109)		
	(A) (OSN 109) (Water				
	Treatment Plant)				

OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

EPA I.D. NUMBER (copy from Item 1 of Form 1) TN0020168

Print or type in the unshaded areas only

Form Approved OMB No. 158-R0173

FORM 2C NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined *(e.g., for certain mining activities)*, provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
102	Yard Holding Pond (OSN 102)	500 gpm (avg)	35 Acre pond with	1	U
	which receives flow from the	40,000 gpm (max)	sedimentation and oil		
	following:		skimming		
	1. Low Volume Waste Treat-		(See OSN 103)		
	Pond (OSN 103)				
	2. Metal Cleaning Waste		(See OSN 107)		
	Ponds (OSN 107)				
	3. Cooling Tower Desilting		(See OSN 108)		
	Basin (OSN 108)				
	4. ERCW Discharge	30,000 gpm	Treated with Biocide	2	F
	5. Diffuser Backflow	40,000 gpm (max)	None		
	6. Service Building Sump		Floor drain with oil skimming		
	7. Emergency D/G Bldg Sump		Floor drain with oil skimming	1	U
	8. Diesel Gen Bldg Sump		Floor drain with oil skimming	1	U
	9. NaOCl Bldg Drains		Floor drain with dikes		
	10. ERCW Strainer Backwash	36,000 GPD	Treated with biocide	2	F
	11. Traveling Screen (IPS)		None		
	12. Neutral Waste Tk (additional MWTP)		Neutralized regeneration	2	K
	13. CCW Pump Station Sump		Leak collection w/oil skimming		
	14. Paint Spray Booth	3,000 gal/yr		1	U
	15. Yard Drainage System		None		
	16. Turbine Bldg Sump (A)	(1.5 MGD)	Floor and equipment drain		
			collection with oil skimming		

OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168

Form Approved OMB No. 158-R0173

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined *(e.g., for certain mining activities)*, provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
	Low Volume Waste Treatment	0.5 MGD	Unlined Pond	1	O
103	Pond which receives flow			1	U
	from the following:				
	1. Turbine bldg station	(1.5 MGD)	Bldg drain w/oil skimmer		
	sump which contains				
	leakage, low volume wastes, and blowdown				
	2. Alum Sludge Ponds	(0.024 MGD)	Two ponds which provide	1	U
	supernatant which		sedimentation and sludge	5	L
	receives flow from the		thickening	5	Q
	following:				
	A. Makeup Water Treat-		None		
	ment Plant Sump				
	B. Additional Makeup		None		
	Water Treatment				
	Plant Sump				
	3. Drum Dewatering		None		

OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (copy from Item 1 of Form 1)
TN0020168

Form Approved OMB No. 158-R0173

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined *(e.g., for certain mining activities)*, provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
104	Liquid Radwaste System which	5.7 gpm	Ion exchange, filtration and	2	J
	receives flow from the		evaporation, as needed for	1	F
	following:		radioactive waste removal		
	1. Laundry and hot shower	(0.0003 MGD)	None		
	drains				
	2. Radioactive Floor Drains	(0.018 MGD)	None		
	and Sumps				
	3. Chemical Drains	(0.1737 MGD)	None		
	4. System Leakage and	(0.018 MGD)	None		
	Blowdown				
	5. Condensate Demineralizer	(0.08 MGD)	Filtration	1	N
	System (A)			2	K
	6. Metal Cleaning Waste				

OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

CONTINUE ON REVERSE

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168

Form Approved OMB No. 158-R0173

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER

EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS

Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined *(e.g., for certain mining activities)*, provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
105	Condensate Demineralizer	(0.08 MGD)	Neutralization of regenera-	2	K
	System which receives flow		tion wastes	1	N
	from the following:				
	1. Steam Generator Blowdown	(275 gpm)	None		
	(A) (OSN 106)				
106	Steam Generator Blowdown	20 gpm (min)	None		
		300 gpm (max)			
107	Metal Cleaning Waste which	--	1 MG lined pond	2	C
	receives flow from the		5 MG unlined pond		
	following:				
	1. Turbine Bldg (A) which	(1.5 MGD)	Floor and equipment drain		
	receives flow from the		with oil skimming		
	following:				
	A. Neutral Waste Tank		(See OSN 109)		
	(Makeup Water Treat-				
	ment Plant) (OSN 109)				

OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

CONTINUE ON REVERSE

print or type in the unshaded areas only.

EPA I.D. NUMBER (copy from Item 1 of Form 1) TN0020168

Form Approved OMB No. 158-R0173

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined *(e.g., for certain mining activities)*, provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
107 (cont)	B. Condensate Demineralizer		(See OSN 105)		
	System				
	C. Turbine Bldg Floor and	(1.4 MGD)	None		
	Equipment Drains				
	1. RCW strainer backwash		None		
	2. Equipment cooling		None		
	water drains				
	3. System leakage and		None		
	spills				
	4. Equipment blowdown		None		
	5. Auxiliary boiler		None		
	drains				
	6. Low Volume Wastes		None		
108	Cooling Tower Desilting		Solid removed by sedimenta-	1	U
	Basin which receives flow		tion		
	from the Cooling Tower				
109	Neutral Waste Tank which	0.017 MGD	Neutralized regeneration	2	K
	receives flow from the		waste		
	Makeup Water Treatment Plant				

OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

CONTINUE ON REVERSE

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168

Form Approved OMB No. 158-R01.73

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER

EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS

Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. DEG.	2. MIN.	3. SEC.	1. DEG.	2. MIN.	3. SEC.	

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined *(e.g., for certain mining activities)*, provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW		3. TREATMENT		
	a. OPERATION (list)	b. AVERAGE FLOW (include units)	a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
111	Sewage Treatment Plant	0.12 MGD		1	T, U
		0.05 MGD (avg)		2	F
				3	A, C
				5	A, B
112	Runoff Holding Pond which		Sedimentation	1	O, U
	receives waste from the			4	A
	following:				
	1. Sewage Treatment Plant		(See OSN 111)		
	(OSN 111)				
	2. Construction Paint Spray	3000 gal/yr		1	U
	Booth				
	NOTES: Values in parenthesis "()" are based		on operations at Sequoyah Nuclear Plant		
	"A" denotes an alternate flow path				

OFFICIAL USE ONLY *(effluent guidelines sub-categories)*

CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

[X] YES *(complete the following table)* [ ] NO *(go to Section III)*

1. OUTFALL NUMBER *(list)*	2. OPERATION(s) CONTRIBUTING FLOW *(list)*	3. FREQUENCY a. DAYS PER WEEK *(specify average)*	3. FREQUENCY b. MONTHS PER YEAR *(specify average)*	4. FLOW a. FLOW RATE *(in mgd)* 1. LONG TERM AVERAGE	4. FLOW a. FLOW RATE *(in mgd)* 2. MAXIMUM DAILY	4. FLOW b. TOTAL VOLUME *(specify with units)* 1. LONG TERM AVERAGE	4. FLOW b. TOTAL VOLUME *(specify with units)* 2. MAXIMUM DAILY	4. FLOW c. TOTAL AMOUNT *(in mgd)*
107	All metal cleaning wastes, as necessary; various plant systems are cleaned/flushed using any of the following types of chemicals: hydrazine, citric acid, EDTA, ammonium bifluoride, phosphoric acid, oxalic acid, hydroxyacetic formic acid, corrosion inhibitors, sodium permanganate, nitric acid, hydrochloric acid and hydrofluoric acid.		Frequency and duration cannot be predicted from past. Rainwater collects in the ponds and must be discharged approximately 4 times per year.					

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

[X] YES *(complete Item III-B)* [ ] NO *(go to Section IV)*

B. Are the limitations in the applicable effluent guideline expressed in terms of production *(or other measure of operation)*?

[ ] YES *(complete Item III-C)* [X] NO *(go to Section IV)*

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. *(specify)*	2. AFFECTED OUTFALLS *(list outfall numbers)*
N/A			

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

[ ] YES *(complete the following table)* [X] NO *(go to Item IV-B)*

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS a. NO.	2. AFFECTED OUTFALLS b. SOURCE OF DISCHARGE	3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE a. REQUIRED	4. FINAL COMPLIANCE DATE b. PROJECTED
N/A					

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs *(or other environmental projects which may affect your discharges)* you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction. [X] MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

EPA I.D. NUMBER (copy from Item 1 of Form 1)
TN0020168

Form Approved
OMB No. 2040-0086
Approval expires 7-31-86

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding — Complete one set of tables for each outfall — Annotate the outfall number in the space provided. NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
Asbestos	- Wet laundry of worker's clothing involved in asbestos stripping/ handling operations. Discharge would be through radwaste system. (Note: currently use dry cleaning contract) - Shower facilities (insulator showers) provided for workers involved in asbestos stripping/handling operations. Discharge approximately 100 gpd to the sewage treatment plant.		

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ YES *(list all such pollutants below)* ☒ NO *(go to Item VI-B)*

N/A

CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

X YES *(identify the test(s) and describe their purposes below)* _ NO *(go to Section VIII)*

Toxicity testing presently being performed on discharges OSN 107, and 102. Results to be submitted with DMR.

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

X YES *(list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)* ☐ NO *(go to Section IX)*

A. NAME	B. ADDRESS	C. TELEPHONE *(area code & no.)*	D. POLLUTANTS ANALYZ. *(list)*
Analytical Industrial Research Laboratory	153 Warehouse Mart Chattanooga, Tennessee 37421	(615) 894-8102	Cyanide Total Phenol

IX. CERTIFICATION

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

A. NAME & OFFICIAL TITLE *(type or print)*	B. PHONE NO. *(area code & no.)*
M. Paul Schmierbach, Manager, Environmental Quality	(615) 632-6578
C. SIGNATURE	D. DATE SIGNED

Please type or print in the unshaded areas only

EPA ID Number *(copy from item 1 of Form 1)* TN 0020168

Form Approved OMB No. 2040-0086 Approval expires 7-31-88

Form 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. Receiving Waters

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
111	35	36	15	84	47	50	Yellow Creek via unnamed tributary

II. Discharge Date *(If a new discharger, the date you expect to begin discharging)*

NA

III. Type of Waste

A. Check the box(es) indicating the general type(s) of wastes discharged.

[X] Sanitary Wastes [ ] Restaurant or Cafeteria Wastes [ ] Noncontact Cooling Water [ ] Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

NA

IV. Effluent Characteristics

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	4.2 LB/DAY	8.8 mg/L	0.78 LB/DAY	2.01 mg/L	52	
Total Suspended Solids (TSS)	2.0 LB/DAY	6.0mg/L	0.73 LB/DAY	1.95 mg/L	52	
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	> 2000#/100 ML		40.8 #/100 ML		52	
Total Residual Chlorine *(if chlorine is used)*	0.25 LB/DAY	0.5 mg/L	0.13 LB/Day	0.31 mg/L	284	
Oil and Grease	< 1.3 LB/DAY	< 5 mg/L	--	--	1	
*Chemical oxygen demand (COD)	--	--	--	--	--	
*Total organic carbon (TOC)	--	--	--	--	--	
Ammonia *(as N)*	0.005LB/DAY	0.02 mg/L	--	--	1	
Discharge Flow	Value 0.179 MGD		0.04 MGD		275	
pH *(give range)*	Value 6.1 - 8.3		6.84 - 7.51		268	
Temperature *(Winter)*	NA °C		NA °C		NA	
Temperature *(Summer)*	NA °C		NA °C		NA	

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☐ Yes ☒ No

If yes, briefly describe the frequency of flow and duration.

VI. Treatment System *(Describe briefly any treatment system(s) used or to be used)*

FOUR 30,000 GPD PACKAGE SEWAGE TREATMENT UNITS

- GRINDER (COMMINUTOR) (1)
- EXTENDED AERATION (4) 30,000 GPD BASINS
  (1) SLUDGE HOLDING TANK & (1) SLUDGE TANK FOR EACH PLANT
- CHLORINATOR (1) CHLORINE CONTACT TANK
- EFFLUENT FLOW RECORDER
- FLOW EQUALIZATION
- EQUALIZATION TANKS

(See attached)

Other Information *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

NA

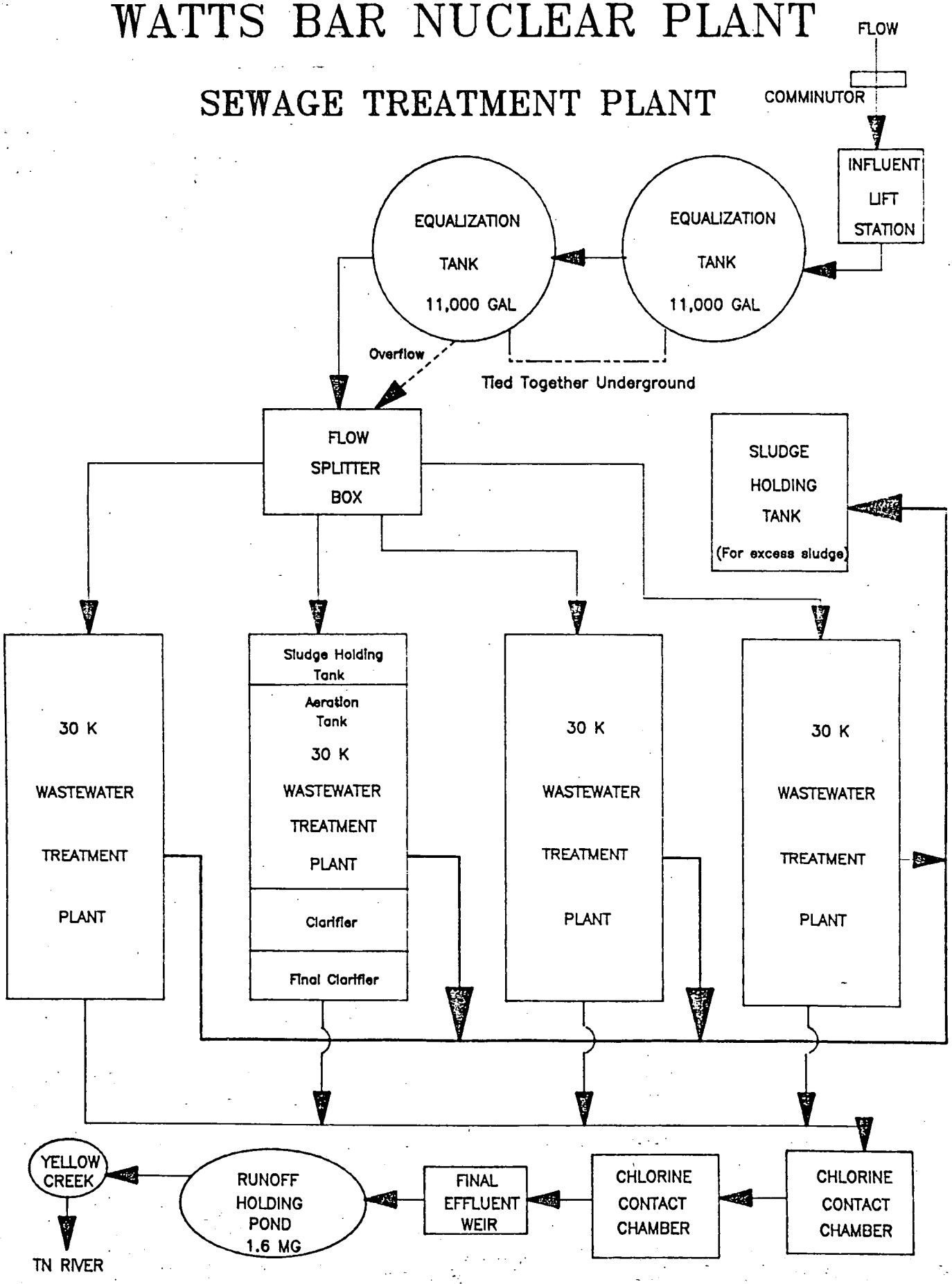
VIII. Certification

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

A. Name & Official Title	B. Phone No. *(area code & no.)*
Signature	D. Date Signed

WATTS BAR NUCLEAR PLANT

SEWAGE TREATMENT PLANT



PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: TN0020168

Watts Bar Nuclear Plant

Form Approved OMB No. 158-R0173

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO.: Intake

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	2. EFFLUENT a. MAXIMUM DAILY VALUE (2) MASS	2. EFFLUENT b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	2. EFFLUENT b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	2. EFFLUENT c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	2. EFFLUENT c. LONG TERM AVRG. VALUE (if available) (2) MASS	2. EFFLUENT d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (BOD)	<1.0	<265					1	mg/L	lbs/day			
b. Chemical Oxygen Demand (COD)	9.0	2,387					1	mg/L	lbs/day			
c. Total Organic Carbon (TOC)	2.4	636					1	mg/L	lbs/day			
d. Total Suspended Solids (TSS)	7.0	1,856					1	mg/L	lbs/day			
e. Ammonia (as N)	0.12	32					1	mg/L	lbs/day			
f. Flow	VALUE 31.776		VALUE		VALUE			MGD		VALUE 37		1,462
g. Temperature (winter)	VALUE 10.9		VALUE		VALUE		8	°C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 5.9	MAXIMUM 7.1	MINIMUM	MAXIMUM			8	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X' a. BELIEVED PRESENT	2. MARK 'X' b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	3. EFFLUENT a. MAXIMUM DAILY VALUE (2) MASS	3. EFFLUENT b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	3. EFFLUENT b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	3. EFFLUENT c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	3. EFFLUENT c. LONG TERM AVRG. VALUE (if available) (2) MASS	3. EFFLUENT d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)	X		<2.0	<530					1	mg/L	lbs/day			
b. Chlorine, Total Residual	X		<0.1	<27					8	mg/L	lbs/day			
c. Color	X		15						1	PCU				
d. Fecal Coliform	X		<5						8	N/100ml				
e. Fluoride (16984-48-8)	X		0.2	53					1	mg/L	lbs/day			
f. Nitrate-Nitrite (as N)	X		0.31	82					1	mg/L	lbs/day			

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)	X		0.30	80					1	mg/L	lbs/day			
h. Oil and Grease	X		<5.3	<1,405					4	mg/L	lbs/day			
i. Phosphorus (as P), Total (7723-14-0)	X		0.10	27					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total	X		0.43723 *(3)						1	pCi/L				
(2) Beta, Total	X		2.09225 *(3)						1	pCi/L				
(3) Radium, Total	X		0.2908 *(3)						1	pCi/L				
(4) Radium 226, Total	X		0.1074 *(3)						1	pCi/L				
k. Sulfate (as SO_4) (14808-79-8)	X		24.	6,364					1	mg/L	lbs/day			
l. Sulfide (as S)	X		<0.02	<5.3					4	mg/L	lbs/day			
m. Sulfite (as SO_3) (14265-45-3)	X		<0.1	<27					8	mg/L	lbs/day			
n. Surfactants	X		<0.1	<27					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		200	53					1	ug/L	lbs/day			
p. Barium, Total (7440-39-3)	X		20.	5.3					1	ug/L	lbs/day			
q. Boron, Total (7440-42-8)	X		<50.	<13					1	ug/L	lbs/day			
r. Cobalt, Total (7440-48-4)	X		<1.	0.26					1	ug/L	lbs/day			
s. Iron, Total (7439-89-6)	X		300.	80					1	ug/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		5.9	1.6					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		<20.	<5.3					1	ug/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		94.	25					1	ug/L	lbs/day			
w. Tin, Total (7440-31-5)	X		<50	13					1	ug/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		9.0	2.4					1	ug/L	lbs/day			

CONTINUE ON PAGE V-3

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	Intake

Form Approved OMB No. 158-R0173

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C. If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table *(all seven pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<1.0	<0.26					1	ug/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			<1.0	<0.26					1	ug/L	lbs/day			
3M. Beryllium, Total (7440-41-7)	X			<1.	<0.26					1	ug/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			<0.1	<0.03					1	ug/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			<1.0	<0.26					1	ug/L	lbs/day			
6M. Copper, Total (7440-50-8)	X			<10.	<2.7					1	ug/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			<0.1	<0.03					1	ug/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			<0.2	<0.05					1	ug/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			<1.0	<0.26					1	ug/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			<1.0	<0.26					1	ug/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			<10.	<2.7					1	ug/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			<50.	<13.3					1	ug/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			<10.	<2.7					1	ug/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			<0.02	<5.3					4	mg/L	lbs/day			
15M. Phenols, Total	X			<5	<1.3					4	ug/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			<100	<27					1	ug/L	lbs/day			
2V. Acrylonitrile (107-13-1)	X			<100	<27					1	ug/L	lbs/day			
3V. Benzene (71-43-2)	X			280	74					1	ug/L	lbs/day		-	
4V. Bis (Chloromethyl) Ether (542-88-1)	X			*(2)											
5V. Bromoform (75-25-2)	X			<10	<2.7					1	ug/L	lbs/day			
6V. Carbon Tetrachloride (56-23-5)	X			<10.	<2.7					1	ug/L	lbs/day			
7V. Chlorobenzene (108-90-7)	X			<10.	<2.7					1	ug/L	lbs/day			
8V. Chlorodibromomethane (124-48-1)	X			<10.	<2.7					1	ug/L	lbs/day			
9V. Chloroethane (75-00-3)	X			<10	<2.7					1	ug/L	lbs/day			
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<10	<2.7					1	ug/L	lbs/day			
11V. Chloroform (67-66-3)	X			<10	<2.7					1	ug/L	lbs/day			
12V. Dichlorobromomethane (75-27-4)	X			<10	<2.7					1	ug/L	lbs/day			
13V. Dichlorodifluoromethane (75-71-8)	X			*(2)											
14V. 1,1-Dichloroethane (75-34-3)	X			<10	<2.7					1	ug/L	lbs/day			
15V. 1,2-Dichloroethane (107-06-2)	X			<10	<2.7					1	ug/L	lbs/day			
16V. 1,1-Dichloroethylene (75-35-4)	X			<10	<2.7					1	ug/L	lbs/day			
17V. 1,2-Dichloropropane (78-87-5)	X			<10	<2.7					1	ug/L	lbs/day			
18V. 1,3-Dichloropropylene (542-75-6)	X			*(2)											
19V. Ethylbenzene (100-41-4)	X			<10	<2.7					1	ug/L	lbs/day			
20V. Methyl Bromide (74-83-9)	X			<10	<2.7					1	ug/L	lbs/day			
21V. Methyl Chloride (74-87-3)	X			<10	<2.7					1	ug/L	lbs/day			

CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168 | OUTFALL NUMBER: Intake

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS *(continued)*															
22V. Methylene Chloride (75-09-2)	X			<10	<2.7					1	ug/L	lbs/day			
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<10	<2.7					1	ug/L	lbs/day			
24V. Tetrachloroethylene (127-18-4)	X			<10	<2.7					1	ug/L	lbs/day			
25V. Toluene (108-88-3)	X			31.	8.2					1	ug/L	lbs/day			
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<10.	<2.7					1	ug/L	lbs/day			
27V. 1,1,1-Trichloroethane (71-55-6)	X			<10.	<2.7					1	ug/L	lbs/day			
28V. 1,1,2-Trichloroethane (79-00-5)	X			<10.	<2.7					1	ug/L	lbs/day			
29V. Trichloroethylene (79-01-6)	X			<10.	<2.7					1	ug/L	lbs/day			
30V. Trichlorofluoromethane (75-69-4)	X			<10	<2.7					1	ug/L	lbs/day			
31V. Vinyl Chloride (75-01-4)	X			<10.	<2.7					1	ug/L	lbs/day			
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<5.0	<1.3					1	ug/L	lbs/day			
2A. 2,4-Dichlorophenol (120-83-2)	X			<5.0	<1.3					1	ug/L	lbs/day			
3A. 2,4-Dimethylphenol (105-67-9)	X			<5.0	<1.3					1	ug/L	lbs/day			
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<30	<7.9					1	ug/L	lbs/day			
5A. 2,4-Dinitrophenol (51-28-5)	X			<20	<5.3					1	ug/L	lbs/day			
6A. 2-Nitrophenol (88-75-5)	X			<5.0	<1.3					1	ug/L	lbs/day			
7A. 4-Nitrophenol (100-02-7)	X			<30.	<7.9					1	ug/L	lbs/day			
8A. P-Chloro-M-Cresol (59-50-7)	X			*(2)											
9A. Pentachlorophenol (87-86-5)	X			<30	<7.9					1	ug/L	lbs/day			
10A. Phenol (108-95-2)	X			<5.0	<1.3					1	ug/L	lbs/day			
11A. 2,4,6-Trichlorophenol (88-06-2)	X			<20	<5.3					1	ug/L	lbs/day			

CONTINUE ON REVERSE

TN0020168 Intake

1. POLLUTANT (Pollutants associated with BCPO) (If available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (If available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<5.0	<1.3					1	ug/L				
2B. Acenaphtylene (208-96-8)	X			<5.0	<1.3					1	ug/L				
3B. Anthracene (120-12-7)	X			<5.0	<1.3					1	ug/L				
4B. Benzidine (92-87-5)	X			<50.	<13					1	ug/L				
5B. Benzo *(a)* Anthracene (56-55-3)	X			<5.0	<1.3					1	ug/L				
6B. Benzo *(a)* Pyrene (50-32-8)	X			<10	<2.7					1	ug/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<5.	<1.3					1	ug/L				
8B. Benzo *(ghi)* Perylene (191-24-2)	X			<10.	<2.7					1	ug/L				
9B. Benzo *(k)* Fluoranthene (207-08-9)	X			<10.	<2.7					1	ug/L				
10B. Bis *(2-Chloro-ethoxy)* Methane (111-91-1)	X			<5.	<1.3					1	ug/L				
11B. Bis *(2-Chloro-ethyl)* Ether (111-44-4)	X			<5.	<1.3					1	ug/L				
12B. Bis *(2-Chloro-isopropyl)* Ether (39638-32-9)	X			<5.0	<1.3					1	ug/L				
13B. Bis *(2-Ethyl-hexyl)* Phthalate (117-81-7)	X			<5.0	<1.3					1	ug/L				
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	X			<5.0	<1.3					1	ug/L				
15B. Butyl Benzyl Phthalate (85-68-7)	X			<5.0	<1.3					1	ug/L				
16B. 2-Chloro-naphthalene (91-58-7)	X			<5.0	<1.3					1	ug/L				
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<5.0	<1.3					1	ug/L				
18B. Chrysene (218-01-9)	X			<10	<2.7					1	ug/L				
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	X			<10	<2.7					1	ug/L				
20B. 1,2-Dichloro-benzene (95-50-1)	X			<5.0	<1.3					1	ug/L				
21B. 1,3-Dichloro-benzene (541-73-1)	X			<5.0	<1.3					1	ug/L				

CONTINUE ON PAGE V-7

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	Intake

Form Approved O[redacted]o. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TEST INGREQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. [redacted] (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<5.0	<1.3					1	ug/L	lbs/day			
23B. 3,3'-Dichlorobenzidine (91-94-1)	X			<25.	<6.6					1	ug/L	lbs/day			
24B. Diethyl Phthalate (84-66-2)	X			<5.0	<1.3					1	ug/L	lbs/day			
25B. Dimethyl Phthalate (131-11-3)	X			<5.0	<1.3					1	ug/L	lbs/day			
26B. Di-N-Butyl Phthalate (84-74-2)	X			<5.0	<1.3					1	ug/L	lbs/day			
27B. 2,4-Dinitrotoluene (121-14-2)	X			<5.0	<1.3					1	ug/L	lbs/day			
28B. 2,6-Dinitrotoluene (606-20-2)	X			<5.0	<1.3					1	ug/L	lbs/day			
29B. Di-N-Octyl Phthalate (117-84-0)	X			<10	<2.7					1	ug/L	lbs/day			
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	X			*(2)											
31B. Fluoranthene (206-44-0)	X			<5.0	<1.3					1	ug/L	lbs/day			
32B. Fluorene (86-73-7)	X			<5.0	<1.3					1	ug/L	lbs/day			
33B. Hexachlorobenzene (118-71-1)	X			<5.0	<1.3					1	ug/L	lbs/day			
34B. Hexachlorobutadiene (87-68-3)	X			<5.0	<1.3					1	ug/L	lbs/day			
35B. Hexachlorocyclopentadiene (77-47-4)	X			<5.0	<1.3					1	ug/L	lbs/day			
36B. Hexachloroethane (67-72-1)	X			<5.0	<1.3					1	ug/L	lbs/day			
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)	X			<10.	<2.7					1	ug/L	lbs/day			
38B. Isophorone (78-59-1)	X			<5.0	<1.3					1	ug/L	lbs/day			
39B. Naphthalene (91-20-3)	X			<5.0	<1.3					1	ug/L	lbs/day			
40B. Nitrobenzene (98-95-3)	X			<5.	<1.3					1	ug/L	lbs/day			
41B. N-Nitrosodimethylamine (62-75-9)	X			*(2)											
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<5.0	<1.3					1	ug/L	lbs/day			

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<5.0	<1.3					1	ug/L				
44B. Phenanthrene (85-01-8)	X			<5.0	<1.3					1	ug/L				
45B. Pyrene (129-00-0)	X			<5.0	<1.3					1	ug/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<5.0	<1.3					1	ug/L				
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

CONTINUE ON PAGE V-9

CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	Intake

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES *(continued)*															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X	<0.1	<0.03					1	ug/L	lbs/day			
19P. PCB-1254 (11097-69-1)			X	<0.1	<0.03					1	ug/L	lbs/day			
20P. PCB-1221 (11104-28-2)			X	<0.1	<0.03					1	ug/L	lbs/day			
21P. PCB-1232 (11141-16-5)			X	<0.1	<0.03					1	ug/L	lbs/day			
22P. PCB-1248 (12672-29-6)			X	<0.1	<0.03					1	ug/L	lbs/day			
23P. PCB-1260 (11096-82-5)			X	<0.1	<0.03					1	ug/L	lbs/day			
24P. PCB-1016 (12674-11-2)			X	<0.1	<0.03					1	ug/L	lbs/day			
25P. Toxaphene (8001-35-2)			X												

*Footnotes:

(1) Long term data are for the period October 1984 through October 1988.
(2) Did not analyze.
(3) Data based on Sequoyah Nuclear Plant samples.

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*
TN0020168

DIFFUSER DISCHARGE

Form Approved
OMB No. 2040-0086
Approval expires 7-31-88

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

101

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS *(specify if blank)* a. CONCENTRATION	b. MASS	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*												
b. Chemical Oxygen Demand *(COD)*												
c. Total Organic Carbon *(TOC)*			"DIFFUSER DISCHARGE SYSTEM IS OUT OF SERVICE"									
d. Total Suspended Solids *(TSS)*			(Representative Sampling Provided on OSN 102)									
e. Ammonia *(as N)*												
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)														
b. Chlorine, Total Residual														
c. Color														
d. Fecal Coliform														
e. Fluoride (16984-48-8)														
f. Nitrate-Nitrite *(as N)*														

CONTINUE ON REVERSE

PLEA[illegible]NT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: TN0020168

Yard Holdi[illegible]ond

Form Approved OMB No. 158-R0173

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 102

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT (if available)	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (BOD)	1.4	206					1	mg/L	lbs/day			
b. Chemical Oxygen Demand (COD)	9.0	1,322					1	mg/L	lbs/day			
c. Total Organic Carbon (TOC)	2.5	367					1	mg/L	lbs/day			
d. Total Suspended Solids (TSS)	5	734	37		8.8		802	mg/L	lbs/day			
e. Ammonia (as N)	0.02	2.9					1	mg/L	lbs/day			
f. Flow	VALUE 17.6		VALUE 70		VALUE 21.6		1304	MGD		VALUE		
g. Temperature (winter)	VALUE 9.8		VALUE		VALUE		7	°C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 6.1	MAXIMUM 6.8	MINIMUM 6.5	MAXIMUM 9.8			931	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)	X		<2.0	<294					1	mg/L	lbs/day			
b. Chlorine, Total Residual	X		<0.1	<15	0.13		0.003		2554	mg/L	lbs/day			
c. Color	X		10						1	PCU				
d. Fecal Coliform	X		<5						8	N/100ml				
e. Fluoride (16984-48-8)	X		0.7	103					1	mg/L	lbs/day			
f. Nitrate-Nitrite (as N)	X		0.61	90					1	mg/L	lbs/day			

CONTINUE ON REVERSE

1. POLLUTANTS AND CONDITIONS	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)	X		0.22	32					1	mg/L	lbs/day			
h. Oil and Grease	X		<5	<734	19.4		5.5		323	mg/L	lbs/day			
i. Phosphorus (as P), Total (7723-14-0)	X		0.05	7.3					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total	X		*(2)											
(2) Beta, Total	X		*(2)											
(3) Radium, Total	X		*(2)											
(4) Radium 226, Total	X		*(2)											
k. Sulfate (as SO_4) (14808-79-8)	X		21	3,084					1	mg/L	lbs/day			
l. Sulfide (as S)	X		<0.02	<2.9					4	mg/L	lbs/day			
m. Sulfite (as SO_3) (14265-45-3)	X		<0.1	<15					8	mg/L	lbs/day			
n. Surfactants	X		<0.1	<15					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		190	28					1	ug/L	lbs/day			
p. Barium, Total (7440-39-3)	X		20	2.9					1	ug/L	lbs/day			
q. Boron, Total (7440-42-8)	X		<50.	<7.3					1	ug/L	lbs/day			
r. Cobalt, Total (7440-48-4)	X		<1.	<0.15					1	ug/L	lbs/day			
s. Iron, Total (7439-89-6)	X		210	31					1	ug/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		6.3	925					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		<20.	<2.9					1	ug/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		7.0	1					1	ug/L	lbs/day			
w. Tin, Total (7440-31-5)	X		<50.	7.3					1	ug/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		9.0	1.3					1	ug/L	lbs/day			

CONTINUE ON PAGE V-3

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	102

Form Approved [illegible] No. 158-R0173

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C: If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table *(all seven pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TEST-ING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<1.0	<0.15					1	ug/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			<1.0	<0.15					1	ug/L	lbs/day			
3M. Beryllium, Total (7440-41-7)	X			<1.	<0.15					1	ug/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			<0.1	<0.01					1	ug/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			<1.0	<0.15					1	ug/L	lbs/day			
6M. Copper, Total (7440-50-8)	X			<10.	<1.5					1	ug/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			<1.0	<0.15					1	ug/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			<0.2	<0.15					1	ug/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			<1.0	<0.15					1	ug/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			<1.0	<0.15					1	ug/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			<10.	<1.5					1	ug/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			<50.	<7.3					1	ug/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			<10.	<1.5					1	ug/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			<0.02	<2.9					4	mg/L	lbs/day			
15M. Phenols, Total	X			<5	0.73					4	ug/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUE ON REVERSE

1. POLLUTANT	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TREATABILITY INDICATOR REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			<100	<14.7					1	ug/L	lbs/day			
2V. Acrylonitrile (107-13-1)	X			<100	<14.7					1	ug/L	lbs/day			
3V. Benzene (71-43-2)	X			<10	<1.5					1	ug/L	lbs/day			
4V. Bis (Chloromethyl) Ether (542-88-1)	X			*(2)											
5V. Bromoform (75-25-2)	X			<10	<1.5					1	ug/L	lbs/day			
6V. Carbon Tetrachloride (56-23-5)	X			<10	<1.5					1	ug/L	lbs/day			
7V. Chlorobenzene (108-90-7)	X			<10	<1.5					1	ug/L	lbs/day			
8V. Chlorodibromomethane (124-48-1)	X			<10	<1.5					1	ug/L	lbs/day			
9V. Chloroethane (75-00-3)	X			<10	<1.5					1	ug/L	lbs/day			
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<10	<1.5					1	ug/L	lbs/day			
11V. Chloroform (67-66-3)	X			17	2.5					1	ug/L	lbs/day			
12V. Dichlorobromomethane (75-27-4)	X			<10	<1.5					1	ug/L	lbs/day			
13V. Dichlorodifluoromethane (75-71-8)	X			*(2)											
14V. 1,1-Dichloroethane (75-34-3)	X			<10	<1.5					1	ug/L	lbs/day			
15V. 1,2-Dichloroethane (107-06-2)	X			<10.	<1.5					1	ug/L	lbs/day			
16V. 1,1-Dichloroethylene (75-35-4)	X			<10.	<1.5					1	ug/L	lbs/day			
17V. 1,2-Dichloropropane (78-87-5)	X			<10	<1.5					1	ug/L	lbs/day			
18V. 1,3-Dichloropropylene (542-75-6)	X			*(2)											
19V. Ethylbenzene (100-41-4)	X			<10	<1.5					1	ug/L	lbs/day			
20V. Methyl Bromide (74-83-9)	X			<10	<1.5					1	ug/L	lbs/day			
21V. Methyl Chloride (74-87-3)	X			<10	<1.5					1	ug/L	lbs/day			

CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168 | OUTFALL NUMBER: 102

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS *(continued)*															
22V. Methylene Chloride (75-09-2)	X			<10	<1.5					1	ug/L	lbs/day			
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<10	<1.5					1	ug/L	lbs/day			
24V. Tetrachloroethylene (127-18-4)	X			<10	<1.5					1	ug/L	lbs/day			
25V. Toluene (108-88-3)	X			<10	<1.5					1	ug/L	lbs/day			
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<10	<1.5					1	ug/L	lbs/day			
27V. 1,1,1-Trichloroethane (71-55-6)	X			<10	<1.5					1	ug/L	lbs/day			
28V. 1,1,2-Trichloroethane (79-00-5)	X			<10	<1.5					1	ug/L	lbs/day			
29V. Trichloroethylene (79-01-6)	X			<10	<1.5					1	ug/L	lbs/day			
30V. Trichlorofluoromethane (75-69-4)	X			<10	<1.5					1	ug/L	lbs/day			
31V. Vinyl Chloride (75-01-4)	X			<10	<1.5					1	ug/L	lbs/day			
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<5.0	<0.73					1	ug/L	lbs/day			
2A. 2,4-Dichlorophenol (120-83-2)	X			<5.0	<0.73					1	ug/L	lbs/day			
3A. 2,4-Dimethylphenol (105-67-9)	X			<5.0	<0.73					1	ug/L	lbs/day			
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<30.	<4.4					1	ug/L	lbs/day			
5A. 2,4-Dinitrophenol (51-28-5)	X			<20	<2.9					1	ug/L	lbs/day			
6A. 2-Nitrophenol (88-75-5)	X			<5.0	<0.73					1	ug/L	lbs/day			
7A. 4-Nitrophenol (100-02-7)	X			<30.	<4.4					1	ug/L	lbs/day			
8A. P-Chloro-M-Cresol (59-50-7)	X			*(2)											
9A. Pentachlorophenol (87-86-5)	X			<30	<4.4					1	ug/L	lbs/day			
10A. Phenol (108-95-2)	X			<5	<0.73					1	ug/L	lbs/day			
11A. 2,4,6-Trichlorophenol (88-06-2)	X			<20.	<2.9					1	ug/L	lbs/day			

CONTINUE ON REVERSE

1. POLLUTANT (optional)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<5.0	<0.73					1	ug/L	lbs/day			
2B. Acenaphtylene (208-96-8)	X			<5.0	<0.73					1	ug/L	lbs/day			
3B. Anthracene (120-12-7)	X			<5.0	<0.73					1	ug/L	lbs/day			
4B. Benzidine (92-87-5)	X			<50.	<0.73					1	ug/L	lbs/day			
5B. Benzo (a) Anthracene (56-55-3)	X			<5.0	<0.73					1	ug/L	lbs/day			
6B. Benzo (a) Pyrene (50-32-8)	X			<10.	<1.5					1	ug/L	lbs/day			
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<10	<1.5					1	ug/L	lbs/day			
8B. Benzo (ghi) Perylene (191-24-2)	X			<10.	<1.5					1	ug/L	lbs/day			
9B. Benzo (k) Fluoranthene (207-08-9)	X			<10.	<1.5					1	ug/L	lbs/day			
10B. Bis (2-Chloro-ethoxy) Methane (111-91-1)	X			<5.0	<0.73					1	ug/L	lbs/day			
11B. Bis (2-Chloro-ethyl) Ether (111-44-4)	X			<5.0	<0.73					1	ug/L	lbs/day			
12B. Bis (2-Chloro-isopropyl) Ether (39638-32-9)	X			<5.0	<0.73					1	ug/L	lbs/day			
13B. Bis (2-Ethyl-hexyl) Phthalate (117-81-7)	X			<5.0	<0.73					1	ug/L	lbs/day			
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	X			<5.0	<0.73					1	ug/L	lbs/day			
15B. Butyl Benzyl Phthalate (85-68-7)	X			<5.0	<0.73					1	ug/L	lbs/day			
16B. 2-Chloro-naphthalene (91-58-7)	X			<5.0	<0.73					1	ug/L	lbs/day			
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<5.0	<0.73					1	ug/L	lbs/day			
18B. Chrysene (218-01-9)	X			<10.	<1.5					1	ug/L	lbs/day			
19B. Dibenzo (a,h) Anthracene (53-70-3)	X			<10.	<1.5					1	ug/L	lbs/day			
20B. 1,2-Dichloro-benzene (95-50-1)	X			<5.0	<0.73					1	ug/L	lbs/day			
21B. 1,3-Dichloro-benzene (541-73-1)	X			<5.0	<0.73					1	ug/L	lbs/day			

CONTINUE ON PAGE V-7

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	102

Form Approved No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<5.0	<0.73					1	ug/L	lbs/day			
23B. 3,3'-Dichlorobenzidine (91-94-1)	X			<25.	<3.7					1	ug/L	lbs/day			
24B. Diethyl Phthalate (84-66-2)	X			<5.0	<0.73					1	ug/L	lbs/day			
25B. Dimethyl Phthalate (131-11-3)	X			<5.0	<0.73					1	ug/L	lbs/day			
26B. Di-N-Butyl Phthalate (84-74-2)	X			<5.0	0.73					1	ug/L	lbs/day			
27B. 2,4-Dinitrotoluene (121-14-2)	X			<5.0	<0.73					1	ug/L	lbs/day			
28B. 2,6-Dinitrotoluene (606-20-2)	X			<5.0	<0.73					1	ug/L	lbs/day			
29B. Di-N-Octyl Phthalate (117-84-0)	X			<10.	<1.5					1	ug/L	lbs/day			
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	X			*(2)											
31B. Fluoranthene (206-44-0)	X			<5.0	<0.73					1	ug/L	lbs/day			
32B. Fluorene (86-73-7)	X			<5.0	<0.73					1	ug/L	lbs/day			
33B. Hexachlorobenzene (118-71-1)	X			<5.0	<0.73					1	ug/L	lbs/day			
34B. Hexachlorobutadiene (87-68-3)	X			<5.0	<0.73					1	ug/L	lbs/day			
35B. Hexachlorocyclopentadiene (77-47-4)	X			<5.0	<0.73					1	ug/L	lbs/day			
36B. Hexachloroethane (67-72-1)	X			<5.0	<0.73					1	ug/L	lbs/day			
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)	X			<10	<1.5					1	ug/L	lbs/day			
38B. Isophorone (78-59-1)	X			<5.0	<0.73					1	ug/L	lbs/day			
39B. Naphthalene (91-20-3)	X			<5.0	<0.73					1	ug/L	lbs/day			
40B. Nitrobenzene (98-95-3)	X			<5.0	<0.73					1	ug/L	lbs/day			
41B. N-Nitrosodimethylamine (62-75-9)	X			*(2)											
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<5.0	<0.73					1	ug/L	lbs/day			

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLU[illegible] AND C[illegible] NUMB[illegible] (if available)	2. MARK 'X'			3. EFFLU[illegible]							4. UNITS		5. [illegible]KE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY [illegible] (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. L[illegible] AVER[illegible]ERM [illegible]VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<5.0	<0.73					1	ug/L	lbs/day			
44B. Phenanthrene (85-01-8)	X			<5.0	<0.73					1	ug/L	lbs/day			
45B. Pyrene (129-00-0)	X			<5.0	<0.73					1	ug/L	lbs/day			
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<5.0	<0.73					1	ug/L	lbs/day			
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

 CONTINUE ON PAGE V-9

CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	102

Form Approved No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION — PESTICIDES *(continued)*															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)	X					<0.1		<0.02		5	ug/L				
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

*Footnotes:

(1) Long-term data are for the period October 1984 through October 1988.

(2) Did not analyze

Low Volume Waste
Treatment Pond

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: TN0020168

Form Approved OMB No. 158-R0173

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 103

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (BOD)	3.8	22					1	mg/L	lbs/day			
b. Chemical Oxygen Demand (COD)	21.	123					1	mg/L	lbs/day			
c. Total Organic Carbon (TOC)	3.7	22					1	mg/L	lbs/day			
d. Total Suspended Solids (TSS)	10	59	87		10.8		593	mg/L	lbs/day			
e. Ammonia (as N)	0.02	0.12					1	mg/L	lbs/day			
f. Flow	VALUE 0.704		VALUE 82		VALUE 0.59		1049	MGD		VALUE		
g. Temperature (winter)	VALUE 14.2		VALUE		VALUE		7	°C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 6.4	MAXIMUM 6.8	MINIMUM	MAXIMUM			8	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)	X		<2.0	<12					1	mg/L	lbs/day			
b. Chlorine, Total Residual	X		<0.1	<0.58					8	mg/L	lbs/day			
c. Color	X		10						1	PCU				
d. Fecal Coliform	X		<16						8	N/100ml				
e. Fluoride (16984-48-8)	X		1.3	7.6					1	mg/L	lbs/day			
f. Nitrate-Nitrite (as N)	X		0.61	3.6					1	mg/L	lbs/day			

1. POLLUTANT AND CAS NUMBER (If available)	2. MARK "X" a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (If available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)	X		1.5	8.8					1	mg/L	lbs/day			
h. Oil and Grease	X		<5	<29	19.6		<5.5		465	mg/L	lbs/day			
i. Phosphorus (as P), Total (7723-14-0)	X		0.15	0.88					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total	X		*(2)											
(2) Beta, Total	X		*(2)											
(3) Radium, Total	X		*(2)											
(4) Radium 226, Total	X		*(2)											
k. Sulfate (as SO_4) (14808-79-8)	X		130	764					1	mg/L	lbs/day			
l. Sulfide (as S)	X		<0.02						1	mg/L	lbs/day			
m. Sulfite (as SO_3) (14265-45-3)	X		<0.1						8	mg/L	lbs/day			
n. Surfactants	X		<0.1	<0.59					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		140.	0.82					1	ug/L	lbs/day			
p. Barium, Total (7440-39-3)	X		30.	0.18					1	ug/L	lbs/day			
q. Boron, Total (7440-42-8)	X		<50.	<0.29					1	ug/L	lbs/day			
r. Cobalt, Total (7440-48-4)	X		<1.	0.01					1	ug/L	lbs/day			
s. Iron, Total (7439-89-6)	X		300.	1.8					1	ug/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		7.0	41.					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		<20.	<0.12					1	ug/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		21.	0.12					1	ug/L	lbs/day			
w. Tin, Total (7440-31-5)	X		<50.	<0.29					1	ug/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		<5.	<0.03					1	ug/L	lbs/day			

CONTINUE ON PAGE V-3

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	103

Form Approved. OMB No. 158-R0173

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C. If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, non—process wastewater outfalls, and non—required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table *(all seven pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			1.0	0.01					1	ug/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			<1.0	<0.01					1	ug/L	lbs/day			
3M. Beryllium, Total (7440-41-7)	X			<1.	<0.01					1	ug/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			0.4	0.002					1	ug/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			<1.0	<0.01					1	ug/L	lbs/day			
6M. Copper, Total (7440-50-8)	X			<10.	<0.06					1	ug/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			5.0	0.03					1	ug/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			<0.2	<0.001					1	ug/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			2.0	0.01					1	ug/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			1.0	0.01					1	ug/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			<10.	<0.06					1	ug/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			<50.	<0.29					1	ug/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			10.	0.06					1	ug/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			<0.02	<0.12					4	mg/L	lbs/day			
15M. Phenols, Total	X			<65.	<0.38					4	ug/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVRG. VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			<100.	<0.58					1	ug/L	lbs/day			
2V. Acrylonitrile (107-13-1)	X			<100.	<0.58					1	ug/L	lbs/day			
3V. Benzene (71-43-2)	X			<10.	<0.06					1	ug/L	lbs/day			
4V. Bis (Chloromethyl) Ether (542-88-1)	X			*(2)											
5V. Bromoform (75-25-2)	X			<10	<0.06					1	ug/L	lbs/day			
6V. Carbon Tetrachloride (56-23-5)	X			<10	<0.06					1	ug/L	lbs/day			
7V. Chlorobenzene (108-90-7)	X			<10	<0.06					1	ug/L	lbs/day			
8V. Chlorodibromomethane (124-48-1)	X			<10.	<0.06					1	ug/L	lbs/day			
9V. Chloroethane (75-00-3)	X			<10	<0.06					1	ug/L	lbs/day			
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<10	<0.06					1	ug/L	lbs/day			
11V. Chloroform (67-66-3)	X			<10.	<0.06					1	ug/L	lbs/day			
12V. Dichlorobromomethane (75-27-4)	X			<10	<0.06					1	ug/L	lbs/day			
13V. Dichlorodifluoromethane (75-71-8)	X			*(2)											
14V. 1,1-Dichloroethane (75-34-3)	X			<10.	<0.06					1	ug/L	lbs/day			
15V. 1,2-Dichloroethane (107-06-2)	X			<10.	<0.06					1	ug/L	lbs/day			
16V. 1,1-Dichloroethylene (75-35-4)	X			<10.	<0.06					1	ug/L	lbs/day			
17V. 1,2-Dichloropropane (78-87-5)	X			<10	<0.06					1	ug/L	lbs/day			
18V. 1,3-Dichloropropylene (542-75-6)	X			*(2)											
19V. Ethylbenzene (100-41-4)	X			<10	<0.06					1	ug/L	lbs/day			
20V. Methyl Bromide (74-83-9)	X			<10	<0.06					1	ug/L	lbs/day			
21V. Methyl Chloride (74-87-3)	X			<10	<0.06					1	ug/L	lbs/day			

CONTINUE ON PAGE V-5

EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168 | OUTFALL NUMBER: 103

Form Approved, OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS *(continued)*															
22V. Methylene Chloride (75-09-2)	X			43	0.25					1	ug/L	lbs/day			
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<10	<0.06					1	ug/L	lbs/day			
24V. Tetrachloroethylene (127-18-4)	X			<10	<0.06					1	ug/L	lbs/day			
25V. Toluene (108-88-3)	X			<10	<0.06					1	ug/L	lbs/day			
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<10	<0.06					1	ug/L	lbs/day			
27V. 1,1,1-Trichloroethane (71-55-6)	X			<10.	<0.06					1	ug/L	lbs/day			
28V. 1,1,2-Trichloroethane (79-00-5)	X			<10.	<0.06					1	ug/L	lbs/day			
29V. Trichloroethylene (79-01-6)	X			<10.	<0.06					1	ug/L	lbs/day			
30V. Trichlorofluoromethane (75-69-4)	X			<10	<0.06					1	ug/L	lbs/day			
31V. Vinyl Chloride (75-01-4)	X			<10	<0.06					1	ug/L	lbs/day			
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<5.0	<0.03					1	ug/L	lbs/day			
2A. 2,4-Dichlorophenol (120-83-2)	X			<5.0	<0.03					1	ug/L	lbs/day			
3A. 2,4-Dimethylphenol (105-67-9)	X			<5.0	<0.03					1	ug/L	lbs/day			
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<30	<0.18					1	ug/L	lbs/day			
5A. 2,4-Dinitrophenol (51-28-5)	X			<20	<0.12					1	ug/L	lbs/day			
6A. 2-Nitrophenol (88-75-5)	X			<5.0	<0.03					1	ug/L	lbs/day			
7A. 4-Nitrophenol (100-02-7)	X			<30.	<0.18					1	ug/L	lbs/day			
8A. P-Chloro-M-Cresol (59-50-7)	X			*(2)											
9A. Pentachlorophenol (87-86-5)	X			<30	<0.18					1	ug/L	lbs/day			
10A. Phenol (108-95-2)	X			<5	<0.03					1	ug/L	lbs/day			
11A. 2,4,6-Trichlorophenol (88-06-2)	X			<20	<0.12					1	ug/L	lbs/day			

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (If available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (If available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVRG. VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<5.0	<0.03					1	ug/L	lbs/day			
2B. Acenaphtylene (208-96-8)	X			<5.0	<0.03					1	ug/L	lbs/day			
3B. Anthracene (120-12-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
4B. Benzidine (92-87-5)	X			<50.	<0.03					1	ug/L	lbs/day			
5B. Benzo *(a)* Anthracene (56-55-3)	X			<5.	<0.03					1	ug/L	lbs/day			
6B. Benzo *(a)* Pyrene (50-32-8)	X			<10.	<0.06					1	ug/L	lbs/day			
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<10	<0.06					1	ug/L	lbs/day			
8B. Benzo *(ghi)* Perylene (191-24-2)	X			<10.	<0.06					1	ug/L	lbs/day			
9B. Benzo *(k)* Fluoranthene (207-08-9)	X			<10.	<0.06					1	ug/L	lbs/day			
10B. Bis *(2-Chloro-ethoxy)* Methane (111-91-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
11B. Bis *(2-Chloro-ethyl)* Ether (111-44-4)	X			<5.0	<0.03					1	ug/L	lbs/day			
12B. Bis *(2-Chloro-isopropyl)* Ether (39638-32-9)	X			<5.0	<0.03					1	ug/L	lbs/day			
13B. Bis *(2-Ethyl-hexyl)* Phthalate (117-81-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
15B. Butyl Benzyl Phthalate (85-68-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
16B. 2-Chloro-naphthalene (91-58-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
18B. Chrysene (218-01-9)	X			<10.	<0.06					1	ug/L	lbs/day			
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	X			<10	<0.06					1	ug/L	lbs/day			
20B. 1,2-Dichloro-benzene (95-50-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
21B. 1,3-Dichloro-benzene (541-73-1)	X			<5.0	<0.03					1	ug/L	lbs/day			

CONTINUE ON PAGE V-7

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	103

Form Approved, OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
23B. 3,3'-Dichlorobenzidine (91-94-1)	X			<25.	<0.15					1	ug/L	lbs/day			
24B. Diethyl Phthalate (84-66-2)	X			<5.0	<0.03					1	ug/L	lbs/day			
25B. Dimethyl Phthalate (131-11-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
26B. Di-N-Butyl Phthalate (84-74-2)	X			<5.0	<0.01					1	ug/L	lbs/day			
27B. 2,4-Dinitrotoluene (121-14-2)	X			<5.0	<0.03					1	ug/L	lbs/day			
28B. 2,6-Dinitrotoluene (606-20-2)	X			<5.0	<0.03					1	ug/L	lbs/day			
29B. Di-N-Octyl Phthalate (117-84-0)	X			<10.	<0.03					1	ug/L	lbs/day			
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)	X			*(2)											
31B. Fluoranthene (206-44-0)	X			<5.0	<0.03					1	ug/L	lbs/day			
32B. Fluorene (86-73-7)	X			<5.0	<0.03					1	ug/L	lbs/day			
33B. Hexachlorobenzene (118-71-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
34B. Hexachlorobutadiene (87-68-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
35B. Hexachlorocyclopentadiene (77-47-4)	X			<5.0	<0.03					1	ug/L	lbs/day			
36B. Hexachloroethane (67-72-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)	X			<5.0	<0.03					1	ug/L	lbs/day			
38B. Isophorone (78-59-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
39B. Naphthalene (91-20-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
40B. Nitrobenzene (98-95-3)	X			<5.0	<0.03					1	ug/L	lbs/day			
41B. N-Nitrosodimethylamine (62-75-9)	X			*(2)											
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<5.0	<0.03					1	ug/L	lbs/day			

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<5.0	<0.03					1	ug/L	lbs/day			
44B. Phenanthrene (85-01-8)	X			<5.0	<0.03					1	ug/L	lbs/day			
45B. Pyrene (129-00-0)	X			<5.0	<0.03					1	ug/L	lbs/day			
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<5.0	<0.03					1	ug/L	lbs/day			
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

 CONTINUE ON PAGE V-9

CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	103

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION — PESTICIDES *(continued)*															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)	X					<0.1		<0.004		23	ug/L				
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

*Footnotes:

(1) Long term data are for the period October 1984 through October 1988.

(2) Did not analyze.

LIQUID RA[illegible]TE SYSTEM

PLEASE PR[illegible]R TYPE IN THE UNSHADED AREAS ONLY. You may report some or all o[illegible] this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item I of Form 1)*: TN0020168

Form Appr[illegible] OMB No. 204[illegible]-0086 Approval expires 7-31-85.

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL N[illegible] 104

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*												
b. Chemical Oxygen Demand *(COD)*												
c. Total Organic Carbon *(TOC)*			"DATA TO BE SUBMITTED LATER"									
d. Total Suspended Solids *(TSS)*												
e. Ammonia *(as N)*												
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutan[illegible] which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mar[illegible] column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirement[illegible]

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK "X" a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)														
b. Chlorine, Total Residual														
c. Color														
d. Fecal Coliform														
e. Fluoride (16984-48-8)														
f. Nitrate-Nitrite *(as N)*														

CONTINUE ON REVERSE

CONDENSATE DEMINERALIZER REGENERATION WASTE

PLEASE PR[illegible]R TYPE IN THE UNSHADED AREAS ONLY. You may report some or all o[illegible] this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: TN0020168

Form Appr[illegible] OMB No. 20[illegible]-0086 Approval expires 7-31-85

OUTFALL N[illegible]: 105

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS *(specify if blank)* a. CONCENTRATION	b. MASS	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*												
b. Chemical Oxygen Demand *(COD)*												
c. Total Organic Carbon *(TOC)*			"NO DISCHARGE"									
d. Total Suspended Solids *(TSS)*												
e. Ammonia *(as N)*												
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutan[illegible] which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mar[illegible] column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK "X" a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)														
b. Chlorine, Total Residual														
c. Color														
d. Fecal Coliform														
e. Fluoride (16984-48-8)														
f. Nitrate-Nitrite *(as N)*														

CONTINUE ON REVERSE.

STEAM GENERATOR BLOWDOWN

PLEASE PR[illegible]R TYPE IN THE UNSHADED AREAS ONLY. You may report some or all o[illegible] this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: TN0020168

Form Appr[illegible] OMB No. 2[illegible]0086 Approval expires 7-31-88

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

106

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*												
b. Chemical Oxygen Demand *(COD)*												
c. Total Organic Carbon *(TOC)*			"NO DISCHARGE"									
d. Total Suspended Solids *(TSS)*												
e. Ammonia *(as N)*												
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutan[illegible] which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mar[illegible] column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirement[illegible]

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X' a. BELIEVED PRESENT	2. MARK 'X' b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)														
b. Chlorine, Total Residual														
c. Color														
d. Fecal Coliform														
e. Fluoride (16984-48-8)														
f. Nitrate-Nitrite *(as N)*														

CONTINUE ON REVERSE

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: TN0020168

Metal Cl[illegible]g Waste

Form Approved OMB No. 158-R0173

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 107

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*	7.2	42					1	mg/L	lbs/day			
b. Chemical Oxygen Demand *(COD)*	16	93					1	mg/L	lbs/day			
c. Total Organic Carbon *(TOC)*	4.2	25					1	mg/L	lbs/day			
d. Total Suspended Solids *(TSS)*	1	5.8	12.94		3.89		32	mg/L	lbs/day			
e. Ammonia *(as N)*	0.03	0.18					1	mg/L	lbs/day			
f. Flow	VALUE 0.7		VALUE 3.55		VALUE 1.83		18	MGD	lbs/day	VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 8.2	MAXIMUM 8.4	MINIMUM 7.07	MAXIMUM 9.7			34	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X' a. BELIEVED PRESENT	2. MARK 'X' b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)	X		<0.1	<0.58					1	mg/L	lbs/day			
b. Chlorine, Total Residual	X		<0.1	<0.58					8	mg/L	lbs/day			
c. Color	X		10						1	PCU				
d. Fecal Coliform	X		*(3)											
e. Fluoride (16984-48-8)	X		0.2	1.2					1	mg/L	lbs/day			
f. Nitrate-Nitrite *(as N)*	X		0.01	0.06					1	mg/L	lbs/day			

CONTINUE ON REVERSE

1. POLLUTANT CAS (If avai[illegible])	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALU[illegible] (if available) (1) CONCENTRATION	(2) MASS	[illegible]NG TERM AVRG. VALUE (if available) (1) [illegible]NCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INT[illegible] (optional) a. LO[illegible] AVERA[illegible] (1) CONCENTRATION	[illegible]M [illegible]UE (2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)	X		0.39	2.3					1	mg/L	lbs/day			
h. Oil and Grease	X		<5	<29	8.2		<5.2		35	mg/L	lbs/day			
i. Phosphorus (as P), Total (7723-14-0)	X		0.07	0.41					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total	X		*(2)											
(2) Beta, Total	X		*(2)											
(3) Radium, Total	X		*(2)											
(4) Radium 226, Total	X		*(2)											
k. Sulfate (as SO_4) (14808-79-8)	X		320	1,870					1	mg/L	lbs/day			
l. Sulfide (as S)	X		<0.2	<1.2					4	mg/L	lbs/day			
m. Sulfite (as SO_3) (14265-45-3)	X		<0.1	<0.58					8	mg/L	lbs/day			
n. Surfactants	X		<0.1	<0.58					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		<50.	<0.29					1	ug/L	lbs/day			
p. Barium, Total (7440-39-3)	X		30.	0.18					1	ug/L	lbs/day			
q. Boron, Total (7440-42-8)	X		90.	0.53					1	ug/L	lbs/day			
r. Cobalt, Total (7440-48-4)	X		<1.0	<0.006					1	ug/L	lbs/day			
s. Iron, Total (7439-89-6)	X		10.	0.06	0.69		<0.14		31	ug/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		5.8	34					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		170.	0.99					1	ug/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		<5.	<0.03					1	ug/L	lbs/day			
w. Tin, Total (7440-31-5)	X		<50.	<0.29					1	ug/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		<5.	<0.03					1	ug/L	lbs/day			

CONTINUE ON PAGE V-3

EPA I.D. NUMBER (copy from It Form 1)	OUTFALL NUMBER
TN0020168	107

Form Approved OMB No. 158-R0173

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table *(all seven pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<1.0	<0.006					1	ug/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			<1.0	<0.006					1	ug/L	lbs/day			
3M. Beryllium, Total, 7440-41-7)	X			<1.0	<0.006					1	ug/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			0.2	0.001					1	ug/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			<1.0	<0.006					1	ug/L	lbs/day			
6M. Copper, Total (7550-50-8)	X			<10.	<0.06	0.03		<0.02		31	ug/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			<1.0	<0.006	0.29		<0.11		22	ug/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			<0.2	<0.001					1	ug/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			3.0	0.02					1	ug/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			<1.0	<0.006					1	ug/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			<10.	<0.06					1	ug/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			<50.	<0.29					1	ug/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			<10.	<0.06					1	ug/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			<0.02	<0.12					4	mg/L	lbs/day			
15M. Phenols, Total	X			<5.0	<0.03					4	ug/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)				DESCRIBE RESULTS											

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			<100.	<0.58					1	ug/L	lbs/day			
2V. Acrylonitrile (107-13-1)	X			<100.	<0.58					1	ug/L	lbs/day			
3V. Benzene (71-43-2)	X			<10.	<0.06					1	ug/L	lbs/day			
4V. Bis (Chloromethyl) Ether (542-88-1)	X			* (2)											
5V. Bromoform (75-25-2)	X			<10.	<0.06					1	ug/L	lbs/day			
6V. Carbon Tetrachloride (56-23-5)	X			<10.	<0.06					1	ug/L	lbs/day			
7V. Chlorobenzene (108-90-7)	X			<10.	<0.06					1	ug/L	lbs/day			
8V. Chlorodibromomethane (124-48-1)	X			<10.	<0.06					1	ug/L	lbs/day			
9V. Chloroethane (75-00-3)	X			<10.	<0.06					1	ug/L	lbs/day			
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<10.	<0.06					1	ug/L	lbs/day			
11V. Chloroform (67-66-3)	X			<10.	<0.06					1	ug/L	lbs/day			
12V. Dichlorobromomethane (75-27-4)	X			<10.	<0.06					1	ug/L	lbs/day			
13V. Dichlorodifluoromethane (75-71-8)	X			* (2)											
14V. 1,1-Dichloroethane (75-34-3)	X			<10.	<0.06					1	ug/L	lbs/day			
15V. 1,2-Dichloroethane (107-06-2)	X			<10.	<0.06					1	ug/L	lbs/day			
16V. 1,1-Dichloroethylene (75-35-4)	X			<10.	<0.06					1	ug/L	lbs/day			
17V. 1,2-Dichloropropane (78-87-5)	X			<10.	<0.06					1	ug/L	lbs/day			
18V. 1,3-Dichloropropylene (542-75-6)	X			* (2)											
19V. Ethylbenzene (100-41-4)	X			<10.	<0.06					1	ug/L	lbs/day			
20V. Methyl Bromide (74-83-9)	X			<10.	<0.06					1	ug/L	lbs/day			
21V. Methyl Chloride (74-87-3)	X			<10.	<0.06					1	ug/L	lbs/day			

CONTINUE ON PAGE V-5

EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168

OUTFALL NUMBER: 107

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS *(continued)*															
22V. Methylene Chloride (75-09-2)	X			<10.	<0.06					1	ug/L	lbs/day			
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<10.	<0.06					1	ug/L	lbs/day			
24V. Tetrachloroethylene (127-18-4)	X			<10.	<0.06					1	ug/L	lbs/day			
25V. Toluene (108-88-3)	X			<10.	<0.06					1	ug/L	lbs/day			
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<10.	<0.06					1	ug/L	lbs/day			
27V. 1,1,1-Trichloroethane (71-55-6)	X			<10.	<0.06					1	ug/L	lbs/day			
28V. 1,1,2-Trichloroethane (79-00-5)	X			<10.	<0.06					1	ug/L	lbs/day			
29V. Trichloroethylene (79-01-6)	X			<10.	<0.06					1	ug/L	lbs/day			
30V. Trichlorofluoromethane (75-69-4)	X			<10.	<0.06					1	ug/L	lbs/day			
31V. Vinyl Chloride (75-01-4)	X			<10.	<0.06					1	ug/L	lbs/day			
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<5.	<0.03					1	ug/L	lbs/day			
2A. 2,4-Dichlorophenol (120-83-2)	X			<5.	<0.03					1	ug/L	lbs/day			
3A. 2,4-Dimethylphenol (105-67-9)	X			<5.	<0.03					1	ug/L	lbs/day			
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<30.	<0.18					1	ug/L	lbs/day			
5A. 2,4-Dinitrophenol (51-28-5)	X			<20.	<0.12					1	ug/L	lbs/day			
6A. 2-Nitrophenol (88-75-5)	X			<5.	<0.03					1	ug/L	lbs/day			
7A. 4-Nitrophenol (100-02-7)	X			<30.	<0.18					1	ug/L	lbs/day			
8A. P-Chloro-M-Cresol (59-50-7)	X			* (2)											
9A. Pentachlorophenol (87-86-5)	X			<30.	<0.18					1	ug/L	lbs/day			
10A. Phenol (108-95-2)	X			<5.	<0.03					1	ug/L	lbs/day			
11A. 2,4,6-Trichlorophenol (88-06-2)	X			<20.	<0.12					1	ug/L	lbs/day			

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVRG. VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<5.	<0.03					1	ug/L	lbs/day			
2B. Acenaphtylene (208-96-8)	X			<5.	<0.03					1	ug/L	lbs/day			
3B. Anthracene (120-12-7)	X			<5.	<0.03					1	ug/L	lbs/day			
4B. Benzidine (92-87-5)	X			<50.	<0.29					1	ug/L	lbs/day			
5B. Benzo *(a)* Anthracene (56-55-3)	X			<5.	<0.03					1	ug/L	lbs/day			
6B. Benzo *(a)* Pyrene (50-32-8)	X			<10.	<0.06					1	ug/L	lbs/day			
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<10.	<0.06					1	ug/L	lbs/day			
8B. Benzo *(ghi)* Perylene (191-24-2)	X			<10.	<0.06					1	ug/L	lbs/day			
9B. Benzo *(k)* Fluoranthene (207-08-9)	X			<10.	<0.06					1	ug/L	lbs/day			
10B. Bis *(2-Chloro-ethoxy)* Methane (111-91-1)	X			<5.	<0.03					1	ug/L	lbs/day			
11B. Bis *(2-Chloro-ethyl)* Ether (111-44-4)	X			<5.	<0.03					1	ug/L	lbs/day			
12B. Bis *(2-Chloro-isopropyl)* Ether (39638-32-9)	X			<5.	<0.03					1	ug/L	lbs/day			
13B. Bis *(2-Ethyl-hexyl)* Phthalate (117-81-7)	X			<5.	<0.03					1	ug/L	lbs/day			
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	X			<5.	<0.03					1	ug/L	lbs/day			
15B. Butyl Benzyl Phthalate (85-68-7)	X			<5.	<0.03					1	ug/L	lbs/day			
16B. 2-Chloro-naphthalene (91-58-7)	X			<5.	<0.03					1	ug/L	lbs/day			
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<5.	<0.03					1	ug/L	lbs/day			
18B. Chrysene (218-01-9)	X			<10.	<0.06					1	ug/L	lbs/day			
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	X			<10.	<0.06					1	ug/L	lbs/day			
20B. 1,2-Dichloro-benzene (95-50-1)	X			<5.	<0.03					1	ug/L	lbs/day			
21B. 1,3-Dichloro-benzene (541-73-1)	X			<5.	<0.03					1	ug/L	lbs/day			

CONTINUE ON PAGE V-7

CONTINUED FROM PAGE V-6

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	107

Form Approved [illegible] No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<5.	<0.03					1	ug/L	lbs/day			
23B. 3,3'-Dichlorobenzidine (91-94-1)	X			<25.	<0.15					1	ug/L	lbs/day			
24B. Diethyl Phthalate (84-66-2)	X			<5.	<0.03					1	ug/L	lbs/day			
25B. Dimethyl Phthalate (131-11-3)	X			<5.	<0.03					1	ug/L	lbs/day			
26B. Di-N-Butyl Phthalate (84-74-2)	X			<5.	<0.03					1	ug/L	lbs/day			
27B. 2,4-Dinitrotoluene (121-14-2)	X			<5.	<0.03					1	ug/L	lbs/day			
28B. 2,6-Dinitrotoluene (606-20-2)	X			<5.	<0.03					1	ug/L	lbs/day			
29B. Di-N-Octyl Phthalate (117-84-0)	X			<10.	<0.06					1	ug/L	lbs/day			
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	X			* (2)											
31B. Fluoranthene (206-44-0)	X			<5.	<0.03					1	ug/L	lbs/day			
32B. Fluorene (86-73-7)	X			<5.	<0.03					1	ug/L	lbs/day			
33B. Hexachlorobenzene (118-71-1)	X			<5.	<0.03					1	ug/L	lbs/day			
34B. Hexachlorobutadiene (87-68-3)	X			<5.	<0.03					1	ug/L	lbs/day			
35B. Hexachlorocyclopentadiene (77-47-4)	X			<5.	<0.03					1	ug/L	lbs/day			
36B. Hexachloroethane (67-72-1)	X			<5.	<0.03					1	ug/L	lbs/day			
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	X			<10.	<0.06					1	ug/L	lbs/day			
38B. Isophorone (78-59-1)	X			<5.	<0.03					1	ug/L	lbs/day			
39B. Naphthalene (91-20-3)	X			<5.	<0.03					1	ug/L	lbs/day			
40B. Nitrobenzene (98-95-3)	X			<5.	<0.03					1	ug/L	lbs/day			
41B. N-Nitrosodimethylamine (62-75-9)	X			* (2)											
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<5.	<0.03					1	ug/L	lbs/day			

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<5.	<0.03					1	ug/L	lbs/day			
44B. Phenanthrene (85-01-8)	X			<5.	<0.03					1	ug/L	lbs/day			
45B. Pyrene (129-00-0)	X			<5.	<0.03					1	ug/L	lbs/day			
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<5.	<0.03					1	ug/L	lbs/day			
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

CONTINUE ON PAGE V-9

CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	107

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES *(continued)*															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

* Footnotes:

1. Long term data are for the period October 1984 through October 1988.
2. Did not analyze
3. Not available

COOLING TOWER
DESILT[illegible] BASIN

PLEASE PR[illegible]R TYPE IN THE UNSHADED AREAS ONLY. You may report some or all o[illegible] this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item I of Form 1)*: TN 0020168

Form Appr[illegible]
OMB No. 20[illegible]086
Approval expires 7-31-89

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

108

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*												
b. Chemical Oxygen Demand *(COD)*												
c. Total Organic Carbon *(TOC)*												
d. Total Suspended Solids *(TSS)*												
e. Ammonia *(as N)*												
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

"DESILTING BASIN IS BEING USED TO ROUTE COOLING WATER TO THE YHP WHILE THE COOLING TOWER BLOWDOWN LINE IS OUT OF SERVICE FOR REPAIRS"

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutan which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mar column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)														
b. Chlorine, Total Residual														
c. Color														
d. Fecal Coliform														
e. Fluoride (16984-48-8)														
f. Nitrate-Nitrite *(as N)*														

CONTINUE ON REVERSE

Neutral W[illegible]e Tank

PLEASE PR[illegible] TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: TN0020168

Form Approved OMB No. 158-R0173

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 109

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (BOD)	3.2	0.09					1	mg/L	lbs/day			
b. Chemical Oxygen Demand (COD)	12.	0.34					1	mg/L	lbs/day			
c. Total Organic Carbon (TOC)	2.8	0.08					1	mg/L	lbs/day			
d. Total Suspended Solids (TSS)	64	1.8		89		23	135	mg/L	lbs/day			
e. Ammonia (as N)	0.53	0.02					1	mg/L	lbs/day			
f. Flow	VALUE *(3)	0.0034	VALUE 0.084		VALUE 0.009		147	MGD		VALUE		
g. Temperature (winter)	VALUE 41.6		VALUE		VALUE		3	°C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 6.3	MAXIMUM 7.0	MINIMUM	MAXIMUM			3	STANDARD UNITS				

*(1)

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)	X		<0.1	<0.003					1	mg/L	lbs/day			
b. Chlorine, Total Residual	X		<0.1	<0.003					3	mg/L	lbs/day			
c. Color	X		20						1	PCU				
d. Fecal Coliform	X		<10						1	N/100ml				
e. Fluoride (16984-48-8)	X		0.2	0.006					1	mg/L	lbs/day			
f. Nitrate-Nitrite (as N)	X		1.9	0.05					1	mg/L	lbs/day			

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (If available)	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (If available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)	X		0.37	0.01					1	mg/L	lbs/day			
h. Oil and Grease	X		<5	<0.14	13.8		<5.5		33	mg/L	lbs/day			
i. Phosphorus (as P), Total (7723-14-0)	X		0.03	0.001					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total	X		*(2)											
(2) Beta, Total	X		*(2)											
(3) Radium, Total	X		*(2)											
(4) Radium 226, Total	X		*(2)											
k. Sulfate (as SO_4) (14808-79-8)	X		40,000	1,135					1	mg/L	lbs/day			
l. Sulfide (as S)	X		<0.02	<0.001					3	mg/L	lbs/day			
m. Sulfite (as SO_3) (14265-45-3)	X		<0.1	<0.003					3	mg/L	lbs/day			
n. Surfactants	X		<0.1	<0.003					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		590.	0.017					1	ug/L	lbs/day			
p. Barium, Total (7440-39-3)	X		60.	0.002					1	ug/L	lbs/day			
q. Boron, Total (7440-42-8)	X		<50.	<0.001					1	ug/L	lbs/day			
r. Cobalt, Total (7440-48-4)	X		18	0.001					1	ug/L	lbs/day			
s. Iron, Total (7439-89-6)	X		5700	0.16					1	ug/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		18	0.51					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		<20.	<0.001					1	ug/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		110.	0.003					1	ug/L	lbs/day			
w. Tin, Total (7440-31-5)	X		3300	0.09					1	ug/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		<5.	<0.0001					1	ug/L	lbs/day			

CONTINUE ON PAGE V-3

EPA I.D. NUMBER (copy from Ite[illegible]orm 1)	OUTFALL NUMBER
TN0020168	109

Form Approved OMB No. 158-R0173

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, non—process wastewater outfalls, and non—required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table *(all seven pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			130	0.004					1	ug/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			<1.0	<0.00003					1	ug/L	lbs/day			
3M. Beryllium, Total (7440-41-7)	X			<1.0	<0.00003					1	ug/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			0.7	<0.00002					1	ug/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			53.	0.002					1	ug/L	lbs/day			
6M. Copper, Total (7550-50-8)	X			10.	0.0003					1	ug/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			8.	0.0002					1	ug/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			1.7	0.00005					1	ug/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			39	0.001					1	ug/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			59.	0.002					1	ug/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			<10.	<0.0003					1	ug/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			<50.	<0.001					1	ug/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			10.	0.0003					1	ug/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			<0.02	<0.0006					3	mg/L	lbs/day			
15M. Phenols, Total	X			<5.	<0.0001					3	ug/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			<100.	<0.003					1	ug/L	lbs/day			
2V. Acrylonitrile (107-13-1)	X			<100.	<0.003					1	ug/L	lbs/day			
3V. Benzene (71-43-2)	X			<10.	<0.0003					1	ug/L	lbs/day			
4V. Bis (Chloromethyl) Ether (542-88-1)	X			*(2)								lbs/day			
5V. Bromoform (75-25-2)	X			<10.	<0.0003					1	ug/L	lbs/day			
6V. Carbon Tetrachloride (56-23-5)	X			<10.	<0.0003					1	ug/L	lbs/day			
7V. Chlorobenzene (108-90-7)	X			<10.	<0.0003					1	ug/L	lbs/day			
8V. Chlorodibromomethane (124-48-1)	X			<10.	<0.0003					1	ug/L	lbs/day			
9V. Chloroethane (75-00-3)	X			<10.	<0.0003					1	ug/L	lbs/day			
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<10.	<0.0003					1	ug/L	lbs/day			
11V. Chloroform (67-66-3)	X			<10.	<0.0003					1	ug/L	lbs/day			
12V. Dichlorobromomethane (75-27-4)	X			<10.	<0.0003					1	ug/L	lbs/day			
13V. Dichlorodifluoromethane (75-71-8)	X			*(2)											
14V. 1,1-Dichloroethane (75-34-3)	X			<10.	<0.0003					1	ug/L	lbs/day			
15V. 1,2-Dichloroethane (107-06-2)	X			<10.	<0.0003					1	ug/L	lbs/day			
16V. 1,1-Dichloroethylene (75-35-4)	X			<10.	<0.0003					1	ug/L	lbs/day			
17V. 1,2-Dichloropropane (78-87-5)	X			<10.	<0.0003					1	ug/L	lbs/day			
18V. 1,3-Dichloropropylene (542-75-6)	X			*(2)											
19V. Ethylbenzene (100-41-4)	X			<10.	<0.0003					1	ug/L	lbs/day			
20V. Methyl Bromide (74-83-9)	X			<10.	<0.0003					1	ug/L	lbs/day			
21V. Methyl Chloride (74-87-3)	X			<10.	<0.0003					1	ug/L	lbs/day			

CONTINUE ON PAGE V-5

EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168

OUTFALL NUMBER: 109

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. SOURCE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS *(continued)*															
22V. Methylene Chloride (75-09-2)	X			<10.	<0.0003					1	ug/L	lbs/day			
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<10.	<0.0003					1	ug/L	lbs/day			
24V. Tetrachloroethylene (127-18-4)	X			<10.	<0.0003					1	ug/L	lbs/day			
25V. Toluene (108-88-3)	X			<10.	<0.0003					1	ug/L	lbs/day			
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<10.	<0.0003					1	ug/L	lbs/day			
27V. 1,1,1-Trichloroethane (71-55-6)	X			<10.	<0.0003					1	ug/L	lbs/day			
28V. 1,1,2-Trichloroethane (79-00-5)	X			<10.	<0.0003					1	ug/L	lbs/day			
29V. Trichloroethylene (79-01-6)	X			<10.	<0.0003					1	ug/L	lbs/day			
30V. Trichlorofluoromethane (75-69-4)	X			<10.	<0.0003					1	ug/L	lbs/day			
31V. Vinyl Chloride (75-01-4)	X			<10.	<0.0003					1	ug/L	lbs/day			
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<5.	<0.0001					1	ug/L	lbs/day			
2A. 2,4-Dichlorophenol (120-83-2)	X			<5.	<0.0001					1	ug/L	lbs/day			
3A. 2,4-Dimethylphenol (105-67-9)	X			<5.	<0.0001					1	ug/L	lbs/day			
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<30.	<0.0009					1	ug/L	lbs/day			
5A. 2,4-Dinitrophenol (51-28-5)	X			<20.	<0.0006					1	ug/L	lbs/day			
6A. 2-Nitrophenol (88-75-5)	X			<5.	<0.0001					1	ug/L	lbs/day			
7A. 4-Nitrophenol (100-02-7)	X			<30.	<0.0009					1	ug/L	lbs/day			
8A. P-Chloro-M-Cresol (59-80-7)	X			*(2)								lbs/day			
9A. Pentachlorophenol (87-86-5)	X			<30.	<0.0009					1	ug/L	lbs/day			
10A. Phenol (108-95-2)	X			<5.	<0.0001					1	ug/L	lbs/day			
11A. 2,4,6-Trichlorophenol (88-06-2)	X			<20.	<0.0006					1	ug/L	lbs/day			

CONTINUE ON REVERSE

TN0020168 OSN 109

1. POLLUTANT AND CAS NUMBER (If available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. [redacted]KE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<5.	<0.0001					1	ug/L	lbs/day			
2B. Acenaphtylene (208-96-8)	X			<5.	<0.0001					1	ug/L	lbs/day			
3B. Anthracene (120-12-7)	X			<5.	<0.0001					1	ug/L	lbs/day			
4B. Benzidine (92-87-5)	X			<50.	<0.0001					1	ug/L	lbs/day			
5B. Benzo *(a)* Anthracene (56-55-3)	X			<5.	<0.0001					1	ug/L	lbs/day			
6B. Benzo *(a)* Pyrene (50-32-8)	X			<10.	<0.0003					1	ug/L	lbs/day			
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<10.	<0.0003					1	ug/L	lbs/day			
8B. Benzo *(ghi)* Perylene (191-24-2)	X			<10.	<0.0003					1	ug/L	lbs/day			
9B. Benzo *(k)* Fluoranthene (207-08-9)	X			<10.	<0.0003					1	ug/L	lbs/day			
10B. Bis *(2-Chloro-ethoxy)* Methane (111-91-1)	X			<5.	<0.0001					1	ug/L	lbs/day			
11B. Bis *(2-Chloro-ethyl)* Ether (111-44-4)	X			<5.	<0.0001					1	ug/L	lbs/day			
12B. Bis *(2-Chloro-isopropyl)* Ether (39638-32-9)	X			<5.	<0.0001					1	ug/L	lbs/day			
13B. Bis *(2-Ethyl-hexyl)* Phthalate (117-81-7)	X			<5.	<0.0001					1	ug/L	lbs/day			
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	X			<5.	<0.0001					1	ug/L	lbs/day			
15B. Butyl Benzyl Phthalate (85-68-7)	X			<5.	<0.0001					1	ug/L	lbs/day			
16B. 2-Chloro-naphthalene (91-58-7)	X			<5.	<0.0001					1	ug/L	lbs/day			
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<5.	<0.0001					1	ug/L	lbs/day			
18B. Chrysene (218-01-9)	X			<10.	<0.0003					1	ug/L	lbs/day			
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	X			<10.	<0.0003					1	ug/L	lbs/day			
20B. 1,2-Dichloro-benzene (95-50-1)	X			<5.	<0.0001					1	ug/L	lbs/day			
21B. 1,3-Dichloro-benzene (541-73-1)	X			<5.	<0.0001					1	ug/L	lbs/day			

CONTINUE ON PAGE V-7

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	109

Form Approved [redacted]o. 158-R0173

1. POLLU[redacted] AND CAS NUMBER (If available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLU[redacted] a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. [redacted]E (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<5.	<0.0001					1	ug/L	lbs/day			
23B. 3,3'-Dichlorobenzidine (91-94-1)	X			<5.	<0.0001					1	ug/L	lbs/day			
24B. Diethyl Phthalate (84-66-2)	X			<5.	<0.0001					1	ug/L	lbs/day			
25B. Dimethyl Phthalate (131-11-3)	X			<5.	<0.0001					1	ug/L	lbs/day			
26B. Di-N-Butyl Phthalate (84-74-2)	X			<5.	<0.0001					1	ug/L	lbs/day			
27B. 2,4-Dinitrotoluene (121-14-2)	X			<5.	<0.0001					1	ug/L	lbs/day			
28B. 2,6-Dinitrotoluene (606-20-2)	X			<5.	<0.0001					1	ug/L	lbs/day			
29B. Di-N-Octyl Phthalate (117-84-0)	X			<10.	<0.0003					1	ug/L	lbs/day			
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	X			*(2)								lbs/day			
31B. Fluoranthene (206-44-0)	X			<5.	<0.0001					1	ug/L	lbs/day			
32B. Fluorene (86-73-7)	X			<5.	<0.0001					1	ug/L	lbs/day			
33B. Hexachlorobenzene (118-71-1)	X			<5.	<0.0001					1	ug/L	lbs/day			
34B. Hexachlorobutadiene (87-68-3)	X			<5.	<0.0001					1	ug/L	lbs/day			
35B. Hexachlorocyclopentadiene (77-47-4)	X			<5.	<0.0001					1	ug/L	lbs/day			
36B. Hexachloroethane (67-72-1)	X			<5.	<0.0001					1	ug/L	lbs/day			
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	X			<10.	<0.0003					1	ug/L	lbs/day			
38B. Isophorone (78-59-1)	X			<5.	<0.0001					1	ug/L	lbs/day			
39B. Naphthalene (91-20-3)	X			<5.	<0.0001					1	ug/L	lbs/day			
40B. Nitrobenzene (98-95-3)	X			<5.	<0.0001					1	ug/L	lbs/day			
41B. N-Nitrosodimethylamine (62-75-9)	X			*(2)								lbs/day			
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<5.	<0.0001					1	ug/L	lbs/day			

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<5.	<0.0001					1	ug/L	lbs/day			
44B. Phenanthrene (85-01-8)	X			<5.	<0.0001					1	ug/L	lbs/day			
45B. Pyrene (129-00-0)	X			<5.	<0.0001					1	ug/L	lbs/day			
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<5.	<0.0001					1	ug/L	lbs/day			
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

CONTINUE ON PAGE V-9

CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	109

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION — PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

Footnotes:

(1) Long term data are for the period October 1984 through October 1988.

(2) Did not analyze.

(3) Batch discharge of 3,380 gallons.

SEWAGE TREATMENT PLANT

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item I of Form 1)*: TN0020168

Form Approved
OMB No. 2040-0086
Approval expires 7-31-88

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

110

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (2) MASS	d. NO. OF ANALYSES	3. UNITS *(specify if blank)* a. CONCENTRATION	3. UNITS b. MASS	4. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	4. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	4. INTAKE b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*												
b. Chemical Oxygen Demand *(COD)*												
c. Total Organic Carbon *(TOC)*			"THIS SOURCE IS TO BE DELETED"									
d. Total Suspended Solids *(TSS)*												
e. Ammonia *(as N)*												
f. Flow	VALUE		VALUE		VALUE					VALUE		
g. Temperature *(winter)*	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM				STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK "X" a. BELIEVED PRESENT	2. MARK "X" b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE *(if available)* (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (2) MASS	c. LONG TERM AVRG. VALUE *(if available)* (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	4. UNITS b. MASS	5. INTAKE *(optional)* a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	5. INTAKE a. LONG TERM AVERAGE VALUE (2) MASS	5. INTAKE b. NO. OF ANALYSES
a. Bromide (24959-67-9)														
b. Chlorine, Total Residual														
c. Color														
d. Fecal Coliform														
e. Fluoride (16984-48-8)														
f. Nitrate-Nitrite *(as N)*														

CONTINUE ON REVERSE

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: TN0020168

Sewage Treatment Plant

Form Approved OMB No. 158-R0173

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 111

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand *(BOD)*	2.6	0.66	490		<44.3		211	mg/L	lbs/day			
b. Chemical Oxygen Demand *(COD)*	13	3.3					1	mg/L	lbs/day			
c. Total Organic Carbon *(TOC)*	3.2	0.81					1	mg/L	lbs/day			
d. Total Suspended Solids *(TSS)*	2.0	0.50	370		<11.7		211	mg/L	lbs/day			
e. Ammonia *(as N)*	0.02	0.005						mg/L	lbs/day			
f. Flow	VALUE .0302		VALUE 0.179		VALUE 0.053		1207	MGD		VALUE		
g. Temperature *(winter)*	VALUE 12.1		VALUE		VALUE		7	°C		VALUE		
h. Temperature *(summer)*	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 6.1	MAXIMUM 6.9	MINIMUM 6.1	MAXIMUM 8.3			1261	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)	X		<2.0	0.50					1	mg/L	lbs/day			
b. Chlorine, Total Residual	X		0.11	0.03	2.1		0.3		1228	mg/L	lbs/day			
c. Color	X		20						1	PCU				
d. Fecal Coliform	X		<36		>2000		<227.4		219	N/100ml				
e. Fluoride (16984-48-8)	X		0.3	0.08					1	mg/L	lbs/day			
f. Nitrate-Nitrite *(as N)*	X		1.1	0.28					1	mg/L	lbs/day			

CONTINUE ON REVERSE

1. POLLUTANT CAS (if avail	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)	X		0.80	0.20					1	ug/L	lbs/day			
h. Oil and Grease	X		<5.	<1.3					4	mg/L	lbs/day			
i. Phosphorus (as P), Total (7723-14-0)	X		3.2	0.81					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total	X		*(2)											
(2) Beta, Total	X		*(2)											
(3) Radium, Total	X		*(2)											
(4) Radium 226, Total	X		*(2)											
k. Sulfate (as SO_4) (14808-79-8)	X		49	12.3					1	mg/L	lbs/day			
l. Sulfide (as S)	X		<0.02	<0.005					4	mg/L	lbs/day			
m. Sulfite (as SO_3) (14265-45-3)	X		<0.1	<0.03					8	mg/L	lbs/day			
n. Surfactants	X		<0.1	<0.03					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		<50.	<0.01					1	ug/L	lbs/day			
p. Barium, Total (7440-39-3)	X		<10.	<0.003					1	ug/L	lbs/day			
q. Boron, Total (7440-42-8)	X		<50.	<0.01					1	ug/L	lbs/day			
r. Cobalt, Total (7440-48-4)	X		<1.	<0.0003					1	ug/L	lbs/day			
s. Iron, Total (7439-89-6)	X		20.	0.005					1	ug/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		12.	3.0					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		<20.	<0.005					1	ug/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		<5.	<0.001					1	ug/L	lbs/day			
w. Tin, Total (7440-31-5)	X		<50.	<0.01					1	ug/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		10.	0.003					1	ug/L	lbs/day			

CONTINUE ON PAGE V - 3

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	111

Form Approved OMB No. 158-R0173

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table *(all seven pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<1.0	<0.0003					1	ug/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			<1.0	<0.0003					1	ug/L	lbs/day			
3M. Beryllium, Total, 7440-41-7)	X			<1.	<0.0003					1	ug/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			<0.1	<0.00003					1	ug/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			<1.0	<0.0003					1	ug/L	lbs/day			
6M. Copper, Total (7550-50-8)	X			<10.	<0.003					1	ug/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			<1.0	<0.0003					1	ug/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			<0.2	<0.0005					1	ug/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			<1.0	<0.0003					1	ug/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			<1.0	<0.0003					1	ug/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			<10.	<0.003					1	ug/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			<50.	<0.013					1	ug/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			60.	0.015					1	ug/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			<0.02	<0.005					4	mg/L	lbs/day			
15M. Phenols, Total	X			<5.0	<0.001					4	ug/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			<100.	<0.03					1	ug/L	lbs/day			
2V. Acrylonitrile (107-13-1)	X			<100.	<0.03					1	ug/L	lbs/day			
3V. Benzene (71-43-2)	X			<10.	<0.003					1	ug/L	lbs/day			
4V. Bis *(Chloromethyl)* Ether (542-88-1)	X			*(2)											
5V. Bromoform (75-25-2)	X			<10.	<0.003					1	ug/L	lbs/day			
6V. Carbon Tetrachloride (56-23-5)	X			<10.	<0.003					1	ug/L	lbs/day			
7V. Chlorobenzene (108-90-7)	X			<10.	<0.003					1	ug/L	lbs/day			
8V. Chlorodibromomethane (124-48-1)	X			<10.	<0.003					1	ug/L	lbs/day			
9V. Chloroethane (75-00-3)	X			<10.	<0.003					1	ug/L	lbs/day			
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<10.	<0.003					1	ug/L	lbs/day			
11V. Chloroform (67-66-3)	X			36.	0.009					1	ug/L	lbs/day			
12V. Dichlorobromomethane (75-27-4)	X			<10.	<0.003					1	ug/L	lbs/day			
13V. Dichlorodifluoromethane (75-71-8)	X			*(2)											
14V. 1,1-Dichloroethane (75-34-3)	X			<10.	<0.003					1	ug/L	lbs/day			
15V. 1,2-Dichloroethane (107-06-2)	X			<10.	<0.003					1	ug/L	lbs/day			
16V. 1,1-Dichloroethylene (75-35-4)	X			<10.	<0.003					1	ug/L	lbs/day			
17V. 1,2-Dichloropropane (78-87-5)	X			<10.	<0.003					1	ug/L	lbs/day			
18V. 1,3-Dichloropropylene (542-75-6)	X			*(2)											
19V. Ethylbenzene (100-41-4)	X			<10.	<0.003					1	ug/L	lbs/day			
20V. Methyl Bromide (74-83-9)	X			<10.	<0.003					1	ug/L	lbs/day			
21V. Methyl Chloride (74-87-3)	X			<10.	<0.003					1	ug/L	lbs/day			

CONTINUE ON PAGE V-5

EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168

OUTFALL NUMBER: 111

Form Approved. OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS *(continued)*															
22V. Methylene Chloride (75-09-2)	X			<10.	<0.003					1	ug/L	lbs/day			
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<10.	<0.003					1	ug/L	lbs/day			
24V. Tetrachloroethylene (127-18-4)	X			<10.	<0.003					1	ug/L	lbs/day			
25V. Toluene (108-88-3)	X			<10.	<0.003					1	ug/L	lbs/day			
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<10.	<0.003					1	ug/L	lbs/day			
27V. 1,1,1-Trichloroethane (71-55-6)	X			<10.	<0.003					1	ug/L	lbs/day			
28V. 1,1,2-Trichloroethane (79-00-5)	X			<10.	<0.003					1	ug/L	lbs/day			
29V. Trichloroethylene (79-01-6)	X			<10.	<0.003					1	ug/L	lbs/day			
30V. Trichlorofluoromethane (75-69-4)	X			<10.	<0.003					1	ug/L	lbs/day			
31V. Vinyl Chloride (75-01-4)	X			<10.	<0.003					1	ug/L	lbs/day			
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<5.0	<0.001					1	ug/L	lbs/day			
2A. 2,4-Dichlorophenol (120-83-2)	X			<5.0	<0.001					1	ug/L	lbs/day			
3A. 2,4-Dimethylphenol (105-67-9)	X			<5.0	<0.001					1	ug/L	lbs/day			
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<30.	<0.008					1	ug/L	lbs/day			
5A. 2,4-Dinitrophenol (51-28-5)	X			<20.	<0.005					1	ug/L	lbs/day			
6A. 2-Nitrophenol (88-75-5)	X			<5.0	<0.001					1	ug/L	lbs/day			
7A. 4-Nitrophenol (100-02-7)	X			<30.	<0.008					1	ug/L	lbs/day			
8A. P-Chloro-M-Cresol (59-50-7)	X			*(2)											
9A. Pentachlorophenol (87-86-5)	X			<30.	<0.008					1	ug/L	lbs/day			
10A. Phenol (108-95-2)	X			<5.0	<0.001					1	ug/L	lbs/day			
11A. 2,4,6-Trichlorophenol (88-06-2)	X			<20.	<0.005					1	ug/L	lbs/day			

TN0020168 111

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<5.0	<0.001					1	ug/L	lbs/day			
2B. Acenaphtylene (208-96-8)	X			<5.0	<0.001					1	ug/L	lbs/day			
3B. Anthracene (120-12-7)	X			<5.0	<0.001					1	ug/L	lbs/day			
4B. Benzidine (92-87-5)	X			<50.	<0.013					1	ug/L	lbs/day			
5B. Benzo *(a)* Anthracene (56-55-3)	X			<5.	<0.001					1	ug/L	lbs/day			
6B. Benzo *(a)* Pyrene (50-32-8)	X			<10.	<0.003					1	ug/L	lbs/day			
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<10	<0.003					1	ug/L	lbs/day			
8B. Benzo *(ghi)* Perylene (191-24-2)	X			<10.	<0.003					1	ug/L	lbs/day			
9B. Benzo *(k)* Fluoranthene (207-08-9)	X			<10.	<0.003					1	ug/L	lbs/day			
10B. Bis *(2-Chloro-ethoxy)* Methane (111-91-1)	X			<5.0	<0.001					1	ug/L	lbs/day			
11B. Bis *(2-Chloro-ethyl)* Ether (111-44-4)	X			<5.0	<0.001					1	ug/L	lbs/day			
12B. Bis *(2-Chloro-isopropyl)* Ether (39638-32-9)	X			<5.0	<0.001					1	ug/L	lbs/day			
13B. Bis *(2-Ethyl-hexyl)* Phthalate (117-81-7)	X			<5.0	<0.001					1	ug/L	lbs/day			
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	X			<5.0	<0.001					1	ug/L	lbs/day			
15B. Butyl Benzyl Phthalate (85-68-7)	X			<5.0	<0.001					1	ug/L	lbs/day			
16B. 2-Chloro-naphthalene (91-58-7)	X			<5.0	<0.001					1	ug/L	lbs/day			
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<5.0	<0.001										
18B. Chrysene (218-01-9)	X			<10.	<0.003					1	ug/L	lbs/day			
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	X			<10.	<0.003					1	ug/L	lbs/day			
20B. 1,2-Dichloro-benzene (95-50-1)	X			<5.0	<0.001					1	ug/L	lbs/day			
21B. 1,3-Dichloro-benzene (541-73-1)	X			<5.0	<0.001					1	ug/L	lbs/day			

CONTINUE ON PAGE V-7

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	111

Form Approved [illegible]o. 158-R0173

1. POLLU[illegible] AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLU[illegible]							4. UNITS		5. [illegible]E (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<5.0	<0.001					1	ug/L	lbs/day			
23B. 3,3'-Dichlorobenzidine (91-94-1)	X			<25.	<0.006					1	ug/L	lbs/day			
24B. Diethyl Phthalate (84-66-2)	X			<5.0	<0.001					1	ug/L	lbs/day			
25B. Dimethyl Phthalate (131-11-3)	X			<5.0	<0.001					1	ug/L	lbs/day			
26B. Di-N-Butyl Phthalate (84-74-2)	X			<5.0	<0.001					1	ug/L	lbs/day			
27B. 2,4-Dinitrotoluene (121-14-2)	X			<5.0	<0.001					1	ug/L	lbs/day			
28B. 2,6-Dinitrotoluene (606-20-2)	X			<5.0	<0.001					1	ug/L	lbs/day			
29B. Di-N-Octyl Phthalate (117-84-0)	X			<10.	<0.003					1	ug/L	lbs/day			
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	X			*(2)											
31B. Fluoranthene (206-44-0)	X			<5.0	<0.001					1	ug/L	lbs/day			
32B. Fluorene (86-73-7)	X			<5.0	<0.001					1	ug/L	lbs/day			
33B. Hexachlorobenzene (118-71-1)	X			<5.0	<0.001					1	ug/L	lbs/day			
34B. Hexachlorobutadiene (87-68-3)	X			<5.0	<0.001					1	ug/L	lbs/day			
35B. Hexachlorocyclopentadiene (77-47-4)	X			<5.0	<0.001					1	ug/L	lbs/day			
36B. Hexachloroethane (67-72-1)	X			<5.0	<0.001					1	ug/L	lbs/day			
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	X			<10.	<0.003					1	ug/L	lbs/day			
38B. Isophorone (78-59-1)	X			<5.0	<0.001					1	ug/L	lbs/day			
39B. Naphthalene (91-20-3)	X			<5.0	<0.001					1	ug/L	lbs/day			
40B. Nitrobenzene (98-95-3)	X			<5.0	<0.001					1	ug/L	lbs/day			
41B. N-Nitrosodimethylamine (62-75-9)	X			*(2)											
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<5.0	<0.001					1	ug/L	lbs/day			

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<5.0	<0.001					1	ug/L	lbs/day			
44B. Phenanthrene (85-01-8)	X			<5.0	<0.001					1	ug/L	lbs/day			
45B. Pyrene (129-00-0)	X			<5.0	<0.001					1	ug/L	lbs/day			
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<5.0	<0.001					1	ug/L	lbs/day			
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

CONTINUE ON PAGE V-9

CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	111

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11096-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

*Footnotes

1. Long-term data are for the period October 1984 through October 1988.
2. Did not analyze.

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets *(use the same format)* instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*: TN0020168

Construction Runoff Holding Pond

Form Approved OMB No. 158-R0173

V. INTAKE AND EFFLUENT CHARACTERISTICS *(continued from page 3 of Form 2-C)*

OUTFALL NO. 112

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. (2) MASS	b. MAXIMUM 30 DAY VALUE (If available) (1) CONCENTRATION	b. (2) MASS	c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	c. (2) MASS	d. NO. OF ANALYSES	3. UNITS (specify if blank) a. CONCENTRATION	b. MASS	4. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. (2) MASS	b. NO. OF ANALYSES
a. Biochemical Oxygen Demand (BOD)	<1.0	<5.	34		8		221	mg/L	lbs/day			
b. Chemical Oxygen Demand (COD)	18	89					1	mg/L	lbs/day			
c. Total Organic Carbon (TOC)	4.0	20					1	mg/L	lbs/day			
d. Total Suspended Solids (TSS)	26	129	310		35.4		166	mg/L	lbs/day			
e. Ammonia (as N)	0.26	1.3	2.3		0.3		219	mg/L	lbs/day			
f. Flow	VALUE 0.5955		VALUE 1.93		VALUE 0.212		197	MGD		VALUE		
g. Temperature (winter)	VALUE 8.7		VALUE		VALUE			°C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM 6.4	MAXIMUM 7.1	MINIMUM 6.2	MAXIMUM 10.7			234	STANDARD UNITS				

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (If available)	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. (2) MASS	b. MAXIMUM 30 DAY VALUE (If available) (1) CONCENTRATION	b. (2) MASS	c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	c. (2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. (2) MASS	b. NO. OF ANALYSES
a. Bromide (24959-67-9)	X		<2.0	<10					1	mg/L	lbs/day			
b. Chlorine, Total Residual	X		<0.1	<0.49					8	mg/L	lbs/day			
c. Color	X		30						1	PCU				
d. Fecal Coliform	X		<23						8	N/100ml				
e. Fluoride (16984-48-8)	X		0.1	0.49					1	mg/1	lbs/day			
f. Nitrate-Nitrite (as N)	X		<0.01	<0.05					1	mg/L	lbs/day			

1. POLLUTANT AND CAS NUMBER (If available)	2. MARK 'X' a. BELIEVED PRESENT	b. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (If available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
g. Nitrogen, Total Organic (as N)	X		0.52	2.6					1	mg/L	lbs/day			
h. Oil and Grease	X		<5.	<25					4	mg/L	lbs/day			
i. Phosphorus (as P), Total (7723-14-0)	X		0.39	1.9					1	mg/L	lbs/day			
j. Radioactivity														
(1) Alpha, Total	X		*(2)											
(2) Beta, Total	X		*(2)											
(3) Radium, Total	X		*(2)											
(4) Radium 226, Total	X		*(2)											
k. Sulfate (as SO_4) (14808-79-8)	X		43	213					1	mg/L	lbs/day			
l. Sulfide (as S)	X		<0.02	<0.0001					4	mg/L	lbs/day			
m. Sulfite (as SO_3) (14265-45-3)	X		<0.1	<0.49					8	mg/L	lbs/day			
n. Surfactants	X		<0.1	<0.49					1	mg/L	lbs/day			
o. Aluminum, Total (7429-90-5)	X		2300	11					1	ug/L	lbs/day			
p. Barium, Total (7440-39-3)	X		30	0.15					1	ug/L	lbs/day			
q. Boron, Total (7440-42-8)	X		<50.	0.25					1	ug/L	lbs/day			
r. Cobalt, Total (7440-48-4)	X		<1.	0.005					1	ug/L	lbs/day			
s. Iron, Total (7439-89-6)	X		2200	11					1	ug/L	lbs/day			
t. Magnesium, Total (7439-95-4)	X		7.5	37					1	mg/L	lbs/day			
u. Molybdenum, Total (7439-98-7)	X		<20.	0.09					1	ug/L	lbs/day			
v. Manganese, Total (7439-96-5)	X		68.	0.34					1	ug/L	lbs/day			
w. Tin, Total (7440-31-5)	X		<50.	0.25					1	ug/L	lbs/day			
x. Titanium, Total (7440-32-6)	X		33.	0.16					1	ug/L	lbs/day			

CONTINUE ON PAGE V-3

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	112

Form Approved OMB No. 158-R0173

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table *(all seven pages)* for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE (1) CONCENTRATION	a. MAXIMUM DAILY VALUE (2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	b. MAXIMUM 30 DAY VALUE (if available) (2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	c. LONG TERM AVRG. VALUE (if available) (2) MASS	d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	a. LONG TERM AVERAGE VALUE (2) MASS	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	X			<1.0	<0.005					1	ug/L	lbs/day			
2M. Arsenic, Total (7440-38-2)	X			<1.0	<0.005					1	ug/L	lbs/day			
3M. Beryllium, Total (7440-41-7)	X			<1.0	<0.005					1	ug/L	lbs/day			
4M. Cadmium, Total (7440-43-9)	X			<0.1	<0.0005					1	ug/L	lbs/day			
5M. Chromium, Total (7440-47-3)	X			4.0	0.02					1	ug/L	lbs/day			
6M. Copper, Total (7650-50-8)	X			<10.	<0.05					1	ug/L	lbs/day			
7M. Lead, Total (7439-92-1)	X			6.0	0.03					1	ug/L	lbs/day			
8M. Mercury, Total (7439-97-6)	X			<0.2	<0.001					1	ug/L	lbs/day			
9M. Nickel, Total (7440-02-0)	X			3.0	0.01					1	ug/L	lbs/day			
10M. Selenium, Total (7782-49-2)	X			<1.0	<0.005					1	ug/L	lbs/day			
11M. Silver, Total (7440-22-4)	X			<1.0	<0.05					1	ug/L	lbs/day			
12M. Thallium, Total (7440-28-0)	X			<50.	<0.25					1	ug/L	lbs/day			
13M. Zinc, Total (7440-66-6)	X			10.	0.05					1	ug/L	lbs/day			
14M. Cyanide, Total (57-12-5)	X			<0.02	<0.09					4	mg/L	lbs/day			
15M. Phenols, Total	X			<5.0	<0.02					4	ug/L	lbs/day			
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVRG. VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	X			<100.	<0.49					1	ug/L	lbs/day			
2V. Acrylonitrile (107-13-1)	X			<100.	<0.49					1	ug/L	lbs/day			
3V. Benzene (71-43-2)	X			330	1.6					1	ug/L	lbs/day			
4V. Bis (Chloromethyl) Ether (542-88-1)	X			*(2)											
5V. Bromoform (75-25-2)	X			<10.	<0.05					1	ug/L	lbs/day			
6V. Carbon Tetrachloride (56-23-5)	X			<10.	<0.05					1	ug/L	lbs/day			
7V. Chlorobenzene (108-90-7)	X			<10.	<0.05					1	ug/L	lbs/day			
8V. Chlorodibromomethane (124-48-1)	X			<10.	<0.05					1	ug/L	lbs/day			
9V. Chloroethane (75-00-3)	X			<10	<0.05					1	ug/L	lbs/day			
10V. 2-Chloroethylvinyl Ether (110-75-8)	X			<10.	<0.05					1	ug/L	lbs/day			
11V. Chloroform (67-66-3)	X			<10.	<0.05					1	ug/L	lbs/day			
12V. Dichlorobromomethane (75-27-4)	X			<10.	<0.05					1	ug/L	lbs/day			
13V. Dichlorodifluoromethane (75-71-8)	X			*(2)											
14V. 1,1-Dichloroethane (75-34-3)	X			<10.	<0.05					1	ug/L	lbs/day			
15V. 1,2-Dichloroethane (107-06-2)	X			<10.	<0.05					1	ug/L	lbs/day			
16V. 1,1-Dichloroethylene (75-35-4)	X			<10.	<0.05					1	ug/L	lbs/day			
17V. 1,2-Dichloropropane (78-87-5)	X			<10.	<0.05					1	ug/L	lbs/day			
18V. 1,3-Dichloropropylene (542-75-6)	X			*(2)											
19V. Ethylbenzene (100-41-4)	X			<10.	<0.05					1	ug/L	lbs/day			
20V. Methyl Bromide (74-83-9)	X			<10.	<0.05					1	ug/L	lbs/day			
21V. Methyl Chloride (74-87-3)	X			<10.	<0.05					1	ug/L	lbs/day			

EPA Form 3510-2C (Rev. 12-80)
Previous edition may be used.

CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

EPA I.D. NUMBER (copy from Item 1 of Form 1): TN0020168 | OUTFALL NUMBER: 112

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. AVERAGE LONG TERM VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS *(continued)*															
22V. Methylene Chloride (75-09-2)	X			<10.	<0.05					1	ug/L	lbs/day			
23V. 1,1,2,2-Tetrachloroethane (79-34-5)	X			<10.	<0.05					1	ug/L	lbs/day			
24V. Tetrachloroethylene (127-18-4)	X			<10.	<0.05					1	ug/L	lbs/day			
25V. Toluene (108-88-3)	X			43	0.21					1	ug/L	lbs/day			
26V. 1,2-Trans-Dichloroethylene (156-60-5)	X			<10.	<0.05					1	ug/L	lbs/day			
27V. 1,1,1-Trichloroethane (71-55-6)	X			<10.	<0.05					1	ug/L	lbs/day			
28V. 1,1,2-Trichloroethane (79-00-5)	X			<10.	<0.05					1	ug/L	lbs/day			
29V. Trichloroethylene (79-01-6)	X			<10.	<0.05					1	ug/L	lbs/day			
30V. Trichlorofluoromethane (75-69-4)	X			<10.	<0.05					1	ug/L	lbs/day			
31V. Vinyl Chloride (75-01-4)	X			<10	<0.05					1	ug/L	lbs/day			
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	X			<5.0	<0.02					1	ug/L	lbs/day			
2A. 2,4-Dichlorophenol (120-83-2)	X			<5.0	<0.02					1	ug/L	lbs/day			
3A. 2,4-Dimethylphenol (105-67-9)	X			<5.0	<0.02					1	ug/L	lbs/day			
4A. 4,6-Dinitro-O-Cresol (534-52-1)	X			<30.	<0.15					1	ug/L	lbs/day			
5A. 2,4-Dinitrophenol (51-28-5)	X			<20.	<0.09					1	ug/L	lbs/day			
6A. 2-Nitrophenol (88-75-5)	X			<5.0	<0.02					1	ug/L	lbs/day			
7A. 4-Nitrophenol (100-02-7)	X			<30.	<0.15					1	ug/L	lbs/day			
8A. P-Chloro-M-Cresol (59-50-7)	X			*(2)											
9A. Pentachlorophenol (87-86-5)	X			<30.	<0.15					1	ug/L	lbs/day			
10A. Phenol (108-95-2)	X			<5.0	<0.02					1	ug/L	lbs/day			
11A. 2,4,6-Trichlorophenol (88-06-2)	X			<20.	<0.09					1	ug/L	lbs/day			

CONTINUE ON REVERSE

1. POLLUTANT AND CAS NUMBER (If available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVRG. VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)	X			<5.0	<0.02					1	ug/L	lbs/day			
2B. Acenaphtylene (208-96-8)	X			<5.0	<0.02					1	ug/L	lbs/day			
3B. Anthracene (120-12-7)	X			<5.0	<0.02					1	ug/L	lbs/day			
4B. Benzidine (92-87-5)	X			<50.	<0.25					1	ug/L	lbs/day			
5B. Benzo (a) Anthracene (56-55-3)	X			<5.0	<0.02					1	ug/L	lbs/day			
6B. Benzo (a) Pyrene (50-32-8)	X			<10.	<0.05					1	ug/L	lbs/day			
7B. 3,4-Benzo-fluoranthene (205-99-2)	X			<10.	<0.05					1	ug/L	lbs/day			
8B. Benzo (ghi) Perylene (191-24-2)	X			<10.	<0.05					1	ug/L	lbs/day			
9B. Benzo (k) Fluoranthene (207-08-9)	X			<10.	<0.05					1	ug/L	lbs/day			
10B. Bis (2-Chloro-ethoxy) Methane (111-91-1)	X			<5.0	<0.02					1	ug/L	lbs/day			
11B. Bis (2-Chloro-ethyl) Ether (111-44-4)	X			<5.0	<0.02					1	ug/L	lbs/day			
12B. Bis (2-Chloro-isopropyl) Ether (39638-32-9)	X			<5.0	<0.02					1	ug/L	lbs/day			
13B. Bis (2-Ethyl-hexyl) Phthalate (117-81-7)	X			<5.0	<0.02					1	ug/L	lbs/day			
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)	X			<5.0	<0.02					1	ug/L	lbs/day			
15B. Butyl Benzyl Phthalate (85-68-7)	X			<5.0	<0.02					1	ug/L	lbs/day			
16B. 2-Chloro-naphthalene (91-58-7)	X			<5.0	<0.02					1	ug/L	lbs/day			
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)	X			<5.0	<0.02					1	ug/L	lbs/day			
18B. Chrysene (218-01-9)	X			<10.	<0.05					1	ug/L	lbs/day			
19B. Dibenzo (a,h) Anthracene (53-70-3)	X			<10.	<0.05					1	ug/L	lbs/day			
20B. 1,2-Dichloro-benzene (95-50-1)	X			<5.0	<0.02					1	ug/L	lbs/day			
21B. 1,3-Dichloro-benzene (541-73-1)	X			<5.0	<0.02					1	ug/L	lbs/day			

CONTINUE ON PAGE V-7

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
TN0020168	112

Form Approved OMB No. 158-R0173

1. POLLU[illegible] AND CA[illegible] NUMBER (If available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLU[illegible] a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY V[illegible]E (If available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (If available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. [illegible]KE (optional) a. L[illegible] TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
22B. 1,4-Dichlorobenzene (106-46-7)	X			<5.0	<0.02					1	ug/L	lbs/day			
23B. 3,3'-Dichlorobenzidine (91-94-1)	X			<25.	0.12					1	ug/L	lbs/day			
24B. Diethyl Phthalate (84-66-2)	X			<5.0	<0.02					1	ug/L	lbs/day			
25B. Dimethyl Phthalate (131-11-3)	X			<5.0	<0.02					1	ug/L	lbs/day			
26B. Di-N-Butyl Phthalate (84-74-2)	X			<5.0	<0.02					1	ug/L	lbs/day			
27B. 2,4-Dinitrotoluene (121-14-2)	X			<5.0	<0.02					1	ug/L	lbs/day			
28B. 2,6-Dinitrotoluene (606-20-2)	X			<5.0	<0.02					1	ug/L	lbs/day			
29B. Di-N-Octyl Phthalate (117-84-0)	X			<10	<0.05					1	ug/L	lbs/day			
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	X			*(2)											
31B. Fluoranthene (206-44-0)	X			<5.0	<0.02					1	ug/L	lbs/day			
32B. Fluorene (86-73-7)	X			<5.0	<0.02					1	ug/L	lbs/day			
33B. Hexachlorobenzene (118-71-1)	X			<5.0	<0.02					1	ug/L	lbs/day			
34B. Hexachlorobutadiene (87-68-3)	X			<5.0	<0.02					1	ug/L	lbs/day			
35B. Hexachlorocyclopentadiene (77-47-4)	X			<5.0	<0.02					1	ug/L	lbs/day			
36B. Hexachloroethane (67-72-1)	X			<5.0	<0.02					1	ug/L	lbs/day			
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	X			<10.	<0.05					1	ug/L	lbs/day			
38B. Isophorone (78-59-1)	X			<5.0	<0.02					1	ug/L	lbs/day			
39B. Naphthalene (91-20-3)	X			<5.0	<0.02					1	ug/L	lbs/day			
40B. Nitrobenzene (98-95-3)	X			<5.0	<0.02					1	ug/L	lbs/day			
41B. N-Nitrosodimethylamine (62-75-9)	X			*(2)											
42B. N-Nitrosodi-N-Propylamine (621-64-7)	X			<5.0	<0.02					1	ug/L	lbs/day			

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X' a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVRG. VALUE (1) CONCENTRATION	(2) MASS	b. NO. OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)*															
43B. N-Nitrosodiphenylamine (86-30-6)	X			<5.0	<0.02					1	ug/L	lbs/day			
44B. Phenanthrene (85-01-8)	X			<5.0	<0.02					1	ug/L	lbs/day			
45B. Pyrene (129-00-0)	X			<5.0	<0.02					1	ug/L	lbs/day			
46B. 1,2,4-Trichlorobenzene (120-82-1)	X			<5.0	<0.02					1	ug/L	lbs/day			
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

CONTINUE ON PAGE V-9

CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (copy from Item [illegible]orm 1)	OUTFALL NUMBER
TN0020168	112

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. TEST-ING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION — PESTICIDES *(continued)*															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X	<0.1	<0.0005					1	ug/L	lbs/day			
19P. PCB-1254 (11097-69-1)			X	<0.1	<0.0005					1	ug/L	lbs/day			
20P. PCB-1221 (11104-28-2)			X	<0.1	<0.0005					1	ug/L	lbs/day			
21P. PCB-1232 (11141-16-5)			X	<0.1	<0.0005					1	ug/L	lbs/day			
22P. PCB-1248 (12672-29-6)			X	<0.1	<0.0005					1	ug/L	lbs/day			
23P. PCB-1260 (11096-82-5)			X	<0.1	<0.0005					1	ug/L	lbs/day			
24P. PCB-1016 (12674-11-2)			X	<0.1	<0.0005					1	ug/L	lbs/day			
25P. Toxaphene (8001-35-2)			X												

*Footnotes:

(1) Long term data are for the period October 1984 through October 1988.

(2) Did not analyze.

WATTS BAR NUCLEAR PLANT

BORON SOURCES AND DISCHARGES

BORON SOURCES AND DISCHARGES

Boric acid is used as a chemical neutron absorber in the reactor coolant system for reactivity control and to provide borated water for safety injection. During reactor operation, changes are made in the reactor coolant boron concentration for the following conditions:

1. Reactor startup - boron concentration must be decreased from shutdown concentration.

2. Load follow - boron concentration must be either increased or decreased following a change in load.

3. Fuel burnup - boron concentration must be decreased to compensate for fuel burnup and the buildup of fission products in the fuel.

4. Cold shutdown - boron concentration must be increased to the cold shutdown concentration.

The concentration of boron in the reactor coolant system varies from 0 to 2100 parts per million (ppm) depending on plant conditions.

The boron concentration is controlled through the Chemical and Volume Control System (CVCS). The CVCS consists of several subsystems: the charging, letdown, and seal water system; the chemical control, purification, and makeup system; and the boron recovery system. The major components of these systems as they relate to the potential boron release paths are shown in the attached figure. The boric acid is stored in boric acid tanks at a concentration between 20,000 and 22,000 ppm boron. The boron concentration in the reactor coolant system is varied by feeding makeup water from the primary water storage tank and the boric acid tanks as needed to reach the desired concentration. Excess liquid effluents from the reactor coolant system which can contain 0 to 2100 ppm boron are diverted (referred to as letdown) to the CVCS holdup tanks. Water from the CVCS holdup tanks can be processed as a batch through the boric acid evaporators, where the boron is recovered and returned to the boric acid tanks. The distillate from the evaporators which can contain <10 to 100 ppm boron is released to CVCS monitor tank. The boric acid evaporator may be bypassed and CVCS holdup tanks routed to either (1) the hyperfiltration system (proposed) (2) the mobile demineralizers, or (3) the condensate demineralizer waste evaporator. The hyperfiltration system and mobile demineralizers were designed to reduce various radionuclide concentrations and do little to reduce the boron concentration. These systems are released to either (1) the cask decon collector tank or (2) the CVCS monitor tank. The condensate demineralizer waste evaporator was designed to reduce the liquid radwaste volume before solidification and can reduce the boron concentration in the distillate to less than 200 ppm. The distillate from this system is released to the radwaste discharge line via the distillate tanks. The decision to bypass the boric acid evaporators depends on the storage capacity available for the concentrated boric acid and the condition of the boron. With time, the capacity of the boron to absorb neutrons is consumed and it must be removed from the system.

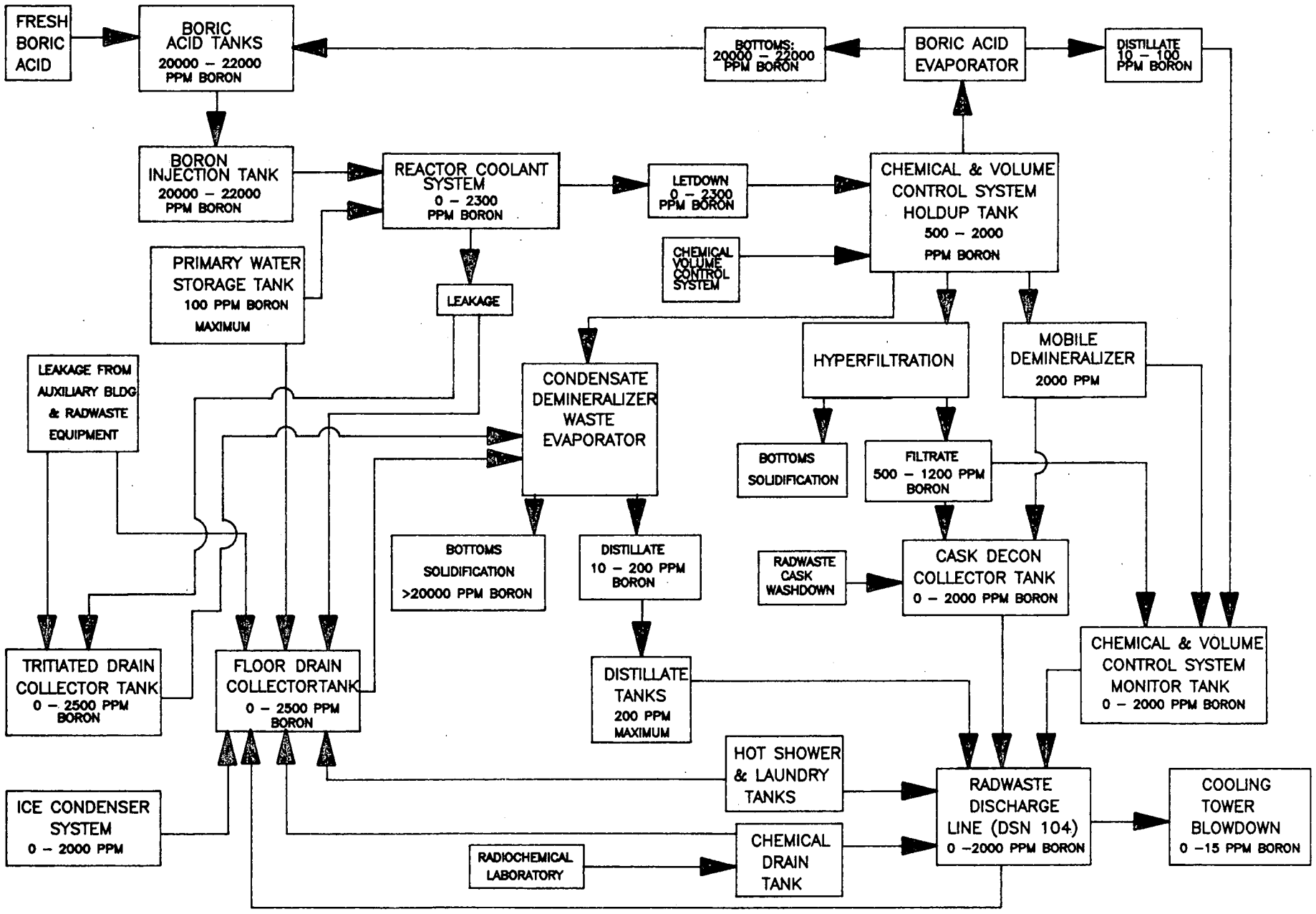
The CVCS monitor tank and cask decon collector tank are released to the radwaste discharge line which in turn is routed to the cooling tower blowdown. The CVCS monitor tank can also be routed back to the primary water storage tank.

System leakage and flushing operations which may consist of water containing boron are directed to either the tritiated drain collector tank or the floor drain collector tank. These two drain collector tanks are routed to the condensate demineralizer waste evaporator. These tanks may also be routed to either (1) the cask decon collector tank or (2) CVCS monitor tank.

Operation and maintenance of the ice condenser system (which has already been place into operation) generates a wastewater that can contain up to 2000 ppm boron. This wastewater is routed to the floor drain collector tank. Two and one-half million pounds of ice are maintained to provide pressure suppression in the case of an emergency inside the primary reactor containment. This ice is periodically sampled and upgraded, replaced, or melted as necessary.

The maximum concentration of boron that can be present in the liquid radwaste system release to the cooling tower blowdown (represented by radwaste discharge line in attached figure) is estimated to be 2000 ppm. The maximum release rate from the liquid radwaste system (LRS) is 150 gallons per minute (gpm). The LRS releases through a valve which is controlled by a radiation monitor and flow meter. This valve is designed as an interlocking device which will not open unless the radioactivity concentration is within limits specified by the Nuclear Regulatory Commission and the flow rate of the receiving waste stream (cooling tower blowdown) is at least 20,000 gpm. This will result in a boron concentration of 15 ppm or less in the cooling tower blowdown. Based on a minimum river flow rate of 3,500 cfs when the cooling tower blowdown is allowed to discharge to the Tennessee River via the diffuser discharge (OSN 101), the boron concentration will be less than 0.2 ppm. For the NPDES permit, TVA requests that no effluent limitation or monitoring requirements be placed on boron discharge from WBN.

PRIMARY PATHWAYS OF BORON FROM WBN



WATTS BAR NUCLEAR
CHEMICAL ADDITIONS BY DISCHARGE

Discharge	Chemicals Added
OSN 101, Diffuser	Chlorine, hydrazine, boron, lithium, sodium hydroxide, ammonium hydroxide, bromine, oil and grease, paint compounds(see attached), laboratory chemical wastes, and phosphate cleaning agents
OSN 102, Yard Holding Pond	Chlorine, hydrazine, boron, lithium, oil and grease, bromine, paint compounds(see attached)
OSN 103, Low Volume Waste Treatment	Chlorine, hydrazine, boron, lithium, oil and grease, bromine
OSN 104, Liquid Radwaste	Boron, lithium, oil and grease, phosphate, and laboratory chemical wastes
OSN 105, Condensate Demineralizer	Boron, lithium, sulfuric acid, sodium hydroxide, hydrazine, and ammonium hydroxide
OSN 106, Steam Generator Blowdown	Hydrazine, ammonium hydroxide.
OSN 107, Metal Cleaning Waste	All metals, mainly Fe, Cu; caustic and acid; sodium, phosphate, hydrazine, and oil and grease (See form 2C, page 2, part II.C for additional chemicals that may be added.)
OSN 108, Cooling Tower Desilting Basin	Solids, chlorine, and bromine
OSN 109, Neutral Waste Tank	Sulfuric acid, sodium hydroxide
OSN 111, Sewage Treatment Plant	Chlorine, organic matter, and asbestos from plant showers used by insulators.
OSN 112, Runoff Holding Pond	Paint compounds(see attached), X-ray film processing rinse water (see MSDS attached)

Additional Chemical Usage

Ethylene glycol is used as a heat transfer medium in the ice condenser system and in the diesel generators. Small quantities may leak to DSNs 101-104.

Hydrazine, ammonia, sodium molybdate, sodium tolyltriazole, potassium hydroxide, and lithium hydroxide are added to the Primary and Secondary Systems to control pH and corrosion. Hydrogen peroxide is also added during refueling for Primary System cleanup to reduce radiation exposure to maintenance personnel. In addition, a program is planned which will evaluate the use of sodium bromide in conjunction with hypochlorite to control microbiologically induced corrosion in the raw water systems. These chemicals could end up via leakage or blowdown in OSNs 101, 102, 103, 104, 105, 106, and 107.

Sample Number : 88/03878 Project Leader : David M. Varnell

Sample ID Information : WB 4/13-H&P, WG
Sample comments : PAINT BOOTH EFFLUENT
Sample type/matrix : WATER
Sample collected by : FDE
Sample collection date : 880413
Sample login date : 880413
Sample account number : 2340-N03A72-X38511

Alt. IDC	Anslysis Performed	result	units
00556	Oil and Grease in Water	5	mg/L
34694	Phenol	< 5.0	ug/L
34586	2-Chlorophenol	< 5.0	ug/L
34283	Bis(2-Clisopropyl)ether	< 5.0	ug/L
34591	2-Nitrophenol	< 5.0	ug/L
34606	2,4-Dimethylphenol	< 5.0	ug/L
34601	2,4-Dichlorophenol	< 5.0	ug/L
34452	4-Chloro-3-methylphenol	< 30.	ug/L
34621	2,4,6-Trichlorophenol	< 20.	ug/L
34616	2,4-Dinitrophenol	< 20.	ug/L
34646	4-Nitrophenol	< 30.	ug/L
34657	4,6-Dinitro-o-cresol	< 30.	ug/L
34433	N-Nitrosodiphenylamine	< 5.0	ug/L
39032	Pentachlorophenol	< 30.	ug/L
34566	1,3-Dichlorobenzene	< 5.0	ug/L
34571	1,4-Dichlorobenzene	< 5.0	ug/L
34536	1,2-Dichlorobenzene	< 5.0	ug/L
34273	Bis(2-chloroethyl)ether	< 5.0	ug/L
34396	Hexachloroethane	< 5.0	ug/L
34447	Nitrobenzene	< 5.0	ug/L
34428	N-Nitrosodipropylamine	< 5.0	ug/L
34408	Isophorone	< 5.0	ug/L
34278	Bis(2-Clethoxy)methane	< 5.0	ug/L
34551	1,2,4-Trichlorobenzene	< 5.0	ug/L
34696	Naphthalene	< 5.0	ug/L
39702	Hexachlorobutadiene	< 5.0	ug/L
34386	HexaClcyclopentadiene	< 5.0	ug/L
34581	2-Chloronaphthalene	< 5.0	ug/L
34200	Acenaphthylene	< 5.0	ug/L
34341	Dimethyl phthalate	< 5.0	ug/L
34626	2,6-Dinitrotoluene	< 5.0	ug/L
34205	Acenaphthene	< 5.0	ug/L
34611	2,4-Dinitrotoluene	< 5.0	ug/L
34381	Fluorene	< 5.0	ug/L
34641	4-Chlorodiphenyl ether	< 5.0	ug/L
34336	Diethyl phthalate	< 5.0	ug/L
34636	4-Bromodiphenyl ether	< 5.0	ug/L
39700	Hexachlorobenzene	< 5.0	ug/L
34461	Phenanthrene	< 5.0	ug/L

34220	Anthracene	< 5.0	ug/L
39110	Dibutyl phthalate	< 5.0	ug/L
34376	Fluoranthene	< 5.0	ug/L
34469	Pyrene	< 5.0	ug/L
39120	Benzidine	< 50.	ug/L
34292	Benzylbutylphthalate	< 5.0	ug/L
34526	Benzo(a)anthracene	< 5.0	ug/L
34320	Chrysene	< 10.	ug/L
34631	3,3'-Dichlorobenzidine	< 25.	ug/L
39100	Bis(2ethylhexyl)phthlate	< 5.0	ug/L
34230	Benzo(b)fluoranthene	< 10.	ug/L
34596	Dioctyl phthalate	< 10.	ug/L
34242	Benzo(k)fluoranthene	< 10.	ug/L
34247	Benzo(a)pyrene	< 10.	ug/L
34403	Indeno(1,2,3-cd)pyrene	< 10.	ug/L
34556	Dibenzo(a,h)anthracene	< 10.	ug/L
34521	Benzo(ghi)perylene	< 10.	ug/L
34438	N-Nitrosodimethylamine	< 5.0	ug/L
00335	Chemical Oxygen Demand	110	mg/L
38260	Methylene Blue Act. Sub.	< 0.1	mg/L
00081	Apparent Color in Water	110	PC Units
00530	Non-Filterable Residue	93	mg/L
00610	Ammonia Nitrogen	0.02	mg/L
00630	Nitrate-Nitrite Nitrogen	0.53	mg/L
00625	Total Kjeldahl Nitrogen	0.84	mg/L
00605	Organic Nitrogen	0.82	mg/L
01059	Thallium, Total in Water	< 50.	ug/L
01007	Barium, Total in Water	410.	ug/L
01012	Beryllium, Tot in Water	< 1.	ug/L
01077	Silver, Total in Water	< 10.	ug/L
01102	Tin, Total in Water	< 50.	ug/L
01062	Molybdenum, Tot in Water	< 20.	ug/L
01092	Zinc, Total in Water	6000.	ug/L
01045	Iron, Total in Water	6500.	ug/L
01022	Boron, Total in Water	< 50.	ug/L
01055	Manganese, Tot in Water	120.	ug/L
00927	Magnesium, Tot in Water	9.3	mg/L
00916	Calcium, Total in Water	31.	mg/L
01042	Copper, Total in Water	20.	ug/L
01105	Aluminum, Total in Water	300.	ug/L
01152	Titanium, Total in Water	46.	ug/L
79741	Arsenic, RCRA Extract	< 100.	ug/L
79737	Selenium, RCRA Extract	< 100.	ug/L
79734	Cadmium, RCRA Extract	< 1.	ug/L
79736	Lead, RCRA Extract	< 50.	ug/L
79732	Barium, RCRA Extract	40.	ug/L
79735	Chromium, RCRA Extract	< 50.	ug/L
HRDCLC W	Ca and Mg Hardness Calc.	118.	mg/L CaCO3
79738	Silver, RCRA Extract	< 10.	ug/L
71900	Mercury, Total in Water	1.4	ug/L
79729	Mercury, RCRA Extract	< 0.2	ug/L
00680	Total Organic Carbon	44	mg/L
00745	Total Sulfide in Water	0.14	mg/L

00940	Chloride in Water	5	mg/L
00945	Sulfate in Water	[illegible]	mg/L
00951	Fluoride in Water	[illegible]	mg/L
71870	Bromide in Water	<0.1	mg/L
00950	Dis. Fluoride in Water	<0.1	mg/L
00665	Total Phosphorus	0.35	mg/L
00310	Biochem Oxy Demand 5 Day	5.8	mg/L
01027	Cadmium, Total in Water	4	ug/L
01034	Chromium, Total in Water	64	ug/L
01097	Antimony, Total in Water	< 1	ug/L
01002	Arsenic, Total in Water	< 1	ug/L
01051	Lead, Total in Water	240	ug/L
01067	Nickel, Total in Water	< 1	ug/L
01147	Selenium, Total in Water	< 1.	ug/L
01037	Cobalt, Total in Water	13	ug/L
34030	Benzene	< 10.	ug/L
32101	Bromodichloromethane	< 10.	ug/L
32104	Bromoform	< 10.	ug/L
34413	Bromomethane	< 10.	ug/L
32102	Carbon tetrachloride	< 10.	ug/L
34301	Chlorobenzene	< 10.	ug/L
34311	Chloroethane	< 10.	ug/L
34576	2-Chloroethylvinyl ether	< 10.	ug/L
32106	Chloroform	< 10.	ug/L
34418	Chloromethane	< 10.	ug/L
32105	Dibromochloromethane	< 10.	ug/L
34496	1,1-Dichloroethane	< 10.	ug/L
34531	1,2-Dichloroethane	< 10.	ug/L
34501	1,1-Dichloroethylene	< 10.	ug/L
34546	trans1,2Dichloroethylene	< 10.	ug/L
34541	1,2-Dichloropropane	< 10.	ug/L
34704	cis-1,3-Dichloropropene	< 10.	ug/L
34699	trans-1,3Dichloropropene	< 10.	ug/L
34371	Ethylbenzene	< 10.	ug/L
34423	Methylene chloride	< 10.	ug/L
34516	1,1,2,2-TetraClethane	< 10.	ug/L
34475	Tetrachloroethylene	< 10.	ug/L
34010	Toluene	< 10.	ug/L
34506	1,1,1-Trichloroethane	< 10.	ug/L
34511	1,1,2-Trichloroethane	< 10.	ug/L
34488	Trichlorofluoromethane	< 10.	ug/L
39175	Vinyl chloride	< 10.	ug/L
39180	Trichloroethylene	< 10.	ug/L
34210	Acrolein	< 100.	ug/L
34215	Acrylonitrile	< 100.	ug/L
00720	Total Cyanide in Water	< 0.02	mg/L
32730	Total Phenol in Water	14	ug/L

LAB NAME: TVA Laboratory Branch:
GC/MS OPERATIONS

DATE: 4/20/88

ANALYST: CVS

RESULTS OF LIBRARY SEARCH FOR NON-PRIORITY POLLUTANT COMPOUNDS

LAB#	FIELD ID	DATE RECEIVED	COMPOUNDS	APPROXIMATE CONCENTRATION
88/03878			2-Butanone (MEK)	15 µg/L
			Benzene, 1,3-dimethyl- (m-xylene)	13 µg/L

PERMIT CHANGE SUMMARY AND JUSTIFICATION

WATTS BAR NUCLEAR PLANT

WATTS BAR NUCLEAR PLANT

CHANGE SUMMARY AND JUSTIFICATION

The following is an itemized list of requested changes being proposed for the NPDES permit renewal:

1. Part I of the NPDES Permit # TN0020168

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. PAGE I-1, [Table]:

DELETE the following information in the table:
[TRC - Diffuser(mg/L) 0.10 Continuous Recorder]
[TRC - Internal(mg/L) 1.0 Continuous Recorder]
JUSTIFICATION:
Based on the results of testing two continuous chlorine analyzers (CCA) we request the removal of the requirement to monitor continuously (See attached letter to Mr. Phil L. Stewart from M. Paul Schmierbach, dated October 28, 1988.) We will continue to use multiple grab samples but propose to reduce to once per weekday (5/week) similar to Sequoyah Nuclear Plant.

2. PAGE I-2, Footnote 2, 4th sentence:

DELETE [prior to approval of the continuous monitoring system as an alternate NPDES monitoring technique and/or during periods of monitor outage of more than 24 hours]
JUSTIFICATION:
Based on the results of testing two continuous chlorine analyzers (CCA) we request the removal of the requirement to monitor continuously (See attached letter to Mr. Phil L. Stewart from M. Paul Schmierbach, dated October 28, 1988.) We will continue to use multiple grab samples but propose to reduce to once per weekday (5/week) similar to Sequoyah Nuclear Plant.

3. PAGE I-2. Footnote 3, 2nd sentence:

DELETE [Not later than the...dechlorination facilities.]
JUSTIFICATION:
Based on the results of testing two continuous chlorine analyzers (CCA) we request the removal of the requirement to monitor continuously (See attached letter to Mr. Phil L. Stewart from M. Paul Schmierbach, dated October 28, 1988.). The chlorination equipment will not be necessary (See attached letter to Mr. Bruce R. Barrett from Martin E. Rivers, dated September 30, 1985).)

4. PAGE I-3, 3rd paragraph, 2nd sentence:

DELETE [During any period of discharge...rainfall event.]
JUSTIFICATION:
Depending on the shutdown mode, a Unit shutdown may or may not immediately reduce the temperatures of the water discharging over the weir.

5. PAGE I-4, 3rd paragraph, (all):

DELETE [Until completion of the Low Volume ... shall be under OSN 103 (not OSN 107).]
JUSTIFICATION:
The Low Volume Waste Treatment Pond is completed. Removed for clarity.

6. PAGE I-4, 6th paragraph, 1st sentence:

DELETE ...Low Volume Waste Treatment Pond [or five-million gallon pond] discharge...
JUSTIFICATION:
The Low Volume Waste Treatment Pond is completed. Removed for clarify

7. PAGE I-4 (ATTACHMENT C, PAGE TWO 4.b., Letter from Paul E. Davis to Paul J. Traina dated September 14, 1983)

DELETE [That aluminum is added as a parameter on Discharge 103...is discharged to a point <u>other than</u> the low volume waste treatment ponds]
JUSTIFICATION:
The only discharge from the alum sludge pond is when it is pumped over to the Low Volume Waste Treatment Pond which according to this paragraph does <u>not</u> require monitoring.

8. PAGE I-4, bottom Note:

Delete [Note: See Attachment C...requirements.]
JUSTIFICATION:
Attachment C requirements have been incorporated.

9. PAGE I-6, 2nd paragraph, Note:

ADD ...or the Low Volume Waste Treatment Pond (OSN 103) <u>via the turbine building sump.</u>
JUSTIFICATION:
Added for clarity

10. PAGE I-6, 3rd paragraph:

REPLACE "NA" ...pH shall not be less than <u>6.0</u> standard units nor greater than <u>9.0</u> standard units and shall be monitored at a frequency of <u>once per batch by a grab sample.</u>
JUSTIFICATION:
See attached letter, Mr. Philip L. Stewart from M. Paul Schmierbach, WBN Reconsideration of pH Study dated November 2, 1988.

11. PAGE I-7, 1st paragraph:

CHANGE ...Steam Generator Blowdown to <u>condenser circulating water system</u>...
TO ...Steam Generator Blowdown to <u>Cooling Tower Blowdown.</u>
JUSTIFICATION:
This is the correct physical pipe routing

12. PAGE I-7, 3rd paragraph:

DELETE ...system (for recycle)[or to the Liquid Radwaste System].
JUSTIFICATION:
This system is not directly piped to the Liquid Radwaste System.

13. PAGE I-10, 2nd paragraph, Monitoring Requirements, Sample Type:

CHANGE Pump Logs
TO Calculation
JUSTIFICATION:
A calibration rod and curve chart is used to measure the flow, and not pump logs.

14. PAGE I-11, 1st paragraph:

ADD ...serial number(s) 109 - Make-up Water Treatment Plant Neutral Waste Tank discharge to the condenser cooling water system flume.
JUSTIFICATION:
This is added for clarity.

15. PAGE I-11, 3rd paragraph:

REPLACE "NA" ...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 once per batch.
JUSTIFICATION:
See attached letter, Mr. Philip L. Stewart from M. Paul Schmierbach, WBN Reconsideration of pH Study dated November 2, 1988.

16. PAGE I-12:

Eliminate permit for OSN 110 - Sewage Treatment Plant effluent
JUSTIFICATION:
This point source has been eliminated (See attached letter to Mr. John Marlar from Martin E. Rivers dated April 3, 1985)

17. PAGE I-13, 1st paragraph:

DELETE ...serial number(s) 111 - [Combined] Sewage Treatment...
JUSTIFICATION:
This is deleted for clarity.

18. PAGE I-13, 2nd paragraph, [Table]:

ADD

Effluent characteristic	Discharge Limitation	Monitoring Requirement	
Dissolved Oxygen	at least 1.0 mg/L	5/week	grab
Fecal Coliform (#/100ml)	NA 1000(MAX)	1/week	grab

JUSTIFICATION:
See attached letter from Paul E. Davis, Manager, Permits Section Division of Water Management, to Paul Traina, EPA, dated September 14, 1983.

19. PAGE I-13, 2nd paragraph, [Table Discharge Limitations]:

CHANGE Daily Avg.
TO Monthly Avg.
JUSTIFICATION:
See attached letter from Paul E. Davis, Manager, Permits Section Division of Water Management, to Paul Traina, EPA, dated September 14, 1983.

20. PAGE I-13, 3rd paragraph:

REPLACE "NA" ...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 5 per week by grab.
JUSTIFICATION:
See attached letter from Paul E. Davis, Manager, Permits Section Division of Water Management, to Paul Traina, EPA, dated September 14, 1983.

21. PAGE I-13, 5th paragraph:

DELETE ...[Combined] Sewage Treatment Plant...
JUSTIFICATION:
This is deleted for clarity.

22. PAGE I-13, Footnote 1, 1st sentence:

CHANGE Individual units have design capacities of 45 ... and 114 (0.030).
To Each of the four (4) units have a design capacity of 114 cubic meters per day (0.030 MGD)
JUSTIFICATION:
This is for clarity.

23. PAGE I-13, bottom Note:

DELETE [Note: See Attachment C...requirements.]
JUSTIFICATION:
Attachment C requirements have been incorporated.

24. PAGE I-13 (ATTACHMENT C, PAGE THREE, TABLE)

REMOVE Weekly Avg BOD and TSS
JUSTIFICATION:
Samples only taken 1/week, the monthly average is more stringent, and the monthly DMR does not report weekly data.

25. PAGE I-13 (ATTACHMENT C, PAGE THREE, TABLE)

ELIMINATE Mass Limitations for BOD and TSS

JUSTIFICATION:
Modification to the sewage treatment plant has changed existing mass limits. Current data (see EPA Form 2E) indicates no problem.

26. PAGE I-14, 1st paragraph:

DELETE ...Runoff Holding Pond (includes OSN 111 [, 113, and 114]) to unnamed tributary...
JUSTIFICATION:
These point sources has been eliminated (See attached letter to Mr. John Marlar from Martin E. Rivers dated April 3, 1985)

27. PAGE I-14, 2nd paragraph, [Table]:

DELETE Flow m3/Day (MGD) NA NA 1/Week Instantaneous
CHANGE Discharge Limitations for Total Suspended Solids from Daily Avg 30 and Daily Max 100

TO "NA" for both limits
CHANGE Monitoring Requirements for Measurement Frequency for both Total Suspended Solids and Settleable Solids of 1/Week
TO 2/month 1/
JUSTIFICATION:
See attached letter to Mr. John Marlar, Chief Facilities Performance Branch from Martin E. Rivers Director, dated September 17,1985.

28. PAGE I-14, footnote 1:

DELETE [After 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]...
CHANGE ...total suspended solids and settleable...
TO [T]otal suspended solids and settleable...
JUSTIFICATION:
See attached letter to Mr. John Marlar, Chief Facilities Performance Branch from Martin E. Rivers Director, dated September 17,1985.

29. PAGE I-14, bottom Note:

Delete [Note: See Attachment C...requirements.]
JUSTIFICATION:
Attachment C requirements have been incorporated.

30. PAGE I-15:

Eliminate permit for OSN 113 - Concrete Wash Plant Settling Pond
JUSTIFICATION:
This point source has been eliminated (See attached letter to Mr. John Marlar from Martin E. Rivers dated April 3, 1985)

31. PAGE I-16:

Eliminate permit for OSN 114 - Vehicle Wash Settling Pond Effluent
JUSTIFICATION:
This point source has been eliminated (See attached letter to Mr. John Marlar from Martin E. Rivers dated April 3, 1985)

B. SCHEDULE OF COMPLIANCE

1. PAGE I-17, 1.c. Preoperational Aquatic Monitoring Program (III.F.)

CHANGE item (1) Final Report Due - December 31, 1984, for 1973-1984
TO (1) Complete
JUSTIFICATION:
Preoperational Aquatic Monitoring Program (III.F.) is complete. See attached letter Martin E. Rivers to Kenneth W. Bunting, "Watts Bar NP - NPDES Permit No. TN 0020168" dated December 1, 1986.

2. PAGE I-17, e. Erosion and Sediment Control Report (III.I.)

DELETE (1) Submit plan for approval
DELETE (2) First Report
DELETE (3) Second Report
CHANGE (4) Subsequent reports
TO (1) Subsequent reports (if required)
JUSTIFICATION:
All reports submitted as required. Subsequent reporting is not necessary. (See attached letter to Mr. John Marlar from Martin E. Rivers dated June 11, 1985.)

3. PAGE I-17, f. Discharge Chlorination Study (III.K.)

DELETE (1) Submit report - December 31, 1984
DELETE (2) Operation of dechlorination system
ADD (1) Chlorination Study Completed
JUSTIFICATION:
Chlorination Report submitted (See attached letter to Mr. Bruce R. Barrett from Martin E. Rivers, dated September 30, 1985.)

4. PAGE I-17, g. Concrete Wash Settling Pond (OSN 113)

CHANGE TO [removed]
DELETE (1) Operational Date - October 31, 1984
JUSTIFICATION:
This point source has been eliminated (See attached letter to Mr. John Marlar from Martin E. Rivers dated April 3, 1985)

5. PAGE I-17, h. Vehicle Wash Settling Pond (OSN 114)

CHANGED TO [removed]
DELETE (1) Operational Date - October 31, 1984
JUSTIFICATION:
This point source has been eliminated (See attached letter to Mr. John Marlar from Martin E. Rivers dated April 3, 1985)

6. PAGE I-17, i. Flow Calibration Report (III.L)

CHANGE (1) Report Due - December 31, 1984
TO (1) Annual Recertification Report (Due December 31)
DELETE (2) Certification - December 31, 1985
JUSTIFICATION:
This is changed for clarity.

2. PART III OTHER REQUIREMENTS

A. REPORTING OF MONITORING RESULTS

1. PAGE III-1, 3rd sentence:

DELETE ...item required by Part III Section D, [I, K,] L, and N;...
JUSTIFICATION:
These are no longer necessary.

2. PAGE III-2, F., all three paragraphs

DELETE [Not later than December ... in compliance with Tennessee Water Quality Standards.]
ADD Nonradiological preoperational aquatic monitoring was discontinued.
JUSTIFICATION:
Reference attached letter from Martin E. Rivers to Kenneth W. Bunting, "Watts Bar Nuclear Plant - NPDES Permit No. TN0020168, Preoperational Nonradiological Monitoring Report dated December 1, 1986).

3. PAGE III-3, I.

DELETE [The permittee shall maintain and ... demonstrating the adequacy of the controls.]
ADD Subsequent reporting <u>of the Erosion and Sediment Control Plan</u> is not necessary unless determined...
JUSTIFICATION:
All reports submitted as required. Subsequent reporting is not required.

4. PAGE III-3,J.

ADD ...<u>In order to maintain thermal compliance, [t]</u>here shall be no discharge through...
JUSTIFICATION:
This is added for clarity.

5. PAGE III-3, K.

DELETE [Not later than December 31, 1984 ... Installation shall be completed and in operation no later than May 31, 1985, if needed.]
JUSTIFICATION:
Chlorination Report submitted (See attached letter to Mr. Bruce R. Barrett from Martin E. Rivers, dated September 30, 1985).)

6. PAGE III-4, L., 2nd sentence:

DELETE A report shall be submitted by December 31, 1984.
JUSTIFICATION:
Report was submitted.

7. PAGE III-4, M.

ADD ...the turbine building sump discharge directly to the yard holding pond [(OSN 102) and the metal cleaning waste ponds (OSN 107);]...
DELETE ...[(OSN 103),]
ADD ...(OSN 105)[the Condensate Demineralizer regeneration waste to cooling tower blowdown;]
ADD ...and (OSN 109)[the Make-up] Water Treatment Plant Neutral Waste Tank to the CCW flume] shall be used only under...
JUSTIFICATION:
This is for clarity.

ATTACHMENT C
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 División 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 /rms

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

PED/PMS/slk P/WAT-70

cc: Environmental Protection Agency
CBO

SEP 30 1985

Mr. Bruce R. Barrett, Director
Water Management Division
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

Dear Mr. Barrett:

WATTS BAR NUCLEAR PLANT (WBN) - NPDES PERMIT NO. TN0020168 (M00028)

In accordance with my July 29 letter to you, enclosed is a report regarding the evaluation of chlorination practices at WBN as required by Part III.K of the subject permit.

The report describes 10 scenarios involving discharge routes and plant conditions that could affect the total residual chlorine (TRC) concentration in discharges to the Tennessee River. The following scenario is expected to result in the highest TRC concentration discharge to the river and assumes (1) the two nuclear reactors are in shutdown mode, (2) the two cooling towers are not in operation (water is not being circulated through the condensers), (3) both the raw cooling water (RCW) and essential raw cooling water (ERCW) flows are routed to the cold water channel of the cooling tower, and (4) the diffuser is in operation. Field investigations showed that for this scenario a discharge limitation of 0.1 mg/L for TRC could not be met when the TRC averaged 1.0 mg/L at the intake pumping station (IPS) but could be met when the TRC concentration averaged 0.6 mg/L at the IPS. Field investigations also showed that the maximum concentration limitation of 0.8 mg/L for TRC at the IPS could not be met, primarily because the sodium hypochlorite feed system is difficult to control accurately. Instantaneous TRC concentrations as high as 1.8 mg/L at the IPS did not result in a TRC concentration greater than 0.1 mg/L at the diffuser while the TRC concentration averaged 0.6 mg/L at the IPS. Therefore, operating procedures and limitations governing the sodium hypochlorite feed rate should be based on maintaining an average TRC concentration at the IPS in place of an instantaneous maximum value. Based on these findings, TVA does not believe that dechlorination equipment will be necessary to comply with an effluent limitation of 0.1 mg/L TRC.

If you are in agreement with the findings of this report, TVA requests the following modifications to Part I.A, Page I-1, discharge serial No. 101 of the NPDES permit for WBN.

SEP 1985

Mr. Bruce R. Barrett

1. Change the allowable total chlorine addition from 30.9 lbs/hr to 27.3 lbs/hr. The revised value is based on a maximum flow rate of 78,010 gpm (six RCW pumps and four ERCW pumps in operation) and maintaining an average TRC concentration of 0.7 mg/L. The 0.7 mg/L value was obtained by interpolating the study results for an intake concentration that would result in a TRC concentration of 0.1 mg/L at the diffuser.

2. Change the wording "Additionally, continuous chlorination of the ERCW and RCW systems at a maximum concentration of 0.8 mg/L of total residual chlorine . . . at an intake temperature above 15.6°C (60°F)" to "Additionally, continuous chlorination of the ERCW and RCW systems at an average concentration of 0.7 mg/L of total residual chlorine . . . at an intake temperature above 15.6°C (60°F)."

If you have questions regarding the report or the request for permit modification, please call Stephen R. Wells at (205) 386-2971 or Madonna E. Martin at (615) 632-6695.

Sincerely,

Original signed by
Martin E. Rivers

Martin E. Rivers, Director
Environmental Quality

RJK:TBA:SRW:BC
Enclosure
cc (Enclosure):

Mr. Paul E. Davis, Deputy Director
Division of Water Pollution Control
Tennessee Department of Health
and Environment
TERRA Building
150 Ninth Avenue, North
Nashville, Tennessee 37203

Mr. Douglas K. Lankford, Chief
South Carolina/Tennessee Unit
Facilities Performance Branch
Water Management Division
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

SEP 30 1985

Mr. Bruce R. Barrett

Mr. Charles H. Kaplan, P.E.
Coordinator, Thermal Analysis
Permits Section
Water Management Division
U.S. Environmental Protection Agency
345 Courtland Street, NE.
Atlanta, Georgia 30365

Mr. Philip L. Stewart, Manager
Chattanooga Field Office
Division of Water Pollution Control
2501 Milne Street
Chattanooga, Tennessee 37406

B. W. Brown, 140 EB-K
E. R. Ennis, WBN
J. W. Hufham, 1630 CST2-C
C. L. Massey, 100 IBM-C
H. G. Parris, MR6N11 B-C
W. M. Pearse, W7A68 C-K
R. M. Pierce, 9-169 C-K

0307K

JUN 11 1985

Mr. John Marlar, Chief
Facilities Performance Branch
Water Management Division
U.S. Environmental Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30365

Dear Mr. Marlar:

WATTS BAR NUCLEAR PLANT (WBN) - NPDES NO. TN0020168 - EROSION AND SEDIMENT CONTROL REPORT (M10,985)

Enclosed is an erosion and sediment control report as required by Part I.B.1.e of the WBN NPDES permit. This first report covers the period August 1984 through February 1985. The NPDES permit required submittal of this first report by December 31, 1984 (six months after submittal of the Erosion and Sediment Control Plan). However, due to scheduling difficulties (primarily availability of hydroseeding equipment and necessary delivery times for silt fencing), reclamation and erosion and sediment control efforts were delayed somewhat this past fall. The extended reporting period allows a more accurate representation of the extent of the controls in place and their effectiveness at reducing sediment transport for the site. We will follow up with the second report by June 30 as required by the NPDES permit.

A rainfall-triggered monitoring program was initiated in November 1984 at EPA's request to evaluate the effectiveness of erosion and sediment controls for Trench A and Borrow Area 1A. Attachment I to the enclosure includes photographs illustrating the status of reclamation for these areas as well as some of the controls in place. Attachment II to the enclosure is the monitoring results for the report period. Attachment III of the enclosure is a copy of the biweekly erosion control inspection notes for the report period.

Monitoring results indicate that sediment transport from Trench A is minor with an average total suspended solids (TSS) concentration from nine sampling events of 10 mg/L (maximum 31). Results for the runoff holding pond (DSN 112) receiving runoff from Borrow Area 1A (plus an additional 250 acres of forest, yard, and graveled areas) indicate an average TSS of 22 mg/L (maximum 140) for the same sampling events. These sampling events were triggered by rainfall amounts ranging from 0.22 to 1.61 inches within the 24 hours preceding sampling.

Mr. John Marlar

JUN 11 1985

The high maximum value for the runoff holding pond discharge cannot be totally attributed to Borrow Area 1A runoff. TVA believes sediment transport from area 1A is minor because the sediment controls are in place and 95 percent revegetation has now been achieved. The higher concentration can primarily be attributed to (1) flushing of sediments from the pond accumulated prior to reclamation of borrow area 1 by relatively large runoff volumes in comparison to the pond's holding capacity and (2) silt from the 72 acres of graveled yard area onsite. To further reduce the sediment load to this pond, sediment control measures such as hay bales, rock collars, and regrading will be applied to the storm catch basins within the graveled yard area on or about June 1.

Based on the extent of revegetation of Trench A and Borrow Area 1A, the monitoring results presented, and our commitment to maintain sediment controls through December 1 (six months following 95 percent revegetation), TVA believes that the rainfall-triggered monitoring program can be discontinued. Monitoring at DSN 112 for TSS will continue as part of the routine monitoring program required by the WBN NPDES permit. With your concurrence, we propose to continue rainfall-triggered monitoring through the second report period and then discontinue the program on June 30.

If you have questions concerning the enclosed report and information, please call Michael Hines or Stephen R. Wells at (205) 386-2971 or FTS 872-8971 in Muscle Shoals, Alabama.

Sincerely,

Original signed by
Alvan Brush

Martin E. Rivers, Director
Environmental Quality

JGM:SRW:BC
Enclosure
cc: Mr. Charles H. Kaplan (Enclosure)
U.S. Environmental Protection Agency
Region IV
345 Courtland Street
Atlanta, Georgia 30365

Mr. Douglas Lankford (Enclosure)
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

Mr. John Marlar

11 1985

Mr. D. Elmo Lunn, Director (Enclosure)
Division of Water Management
Tennessee Department of Health
and Environment
TERRA Building
150 Ninth Avenue, North
Nashville, Tennessee 37203

Mr. Philip L. Stewart, Manager (Enclosure)
Chattanooga Basin Office
Division of Water Management
2501 Milne Street
Chattanooga, Tennessee 37406

T. B. Allen, 1620 CST2-C
D. B. Bowen, W12A6 C-K
W. T. Cottle, WBN
C. L. Massey, 100 IBM-C
R. A. Pedde, E7B21 C-K
R. M. Pierce, 9-169 SB-K
H. S. Sanger, E11B33 C-K

L62 850613076

0039K

xc 6/13 mg

DEC 1 1986

Division of Nuclear Services

DEC 5 '86

	Note	Action	Per
DIR			
ASST			
IND SAF			
EM PREP			
MGT SYS			
SUP OPS			
RAD CON			
NUC FUEL			
DCU			
RIMS	PSN	SON	WBN

TBA ✓

Mr. Kenneth W. Bunting, Director
Division of Water Pollution Control
Tennessee Department of Health
and Environment
150 Ninth Avenue, North
TERRA Building
Nashville, Tennessee 37219-5404

Dear Mr. Bunting: L01 861203410

WATTS BAR NUCLEAR PLANT (WBN) - NPDES PERMIT NO. TN0020168 - PREOPERATIONAL NONRADIOLOGICAL AQUATIC MONITORING REPORT

Enclosed are two copies of the report, "Preoperational Assessment of Water Quality and Biological Resources of Chickamauga Reservoir, Watts Bar Nuclear Plant, 1973-1985." This report is submitted in accordance with part I., section B.1.c., and part III., section F., of the NPDES permit for WBN and my September 18 letter to Bruce R. Barrett. The enclosed report summarizes preoperational data collected between March 1982 and March 1986, and from 1972 through 1979. Nonradiological preoperational aquatic monitoring was conducted from 1973 to 1977 (water quality/non-fish), and 1976 to 1979 (fish), and results reported to the Environmental Protection Agency on April 15 and April 30, 1980, respectively. Due to delays in the completion of WBN, TVA decided to resume these monitoring programs in March 1982 in order to update the preoperational data base. TVA believes the updated preoperational data base is sufficient as a baseline from which the effects of WBN operation on Chickamauga Reservoir can be determined. Therefore, preoperational monitoring has been terminated.

A fuel loading date for unit 1 of the plant has not been established. Once a schedule is established, TVA will establish a schedule for conducting the operational monitoring required by part III., section G., of the permit, and advise you accordingly.

The data from the additional monitoring of the intake and diffuser gate discharge were inadvertently not included in the enclosed report as required by part III., section F., of the permit. These data are now being compiled and assessed. This assessment, along with a summary of the data, will be submitted to you by February 15, 1987.

If you have any questions regarding the enclosed report or the monitoring program, please call Madonna E. Martin of my staff at (615) 632-6695.

Sincerely,

Original Signed by
Martin E. Rivers

Martin E. Rivers, Director
Environmental Quality

FAM:CME
Enclosure
cc: See page 2

Mr. Kenneth W. Bunting, Director

DEC 1 1900

cc (Enclosure):

Mr. Bruce R. Barrett, Director
Water Management Division
U.S. Environmental Protection
Agency, Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Washington, D.C. 20555

Dr. J. Nelson Grace
Regional Administrator
U.S. Nuclear Regulatory Commission
Region 2
101 Marietta Street, Suite 2900
Atlanta, Georgia 30303

Mr. C. Wayne Pollock, Chief
Fisheries Management
Tennessee Wildlife Resources Agency
Ellington Agricultural Center
P.O. Box 40747, Room 153
Nashville, Tennessee 37204

Mr. Philip L. Stewart, Manager
Chattanooga Field Office
Division of Water Pollution Control
2501 Milne Avenue
Chattanooga, Tennessee 37406-3399

Mr. Walter D. Stieglitz
Acting Regional Director
Department of Interior
U.S. Fish and Wildlife Service
Richard B. Russell Federal Building
75 Spring Street, SW.
Atlanta, Georgia 30303

Mr. W. Reid Tatum, Regional Manager
Tennessee Wildlife Resources Agency
216 East Penfield Street
Crossville, Tennessee 38555

Mr. Lee B. Tebo, Chief
Ecological Support Branch
U.S. Environmental Protection Agency
College Station Road
Athens, Georgia 30601

DEC 1 1986

Mr. Kenneth W. Bunting, Director

cc (Enclosure):
Files, EQS, 242 SPB-K
B. W. Brown, 140 EB-K
M. G. Msarsa, 290 HB-C
H. P. Pomrehn, ONP, Watts Bar/R\ms
C. G. Robertson, LP 5S 83E-C
L. E. Wallace, E11 B36 C-K

Prepared by F. A. (Drew) Miller (DNS) with concurrence by Madonna E. Martin

L62 850920 524

SEP 17 1985

RET
MJS
TEA
VLC
JRH
RJK
ARMS XC 9/20 rg
FILES

Mr. John Marlar, Chief
Facilities Performance Branch
Water Management Division
U.S. Environmental Protection Agency,
Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

Dear Mr. Marlar:

WATTS BAR NUCLEAR PLANT (WBN) - NPDES PERMIT NO. TN0020168 - EROSION AND SEDIMENT CONTROL REPORT

Enclosed is the second erosion and sediment control report required by Part I.B.1.e of the WBN NPDES permit. This report covers the period from March through August 1985, when the major earthwork for units 1 and 2 was completed. Although the June compliance date for submission has passed, the extended reporting period allows a better representation of conditions onsite through the summer growing season. A mid-September 1985 submission date was verbally coordinated with Douglas Lankford of your office on August 26, 1985.

Rainfall triggered monitoring for borrow area 1A and trench B was continued through August 1985. Enclosure I is the monitoring results for the report period. The results indicate that runoff from trench A is light (we assume this is due to presence of extensive vegetation) except during heavier rainfall events (approaching 2 inches in a 24-hour period). We believe the total suspended solids (TSS) concentration resulting from the 2-inch rainfall event of May 2 is primarily due to erosion of the exposed ditch bottom conveying runoff from this area. Overall, vegetation is well established on trench A, which along with extensive sediment controls prevents significant soil loss from this area. The last remaining activity in the area will be to stabilize the conveyances.

Results from the runoff holding pond (OSN 112) receiving runoff from borrow area 1A (plus an additional 250 acres of forest, yard, and graveled areas) indicate that the average TSS concentration from ten rainfall triggered sampling events during the report period was 65 mg/l (maximum 290 mg/l). We believe minor solids contributions are coming from borrow area 1A due to the extensive revegetation of this area along with continued maintenance of area sediment controls. The only significant remaining source of solids to this pond is from the construction graveled yard area upstream. In an effort to reduce the amount of solids contributed by this yard area, straw bales were places around the construction

Mr. John Marlar SEP 17 1985

yard storm water catch basins in June. As stated in our first report, we believe that the major source of solids in the effluent from OSN 112 is from the flushing of sediment from the pond's bottom. This sediment accumulated here prior to establishing sediment controls and completion of vegetation on borrow area 1A. For this reason, we believe TSS monitoring at OSN 112 is not indicative of the conditions on borrow area 1A.

As indicated by our first erosion and sediment control report, TVA will discontinue rainfall triggered monitoring for trench A and OSN 112 with the submission of this second report. Future compliance with limitations and monitoring requirements at OSN 112 will be in accordance with that specified by footnote 1 on page I-14 of the NPDES permit applicable after stabilization of borrow area 1A.

As provided in the July 1984 Erosion and Sediment Control Plan (ESCP) for WBN, sediment controls will be maintained for a minimum period of 6 months (March 1, 1986) on borrow areas 1A, 2, 8, trench A, and trench B, based upon completion of revegetation. After March, maintenance of sediment controls for these areas will be discontinued. Controls will continue to be maintained for borrow areas 3, 4, 5, 6, 7 and for spoil areas 1, 2, and 3 until final stabilization is achieved. Maintenance inspections will also continue until final stabilization is achieved. Enclosure II consists of copies of the pages from the biweekly inspection logs for this reporting period.

In general, we believe reduction of soil loss from the WBN site has been successful through implementation of the erosion and sediment control plan. The plan concept will continue in effect and will be revised as necessary to reflect major new earthwork associated with completion of WBN unit 2. However, soil disturbance associated with construction of units 1 and 2 has essentially been completed. Protection of storm water catch basins in the construction yard area will be provided as long as construction activity continues in this area. As indicated in NPDES permit No. TN0020168 and the July 1984 ESCP, TVA will not submit additional erosion and sediment control reports unless specifically requested by you or the State Director.

Any questions pertaining to this submittal should be directed to Madonna E. Martin at (615) 632-6695 or FTS 856-6695 in Knoxville.

Sincerely,

Original signed by
Alvan Bruch

Martin E. Rivers, Director
Environmental Quality

JGM:CMH
Enclosure

cc: See page 3

Mr. John Marlar

SEP 17 1900

cc (Enclosure):

Mr. Charles H. Kaplan
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

Mr. Douglas Lankford
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

Mr. D. Elmo Lunn, Director
Division of Water Management
Tennessee Department of Health
and Environment
TERRA Building
150 Ninth Avenue, North
Nashville, Tennessee 37203

Mr. Philip L. Stewart, Manager
Chattanooga Basin Office
Division of Water Management
2501 Milne Street
Chattanooga, Tennessee 37406

cc (No enclosure):

T. B. Allen, 1620 CST2-C
D. B. Bowen, W12A6 C-K
W. T. Cottle, Watts Bar NUC PR
C. L. Massey, 100 IBM-C
R. A. Pedde, E7B21 C-K
R. M. Pierce, 9-169 SB-K
H. S. Sanger, Jr., E11B33 C-K

Prepared by Jimmy G. Mantooth with concurrence by Madonna E. Martin

APR 3 1985

Mr. John Marlar, Chief
Facilities Performance Branch
Water Management Division
U.S. Environmental Protection Agency
Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

Dear Mr. Marlar:

WATTS BAR NUCLEAR PLANT (WBN) - NPDES PERMIT NO. TN0020168

In accordance with Part II of the subject permit, we are notifying you of a change in discharge for discharge serial numbers (DSNs) 110, 113, and 114 at WBN. Each of these point source discharges has been eliminated. The details concerning the elimination of these discharges are discussed below.

DSN 110 - Operational Sand Filter

This discharge was eliminated on December 3, 1984, by routing the operational sanitary sewage to the construction sewage treatment plant (CSTP), DSN 111. This change was made because (1) the septic tank/sand filter system treating the operational sewage flows was at hydraulic design capacity; (2) an increase in operational personnel is anticipated as units 1 and 2 come online; (3) the sand filter is clogging, requiring expensive chemical reconditioning; and (4) the CSTP is presently experiencing an average flow that represents only 68 percent of its design hydraulic capacity. The addition of the operational sewage will increase the average CSTP flow to approximately 90 percent of its design hydraulic capacity. TVA is currently evaluating the CSTP to enhance operational flexibility and accommodate any future increase in personnel levels. Pending our decision, the appropriate regulatory submittals (drawings, modified permit pages, etc.) for construction approval will be submitted.

DSN 113 - Concrete Batch Plant Pond

This discharge point was eliminated on December 4, 1984, by sealing the existing holding pond overflow. The concrete wash water subsequently collected will be used for dust suppression on approximately 25 miles of unimproved roads within the WBN Reservation. Based on the frequency of wash plant operation, we anticipate the application of approximately 10,000 gallons of wash water per month. We are in the process of preparing a contract for offsite concrete supply. We anticipate award within four months. After this date, operation of the concrete wash plant will be discontinued.

Mr. John Marlar

Based on the light application rate and the fact that the solids contained within the wash water should compact to form a hard, relatively stable road surface, TVA believes this interim disposal method is both economical and environmentally acceptable.

DSN 114 - Vehicle Wash Pond

The construction vehicle wash facility was decommissioned on October 29, 1984, and has been dismantled. The existing pond that received the wash water will remain in place. However, it will receive only general yard runoff. This pond will continue to drain to the construction yard holding pond, DSN 112.

As a result of the above changes in discharge, we do not plan to construct the waste treatment ponds for DSNs 113 and 114 discussed during the WBN NPDES permit negotiations conducted last summer. Therefore, the plans and specifications for State construction approval of these ponds as required by the State's certification of the NPDES permit will not be submitted.

Also, because these discharges have been eliminated, we will mark future discharge monitoring report pages for these three outfalls "Not Applicable, Discharge Eliminated" and discontinue the submission of monthly operation reports for DSN 110 to the State of Tennessee.

If you have questions, please call Michael Hines or Stephen R. Wells at (205) 386-2971 in Muscle Shoals, Alabama.

Sincerely,

Original signed by
Martin E. Rivers

Martin E. Rivers, Director
Environmental Quality

JGM:SRW:BC

cc: Mr. Paul E. Davis
Manager, Permits Section
Tennessee Department of
Health and Environment
Division of Water Management
TERRA Building
150 Ninth Avenue, North
Nashville, Tennessee 37203

Mr. Jack R. McCormick, Manager
Chattanooga Basin Office
Division of Water Management
2501 Milne Street
Chattanooga, Tennessee 37406

T. B. Allen, 1620 CST2-C
B. J. Bond, 1E61 OCH-K
B. W. Brown, 140 EB-K
R. W. Cantrell, W12A12 C-K
C. L. Massey, 100 IBM-C
W. M. Pearse, W7A68 C-K
R. M. Pierce, 104 ESTA-K
H. S. Sanger, E11B33 C-K
J. W. Shipp, Jr., 6411 EBB-C

0184K

Received
TO EAST - TRE
Chattanooga
APR 4 '85
To | INFO | ACTION
FILES

NOV 0 2 1988

L01 8811090 18

Mr. Philip L. Stewart, Manager
Chattanooga Field Office
Division of Water Pollution Control
2501 Milne Avenue
Chattanooga, Tennessee 37406-3399

Dear Mr. Stewart:

WATTS BAR NUCLEAR PLANT (WBN) - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NO. TN0020168 - RECONSIDERATION OF pH STUDY

In reference to your December 16, 1987 letter on this subject, WBN staff would prefer that you include monitoring requirements in the NPDES permit for discharge serial numbers (DSN) 105 and 109 rather than conduct the requested pH study. As stated in previous correspondence, our internal procedures already require that the pH of these tanks be adjusted to the 6.0-9.0 range before release. Therefore, incorporating monitoring requirements into the NPDES permit will require no monitoring or treatment beyond what we currently conduct.

The reason for retaining separate permit discharges for DSNs 105 and 109 is that under certain operating conditions, e.g., steam generator tube leaks or high levels in the turbine building sump, the waste stream is allowed to bypass the turbine building. In this event, the waste stream must be monitored for potential radiation and discharged to either the diffuser discharge if it is within the acceptable radiation limits, or to the radwaste system for treatment. This capability to discharge directly through the DSN 105 and 109 pathways is provided in the WBN Technical Specifications. Operational changes to the WBN Technical Specifications require NRC review and approval.

If you have any questions concerning these matters, please contact Abraham H. Loudermilk, Jr., at (615) 632-6656 in Knoxville.

Sincerely,

Original signed by
M. Paul Schmierbach

M. Paul Schmierbach, Manager
Environmental Quality

RECEIVED
CHEMISTRY BRANCH
NOV 14 '88

L01
DIVISION OF NUCLEAR SERVICES
DIRECTOR'S OFFICE
NOV 08 '88

RWB:MEB

Mr. K. P. Barr, Acting Assistant Director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW., Suite 2900
Atlanta, Georgia 30323

Continued on page 2

Mr. Philip L. Stewart

NOV 0 2 1988

Mr. Bruce R. Barrett, Director
Water Management Division
U.S. Environmental Protection Agency,
Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

Ms. S. C. Black, Assistant Director
for Projects
TVA Projects Division
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

Mr. F. R. McCoy, Assistant director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW., Suite 2900
Atlanta, Georgia 30323

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Files, EQS, 242 SPB-K
R. H. Brooks, 140 EB-K
E. S. Christenbury, E11 B33 C-K
R. L. Gridley, LP 5N 157B-C RIMS
J. L. McAnally, LP 5S 83E-C
M. G. Msarsa, 290 HB-C
R. A. Pedde, Watts Bar Nuclear Plant

Prepared by Robert W. Bond (DNS) with concurrence by Abraham H. Loudermilk, Jr.

0918J

L62
ENVIRONMENTAL PROTECTION SECTION
DIV of NUC SVCS
NOV 04 '88

Routed to	Note	Act'n	Reply
[illegible]			
RWE			

WS rc ☐ Yes ☐ No Initials:
AMS ☐ Yes ☐ No Initials:

OCT 28 1988

Mr. Philip L. Stewart, Manager
Chattanooga Field Office
Division of Water Pollution Control
2501 Milne Avenue
Chattanooga, Tennessee 37406-3399

Dear Mr. Stewart:

L01 881101005

WATTS BAR NUCLEAR PLANT - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NUMBER TN0021068 - RESULTS OF TESTING OF CONTINUOUS CHLORINE ANALYZER (CCA)

As committed in my April letter to you, enclosed are the report and figures on the testing of an Orion Model 1770 CCA. In summary, this instrument which is reputed to be the best on the market is not consistently accurate, but rather is subject to fairly regular spikes which are greatly different from the results of conventional grab sample analysis. Based on the results of this test combined with the testing conducted on the Xertex CCA last spring, we plan to request in our NPDES permit renewal application that the CCA requirements to be removed from our new permit since we have not been able to acquire an accurate CCA. In the interim, we will, of course, continue to use multiple grab samples to demonstrate compliance with the permit.

If you have any questions concerning the enclosed report or would like to discuss this matter further, please contact Abraham H. Loudermilk, Jr., of my staff, at (615) 632-6656 in Knoxville.

Sincerely,
Original signed by
M. Paul Schmierbach

M. Paul Schmierbach, Manager
Environmental Quality

L01
DIVISION OF NUCLEAR SERVICES
DIRECTOR'S OFFICE
OCT 31 '88

Routed to	Note	Act'n	Reply
JLB	✓		

WS rc ☐ Yes Initials:
LU ☐ Yes Initials:
AMS ☐ Yes ☐ No Initials: RL

RECEIVED
CHEMISTRY BRANCH
NOV 03 '88

	Note	Action	Reply
JB			
SWH			

RIMS

CEM:MFB
Enclosures
cc (Enclosures):
Mr. Bruce R. Barrett, Director
Water Management Division
U.S. Environmental Protection Agency,
Region IV
345 Courtland Street, NE.
Atlanta, Georgia 30365

Continued on page 2

MATERIAL SAFETY DATA SHEET

EASTMAN KODAK COMPANY
343 State Street
Rochester, New York 14650

For Emergency Health, Safety, and Environmental Information, call 716-722-5151
For other purposes, call the Marketing and Distribution Center in your area

Revised Date of Preparation: 11/7/85 Kodak Accession Number: 365660

SECTION I. IDENTIFICATION

- Product Name: KODAK INDUSTREX Fixer and Replenisher, Part A
- Formula: Aqueous Mixture
- Kodak Photographic Chemicals Catalog Number(s): CAT 139 7231 - To Make 75 Litres; CAT 192 5007 - To Make 200 Gallons; CAT 190 0273 - To Make 38 Litres
- Solution Number: 4643
- Kodak's Internal Hazard Rating Codes: R: 1 S: 1 F: 0 C: 0

SECTION II. PRODUCT AND COMPONENT HAZARD DATA

A. COMPONENT(S):

	Weight Percent	ACGIH (TLV(R)	Kodak Accession No.	CAS Reg. No.
Ammonium thiosulfate	45-50	---	909586	7783-18-8
Water	35-40	---	035290	7732-18-5
Sodium acetate	1-5	---	900227	127-09-3
Acetic acid	1-5	10 ppm**	900763	64-19-7
Sodium sulfite	1-5	---	901148	7757-83-7

**See Section VI-A for additional information on exposure limits.

B. PRECAUTIONARY LABEL STATEMENT(S):

LOW HAZARD FOR RECOMMENDED HANDLING

SECTION III. PHYSICAL DATA

- Appearance and Odor: Clear pale greenish-yellow solution; slight acetic acid odor
- Boiling Point: GT 100 C (GT 212 F) @ 760 mmHg
- Vapor Pressure: ca. 18 mmHg @ 20 C
- Evaporation Rate (n-butyl acetate = 1): Not Available
- Vapor Density (Air = 1): ca. 0.6
- Volatile Fraction by Weight: ca. 40 %
- Specific Gravity (H2O = 1): 1.331
- pH: ca. 5.7
- Solubility in Water (by Weight): Complete

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

- Flash Point: None
- Noncombustible
- Extinguishing Media: Use agent appropriate for surrounding fire.
- Special Fire Fighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
- Unusual Fire and Explosion Hazards: Fire or excessive heat may cause production of hazardous decomposition products.

SECTION V. REACTIVITY DATA

- Stability: Stable
- Incompatibility: Strong acids, strong alkali
- Hazardous Decomposition Products: Ammonia
- Hazardous Polymerization: Will not occur.

SECTION VI. TOXICITY AND HEALTH HAZARD DATA

A. EXPOSURE LIMITS:

See Section II
OSHA Permissible Exposure Limit (PEL): 10 ppm (acetic acid)

B. EXPOSURE EFFECTS:

Inhalation: Low hazard for usual industrial handling.

Eyes: No specific hazard known to Eastman Kodak Company. However, any material that contacts the eye may be irritating.

Skin: Low hazard for usual industrial handling.

C. FIRST AID: In case of eye contact, flush with plenty of water.

SECTION VII. VENTILATION AND PERSONAL PROTECTION

A. VENTILATION: Good general ventilation should be sufficient.

B. SKIN AND EYE PROTECTION:

Safety glasses should be worn in any type of industrial chemical handling.

SECTION VIII. SPECIAL STORAGE AND HANDLING PRECAUTIONS

Keep container tightly closed and away from alkali or acids.

SECTION IX. SPILL, LEAK, AND DISPOSAL PROCEDURES

Flush to an acid-free sewer.
Discharge, treatment, or disposal may be subject to federal, state, or local laws.

SECTION X. ENVIRONMENTAL EFFECTS DATA

Some laboratory test data and published data are available for the major components of this chemical formulation, and these data have been used to provide the following estimate of environmental impact: (1-10)

This chemical formulation is a moderately acidic aqueous solution, and this property may cause adverse environmental effects. It has a high biological oxygen demand, and it may cause oxygen depletion in aquatic systems. It is expected to have a moderate to high potential to affect the germination and growth of some plants. It is expected to have a low potential to affect aquatic organisms and secondary waste treatment microorganisms. The components of this chemical formulation are readily biodegradable are not likely to bioconcentrate. When diluted with a large amount of water, this chemical formulation released directly or indirectly into the environment is not expected to have a significant impact.

SECTION XI. TRANSPORTATION

For transportation information regarding this product, please phone the Eastman Kodak Distribution Center nearest you: Rochester, NY (716) 254-1300; Oak Brook, IL (312) 654-5300; Chamblee, GA (404) 455-0123; Dallas, TX (214) 241-1611; Whittier, CA (213) 945-1255; Honolulu, HI (808) 833-1661.

SECTION XII. REFERENCES

1. Unpublished data, Health and Environment Laboratories, Eastman Kodak Company, Rochester, NY.

2. Verschueren, K., Handbook of Environmental Data on Organic Chemicals, Second Edition, Van Nostrand Reinhold Company, New York, N.Y., 1983.

3. Battelle's Columbus Laboratories, Water Quality Criteria Data Book - Vol. 3 - Effects of Chemicals on Aquatic Life - Selected Data from the Literature Through 1968, for the U.S. Environmental Protection Agency, Project No. 18050 GWV, Contract No. 68-01-0007, May 1971.

4. National Association of Photographic Manufacturers, Inc. and Hydroscience, Inc., Environmental Effects of Photoprocessing Chemicals, National Association of Photographic Manufacturers, Harrison, New York, 1974, 2 Vols.

5. Kodak Publication J-41, BOD5 and COD of Photographic Chemicals, Eastman Kodak Co., 1981.

6. McKee, J.E. and Wolf, H.W., Eds., Water Quality Criteria, State of California, Publication No. 3-A, 1963.

7. Bringmann, G. and Kuehn, R., Results of the Damaging Effect of Water Pollutants on Daphnia magna, Z. Wasser Abwasser Forsch., 10(5), 161-6 (1977) (in German).

8. Bringmann, G. and Kuehn, R., Results of Toxic Action of Water Pollutants on Daphnia magna (Straus) Tested by an Improved Standardized Procedure, Z. Wasser Abwasser Forsch., 15(1), 1-6 (1982) (in German).

9. Juhnke, I. and Luedemann, D., Results of the Study of 200 Chemical Compounds on Acute Fish Toxicity Using the Golden Orfe Test, Z. Wasser Abwasser Forsch., 11(5), 161-4 (1978) (in German).

10. Pomona College, Medicinal Chemistry Project, Chemical Parameter Data Base, Leo, A.J. and Hansch, C., Eds., Seaver Chemistry Laboratory, Claremont, California, June 21, 1985.

The information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

MATERIAL SAFETY DATA SHEET

EASTMAN KODAK COMPANY
343 State Street
Rochester, New York 14650

For Emergency Health, Safety, and Environmental Information, call 716-722-5151
For other purposes, call the Marketing and Distribution Center in your area

Revised Date of Preparation: 10/05/85 Kodak Accession Number: 365704

SECTION I. IDENTIFICATION

- Product Name: KODAK INDUSTREX Fixer and Replenisher, Part B
- Formula: Aqueous Mixture
- Kodak Photographic Chemicals Catalog Number(s): CAT 139 7231 - To Make 75 Liters; CAT 194 0519 - To Make 100 Gallons; CAT 190 0273 - To Make 38 Liters
- Solution Number: 4465
- Kodak's Internal Hazard Rating Codes: R: 1 S: 2 F: 0 C: 0

SECTION II. PRODUCT AND COMPONENT HAZARD DATA

COMPONENT(S):	Weight Percent	ACGIH TLV(R)	Kodak Accession No.	CAS Reg. No.
Water	70-75	----	035290	7732-18-5
Aluminum sulfate	10-15	----	907954	10043-01-3
*Sulfuric acid**	14	1 mg/m3***	907485	7664-93-9

*Principal Hazardous Component(s)
**Chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

***See Section VI-A for additional information on exposure limits.

SECTION III. PHYSICAL DATA

- Appearance and Odor: Clear, colorless liquid; odorless
- Boiling Point: GT 100 C (GT 212 F) @ 760 mmHg
- Vapor Pressure: ca. 18 mmHg @ 20 C
- Evaporation Rate (n-butyl acetate = 1): Not Available
- Vapor Density (Air = 1): ca. 0.6
- Volatile Fraction by Weight: ca. 75 %
- Specific Gravity (H_2O = 1): 1.247
- pH: LT 1.0
- Solubility in Water (by Weight): Complete

D-0012.000
85-0068

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

- Flash Point: None
- Extinguishing Media: Use agent appropriate for surrounding fire.
- Special Fire Fighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
- Unusual Fire and Explosion Hazards: None

SECTION V. REACTIVITY DATA

- Stability: Stable
- Incompatibility: Strong alkali
- Hazardous Decomposition Products: None
- Hazardous Polymerization: Will not occur.

SECTION VI. TOXICITY AND HEALTH HAZARD DATA

A. EXPOSURE LIMITS:

See Section II
OSHA Permissible Exposure Limit (PEL): 1 mg/m3 (sulfuric acid)

B. EXPOSURE EFFECTS:

Inhalation: Low hazard for usual industrial handling.

Eyes: Causes irritation.

Skin: Causes irritation.

C. FIRST AID:

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes and get medical attention.

Skin: Immediately flush skin with plenty of soap and water and get medical attention if symptoms are present after washing.

SECTION VII. VENTILATION AND PERSONAL PROTECTION

A. VENTILATION: Good general ventilation should be sufficient.

B. SKIN AND EYE PROTECTION:
Safety glasses with side shields or goggles are recommended.
Impervious gloves should be worn.

SECTION VIII. SPECIAL STORAGE AND HANDLING PRECAUTIONS

Avoid contact with strong alkali.

SECTION IX. SPILL, LEAK, AND DISPOSAL PROCEDURES

Neutralize with baking soda (sodium bicarbonate).
Flush material to sewer with large amounts of water.
Discharge, treatment, or disposal may be subject to federal, state, or local laws.

SECTION X. ENVIRONMENTAL EFFECTS DATA

This chemical formulation has not been tested for environmental effects. Some laboratory test data and published data are available for the major components of this chemical formulation, and these data have been used to provide the following estimate of environmental impact: (1-3)

This chemical formulation is a strongly acidic aqueous solution, and this property may cause adverse environmental effects. It has no biological oxygen demand and is not expected to cause oxygen depletion in aquatic systems. It is expected to have a moderate to high potential to affect aquatic organisms and secondary waste treatment microorganisms. The components of this chemical formulation are not likely to bioconcentrate. The direct instantaneous discharge to a receiving body of water of an amount of this chemical formulation which will rapidly produce, by dilution, a final concentration of 10 mg/L or less is not expected to cause an adverse environmental effect. After dilution with a large amount of water, followed by secondary waste treatment, the chemicals in this formulation are not expected to have any adverse environmental impact.

SECTION XI. TRANSPORTATION

For transportation information regarding this product, please phone the Eastman Kodak Distribution Center nearest you: Rochester, NY (716) 588-9232; Oak Brook, IL (312) 954-6000; Chamblee, GA (404) 455-0123; Dallas, TX (214) 241-1611; Whittier, CA (213) 693-5222; Honolulu, HI (808) 833-1661.

SECTION XII. REFERENCES

1. Unpublished data, Health and Environment Laboratories, Eastman Kodak Company, Rochester, NY.

2. Battelle's Columbus Laboratories, Water Quality Criteria Data Book - Vol. 3 - Effects of Chemicals on Aquatic Life - Selected Data from the Literature Through 1968, for the U.S. Environmental Protection Agency, Project No. 18050 GWV, Contract No. 68-01-0007, May 1971.

3. McKee, J.E. and Wolf, H.W., Eds., Water Quality Criteria, State of California, Publication No. 3-A, 1963.

The information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

P-6012.090G
85-0098

MATERIAL SAFETY DATA SHEET

EASTMAN KODAK COMPANY
343 State Street
Rochester, New York 14650

For Emergency Health, Safety, and Environmental Information, call 716-722-5151
For other purposes, call the Marketing and Distribution Center in your area

Revised Date of Preparation: 01/06/85 Kodak Accession Number: 427915

SECTION I. IDENTIFICATION

- Product Name: KODAK INDUSTREX Developer Replenisher, Part A
- Formula: Aqueous Mixture
- Kodak Photographic Chemicals Catalog Number(s): CAT 818 5166 - To Make 38 Litres; CAT 139 7215 - To Make 75 Litres; CAT 165 1900 - To Make 200 Gallons
- Solution Number: 4681
- Kodak's Internal Hazard Rating Codes: H: 1 S: 2 F: 0 C: 0

SECTION II. PRODUCT AND COMPONENT HAZARD DATA

PRINCIPAL COMPONENT(S):	Weight Percent	ACGIH TLV(R)	Kodak Accession No.	CAS Reg. No.
Water	60-70	---	035290	7732-18-5
Potassium sulfite	20-25	---	907064	10117-38-1
*Hydroquinone**	6	2 mg/m3***	900356	123-31-9
*Potassium hydroxide	1-5	2 mg/m3 Ceiling	901383	1310-58-3

*Principal Hazardous Component(s)

**Chemical subject to the reporting requirements of Section 313 of Title III of the Supertund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

***See Section VI-A for additional information on exposure limits.

SECTION III. PHYSICAL DATA

- Appearance and Odor: Off-white solution; odorless
- Boiling Point: GT 100 C (GT 212 F) @ 760 mmHg
- Vapor Pressure: ca. 18 mmHg @ 20 C
- Evaporation Rate (n-butyl acetate = 1): Not Available
- Vapor Density (Air = 1): 0.6
- Volatile Fraction by Weight: ca. 65 %
- Specific Gravity (H2O = 1): 1.31
- pH: ca. 11.95
- Solubility in Water (by Weight): Complete

C-0076.500H
84-0265

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

- Flash Point: None
- Extinguishing Media: Not Applicable
- Special Fire Fighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
- Unusual Fire and Explosion Hazards: Fire or excessive heat may cause production of hazardous decomposition products.

SECTION V. REACTIVITY DATA

- Stability: Stable
- Incompatibility: Strong acids
- Hazardous Decomposition Products: Combustion will produce carbon dioxide and probably carbon monoxide. Oxides of sulfur may also be present.
- Hazardous Polymerization: Will not occur.

SECTION VI. TOXICITY AND HEALTH HAZARD DATA

A. EXPOSURE LIMITS:

See Section II
OSHA Permissible Exposure Limit (PEL): 2 mg/m3 (hydroquinone)

B. EXPOSURE EFFECTS:

Eyes: Causes burns.

Skin: Prolonged or repeated skin contact may cause skin irritation and may cause an allergic skin reaction.

C. FIRST AID:

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes and get medical attention.

Skin: Flush skin with plenty of water and wash with a non-alkaline (acid) type of skin cleanser.
If skin irritation or an allergic skin reaction develops, get medical attention.

Note to Physicians: Caustic solution. Treat accordingly.

SECTION VII. VENTILATION AND PERSONAL PROTECTION

A. VENTILATION: Good general ventilation should be sufficient.

B. SKIN AND EYE PROTECTION:
Safety glasses with side shields or goggles are recommended.
For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn.
The routine use of a non-alkaline (acid) type of skin cleanser and regular cleaning of working surfaces, gloves, etc. will help minimize the possibility of allergic skin reaction.

SECTION VIII. SPECIAL STORAGE AND HANDLING PRECAUTIONS

Keep container tightly closed and away from acids.

SECTION IX. SPILL, LEAK, AND DISPOSAL PROCEDURES

Neutralize with sodium bisulfate.
Flush material to an acid-free sewer with large amounts of water.
Discharge, treatment, or disposal may be subject to federal, state, or local laws.

SECTION X. ENVIRONMENTAL EFFECTS DATA

This chemical formulation has not been tested for environmental effects. Some laboratory test data and published data are available for the major components of this chemical formulation, and these data have been used to provide the following estimate of environmental impact: 1-12.

This formulation is a strongly alkaline aqueous solution, and this property may cause adverse environmental effects. It is expected to have a low biological oxygen demand and is expected to cause little oxygen depletion in aquatic systems. It is expected to have a high potential to affect aquatic organisms and a moderate potential to affect secondary waste treatment microorganisms and the germination and growth of some plants. The organic components of this chemical formulation are readily biodegradable and are not likely to bioconcentrate. The direct instantaneous discharge to a receiving body of water of an amount of this chemical formulation which will rapidly produce, by dilution, a final concentration of 0.05 mg/L or less is not expected to cause an adverse environmental effect. After dilution with a large amount of water, followed by secondary waste treatment, the chemicals in this formulation are not expected to have any adverse environmental impact.

SECTION XI. TRANSPORTATION

For transportation information regarding this product, please phone the Eastman Kodak Distribution Center nearest you: Rochester, NY (716) 588-9232; Oak Brook, IL (312) 954-6000; Chamblee, GA (404) 455-9123; Dallas, TX (214) 241-1611; Whittier, CA (213) 693-5222; Honolulu, HI (808) 833-1661.

SECTION XII. REFERENCES

1. Unpublished data, Health and Environment Laboratories, Eastman Kodak Company, Rochester, NY.

2. Verschueren, K., Handbook of Environmental Data on Organic Chemicals, Second Edition, Van Nostrand Reinhold Company, New York, N.Y., 1983.

3. Battelle's Columbus Laboratories, Water Quality Criteria Data Book - Vol. 3 - Effects of Chemicals on Aquatic Life - Selected Data from the Literature Through 1968, for the U.S. Environmental Protection Agency, Project No. 18050 GWV, Contract No. 68-01-0007, May 1971.

4. National Association of Photographic Manufacturers, Inc. and Hydroscience, Inc., Environmental Effects of Photoprocessing Chemicals, National Association of Photographic Manufacturers, Harrison, New York, 1974, 2 Vols.

5. Kodak Publication J-41, BOD5 and COD of Photographic Chemicals, Eastman Kodak Co., 1981.

6. Pitter, P., Determination of Biological Degradability of Organic Substances, Water Res., 10(3), 231-5 (1976).

7. McKee, J.E. and Wolf, H.W., Eds., Water Quality Criteria, State of California, Publication No. 3-A, 1963.

8. Bringmann, G. and Kuehn, R., Results of the Damaging Effect of Water Pollutants on Daphnia magna, Z. Wasser Abwasser Forsch., 10(5), 161-6 (1977) (in German).

9. Bringmann, G. and Kuehn, R., "Results of Toxic Action of Water Pollutants on Daphnia magna (Straus) Tested by an Improved Standardized Procedure," Z. Wasser Abwasser Forsch., 15(1), 1-6 (1982) (in German).

10. National Association of Photographic Manufacturers, Inc. and Hydroscience, Inc., Environmental Effects of Photoprocessing Chemicals, National Association of Photographic Manufacturers, Harrison, New York, 1974, 2 Vols.

11. Wellens, H., "Comparison of the Sensitivity of Brachydanio rerio and Leuciscus idus in the Study of the Toxicity of Fish of Chemical Compounds and Waste Waters," Z. Wasser Abwasser Forsch., 15(2) 49-52 (1982) (in German).

12. Pomona College, Medicinal Chemistry Project, "Chemical Parameter Data Base," Leo, A.J. and Hansch, C., Eds., Seaver Chemistry Laboratory, Claremont, California, June 22, 1983.

The information contained herein is furnished without warranty of any kind. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers.

MATERIAL SAFETY DATA SHEET

EASTMAN KODAK COMPANY
343 State Street
Rochester, New York 14650

For Emergency Health, Safety, and Environmental Information, call 716 722-5151
For other purposes, call the Marketing and Distribution Center in your area.

Revised Date of Preparation: 10/31/86 KODAK Accession No.: 365930

SECTION I. IDENTIFICATION

- Product Name: KODAK INDUSTREX Developer Replenisher, Part B
- Formula: Organic Mixture
- Kodak Photographic Chemicals Catalog Number(s): CAT 171 9592 - To Make 200 Gallons; CAT 139 7215 - To Make 75 Litres; CAT 818 5100 - To Make 38 Litres
- Solution Number: 3606
- Kodak Hazard Rating Codes: R: 2 S: 3 F: 2 C: 0

SECTION II. PRODUCT AND COMPONENT HAZARD DATA

A.

COMPONENT(S):	Weight Percent	TLV(R)	Kodak Accession No.	CAS Reg. No.
*Acetic acid	85-90	10 ppm**	900763	64-19-7
1-Phenyl-3-pyrazolidinone	5-10	---	902672	92-43-3

*Principal Hazardous Component(s)

** See Section VI-A for additional information on exposure limits.

B. PRECAUTIONARY LABEL STATEMENT(S):

CONTAINS: acetic acid
DANGER!
CAUSES SEVERE SKIN AND EYE BURNS
VAPOR EXTREMELY IRRITATING
COMBUSTIBLE
Do not get in eyes, on skin, on clothing.
Avoid breathing vapor.
Use with adequate ventilation.
Keep away from heat and flame.
First Aid: In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing. If inhaled, remove to fresh air. Call a physician immediately.

SECTION III. PHYSICAL DATA

- Appearance and Odor: Amber to reddish-brown liquid; strong vinegar odor
- Boiling Point: GT 100 C (GT 212 F) @ 760 mmHg
- Vapor Pressure: ca. 15 mmHg @ 20 C
- Evaporation Rate (n-butyl acetate = 1): Not Available
- Vapor Density (Air = 1): Ca. 1.83
- Volatile Fraction by Weight: ca. 90 %
- Specific Gravity (H2O = 1): 1.07-1.08
- pH: ca. 2.9
- Solubility in Water (by Weight): Complete

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

- Flash Point: 39 C (103 F) Tag closed cup
- Flash Point: 43 C (109 F) Tag open cup
- Flammable Limits in Air (mg/L): Lower: 143 at 60 C (140 F)
  Upper: 378 at 93 C (199 F)
- Extinguishing Media: Water spray; CO2; Dry chemical
- Special Fire Fighting Procedures:
  Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
- Unusual Fire and Explosion Hazards:
  Fire or excessive heat may cause production of hazardous decomposition products.

SECTION V. REACTIVITY DATA

- Stability: Stable
- Incompatibility: Strong oxidizers, strong alkali
- Hazardous Decomposition Products:
  As with any other organic material, combustion will produce carbon dioxide and probably carbon monoxide.
  Oxides of nitrogen may also be present.
- Hazardous Polymerization: Will not occur.

SECTION VI. TOXICITY AND HEALTH HAZARD DATA

A. THRESHOLD LIMIT VALUE:

See Section II
OSHA Permissible Exposure Limit (PEL): 10 ppm (acetic acid)

B. EXPOSURE EFFECTS:

Inhalation: Vapor extremely irritating.

Eyes: Contact with the liquid causes severe eye burns.
Vapor can cause eye irritation.

Skin: Causes severe burns.

C. FIRST AID:

Inhalation: Remove from exposure, treat symptomatically, and get medical attention if symptoms persist.

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes and get prompt medical attention.

Skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention.
Launder contaminated clothing before reuse.

SECTION VII. PERSONAL PROTECTION AND CONTROLS

A. RESPIRATORY PROTECTION:

An appropriate NIOSH-approved respirator for organic acid vapor should be worn if needed.

B. VENTILATION:

Local Exhaust: Recommended
Mechanical (General): Recommend at least ten air changes per hour for good general room ventilation.

C. SKIN AND EYE PROTECTION:

Wear goggles or face shield, rubber gloves, and protective clothing.

SECTION VIII. SPECIAL STORAGE AND HANDLING PRECAUTIONS

Avoid strong alkali.
Material is classified as a combustible liquid. Keep away from heat and flame.
Keep from contact with oxidizing materials.

SECTION IX. SPILL, LEAK, AND DISPOSAL PROCEDURES

Eliminate all ignition sources.
Neutralize with baking soda (sodium bicarbonate).
Small amount - flush material to sewer with large amounts of water.
Large amount - absorb material in vermiculite or other suitable absorbent and place in impervious container.
Dispose in incinerator equipped with afterburner and scrubber or contract with licensed chemical waste disposal service.
Discharge, treatment, or disposal may be subject to federal, state, or local laws.

SECTION X. ENVIRONMENTAL EFFECTS DATA

This chemical formulation has not been tested for environmental effects. Some laboratory test data and published data are available for the major components of this chemical formulation, and these data have been used to provide the following estimate of environmental impact:1,2,3,4,5

This chemical formulation forms a strongly acidic aqueous solution. This chemical formulation has a high biological oxygen demand, and it is expected to cause significant oxygen depletion in aquatic systems. It is expected to have a high potential to affect aquatic organisms and secondary waste treatment microorganisms. It is expected to have a moderate potential to affect the germination and growth of some plants. The components of this chemical formulation are expected to be readily biodegradable and are not likely to bioconcentrate. The direct instantaneous discharge to a receiving body of water of an amount of this chemical formulation which will rapidly produce, by dilution, a final concentration of 1.0 mg/L or less is not expected to cause an adverse environmental effect. However, after dilution with a large amount of water, followed by secondary waste treatment, the chemicals in this formulation are not expected to have any adverse environmental impact.

SECTION XI. TRANSPORTATION

For transportation information regarding this product, please phone the Eastman Kodak Distribution Center nearest you: Rochester, NY (716) 254-1300; Oak Brook, IL (312) 654-9300; Chamblee, GA (404) 455-0123; Dallas, TX (214) 241-1611; Whittier, CA (213) 945-1255; Honolulu, HI (808) 833-1661.

SECTION XII. REFERENCES

1. Unpublished Data. Health, Safety, and Human Factors Laboratory. Eastman Kodak Company, Rochester, New York.

2. Verschueren, K., Handbook of Environmental Data on Organic Chemicals, Van Nostrand Reinhold Company, New York, N.Y., 1977.

3. Battelle's Columbus Laboratories, Water Quality Critical Data Book Vol. 3 - Effects of Chemicals on Aquatic Life - Selected Data from the Literature Through 1968, for the U.S. Environmental Protection Agency, Project No. 18050 GWV, Contract No. 68-01-007; May 1971.

4. National Association of Photographic Manufacturers, Inc. and Hydroscience, Inc., Environmental Effects of Photoprocessing Chemicals, National Association of Photographic Manufacturers, Harrison, New York, 1974, 2 vols.

5. Kodak Publication J-41, BOD5 and COD of Photographic Chemicals, Eastman Kodak Co., 1981.

#660

MATERIAL SAFETY DATA SHEET

EASTMAN KODAK COMPANY
343 State Street
Rochester, New York 14650

For Emergency Health, Safety, and Environmental Information, call 716 722-5151
For other purposes, call 800-225-5352 (in New York State call 716-458-4014)

Revised Date of Preparation: 10/30/86 Kodak Accession Number: 354818

SECTION I. IDENTIFICATION

- Product Name: KODAK INDUSTREX Developer Replenisher, Part C
- Formula: Aqueous Mixture
- Kodak Photographic Chemicals Catalog Number(s): CAT 139 7215 - To Make 75 Litres; CAT 184 5650 - To Make 100 Gallons; CAT 190 0190 - To Make 38 Litres
- Solution Number: 3200
- Kodak Hazard Rating Codes: R: 2 S: 3 F: 1 C: 0

SECTION II. PRODUCT AND COMPONENT HAZARD DATA

A.

COMPONENT(S):	Weight Percent	TLV(R)	Kodak Accession No.	CAS Reg. No.
Water	70-75	---	035290	7732-18-5
Glutaraldehyde bisulfite	20-25	---	909855	7420-89-5
*Glutaraldehyde	10-15	0.2 ppm Ceiling	908648	111-30-8

*Principal Hazardous Component(s)

B. PRECAUTIONARY LABEL STATEMENT(S):

CONTAINS: glutaraldehyde
DANGER
CAUSES SKIN AND EYE BURNS
HARMFUL IF INHALED
CAN CAUSE ALLERGIC SKIN REACTION
Do not get in eyes, on skin, on clothing.
Avoid breathing vapor.
Use with adequate ventilation.
Wash thoroughly after handling.
First Aid: In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing. If inhaled, remove to fresh air. Call a physician immediately.

C-0080.000H
81-0093

Skin: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
If skin burns or an allergic skin reaction develops, get medical attention.
Launder contaminated clothing before reuse.

D. TOXICITY DATA

Test	Species	Result(1)
Skin Irritation	Guinea Pig	Strong
U.S. D.O.T. Skin Corrosion	Rabbit	Positive

SECTION VII. PERSONAL PROTECTION AND CONTROLS

A. RESPIRATORY PROTECTION:

An appropriate NIOSH-approved respirator for organic vapors should be worn if needed.

B. VENTILATION:

Local Exhaust: If needed to control vapors.

Mechanical (General): Recommend at least ten air changes per hour for good general room ventilation.

C. SKIN AND EYE PROTECTION:

Protective gloves should be worn.
Safety glasses with side shields or goggles are recommended.
The routine use of a non-alkaline (acid) type of hand cleaner will help minimize the possibility of allergic skin reaction.

SECTION VIII. SPECIAL STORAGE AND HANDLING PRECAUTIONS

Avoid contact with mineral acids.
Keep from contact with oxidizing materials.

SECTION IX. SPILL, LEAK, AND DISPOSAL PROCEDURES

Neutralize with sodium metabisulfite.
Flush material to an acid free sewer with large amounts of water.
Discharge, treatment, or disposal may be subject to federal, state, or local laws.

IND FIX 75 litres

HOW TO MIX

Kodak Industrex

FIXER AND REPLENISHER

TO MAKE 75 LITRES (19.8 U.S. GALLONS)

This package consists of two parts:

PART A (Concentrate) is contained in a flexible polyethylene liner with a capped pouring spout.

PART B (Concentrate) is contained in two plastic bottles.

NOTICE: Observe precautionary information on containers. Use rubber gloves and visor goggles when mixing.

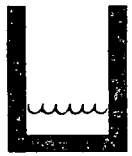
READ THIS NOTICE: This product will be replaced if defective in manufacture, labeling, or packaging. Except for such replacement, this product is sold without warranty or liability even though defect, damage, or loss is caused by negligence or other fault.

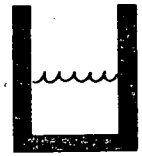
LIQUID VOLUMES ARE GIVEN IN THE METRIC AND U.S. SYSTEM EQUIVALENTS.

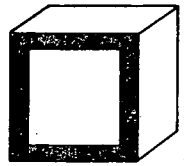
NOTE: The recommended rates of replenishment are given in the appropriate KODAK X-OMAT Processor Service Bulletin, available from your Kodak Technical Sales Representative, from your x-ray dealer who markets KODAK X-OMAT Processors, or from Customer and Technical Services, Health Sciences Division, Eastman Kodak Company, Rochester, New York 14650.

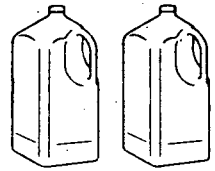
Thank you for using KODAK Chemicals.

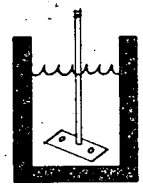
Always measure and record the quantity of fixer and replenisher solution in the replenisher tank before mixing.











75 LITRES
(19.8 GALLONS)

IMPORTANT: Be sure that the tank has room enough to accept an additional 75 litres (19.8 gallons).

Add 52.5 litres (13.9 gallons) of water at 24 ± 3°C (75 ± 5°F).

Add the contents of one full container of **Part A.** Stir continuously.

With continuous stirring, slowly **add** the contents of two full bottles of **Part B.**

Stir until the solution is completely mixed.

IND DEV 75 litres

HOW TO MIX Kodak Industrex DEVELOPER REPLENISHER

TO MAKE 75 LITRES (19.8 U.S. GALLONS)

PART A (concentrate) is contained in a flexible polyethylene liner with a capped pouring spout.

PART B (concentrate) is contained in a plastic bottle.

PART C (concentrate) is contained in three plastic bottles.

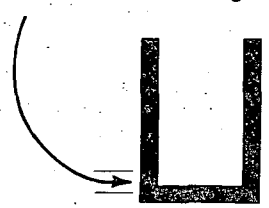
NOTICE: Observe precautionary information on containers. Use rubber gloves and visor goggles when mixing.

READ THIS NOTICE: This product will be replaced if defective in manufacture, labeling, or packaging. Except for such replacement, this product is sold without warranty or liability even though defect, damage, or loss is caused by negligence or other fault.

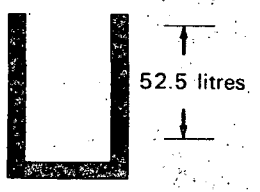
Thank you for using KODAK Chemicals.

LIQUID VOLUMES ARE GIVEN IN THE METRIC AND U.S. SYSTEMS.

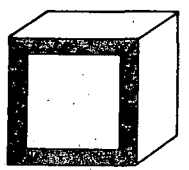
Always measure and record the quantity of developer replenisher solution in the replenisher tank before mixing.



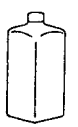
IMPORTANT: Be sure that the tank has room enough to accept an additional 75 litres (19.8 gallons).



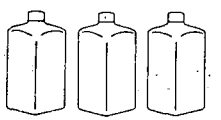
Add 52.5 litres (13.9 gallons) of water at 24 ± 3°C (75 ± 5°F).



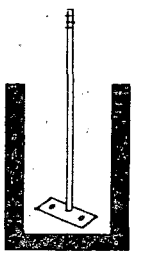
Add the contents of one full container of **PART A.** Stir continuously.



While stirring continuously, slowly **add** the contents of one full bottle of **PART B.**



While stirring continuously, slowly **add** the contents of three full bottles of **PART C.**



Continue stirring for two minutes. Replace the floating lid and dust cover.

MODIFIED PERMIT

PART I, II, AND III

WATTS BAR NUCLEAR PLANT

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
TRC-diffuser (mg/L)	0.10	5/week 2/	Multiple grab 2/
TRC-internal (mg/L)	1.0 3/	5/week 2/, 3/	Multiple grab 2/, 3/

Chlorine may be discharged continuously; however, total residual chlorine (TRC) shall not exceed a maximum instantaneous concentration of 0.10 mg/L at the diffuser pipe. Additionally, continuous chlorination of the ERCW and RCW systems at a maximum concentration of 1.0 mg/L 3/ of TRC at the internal monitoring point 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 temperature and flow shall be monitored at the plant intake(s) and TRC shall also be monitored at the internal monitoring point.

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 critically 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 control 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 diffuser, 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/ Monitoring for TRC shall be applicable only during periods of chlorine addition. Multiple grab samples is defined as not less than four equally spaced grab samples during a one-hour period. Monitoring for TRC shall be repeated following operational changes which could cause an increase in concentration of TRC discharged. If condenser chlorination is instituted, dechlorination facilities, if needed, shall be operational prior to start of condenser chlorination.

3/ Applicable only to RCW and ERCW system chlorination. Monitoring of TRC at the internal monitoring point is primarily for operational control of the chlorination system. Exceedence of the 1.0 mg/L limitation shall not be deemed noncompliance so long as permittee can demonstrate compliance with the 0.10 mg/L limitation for TRC at the diffuser pipe subsequent to such exceedence.

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 Characteristic	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. Discharge temperature shall not exceed 30.5°C (86.9°). 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 a 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 no 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

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 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 turbine building sump is discharge 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.

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) via the turbine building sump.

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 once per batch 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): 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 cooling tower blowdown.

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).

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 Characteristic	Discharge Limitations	Monitoring Requirements	
	Daily Max. (mg/L)	Measurement Frequency	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 sample 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	Calculation
Total Suspended Solids (mg/L)	30	100	2/Batch	Grab 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 the 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 - Makeup Water Treatment Plant Neutral Waste Tank discharge to the condenser cooling water system (flume).

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 6.0 standard units nor greater than 9.0 standard units and shall be monitored at a frequency of once per batch.

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): 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) 111 - 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	
	Monthly Avg.	Daily Max.	Measurement Frequency	Sample Type
Flow-m^3/Day (MGD)	1/	NA	Continuous	Recorder
Dissolved oxygen	At least 1.0 mg/L		5/week	Grab
BOD_5 (mg/L) 2/	30	45	1/Week	Grab
Total Suspended Solids (mg/L)	30	45	1/Week	Grab
Settleable Solids (ml/L)	NA	1.0	5/Week	Grab
Total Residual Chlorine (mg/L)	NA	0.5	5/Week	Grab
Fecal Coliform (#/100 ml)	--	1000	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 5 per week by Grab.

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): Sewage Treatment Plant effluent prior to mixing with any other waste stream.

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

2/ The geometric mean of fecal coliform samples shall not be determined unless 10 or more are taken in any month. Since the fecal coliform monitoring requirements for this permit is less than 10 samples per month, permittee shall report minimun arithemetic average, and maximum values.

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) 112 - Runoff Holding Pond to unnamed tributary of Yellow Creek.

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

Effluent Characteristics Requirements	Discharge Limitations		Monitoring
	Avg. Monthly Concentration	Measurement Frequency	Sample Type
BOD_5 (mg/L)	20	1/Week	Grab
Total Suspended Solids (mg/L)	--	2/Month 1/	Grab
Settleable Solids (mg/L)	--	2/Month 1/	Grab
Ammonia (mg/L)	5	1/Week	Grab
Dissolved oxygen (mg/L)	5.0 (minimum)	1/Week	Grab

The pH shall not be less than 6 standard units nor greater than 9 standard units and shall be monitored at a frequency 1 per week by Grab.

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): point(s) of discharge from the Runoff Holding Pond.

1/ Total suspended solids and settleable solids monitoring frequency 2/month during the month 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.

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 for 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.) [complete]
   d. Operational aquatic monitoring program (III.G.)
   e. Erosion and Sediment Control Report (III.I.) [complete]
   f. Discharge Chlorination Study (III.K.) [complete]
   g. Flow Calibration Report (III.N.)
      1. Recertification - Annually after certification (December 31)
   h. 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, 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 months 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. 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, L, and N; shall be submitted to the EPA 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 biphenyls (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 plum and dispersion characteristics shall be submitted not later than 18 months after commercial operation of Unit 2 is achieved.

F. Nonradiological preoperational aquatic monitoring was discontinued (reference letter Martin E. Rivers to Kenneth W. Bunting, WATTS BAR NUCLEAR PLANT - NPDES PERMIT NO. TN0020168 - PREOPERATIONAL NONRADIOLOGICAL AQUATIC MONITORING REPORT dated December 1, 1986).

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 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 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 the 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:

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. Subsequent reporting of the Erosion and Sediment Control Plant is not necessary unless determined necessary by the Director, Water Management Division, or the State Director.

J. In order to maintain thermal compliance 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. Chlorination Study [complete]

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. Flow meters shall be calibrated not less than annually and documentation shall be maintained with NPDES records for the facility. Permittee shall certify the calibration of flow measurement devices not less than annually, beginning on December 31, 1986.

M. The following alternate flow paths shall only be used under direct authority of the plant superintendent.

1. Turbine building sumps discharging directly to the yard holding pond (OSN 102).
2. Turbine building sumps discharging to the metal cleaning waste ponds.
3. Condensate Demineralizer Regeneration Waste to the Cooling Tower Blowndown (OSN 105).
4. The makeup water treatment plant Neutral Waste Tank (OSN 109) to the CCW flume.

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.

FILM PROCESSING EQUIPMENT

WATTS BAR NUCLEAR PLANT

The X-ray Film Processing Equipment is used for developing X-ray photographs of welds. Approximately 300 gallons of effluent are discharged daily. The discharge from the Film Processing Equipment is presently discharged to the storm drain which is routed to the Construction Runoff Pond. Analytical results of a sample collected of the discharge are provided. Based on these results, this discharge will be redirected to the Sewage Treatment Plant (OSN 111). The Material Safety Data Sheets for the processing chemicals are also attached. We request that no sampling requirements be imposed on this discharge due to its small flow and since the discharge does not exhibit EP toxicity.

DATA REPORT

Sample Received by Lab: 881223

ALT. IDC	ANALYSIS PERFORMED	RESULT	UNITS
00530	Non-Filterable Residue	< 1	mg/L
00310	Biochem Oxy Demand 5 Day	49	mg/L
00937	Potassium, Tot in Water	410	mg/L
00929	Sodium, Total in Water	88	mg/L
00610	Ammonia Nitrogen	240	mg/L
00335	Chemical Oxygen Demand	1100	mg/L
00680	Total Organic Carbon	480	mg/L
01092	Zinc, Total in Water	260.	ug/L
01045	Iron, Total in Water	270.	ug/L
01055	Manganese, Tot in Water	< 5.	ug/L
00927	Magnesium, Tot in Water	8.4	mg/L
00916	Calcium, Total in Water	31.	mg/L
46570	Ca and Mg Hardness Calc.	112.	mg/L CaCO3
01042	Copper, Total in Water	30.	ug/L
01105	Aluminum, Total in Water	5400.	ug/L
79729	Mercury, RCRA Extract	< 0.2	ug/L
Field	pH	7.5	pH Units
SPGRRCRA	Specific Gravity, RCRA	1.0	Units
RES'RCRA	Residue, RCRA Waste	<100	mg/L
79741	Arsenic, RCRA Extract	<100.	ug/L
79737	Selenium, RCRA Extract	<100	ug/L
79734	Cadmium, RCRA Extract	74.	ug/L
79736	Lead, RCRA Extract	190.	ug/L
79733	Barium, RCRA Extract	10.	ug/L
79735	Chromium, RCRA Extract	< 50.	ug/L
79738	Silver, RCRA Extract	< 10.	ug/L
00945	Sulfate in Water	400	mg/L

0417D

DESCRIPTION OF RAW WATER SYSTEMS

AND

CHLORINE INJECTION AND DISCHARGE POINTS

WATTS BAR NUCLEAR PLANT

Intake Pumping Station (IPS)

The IPS pumps water for the raw cooling water (RCW) system, the essential raw cooling water (ERCW) system, and the high pressure fire protection (HPFP) system. Water enters the IPS into two physically separate sumps, (pits A and B). Intake water flowing into the IPS receives chlorination and passes through four traveling screen, two for each sump.

Water for the RCW system is supplied by seven electric motor driven pumps; four pumps are located in pit A and the remaining three in pit B. Six of the pumps are capable of meeting the maximum normal system flow requirements and the seventh serves as an installed spare.

Four ERCW pumping units, all on the same plant train, take suction from each sump for a total of eight pumps. One set of pumps and associated equipment is designated Train A, and the other Train B. These trains are redundant and are normally maintained separate and independent of each other. Each set of four pumps discharges into a common manifold, from which two separate headers (1A and 2A for Train A, 1B and 2B for Train B), each with its own automatic backwashing strainer, supply water to the various system users.

The HPFP system is supplied by four pumps, with two pumps in each IPS sump. This system is pressurized at all times. System pressure is boosted during emergencies and testing by starting a fire pump in the IPS. This can result in a recirculated flow to a point located approximately 15 feet below the surface of the water, into the intake channel suction to pit B. Presently, if all four HPFP pumps are in operation simultaneously, and relieving through the pressure control valve, the flow into the IPS for suction to the pump is 4.5 times greater than the flow relieving from the HPFP pumps. For one unit operation, the flow into the IPS would be approximately 11.7 times greater than the recirculated flow from the HPFP pumps. The recirculated flow can have a chlorine residual equal to that of the residual in the IPS pit; however this water is recirculated into the IPS by the suction to the ERCW, RCW, and HPFP pumps.

Essential Raw Cooling Water (ERCW) System

The ERCW system provides cooling to various safety-related components and systems required for safe shutdown of the plant in the case of an accident. The ERCW system provides cooling to the Component Cooling Water System, and emergency diesel generator heat exchangers, etc. The ERCW system is a once-through system which discharges to the condenser cooling water system or yard holding pond.

Raw Cooling Water (RCW) System

The RCW system is designed to remove waste heat from the turbogenerator auxiliary equipment and miscellaneous equipment in the turbine building. The RCW does <u>not</u> serve a nuclear safety function. The RCW cools the turbine lube oil coolers, hotwell pump motor bearing oil coolers, and nitrogen compressor coolers, etc. The RCW is a once-through system.

Condenser Circulating Water (CCW) System

The condenser circulating water system is designed to remove heat from the main condensers. The condenser circulating water (CCW) flows from the cooling towers through the CCW pumping station to the main condensers and back through the cooling towers. In this closed mode of operation, water is discharged as cooling tower blowdown through the diffuser. Makeup water is supplied to the CCW system from the ERCW and RCW discharge which compensates for the water losses associated with evaporation, and blowdown from the cooling towers. The CCW is not a safety-related system. The CCW system is not chlorinated.

Raw Service Water (RSW) System

The RSW system provides raw river water for the makeup water treatment plants, and miscellaneous nonpotable uses within the plant, such as hose connections for floor washdown, etc. It is not a safety-related cooling system. RSW is routed through floor drains to building sumps where it is then discharged to either the low volume waste treatment pond or the yard holding pond.

High Pressure Fire Protection (HPFP) System

This system provides fire protection for the site. The system is pressurized at all times. Flow from the HPFP hose station, drains, and hydrants goes to the yard drainage or plant sumps.

0412X

MICROBIOLOGICALLY INDUCED CORROSION

WATTS BAR NUCLEAR PLANT

WATTS BAR NUCLEAR PLANT

MICROBIOLOGICALLY INDUCED CORROSION

Microbiologically Induced Corrosion (MIC) is suspected in the raw water system piping at the Watts Bar Nuclear Plant.

A program is being developed at WBN to control MIC in the ERCW, RCW, HPFP and other cooling water systems; and to further monitor the potential structural degradation of system piping. This program will provide: detection of MIC bacteria, nondestructive examination (NDE), leak detection, repair, and the use of biocide and corrosion inhibitors. At the present time, WBN is utilizing sodium hypochlorite for the control of Asiatic clam or Corbicula. This treatment is not sufficient for growth inhibition of the microbial populations in these systems. TVA is considering as part of its future plans the use of a bromine/chlorine biocide. (See attached letter to Mr. Garland P. Wiggins from M. Paul Schmierbach dated February 10, 1989.)

Organics and pH of the water suppress the effectiveness of sodium hypochlorite alone. Biocide efficacy studies performed on the biologial spectrum in the raw water systems indicate that a biocide, which contains bromine, should have the capacity to prevent growth of the microbial population and prevent the spread of sessile corrosive bacteria to other sensitized areas. The biocide would probably be fed on a continuous basis, year round.

Industry experience has shown that a chlorine/bromine mixture is a more effective biocide than chlorine alone. Like chlorine, the bromine combines with organics to form amines, which are effective biocides and are less persistent than the chlorinated organics (chloramines) in the environment. The addition of bromine also reduces the amount of chlorine that is needed to provide the desired results. Therefore, the use of bromine reduces the total residual chlorine (TRC). A biodispersant will not be added to increase penetration of the biofilm.

As previously stated, corrosion inhibitors and biocides are being considered for future use in MIC affected systems. TVA will keep TDWPC informed on the progress of this effort and will obtain approval from the State prior to instituting the use of any additional biocide.

L01 8902130 15

ENVIRONMENTAL PROTECTION SECTION
FEB 1 1989

Routed to: Reply

JLB ✓
SWH 2/15
RWB ✓
✓
✓ 302/13

Mr. Garland P. Wiggins, Manager
Industrial Facilities Section
Division of Water Pollution Control
Tennessee Department of Health and
Environment
Bureau of Environment
TERRA Building
150 Ninth Avenue, North
Nashville, Tennessee 37219-5404

Dear Mr. Wiggins:

WATTS BAR NUCLEAR PLANT (WBN) - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NUMBER TN0020168 - NOTIFICATION OF USE OF CHLORINE/BROMINE TO CONTROL BIOFOULING

In accordance with Part III.D of the NPDES permit, this letter is to notify you that the Tennessee Valley Authority (TVA) proposes to begin adding sodium bromide to the raw water systems at WBN. Sodium hypochlorite is currently added to these systems for clam control at river intake temperatures above 60°F. As discussed in our March 30, 1988 letter for Sequoyah Nuclear Plant (SQN), TVA believes it is necessary to also add bromine to raw water systems to control biofouling and mitigate microbiologically induced corrosion.

TVA proposes to use a chlorine-bromine mixture applied continuously at the WBN intake pumping station on a year-round basis. Since WBN is designed to continuously operate in a closed mode as opposed to the open mode at SQN, the cooling towers will receive the treated raw water as makeup water to the cooling system. Some industries which operate their cooling tower in the closed mode, like WBN, have experienced problems with their cooling tower fill when using a biodispersant in their raw water system. Therefore, unlike SQN, WBN does not plan to use a biodispersant at this time. Specific information requested in Part III.D of the permit is provided below.

1. Name and general composition--TVA will use a generic form of aqueous sodium bromide which will be injected simultaneously with sodium hypochlorite.

2. 96-hour medium tolerance limit--Available literature on bromine toxicity was provided with our March 30, 1988 letter for SQN. Several studies showed toxicity of bromine to be similar to that of chlorine. The use of bromine as a biocide is environmentally desirable due to its short life compared to chlorine compounds, and also since it enhances decomposition of chloramines. Most researchers have concluded that the environmental consequences of bromine are less than those of chlorine.

RECEIVED
CHEMISTRY BRANCH
FEB 15 1989

	Note	Action	Reply
JB			
SWH	✓		
RIMS			

Mr. Garland P. Wiggins

3. Quantities to be used--Actual dosage rates of sodium bromide and sodium hypochlorite are not yet known. The specific dosages will vary depending on the number of pumps in operation, the water chemistry, and the severity of biofouling.

4. Frequencies of use--Sodium bromide and sodium hypochlorite would be used continuously on a year-round basis.

5. Proposed discharge concentrations--The addition of chlorine and bromine will be controlled such that the sum concentrations of total residual chlorine (TRC) and total residual bromine will not exceed the existing TRC limitations of 0.04 mg/L at the yard holding pond weir and 0.10 mg/L at the diffuser discharge. To help ensure effective treatment is being provided and excess chemicals are not added, the total halogen concentration and microbiological activity will be monitored at various points within the system.

6. Environmental Protection Agency (EPA) registration number--Not applicable for a generic compound.

We request permission to initiate the addition of sodium bromide as early as spring, once the water temperature exceeds the 60°F temperature. We will also request that the NPDES permit, which expires September 30, be modified during reissuance to allow for year-round addition of sodium bromide in combination with sodium hypochlorite.

If your staff needs additional information or has any questions regarding this request, please contact Abraham H. Loudermilk, Jr., at (615) 632-6656 in Knoxville.

Sincerely,

M. Paul Schmierbach, Manager
Environmental Quality

RWB:MFB

cc: Mr. Phillip Simmons
Manager, Permits Section
Division of Water Pollution Control
Tennessee Department of Health
and Environment
TERRA Building
150 Ninth Avenue, North
Nashville, Tennessee 37219-5404

Files, EQS, SPB 2S 242P-K
E. S. Christenbury, ET 11B 33H-K
N. C. Kazanas, LP 5S 83E-C

Prepared by Robert W. Bond (NUC PR) with concurrence of Abraham H. Loudermilk, Jr.

1316J