Duke Energy®
Crystal River Nuclear Plant
Docket No. 50-302
Operating License No. DPR-72

Ref: ITS Appendix B

March 6, 2013
3F0313-03

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Crystal River Unit 3 – Renewal of the Crystal River Units 1, 2 and 3 Industrial Wastewater Permit FL0000159

Dear Sir:

In accordance with the Environmental Protection Plan (Non-Radiological) Improved Technical Specifications (ITS) for Crystal River Unit 3 (CR-3), Section 3.2.4, Florida Power Corporation, hereby provides a copy of the National Pollutant Discharge Elimination System (NPDES) Permit Renewal application that was submitted to the Florida Department of Environmental Protection (FDEP).

The NPDES Permit encompasses Crystal River Units 1, 2 and 3, and is renewed every five (5) years. The current NPDES permit, whose expiration date is August 31, 2013, was issued for an eighteen month duration on March 6, 2012. This shortened permit duration was a result of the settlement agreement that was reached following the Florida Wildlife Federation and Sierra Club petition for an administrative hearing challenging FDEP's notice of intent for renewal of this permit.

No new regulatory commitments are made in this letter.

If you have any questions regarding this submittal, please contact Ms. Erika Tuchbaum-Biro, Senior Environmental Specialist at (352) 464-7909.

Sincerely,

Terry Hobbs
Plant General Manager

TH/ff

Attachment: Crystal River Units 1, 2 & 3 – NPDES Permit Renewal Application

xc: Regional Administrator, Region II
Senior Resident Inspector
NRR Project Manager

IE23
NRR

Crystal River Nuclear Plant
15760 W. Power Line Street
Crystal River, FL 34428

FLORIDA POWER CORPORATION

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ATTACHMENT

CRYSTAL RIVER UNITS 1, 2 & 3 – NPDES PERMIT RENEWAL APPLICATION

Progress Energy Florida, Inc.

Crystal River Units 1, 2, & 3

NPDES Permit Renewal Application

NPDES Permit No. FL0000159

Submitted February 28, 2013

Progress Energy

Robby A. Odom
Station Manager,
Crystal River Fossil Plant & Fuel Operations

VIA NEXT DAY DELIVERY

February 28, 2013

Mr. Marc Harris, P.E.
Supervisor, Power Plant NPDES Permitting
Industrial Wastewater Section
Florida Department of Environmental Protection
2600 Blair Stone Road, MS 3545
Tallahassee, FL 32399-2400

Re: Progress Energy Florida, Inc. –Crystal River Units 1, 2, & 3
NPDES Permit Renewal Application – FL0000159

Dear Mr. Harris:

Submitted for your review is one (1) hard copy along with an electronic version on a compact disk (CD) of the completed application forms and supporting documentation for renewal of the subject NPDES permit. An additional electronic copy of the application has been sent to Ms. Mauryn McDonald, P.E., at the FDEP – Southwest District Office. A check for the application fee in the amount of $7,500.00 is also enclosed.

Please contact Mr. Doug Yowell at (727) 820-5228 should you have questions concerning this submittal.

Sincerely,

Robby A. Odom
Station Manager,
Crystal River Fossil Plant & Fuel Operations

cc: Mauryn McDonald, P.E.
FDEP – Southwest District Office

WASTEWATER FACILITY OR ACTIVITY PERMIT
APPLICATION FORM 1
GENERAL INFORMATION

I - IDENTIFICATION NUMBER:

Facility ID FL0000159

II - CHARACTERISTICS:

INSTRUCTIONS: Complete the questions below to determine whether you need to submit any permit application forms to the Department of Environmental Protection. 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 blank 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 B of the instructions. See also, Section C of the instructions for definitions of the terms used here.

SPECIFIC QUESTIONS	YES	NO	FORM ATTACHED
A. Is this facility a domestic wastewater facility which results in a discharge to surface or ground waters?		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?		X	
C. Does or will this facility (other than those describe in A. or B.) discharge process wastewater, or non-process wastewater regulated by effluent guidelines or new source performance standards, to surface waters?	X		2CS
D. Does or will this facility (other than those described in A. or B.) discharge process wastewater to ground waters?	X		(Separate COC)
E. Does or will this facility discharge non-process wastewater, not regulated by effluent guidelines or new source performance standards, to surface waters?		X	
F. Does or will this facility discharge non-process wastewater to ground waters?	X		(Separate COC)
G. Does or will this facility discharge stormwater associated with industrial activity to surface waters?	X		(Separate MSGP)
H. Is this facility a non-discharging/closed loop recycle system?		X	
I. Is this facility a public water system whose primary purpose is the production of potable water for public consumption and which discharges demineralization concentrate to surface water or groundwater?		X	

III - NAME OF FACILITY: (80 characters and spaces)

Crystal River Power Plant Units 1, 2, 3

DEP Form 62-620.910(1)
(Effective July 7, 2006)

Facility ID FL0000159

IV - FACILITY CONTACT: (A. 30 characters and spaces)

A. Name and Title (Last, first, & title)	B. Phone (area code & no.)
Yowell, Douglas W.	727-820-5228

V - FACILITY MAILING ADDRESS: (A. 30 characters and spaces; B. 25 characters and spaces)

A. Street or P.O. Box: P.O. Box 14042, PEF-903		
B. City or Town: St. Petersburg	State: FL	Zip Code: 33733

VI - FACILITY LOCATION: (A. 30 characters and spaces; B. 24 characters and spaces; C. 3 spaces (if known); D. 25 characters and spaces; E. 2 spaces; F. 9 spaces)

A. Street, Route or Other Specific Identifier: 15760 W. Power Line St.		
B. County Name: Citrus	C. County Code (if known):	
D. City or Town: Crystal River	E. State: FL	F. Zip Code: 34428

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

1. Code #: 4911	(Specify) Electric Svc.	2. Code #:	(Specify)
3. Code #:	(Specify)	4. Code #:	(Specify)

VIII - OPERATOR INFORMATION: (A. 40 characters and spaces; B. 1 character; C. 1 character (if other, specify); D. 12 characters; E. 30 characters and spaces; F. 25 characters and spaces; G. 2 characters; H. 9 characters)

A. Name: Progress Energy Florida, Inc		B. Is the name in VIII A. the owner? ☒Yes ☐No	
C. Status of Operator: F = Federal; S = State; P = Private; O = Other; M = Public (other than F or S)	(code) P	(specify) Utility	D. Phone No.: 352-501-5682
E. Street or P. O. Box: 15760 W. Power Line St.			
F. City or Town: Crystal River		G. State: FL	H. Zip Code: 34428

IX - INDIAN LAND:

A. Is the facility located on Indian lands?	☐ Yes	☒ No

Facility ID FL0000159

X - EXISTING ENVIRONMENTAL PERMITS:

A. NPDES Permit No.	B. UIC Permit No.	C. Other (specify)	D. Other (specify)
FL0000159	N/A	COC PA 77-09P	FLA118753 - DWW

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)

Crystal River Units 1 & 2 are coal-fired steam electric generating facilities.

Crystal River Unit 3 is a retired nuclear-powered steam electric generating facility.

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.

Robby A. Odom
A. Name (type or print)

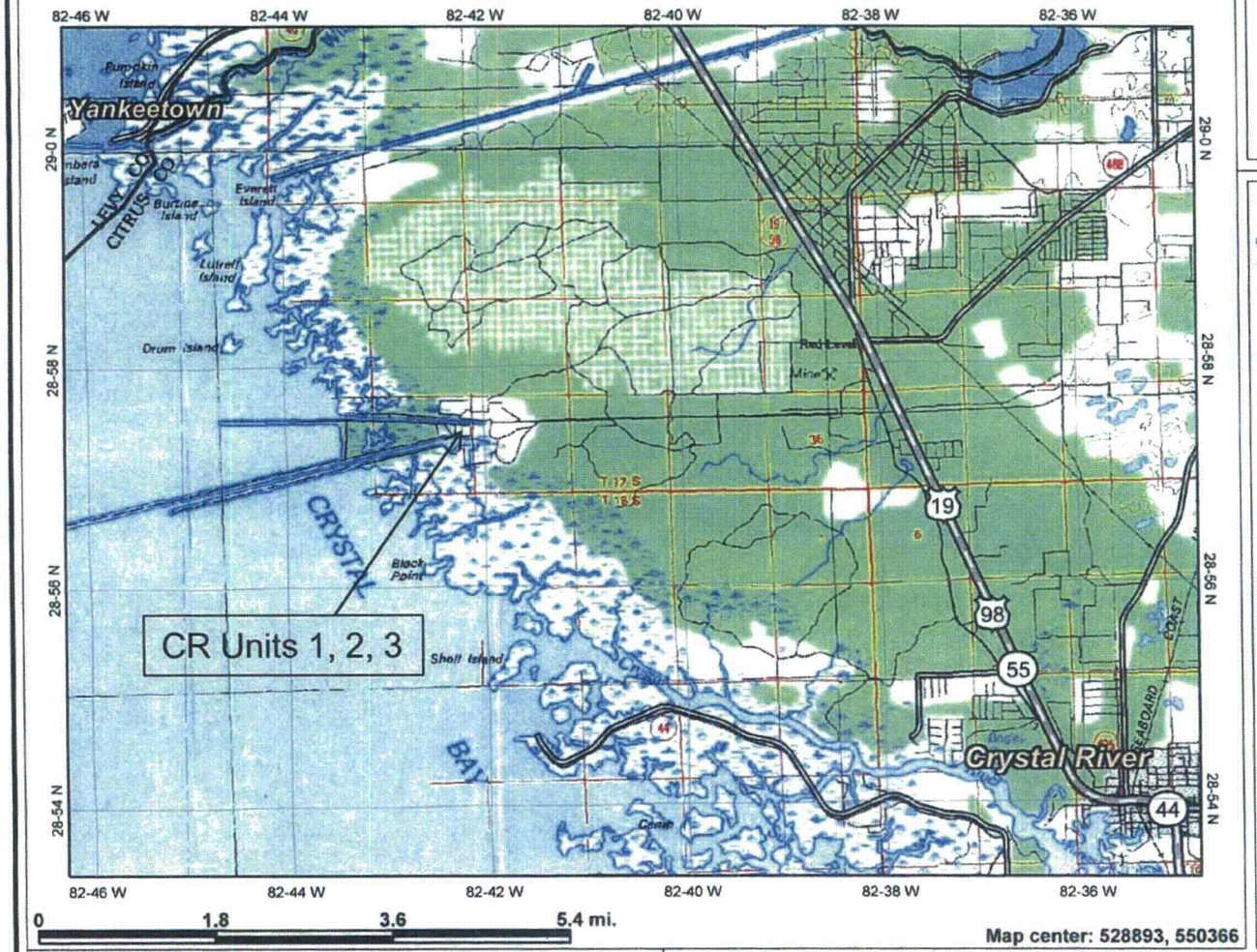
B. Signature

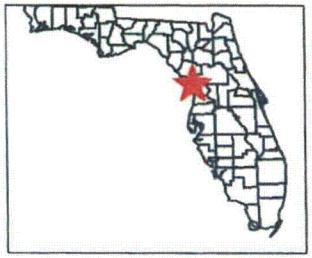
Station Manager, Crystal River Fossil Plant & Fuel Operations
Official Title (type or print)

2/27/13
C. Date Signed

Form 1, Section XI - Maps

CR123 NPDES Permit No. FL0000159





Legend

- Interstates
- US Highways
- State Highways
- County Roads
- Local Roads
- Cities (census places)
- Counties (generalized)

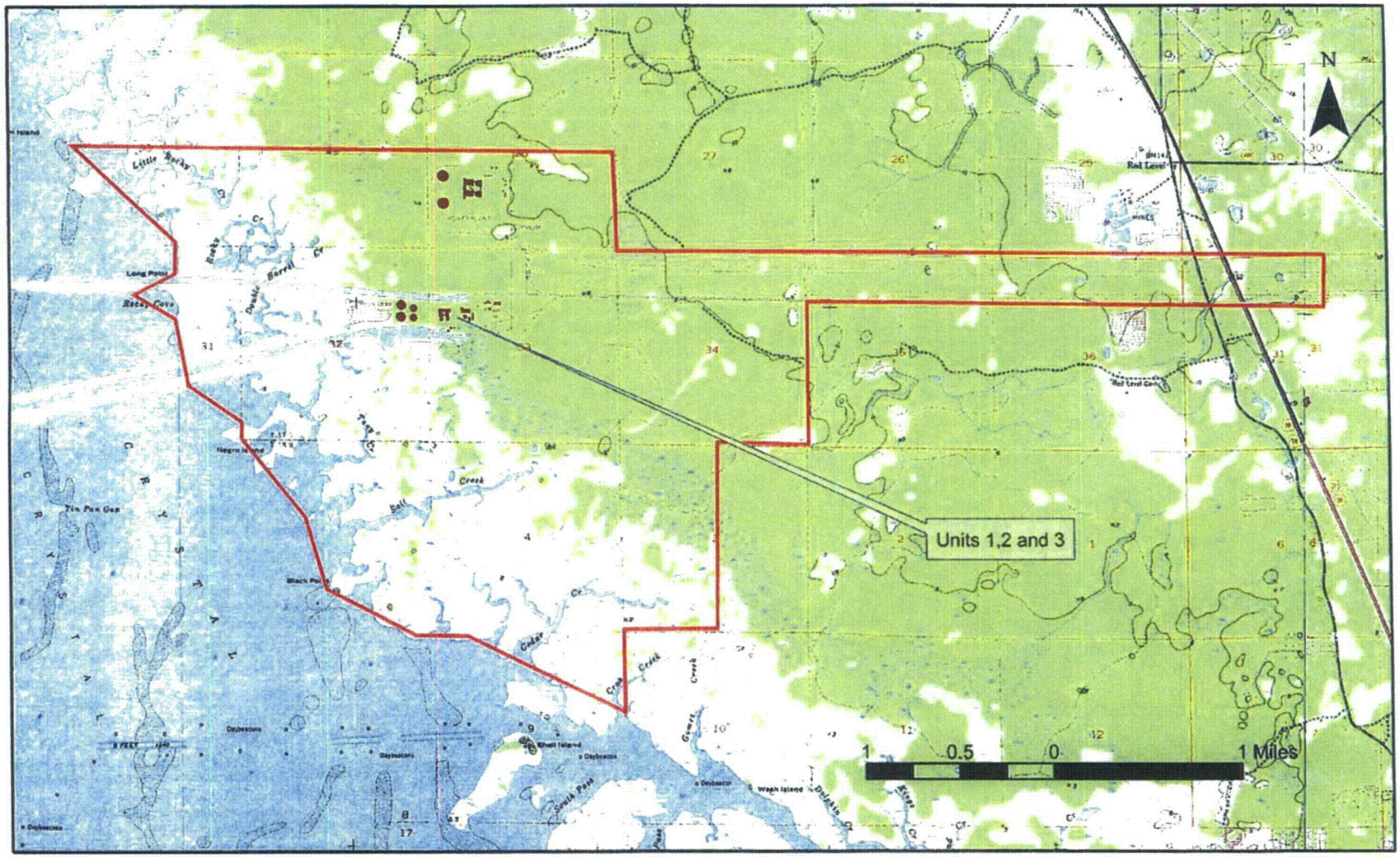
Map center: 528893, 550366

Scale: 1:100,000

[Florida Department of Environmental Protection] Disclaimer: This map is intended for display purposes only. It was created using data from different sources collected at different scales, with different levels of accuracy, and/or covering different periods of time.

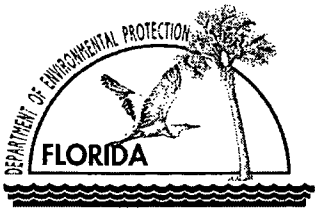
Notes: Map produced on Tue Sep 29 11:25:06 EDT 2009

Attachment 1 - Crystal River Energy Complex Property Boundary - FL0000159



U.S.G.S. Red Level Quadrangle

FORM
2CS



WASTEWATER APPLICATION FOR PERMIT TO DISCHARGE PROCESS WASTEWATER FROM NEW OR EXISTING INDUSTRIAL WASTEWATER FACILITIES TO SURFACE WATERS

Facility I.D. Number: FL0000159

Please print or type information in the appropriate areas.

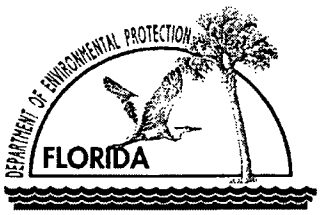
I OUTFALL LOCATION For each outfall, list the X,Y coordinates and the name of the receiving water.
(latitude/longitude to the nearest 15 seconds)

A. Outfall No. (List)	B. Latitude			C. Longitude			D. Name of Receiving Water
	Deg.	Min.	Sec.	Deg.	Min.	Sec.	
D-011	28	57	31.1	82	42	00.7	Discharge Canal then to Crystal Bay
D-012	28	57	31.1	82	42	02.5	Discharge Canal then to Crystal Bay
D-091	28	57	24.0	82	42	00.4	Intake Canal then to Discharge Canal
D-092	28	57	23.2	82	42	01.9	Intake Canal then to Discharge Canal
D-093	28	57	21.6	82	41	56.2	Intake Canal then to Discharge Canal
D-094	28	57	34.4	82	42	30.4	Discharge Canal then to Crystal Bay
NA	-	-	-	-	-	-	intentionally left blank

II OUTFALL DESIGN

A. Outfall No. (List)	B. Design Configuration and Construction Materials	C. Distance from shore	D. Diameter	E. Elevation of Discharge Invert (MSL)	F. Receiving Water Depth at POD (MSL)
D-011	(4) Fiberglass Pipes	6 ft.	6 ft.	- 5 ft.	- 12 ft.
D-012	(4) Fiberglass Pipes	6 ft.	6 ft.	- 5 ft.	- 12 ft.
D-091	(1) Concrete Pipe	2 ft.	2 ft.	+ 2 ft.	- 20 ft.
D-092	(1) Fiberglass Pipe	3 ft.	1 ft.	- 1 ft.	- 20 ft.
D-093	(1) Steel Pipe	0 ft.	18 in.	- 4 ft.	- 20 ft.
D-094	Concrete Pipe	1 ft.	24 in.	+ 2 ft.	- 12 ft.

FORM
2CS



WASTEWATER APPLICATION FOR PERMIT TO DISCHARGE PROCESS WASTEWATER FROM NEW OR EXISTING INDUSTRIAL WASTEWATER FACILITIES TO SURFACE WATERS

Facility I.D. Number: FL0000159

Please print or type information in the appropriate areas.

I OUTFALL LOCATION For each outfall, list the X,Y coordinates and the name of the receiving water.
(latitude/longitude to the nearest 15 seconds)

A. Outfall No. (List)	B. Latitude			C. Longitude			D. Name of Receiving Water
	Deg.	Min.	Sec.	Deg.	Min.	Sec.	
D-095	28	57	21.8	82	41	54.5	Intake Canal then to Discharge Canal
D-C2R	28	57	23	82	42	30	Intake Canal then to Discharge Canal
D-00F	28	57	31.5	82	41	56.5	Discharge Canal then to Crystal Bay
I-FG	28	57	31.5	82	41	56.5	Internal Outfall through D-00F
I-FE	28	57	31.5	82	41	56.5	Internal Outfall through D-00F
D-00H	28	57	08.8	82	42	12.7	To marshland then to Crystal Bay
N/A	-	-	-	-	-	-	intentionally left blank

II OUTFALL DESIGN

A. Outfall No. (List)	B. Design Configuration and Construction Materials	C. Distance from shore	D. Diameter	E. Elevation of Discharge Invert (MSL)	F. Receiving Water Depth at POD (MSL)
D-095	Temporary Pump Placement	N/A	.	N/A	- 20 ft.
D-C2R	Temporary Pump Placement/flex. discharge hoses	2-ft.	(2) 4-in	0-ft.	- 20 ft.
D-00F	(2) Concrete Pipes	0 ft.	4 ft.	- 9 ft.	- 12 ft.
I-FG	Tank that dischages internally to D-00F	N/A	4 in.	N/A	Internal Outfall
I-FE	(2) tanks that discharge internally to D-00F	N/A	2.5 in.	N/A	Internal Outfall
D-00H	(1) Steel Pipe	N/A	1 ft.	unk.	N/A

FORM
2CS

WASTEWATER APPLICATION FOR PERMIT TO DISCHARGE PROCESS WASTEWATER FROM NEW OR EXISTING INDUSTRIAL WASTEWATER FACILITIES TO SURFACE WATERS

Facility I.D. Number: FL0000159

Please print or type information in the appropriate areas.

I OUTFALL LOCATION For each outfall, list the X,Y coordinates and the name of the receiving water.
(latitude/longitude to the nearest 15 seconds)

A. Outfall No. (List)	B. Latitude			C. Longitude			D. Name of Receiving Water
	Deg.	Min.	Sec.	Deg.	Min.	Sec.	
D-071	28	57	34.2	82	42	32.5	Discharge Canal then to Crystal Bay
D-072	28	57	35.2	82	42	48.8	Discharge Canal then to Crystal Bay
N/A	-	-	-	-	-	-	intentionally left blank
N/A	-	-	-	-	-	-	intentionally left blank
N/A	-	-	-	-	-	-	intentionally left blank
N/A	-	-	-	-	-	-	intentionally left blank
N/A	-	-	-	-	-	-	intentionally left blank

II OUTFALL DESIGN

A. Outfall No. (List)	B. Design Configuration and Construction Materials	C. Distance from shore	D. Diameter	E. Elevation of Discharge Invert (MSL)	F. Receiving Water Depth at POD (MSL)
D-071	Concrete Trough	50 ft.	24 ft.	- 3 ft.	- 12 ft.
D-072	Concrete Trough	50 ft.	24 ft.	- 3 ft.	- 12 ft.

Facility I.D. Number: FL0000159

III RECEIVING WATER INFORMATION

For each surface water that will receive effluent, supply the following information:

A. Name of Receiving Water	B. Check One		C. Classification (See Ch. 62-302, F.A.C.)	D. Type of Receiving Water (canal, river, lake, etc.)
	Fresh	Salt or Brackish		
Crystal Bay	☐	☒	Class III	Gulf
Intake Canal	☐	☒	Class III	Canal
	☐	☐		
	☐	☐		
	☐	☐		
	☐	☐		

E. Minimum 7-day 10-year low flow of the receiving water at each outfall (if appropriate).

F. Identify and describe the flow of effluent from each outfall to a major body of water. A suitably marked map or aerial photograph may be used.

G. Do you request a mixing zone under Rule 62-4.244, F.A.C.? If yes, for what parameters or pollutants?

IV 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 stormwater runoff;

2. The average flow contributed by each operation; and

3. The treatment received by the wastewater.

Use the space on the next page. Continue on additional sheets, if necessary.

(1) Outfall No. (List)	(2) Operation(s) Contributing Flow		(3) Treatment		
	(a) Operation (list)	(b) Avg. Flow & Units	(a) Description	(b) List Code from Table 2CS-1	
D-011	Once through cond. cooling water	446.4 mgd	(see attachment 4)	4-A	2F
D-012	Once through cond. cooling water	472.3 mgd	(see attachment 4)	4-A	2F
D-091	Unit 1 intake screen wash water	3.11 mgd	(see attachment 4)	4-A	1-T
D-092	Unit 2 intake screen wash water	3.11 mgd	(see attachment 4)	4-A	1-T
D-093	Unit 3 intake screen wash water	5.3 mgd	(see attachment 4)	4-A	1-T
D-094	Helper Cooling Tower	3.11 mgd	(see attachment 4)	4-A	1-T
	intake screen wash water				
D-095	U-3 Emergency Pump Test Discharge	0.009 mgd	(see attachment 4)	4-A	

(1) Outfall No. (List)	(2) Operation(s) Contributing Flow		(3) Treatment		
	(a) Operation (list)	(b) Avg. Flow & Units	(a) Description	(b) List Code from Table 2CS-1	
D-C2R	Plant IWW Treatment Pond Overflow	Intermittent	(see attachment 4)	1-U	1-Y
				4-A	
D-00F	Heat Decay System - Once through	43.5 mgd	(see attachment 4)	4-A	2-F/H
	non-contact cooling water				
	(includes ECST internal				
	discharge)	0.002	ECST Discharge	2-J	
I-FG	Secondary Drain Tank (SDT)	0.081 mgd	(see attachment 4)	1-O	2-K
					XX
I-FE	Laundry & Shower Sump Tank	0.080	(see attachment 4)	2-K	1-Q
D-00H	Coal Pile Runoff	Intermittent	(see attachment 4)	1-U	1-Y
				4-A	
D-071	Helper Cooling Tower once-through	494.64 mgd	(see attachment 4)	2-F	4-A
	cooling water				
D-072	Helper Cooling Tower once-through	494.64 mgd	(see attachment 4)	2-F	4-A
	cooling water				

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?
☒ Yes (complete the following table) ☐ No (go to D. below)

(1) Outfall No. (List)	(2)Operation(s) Contributing Flow(List)	(3) Frequency		(4) Flow				
		(a) Days per Week (specify avg.)	(b) Months per Yr. (specify avg.)	(a) Flow Rate (in mgd)		(b) Total Volume (specify with units)		(c) Duration (in days)
				Long Term Avg.	Max. Daily	Long Term Avg.	Max. Daily	
D-095	U-3 Emergency Pump Test Discharge	< 1	6	0.009	0.009	0.009 gpd	0.009 gpd	< 1
D-C2R	IWW Treatment Pond Overflow	unk.	< 1	N/A	N/A	N/A	N/A	N/A
D-00H	Coal Pile runoff	unk.	< 1	N/A	N/A	N/A	N/A	N/A
D-071	Helper Cooling Tower once-through cooling water	7	6	494.64	494.64	89,035.2 mg	89,035.2 mg	180
D-072	Helper Cooling Tower once-through cooling water	7	6	494.64	494.64	89,035.2 mg	89,035.2 mg	180
D-094	Helper Cooling Tower Intake Screen Backwash	7	6	3.11	3.11	559.8 mg	559.8 mg	180
N/A	(intentionally left blank)	-	-	-	-	-	-	-

D. Describe practices to be followed to ensure adequate wastewater treatment during emergencies such as power loss and equipment failures causing shutdown of pollution abatement equipment of the proposed/permitted facilities.

E. List the method(s) and location(s) of flow measurement.

V PRODUCTION

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

☒ Yes (complete Item V-B) ☐ No (go to Section VI)

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

☐ Yes (complete Item V-C) ☒ No (go to Section VI)

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

1. AVERAGE DAILY PRODUCTION			2. Affected Outfalls
a. Quantity per Day	b. Units of Measure	c. Operation, Product, Materials, Etc. (specify)	(list outfall nos.)
N/A			

Facility I.D. Number: FL0000159

VI 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 order, enforcement compliance schedule letter, stipulations, court orders, and grant or loan conditions.

☒ Yes (complete the following table) ☐ No (go to Item VI-B)

1. Identification of Condition, Agreement, Etc.	2. Affected Outfalls		3. Brief Description of Project	4. Final Compliance Date	
	a. No.	b. Source of Discharge		a. Required	B. Projected
(See Attachment 5)					

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.

☐ Mark "X" if description of additional control programs is attached.

VII 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 VII-A, VII-B, and VII-C are included on separate sheets number VII-1 through VII-9.

D. Use the space below to list any of the pollutants listed in Table 2CS-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
N/A			

Facility I.D. Number: FL0000159

VIII POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

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

☐ YES (list all such pollutants below) ☒ NO (go to IX)

IX 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?

☒ YES (identify the test(s) and describe their purposes below) ☐ NO (go to Section X)

Acute and/or Chronic WET performed bi-monthly or quarterly (initially) and semi-annually on Outfall D-00F in conjunction with treatment of the Heat Decay System using Betz CT 1300 (ClamTrol) - see attachment 6 for summary of results.

Testing performed by Hydrosphere Research, 11842 Research Circle, Alachua, FL 32615

FL-NELAP Cert. # EE82295

X CONTRACT ANALYSIS INFORMATION

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

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

A. Name	B. Address	C. Telephone (area code & no.)	D. Pollutants Analyzed (list)
(see att. 5, Supplement No. 1)			

XI CONNECTION TO REGIONAL POTW

A. Indicate the relationship between this project and area regional planning for wastewater treatment. List steps to be taken for this industrial wastewater facility to become part of an area-wide wastewater treatment system.

N/A

XII-A CERTIFICATIONS FOR NEW OR MODIFIED FACILITIES

This is to certify the engineering features of this pollution control project have been designed by me and found to be in conformity with sound engineering principles, applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules of the Department. It is also agreed that the undersigned, if authorized by the owner, will furnish the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signature	Company Name
Name (please type)	Address
(Affix Seal)	Florida Registration No.:
	Telephone No::
	Date

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.

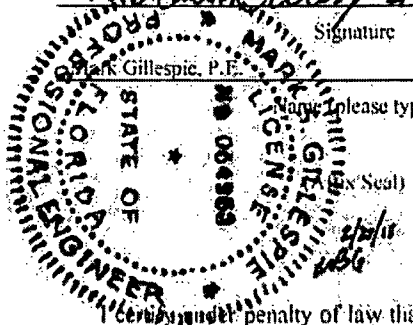
Name & Official Title (Please type or print)	Signature
Telephone No. (area code & No.)	Date Signed

XII-B CERTIFICATIONS FOR PERMIT RENEWALS

This is to certify the engineering features of this pollution control project have been examined by me and found to be in conformity with sound engineering principles, applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules of the Department.

Signature

Mark Gillespie, P.E.
Name (please type)



(Affix Seal)

Progress Energy Florida, Inc.
Company Name

Address: Crystal River Energy Complex
15760 W. Power Line St.
Crystal River, Fl.

Florida Registration No.: 64963

Telephone No.: 352-501-5026

Date: 2/27/13

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.

Robby A. Odom, Station Manager, Crystal River Fossil Plant & Fuel Ops.
Name & Official Title (Please type or print)

Signature

352-501-5682
Telephone No. (area code & No.)

2/27/13
Date Signed

Facility ID. Number: FL0000159 Outfall No. Intake

PLEASE PRINT OR TYPE ONLY: You may report some or all of this information on separate sheets instead of completing these pages. Use the same format.
SEE INSTRUCTIONS.

VII. INTAKE AND EFFLUENT CHARACTERISTICS

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							3.. Units		4. Intake (optional)		
	a. Max. Daily Value		b. Max. 30-day Value		c. Annual Avg. Value		d. No. of Analyses	a. Concentration	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a.Carbonaceous Biochemical Oxygen Demand (CBOD)	< 2						1	mg/L				
b. Chemical Oxygen Demand (COD)	1420						1	mg/L				
c. Total Organic Carbon (TOC)	8.2						1	mg/L				
d. Total Suspended Solids (TSS)	16.0						1	mg/L				
e. Total Nitrogen (as N)	1.4				1.01		4	mg/L				
f. Total Phosphorus (as P)	0.11				0.061		4	mg/L				
g. Ammonia (as N)	< 0.02						1	mg/L				
h. Flow - actual or projected	Value		Value		Value					Value		
i. Flow - design	Value		Value		Value					Value		
j. Specific Conductivity	Value 34.733		Value		Value		1	umhos/cm		Value		
k. Temperature (winter)	Value30.5		Value		Value 18.6		20	°C		Value		
l. Temperature (summer)	Value28.4		Value		Value 34.2		18	°C		Value		
m. . pH	Min. 7.52	Max. 8.50	Min.	Max.			49	STANDARD UNITS				

PART B - Mark "X" in column 2a for each pollutant you know or have reason to believe is present. Mark "X" in column 2b 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 additonal details and requirements.

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent						d. No. of Analyses	4. Units		5. Intake (optional)		
	a. believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)			a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc...	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Bromide (24949-67-9)	☐	☐	37.4						1	mg/L				
b. Chlorine, Total Residual	☐	☐	< 0.1						1	mg/L				
c. Color	☐	☐	45.0						1	PCU				
d. Fecal Coliform	☐	☐	< 2						1	CFU/100 ml				
e. Fluoride (16984-48-8)	☐	☐	< 5.0						1	mg/L				
f. Nitrate-Nitrite (as N)	☐	☐	0.900				0.313		4	mg/L				

: Item VII-B Contd. Facility ID. Number FL0000159 Outfall No. Intake

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a .believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
g. Nitrogen, Total Organic (as N)	☐	☐	0.74						1	mg/L				
h. Oil and grease	☐	☐	< 1.3						1	mg/L				
i. Phosphorus, Total (as P) (7723-14-0)	☐	☐	0.11				0.061		4	mg/L				
j. Radioactivity														
(1) Alpha, Total	☐	☐	3.72 (+/- 1.84)						1	pCi/L				
(2) Beta, Total	☐	☐							1	pCi/L				
(3) Radium, Total	☐	☐	< 1.68 (+/- 0.985)						1	pCi/L				
(4) Radium 226, Total	☐	☐	< 0.95 (+/- 0.624)						1	pCi/L				
k. Sulfate (as SO_4) (14808-79-8)	☐	☐	1,600						1	mg/L				
l. Sulfide (as S)	☐	☐	< 1.0						1	mg/L				
m. Sulfite (as SO_3) (14265-45-3)	☐	☐	< 10						1	mg/L				
n. Surfactants	☐	☐	0.38						1	mg/L				
o. Aluminum, Total (7429-90-5)	☐	☐	0.094 (I)						1	mg/L				
p. Barium, Total (7440-39-3)	☐	☐	0.012						1	mg/L				
q. Boron, Total (7440-42-8)	☐	☐	3.3						1	mg/L				
r. Cobalt, Total (7440-48-4)	☐	☐	< 0.005						1	mg/L				
s. Iron, Total (7439-89-6)	☐	☐	0.16						1	mg/L				
t. Maagnesium, Total (7439-95-4)	☐	☐	898.0						1	mg/L				
u. Molybdenum, Total (7439-98-7)	☐	☐	0.0074 (I)						1	mg/L				
v. Manganese, Total (7439-96-5)	☐	☐	< 0.0125						1	mg/L				
w. Tin, Total (7440-31-5)	☐	☐	< 0.025						1	mg/L				
x. Titanium, Total (7440-32-6)	☐	☐	< 0.025						1	mg/L				

Facility ID. Number: FL0000159 Outfall No. Intake

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 2a for all 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 2a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2b for each pollutant you know or have reason to believe is present. Mark "X" in column 2c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one anlysis for that pollutnat if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4,dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	☐	☐	☐	< 5.0						1	ug/L				
2M. Arsenic, Total (7723-14-0)	☐	☐	☐	< 5.0						1	ug/L				
3M. Beryllium, Total (7440-41-7)	☐	☐	☐	< 0.25						1	ug/L				
4M. Cadmium, Total (7440-43-9)	☐	☐	☐	< 0.50						1	ug/L				
5M. Chromium, Total (7440-47-3)	☐	☐	☐	< 2.5						1	ug/L				
6M. Copper, Total (7440-50-8)	☐	☐	☐	< 4.6						1	ug/L				
7M. Lead, Total (7439-92-1)	☐	☐	☐	< 2.5						1	ug/L				
8M. Mercury, Total (7439-97-6)	☐	☐	☐	0.000911						1	ug/L				
9M. Nickel, Total (7440-02-0)	☐	☐	☐	< 2.5						1	ug/L				
10M. Selenium, Total (7782-49-2)	☐	☐	☐	< 7.5						1	ug/L				
11M. Silver, Total (7440-22-4)	☐	☐	☐	< 0.25						1	ug/L				
12M. Thallium, Total (7440-28-0)	☐	☐	☐	< 2.5						1	ug/L				
13M. Zinc, Total (7440-66-6)	☐	☐	☐	< 10.0						1	ug/L				
14M. Cyanide, Total (57-12-5)	☐	☐	☐	< 5.0						1	ug/L				
15M. Phenols, Total	☐	☐	☐	< 5.0						1	ug/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	☒												
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☐	☐	☐	< 10.0						1	ug/L				
2V. Acrylonitrile (107-13-1)	☐	☐	☐	< 5.0						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. Intake

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
3V. Benzene (71-43-2)	☐	☐	☐	< 0.50						1	ug/L				
4V. Bis (Chloromethyl) Ether (542-88-1)	☐	☐	☒												
5V. Bromoform (75-25-2)	☐	☐	☐	< 0.50						1	ug/L				
6V. Carbon Tetrachloride (56-23-5)	☐	☐	☐	< 0.50						1	ug/L				
7V Chlorobenzene (108-90-7)	☐	☐	☐	< 0.40						1	ug/L				
8V. Chlorodi-bromomethane (124-8-1)	☐	☐	☐	< 0.25						1	ug/L				
9V. Chloroethane (74-00-3)	☐	☐	☐	< 0.61						1	ug/L				
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	☐	☐	☐	< 5.0						1	ug/L				
11V. Chloroform (67-86-3)	☐	☐	☐	< 0.50						1	ug/L				
12V. Dichloro-bromomethane (75-24-4)	☐	☐	☐	< 0.30						1	ug/L				
13V. Dichloro-difluoromethane (75-71-8)	☐	☐	☐	< 0.50						1	ug/L				
14V. 1,1-Dichloroethane (75-34-3)	☐	☐	☐	< 0.50						1	ug/L				
15V. 1,2-Dichloroethane (107-06-2)	☐	☐	☐	< 0.50						1	ug/L				
16V. 1,1-Dichloroethylene (75-35-4)	☐	☐	☐	< 0.50						1	ug/L				
17V. 1,2,-Dichloropropane (78-87-5)	☐	☐	☐	< 0.50						1	ug/L				
18V. 1,3-Dichloropropylene (542-75-6)	☐	☐	☐	< 0.50						1	ug/L				
19V. Ethylbenzene (100-41-4)	☐	☐	☐	< 0.50						1	ug/L				
20V. Methyl Bromide (74-83-9)	☐	☐	☐	< 0.50						1	ug/L				
21V. Methyl Chloride (74-87-3)	☐	☐	☐	< 0.50						1	ug/L				
22V. Methylene Chloride (74-98-2)	☐	☐	☐	< 2.5						1	ug/L				
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)	☐	☐	☐	< 0.17						1	ug/L				
24V. Tetrachloroethylene (127-18-4)	☐	☐	☐	< 0.50						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. Intake

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
25V. Toluene (108-88-3)	☐	☐	☐	< 0.50						1	ug/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	☐	☐	☐	< 0.50						1	ug/L				
27V. 1,1,2-Trichloroethane (71-55-6)	☐	☐	☐	< 0.50						1	ug/L				
28V. 1,1,2-Trichloroethane (79-00-5)	☐	☐	☐	< 0.50						1	ug/L				
29V. Trichloroethylene (79-01-6)	☐	☐	☐	< 0.50						1	ug/L				
30V. Trichloro-fluoromethane (75-69-4)	☐	☐	☐	< 0.66						1	ug/L				
31V. Vinyl Chloride (75-01-4)	☐	☐	☐	< 0.53						1	ug/L				
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	☐	☐	☐	< 0.78						1	ug/L				
2A. 2,4-Dichlorophenol (120-83-2)	☐	☐	☐	< 0.64						1	ug/L				
3A. 2,4-Dimethylphenol (105-67-9)	☐	☐	☐	< 1.8						1	ug/L				
4A. 4,6-Dinitro-O-Cresol (534-53-1)	☐	☐	☐	< 1.5						1	ug/L				
5A. 2,4-Dinitrophenol (51-28-5)	☐	☐	☐	< 1.8						1	ug/L				
6A. 2-Nitrophenol (88-75-5)	☐	☐	☐	< 0.93						1	ug/L				
7A. 4-Nitrophenol (100-02-7)	☐	☐	☐	< 1.2						1	ug/L				
8A P-Chloro-M-Cresol (59-50-7)	☐	☐	☐	< 0.71						1	ug/L				
9A Pentachlorophenol (87-86-5)	☐	☐	☐	< 0.76						1	ug/L				
10A Phenol (108-95-2)	☐	☐	☐	< 0.62						1	ug/L				
11A 2,4,5-Trichloro-phenol (88-06-2)	☐	☐	☐	< 0.79						1	ug/L				
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (63-32-9)	☐	☐	☐	< 0.018						1	ug/L				
2B. Acenaphtylene (208-96-8)	☐	☐	☐	< 0.017						1	ug/L				
3B. Anthracene (120-12-7)	☐	☐	☐	< 0.018						1	ug/L				
4B. Benzidine (92-87-5)	☐	☐	☐	< 0.88						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. Intake

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
5B. Benzo *(a)* Anthracene (56-55-3)	☐	☐	☐	< 0.013						1	ug/L				
6B. Benzo *(a)* Pyrene (50-32-8)	☐	☐	☐	< 0.021						1	ug/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	☐	☐	☐	< 0.016						1	ug/L				
8B. Benzo *(ghi)* Perylene (191-24-2)	☐	☐	☐	< 0.016						1	ug/L				
9B. Benzo *(k)* Fluoranthene (207-08-9)	☐	☐	☐	< 0.022						1	ug/L				
10B. Bis *(2-Chloroethoxy)* Methane (111-91-1)	☐	☐	☐	< 3.4						1	ug/L				
11B. Bis *(2-chloroethyl)* Ether (111-44-4)	☐	☐	☐	< 0.86						1	ug/L				
12B. Bis *(2-Chloroisopropyl)* Ether (102-60-1)	☐	☐	☐	< 0.84						1	ug/L				
13B. Bis *(2-Ethylhexyl)* Phthalate (117-81-7)	☐	☐	☐	< 0.92						1	ug/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐	☐	< 0.77						1	ug/L				
15B Butyl Benzyl Phthalate (84-68-7)	☐	☐	☐	< 0.83						1	ug/L				
16B. 2-Chloronaphthalene (91-58-7)	☐	☐	☐	< 0.92						1	ug/L				
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)	☐	☐	☐	< 0.72						1	ug/L				
18B. Chrysene (218-01-9)	☐	☐	☐	< 0.015						1	ug/L				
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	☐	☐	☐	< 0.018						1	ug/L				
20B. 1,2-Dichlorobenzene (95-50-1)	☐	☐	☐	< 0.78						1	ug/L				
21B. 1,3-Dichlorobenzene (541-73-1)	☐	☐	☐	< 0.87						1	ug/L				
22B. 1,4-Dichlorobenzene (106-46-7)	☐	☐	☐	< 0.88						1	ug/L				
23B. 3,3'-Dichlorobenzidine (92-94-1)	☐	☐	☐	< 0.79						1	ug/L				
24B. Diethyl Phthalate (84-66-2)	☐	☐	☐	< 0.59						1	ug/L				
25B. Dimethyl Phthalate (131-11-3)	☐	☐	☐	< 0.73						1	ug/L				
26B. Di-N-Butyl Phthalate (84-74-2)	☐	☐	☐	< 0.47						1	ug/L				
27B. 2,4-Dinitrotoluene (121-14-2)	☐	☐	☐	< 0.61						1	ug/L				
28B. 2,6-Dinitrotoluene (606-20-2)	☐	☐	☐	< 0.73						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. Intake

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
29B. Di-N-Octyl Phthalate (117-84-0)	☐	☐	☐	< 1.0						1	ug/L				
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	☐	☐	☐	< 0.76						1	ug/L				
31B. Fluoranthene (206-44-0)	☐	☐	☐	< 0.012						1	ug/L				
32B. Fluorene (86-73-7)	☐	☐	☐	< 0.011						1	ug/L				
33B. Hexachlorobenzene (118-74-1)	☐	☐	☐	< 0.92						1	ug/L				
34B. Hexachlorobutadiene (87-68-3)	☐	☐	☐	< 1.2						1	ug/L				
35B. Hexachlorocyclopentadiene (77-47-4)	☐	☐	☐	< 1.5						1	ug/L				
36B. Hexachloroethane (67-72-1)	☐	☐	☐	< 0.82						1	ug/L				
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	☐	☐	☐	< 0.018						1	ug/L				
38B. Isophorone (78-59-1)	☐	☐	☐	< 0.84						1	ug/L				
39B. Naphthalene (91-20-3)	☐	☐	☐	< 0.015						1	ug/L				
40B. Nitrobenzene (98-95-9)	☐	☐	☐	< 1.3						1	ug/L				
41B N-Nitrosodimethylamine (62-75-9)	☐	☐	☐	< 1.1						1	ug/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☐	☐	☐	< 1.1						1	ug/L				
43B. N-Nitro-sodiphenylamine (86-30-6)	☐	☐	☐	< 0.57						1	ug/L				
44B Phenanthrene (85-01-8)	☐	☐	☐	< 0.016						1	ug/L				
45B. Pyrene (129-00-0)	☐	☐	☐	< 0.0097						1	ug/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	☐	☐	☐	< 0.95						1	ug/L				
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☐	☐	☒												
2P. -BHC (319-84-6)	☐	☐	☒												
3P -BHC (319-85-7)	☐	☐	☒												
4P. -BHC (58-89-9)	☐	☐	☒												
5P. -BHC (319-86-8)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. Intake

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
6P. Chlordane (57-74-9)	☐	☐	☒												
7P. 4,4'-DDT (50-29-3)	☐	☐	☒												
8P. 4,4'-DDE (72-55-9)	☐	☐	☒												
9P. 4,4'-DDD (72-54-8)	☐	☐	☒												
10P. Dieldrin (60-57-1)	☐	☐	☒												
11P. -Endosulfan (115-29-7)	☐	☐	☒												
12P. -Endosulfan (115-29-7)	☐	☐	☒												
13P. Endosulfan Sulfate (1031-07-8)	☐	☐	☒												
14P. Endrin (72-20-8)	☐	☐	☒												
15P. Endrin Aldehyde (7421-92-4)	☐	☐	☒												
16P. Heptachlor (76-44-8)	☐	☐	☒												
17P. Heptachlor Epoxide (1024-57-3)	☐	☐	☒												
18P. PCB-1242 (53469-21-9)	☐	☐	☒												
19P. PCB-1254 (11097-69-1)	☐	☐	☒												
20P. PCB-1221 (11104-28-2)	☐	☐	☒												
21P. PCB-1232 (11141-16-5)	☐	☐	☒												
22P. PCB-1248 (12672-29-6)	☐	☐	☒												
23P. PCB-1260 (11096-82-5)	☐	☐	☒												
24P. PCB-1016 (12674-11-2)	☐	☐	☒												
25P. Toxaphene (8001-35-2)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. POD

PLEASE PRINT OR TYPE ONLY: You may report some or all of this information on separate sheets instead of completing these pages. Use the same format.
SEE INSTRUCTIONS.

VII. INTAKE AND EFFLUENT CHARACTERISTICS

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							3.. Units		4. Intake (optional)		
	a. Max. Daily Value		b. Max. 30-day Value		c. Annual Avg. Value		d. No. of Analyses	a. Concentration	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a.Carbonaceous Biochemical Oxygen Demand (CBOD)	169						1	mg/L				
b. Chemical Oxygen Demand (COD)	2170						1	mg/L				
c. Total Organic Carbon (TOC)	9.3						1	mg/L				
d. Total Suspended Solids (TSS)	< 5.0						1	mg/L				
e. Total Nitrogen (as N)	0.95				0.715		4	mg/L				
f. Total Phosphorus (as P)	0.096				0.060		4	mg/L				
g. Ammonia (as N)	0.041 (I)						1	mg/L				
h. Flow - actual or projected	Value		Value		Value					Value		
i. Flow - design	Value		Value		Value					Value		
j. Specific Conductivity	Value 36,936		Value		Value		1	umhos/cm		Value		
k. Temperature (winter)	Value35.7		Value		Value 23.3		20	°C		Value		
l. Temperature (summer)	Value35.6		Value		Value 30.2		18	°C		Value		
m. . pH	Min. 6.71	Max 6.71	Min.	Max.			1	STANDARD UNITS				

PART B - Mark "X" in column 2a for each pollutant you know or have reason to believe is present. Mark "X" in column 2b 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 additonal details and requirements.

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a. believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc...	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Bromide (24949-67-9)	☐	☐	33.4						1	mg/L				
b. Chlorine, Total Residual	☐	☐	< 0.1						1	mg/L				
c. Color	☐	☐	45						1	PCU				
d. Fecal Coliform	☐	☐	2.0						1	CFU/100 mL				
e. Fluoride (16984-48-8)	☐	☐	< 5.0						1	mg/L				
f. Nitrate-Nitrite (as N)	☐	☐	0.081				0.035		4	mg/L				

: Item VII-B Contd.

Facility ID. Number FL0000159 Outfall No. POD

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a .believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
g. Nitrogen, Total Organic (as N)	☐	☐	0.83						1	mg/L				
h. Oil and grease	☐	☐	< 1.3						1	mg/L				
i. Phosphorus, Total (as P) (7723-14-0)	☐	☐	0.096				0.060		4	mg/L				
j. Radioactivity														
(1) Alpha, Total	☐	☐	4.17 (+/- 1.48)						1	pCi/L				
(2) Beta, Total	☐	☐							1	pCi/L				
(3) Radium, Total	☐	☐	< 1.61 (+/- 0.992)						1	pCi/L				
(4) Radium 226, Total	☐	☐	0.944 (+/- 0.630)						1	pCi/L				
k. Sulfate (as SO_4) (14808-79-8)	☐	☐	1,510						1	mg/L				
l. Sulfide (as S)	☐	☐	< 1.0						1	mg/L				
m. Sulfite (as SO_3) (14265-45-3)	☐	☐	< 10						1	mg/L				
n. Surfactants	☐	☐	0.44						1	mg/L				
o. Aluminum, Total (7429-90-5)	☐	☐	0.460						1	mg/L				
p. Barium, Total (7440-39-3)	☐	☐	0.012						1	mg/L				
q. Boron, Total (7440-42-8)	☐	☐	3.01						1	mg/L				
r. Cobalt, Total (7440-48-4)	☐	☐	< 0.005						1	mg/L				
s. Iron, Total (7439-89-6)	☐	☐	0.685						1	mg/L				
t. Maagnesium, Total (7439-95-4)	☐	☐	855						1	mg/L				
u. Molybdenum, Total (7439-98-7)	☐	☐	0.0075 (I)						1	mg/L				
v. Manganese, Total (7439-96-5)	☐	☐	< 0.0025						1	mg/L				
w. Tin, Total (7440-31-5)	☐	☐	< 0.025						1	mg/L				
x. Titanium, Total (7440-32-6)	☐	☐	< 0.25						1	mg/L				

Facility ID. Number: FL0000159 Outfall No. POD

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 2a for all 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 2a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2b for each pollutant you know or have reason to believe is present. Mark "X" in column 2c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one anlysis for that pollutnat if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4,dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	☐	☐	☐	< 5.0						1	ug/L				
2M. Arsenic, Total (7723-14-0)	☐	☐	☐	< 5.0						1	ug/L				
3M. Beryllium, Total (7440-41-7)	☐	☐	☐	< 0.25						1	ug/L				
4M. Cadmium, Total (7440-43-9)	☐	☐	☐	< 0.50						1	ug/L				
5M. Chromium, Total (7440-47-3)	☐	☐	☐	< 2.5						1	ug/L				
6M. Copper, Total (7440-50-8)	☐	☐	☐	< 4.6						1	ug/L				
7M. Lead, Total (7439-92-1)	☐	☐	☐	< 2.5						1	ug/L				
8M. Mercury, Total (7439-97-6)	☐	☐	☐	0.00145						1	ug/L				
9M. Nickel, Total (7440-02-0)	☐	☐	☐	< 2.5						1	ug/L				
10M. Selenium, Total (7782-49-2)	☐	☐	☐	< 7.5						1	ug/L				
11M. Silver, Total (7440-22-4)	☐	☐	☐	< 0.25						1	ug/L				
12M. Thallium, Total (7440-28-0)	☐	☐	☐	< 2.5						1	ug/L				
13M. Zinc, Total (7440-66-6)	☐	☐	☐	< 10.0						1	ug/L				
14M. Cyanide, Total (57-12-5)	☐	☐	☐	< 5.0						1	ug/L				
15M. Phenols, Total	☐	☐	☐	< 5.0						1	ug/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	☒												
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☐	☐	☐	< 10.0						1	ug/L				
2V. Acrylonitrile (107-13-1)	☐	☐	☐	< 5.0						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. POD

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
3V. Benzene (71-43-2)	☐	☐	☐	< 0.50						1	ug/L				
4V. Bis (Chloromethyl) Ether (542-88-1)	☐	☐	☒												
5V. Bromoform (75-25-2)	☐	☐	☐	< 0.50						1	ug/L				
6V. Carbon Tetrachloride (56-23-5)	☐	☐	☐	< 0.50						1	ug/L				
7V Chlorobenzene (108-90-7)	☐	☐	☐	< 0.40						1	ug/L				
8V. Chlorodi-bromomethane (124-8-1)	☐	☐	☐	< 0.25						1	ug/L				
9V. Chloroethane (74-00-3)	☐	☐	☐	< 0.61						1	ug/L				
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	☐	☐	☐	< 5.0						1	ug/L				
11V. Chloroform (67-86-3)	☐	☐	☐	< 0.50						1	ug/L				
12V. Dichloro-bromomethane (75-24-4)	☐	☐	☐	< 0.30						1	ug/L				
13V. Dichloro-difluoromethane (75-71-8)	☐	☐	☐	< 0.50						1	ug/L				
14V. 1,1-Dichloroethane (75-34-3)	☐	☐	☐	< 0.50						1	ug/L				
15V. 1,2-Dichloroethane (107-06-2)	☐	☐	☐	< 0.50						1	ug/L				
16V. 1,1-Dichloroethylene (75-35-4)	☐	☐	☐	< 0.71						1	ug/L				
17V. 1,2,-Dichloropropane (78-87-5)	☐	☐	☐	< 0.50						1	ug/L				
18V. 1,3-Dichloropropylene (542-75-6)	☐	☐	☐	< 0.50						1	ug/L				
19V. Ethylbenzene (100-41-4)	☐	☐	☐	< 0.50						1	ug/L				
20V. Methyl Bromide (74-83-9)	☐	☐	☐	< 0.50						1	ug/L				
21V. Methyl Chloride (74-87-3)	☐	☐	☐	< 0.50						1	ug/L				
22V. Methylene Chloride (74-98-2)	☐	☐	☐	< 2.5						1	ug/L				
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)	☐	☐	☐	< 0.17						1	ug/L				
24V. Tetrachloroethylene (127-18-4)	☐	☐	☐	< 0.50						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. POD

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
25V. Toluene (108-88-3)	☐	☐	☐	< 0.50						1	ug/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	☐	☐	☐	< 0.50						1	ug/L				
27V. 1,1,2-Trichloroethane (71-55-6)	☐	☐	☐	< 0.50						1	ug/L				
28V. 1,1,2-Trichloroethane (79-00-5)	☐	☐	☐	< 0.50						1	ug/L				
29V. Trichloroethylene (79-01-6)	☐	☐	☐	< 0.50						1	ug/L				
30V. Trichloro-fluoromethane (75-69-4)	☐	☐	☐	< 0.66						1	ug/L				
31V. Vinyl Chloride (75-01-4)	☐	☐	☐	< 0.53						1	ug/L				
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	☐	☐	☐	< 1.3						1	ug/L				
2A. 2,4-Dichlorophenol (120-83-2)	☐	☐	☐	< 1						1	ug/L				
3A. 2,4-Dimethylphenol (105-67-9)	☐	☐	☐	< 2.9						1	ug/L				
4A. 4,6-Dinitro-O-Cresol (534-53-1)	☐	☐	☐	< 2.4						1	ug/L				
5A. 2,4-Dinitrophenol (51-28-5)	☐	☐	☐	< 2.9						1	ug/L				
6A. 2-Nitrophenol (88-75-5)	☐	☐	☐	< 1.5						1	ug/L				
7A. 4-Nitrophenol (100-02-7)	☐	☐	☐	< 2.0						1	ug/L				
8A P-Chloro-M-Cresol (59-50-7)	☐	☐	☐	< 1.1						1	ug/L				
9A Pentachlorophenol (87-86-5)	☐	☐	☐	< 1.2						1	ug/L				
10A Phenol (108-95-2)	☐	☐	☐	< 1.0						1	ug/L				
11A 2,4,5-Trichloro-phenol (88-06-2)	☐	☐	☐	< 1.3						1	ug/L				
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (63-32-9)	☐	☐	☐	< 0.036						1	ug/L				
2B. Acenaphtylene (208-96-8)	☐	☐	☐	< 0.035						1	ug/L				
3B. Anthracene (120-12-7)	☐	☐	☐	< 0.036						1	ug/L				
4B. Benzidine (92-87-5)	☐	☐	☐	< 1.4						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. POD

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
5B. Benzo *(a)* Anthracene (56-55-3)	☐	☐	☐	< 0.025						1	ug/L				
6B. Benzo *(a)* Pyrene (50-32-8)	☐	☐	☐	< 0.042						1	ug/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	☐	☐	☐	< 0.031						1	ug/L				
8B. Benzo *(ghi)* Perylene (191-24-2)	☐	☐	☐	< 0.033						1	ug/L				
9B. Benzo *(k)* Fluoranthene (207-08-9)	☐	☐	☐	< 0.044						1	ug/L				
10B. Bis *(2-Chloroethoxy)* Methane (111-91-1)	☐	☐	☐	< 5.4						1	ug/L				
11B. Bis *(2-chloroethyl)* Ether (111-44-4)	☐	☐	☐	< 1.4						1	ug/L				
12B. Bis *(2-Chloroisopropyl)* Ether (102-60-1)	☐	☐	☐	< 1.3						1	ug/L				
13B. Bis *(2-Ethylhexyl)* Phthalate (117-81-7)	☐	☐	☐	< 1.5						1	ug/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐	☐	< 1.2						1	ug/L				
15B Butyl Benzyl Phthalate (84-68-7)	☐	☐	☐	< 1.3						1	ug/L				
16B. 2-Chloronaphthalene (91-58-7)	☐	☐	☐	< 1.5						1	ug/L				
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)	☐	☐	☐	< 1.1						1	ug/L				
18B. Chrysene (218-01-9)	☐	☐	☐	< 0.029						1	ug/L				
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	☐	☐	☐	< 0.036						1	ug/L				
20B. 1,2-Dichlorobenzene (95-50-1)	☐	☐	☐	< 1.3						1	ug/L				
21B. 1,3-Dichlorobenzene (541-73-1)	☐	☐	☐	< 1.4						1	ug/L				
22B. 1,4-Dichlorobenzene (106-46-7)	☐	☐	☐	< 1.4						1	ug/L				
23B. 3,3'-Dichlorobenzidine (92-94-1)	☐	☐	☐	< 1.3						1	ug/L				
24B. Diethyl Phthalate (84-66-2)	☐	☐	☐	< 0.94						1	ug/L				
25B. Dimethyl Phthalate (131-11-3)	☐	☐	☐	< 1.2						1	ug/L				
26B. Di-N-Butyl Phthalate (84-74-2)	☐	☐	☐	< 0.76						1	ug/L				
27B. 2,4-Dinitrotoluene (121-14-2)	☐	☐	☐	< 0.98						1	ug/L				
28B. 2,6-Dinitrotoluene (606-20-2)	☐	☐	☐	< 1.2						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. POD

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
29B. Di-N-Octyl Phthalate (117-84-0)	☐	☐	☐	< 1.7						1	ug/L				
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	☐	☐	☐	< 1.2						1	ug/L				
31B. Fluoranthene (206-44-0)	☐	☐	☐	< 0.023						1	ug/L				
32B. Fluorene (86-73-7)	☐	☐	☐	< 0.021						1	ug/L				
33B. Hexachlorobenzene (118-74-1)	☐	☐	☐	< 1.5						1	ug/L				
34B. Hexachlorobutadiene (87-68-3)	☐	☐	☐	< 2.0						1	ug/L				
35B. Hexachlorocyclopentadiene (77-47-4)	☐	☐	☐	< 2.4						1	ug/L				
36B. Hexachloroethane (67-72-1)	☐	☐	☐	< 1.3						1	ug/L				
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	☐	☐	☐	< 0.036						1	ug/L				
38B. Isophorone (78-59-1)	☐	☐	☐	< 1.3						1	ug/L				
39B. Naphthalene (91-20-3)	☐	☐	☐	< 0.029						1	ug/L				
40B. Nitrobenzene (98-95-9)	☐	☐	☐	< 2.0						1	ug/L				
41B N-Nitrosodimethylamine (62-75-9)	☐	☐	☐	< 1.8						1	ug/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☐	☐	☐	< 1.7						1	ug/L				
43B. N-Nitro-sodiphenylamine (86-30-6)	☐	☐	☐	< 0.92						1	ug/L				
44B Phenanthrene (85-01-8)	☐	☐	☐	< 0.031						1	ug/L				
45B. Pyrene (129-00-0)	☐	☐	☐	< 0.019						1	ug/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	☐	☐	☐	< 1.5						1	ug/L				
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☐	☐	☒												
2P. -BHC (319-84-6)	☐	☐	☒												
3P -BHC (319-85-7)	☐	☐	☒												
4P. -BHC (58-89-9)	☐	☐	☒												
5P. -BHC (319-86-8)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. POD

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
6P. Chlordane (57-74-9)	☐	☐	☒												
7P. 4,4'-DDT (50-29-3)	☐	☐	☒												
8P. 4,4'-DDE (72-55-9)	☐	☐	☒												
9P. 4,4'-DDD (72-54-8)	☐	☐	☒												
10P. Dieldrin (60-57-1)	☐	☐	☒												
11P. -Endosulfan (115-29-7)	☐	☐	☒												
12P. -Endosulfan (115-29-7)	☐	☐	☒												
13P. Endosulfan Sulfate (1031-07-8)	☐	☐	☒												
14P. Endrin (72-20-8)	☐	☐	☒												
15P. Endrin Aldehyde (7421-92-4)	☐	☐	☒												
16P. Heptachlor (76-44-8)	☐	☐	☒												
17P. Heptachlor Epoxide (1024-57-3)	☐	☐	☒												
18P. PCB-1242 (53469-21-9)	☐	☐	☒												
19P. PCB-1254 (11097-69-1)	☐	☐	☒												
20P. PCB-1221 (11104-28-2)	☐	☐	☒												
21P. PCB-1232 (11141-16-5)	☐	☐	☒												
22P. PCB-1248 (12672-29-6)	☐	☐	☒												
23P. PCB-1260 (11096-82-5)	☐	☐	☒												
24P. PCB-1016 (12674-11-2)	☐	☐	☒												
25P. Toxaphene (8001-35-2)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-011

PLEASE PRINT OR TYPE ONLY: You may report some or all of this information on separate sheets instead of completing these pages. Use the same format.
SEE INSTRUCTIONS.

VII. INTAKE AND EFFLUENT CHARACTERISTICS

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							3.. Units		4. Intake (optional)		
	a. Max. Daily Value		b. Max. 30-day Value		c. Annual Avg. Value		d. No. of Analyses	a. Concentration	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Carbonaceous Biochemical Oxygen Demand (CBOD)	< 2						1	mg/L				
b. Chemical Oxygen Demand (COD)	1460						1	mg/L				
c. Total Organic Carbon (TOC)	8.0						1	mg/L				
d. Total Suspended Solids (TSS)	22.5						1	mg/L				
e. Total Nitrogen (as N)	0.65						1	mg/L				
f. Total Phosphorus (as P)	0.062 (1)						1	mg/L				
g. Ammonia (as N)	< 0.02						1	mg/L				
h. Flow - actual or projected	Value 446.4		Value 446.4		Value				MGD	Value		
i. Flow - design	Value 446.4		Value 446.4		Value				MGD	Value		
j. Specific Conductivity	Value 38.076		Value		Value		1	umhos/cm		Value		
k. Temperature (winter)	Value35.1		Value		Value 22.6		12	°C		Value		
l. Temperature (summer)	Value39.7		Value		Value 34.0		12	°C		Value		
m. . pH	Min. 7.88	Max 7.88	Min.	Max.			1	STANDARD UNITS				

PART B - Mark "X" in column 2a for each pollutant you know or have reason to believe is present. Mark "X" in column 2b 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 additonal details and requirements.

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a. believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc...	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Bromide (24949-67-9)	☐	☐	46.1						1	mg/L				
b. Chlorine, Total Residual	☐	☐	< 3						1	mg/L				
c. Color	☐	☐	35.0						1	PCU				
d. Fecal Coliform	☐	☐	< 2						1	CFU/100 mL				
e. Fluoride (16984-48-8)	☐	☐	< 1.2						1	mg/L				
f. Nitrate-Nitrite (as N)	☐	☐	0.053						1	mg/L				

: Item VII-B Contd.

Facility ID. Number FL0000159 Outfall No. D-011

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a .believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
g. Nitrogen, Total Organic (as N)	☐	☐	0.60						1	mg/L				
h. Oil and grease	☐	☐	< 1.5						1	mg/L				
i. Phosphorus, Total (as P) (7723-14-0)	☐	☐	0.062 (I)						1	mg/L				
j. Radioactivity														
(1) Alpha, Total	☐	☐	6.01 (+/- 1.73)						1	pCi/L				
(2) Beta, Total	☐	☐	249 (+/- 96.7)						1	pCi/L				
(3) Radium, Total	☐	☐	1.61 (+/- 0.998)						1	pCi/L				
(4) Radium 226, Total	☐	☐	1.07 (+/- 0.619)						1	pCi/L				
k. Sulfate (as SO_4) (14808-79-8)	☐	☐	1,640						1	mg/L				
l. Sulfide (as S)	☐	☐	3.3						1	mg/L				
m. Sulfite (as SO_3) (14265-45-3)	☐	☐	< 10						1	mg/L				
n. Surfactants	☐	☐	0.47						1	mg/L				
o. Aluminum, Total (7429-90-5)	☐	☐	< 0.5						1	mg/L				
p. Barium, Total (7440-39-3)	☐	☐	< 0.050						1	mg/L				
q. Boron, Total (7440-42-8)	☐	☐	3.2						1	mg/L				
r. Cobalt, Total (7440-48-4)	☐	☐	< 0.005						1	mg/L				
s. Iron, Total (7439-89-6)	☐	☐	0.475						1	mg/L				
t. Maagnesium, Total (7439-95-4)	☐	☐	896						1	mg/L				
u. Molybdenum, Total (7439-98-7)	☐	☐	0.0082 (I)						1	mg/L				
v. Manganese, Total (7439-96-5)	☐	☐	< 0.002						1	mg/L				
w. Tin, Total (7440-31-5)	☐	☐	< 0.025						1	mg/L				
x. Titanium, Total (7440-32-6)	☐	☐	< 0.005						1	mg/L				

Facility ID. Number: FL0000159 Outfall No. D-011

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 2a for all 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 2a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2b for each pollutant you know or have reason to believe is present. Mark "X" in column 2c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one anlysis for that pollutnat if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4,dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	☒	☐	☐	< 5.0						1	ug/L				
2M. Arsenic, Total (7723-14-0)	☒	☐	☐	< 5.0						1	ug/L				
3M. Beryllium, Total (7440-41-7)	☒	☐	☐	< 0.50						1	ug/L				
4M. Cadmium, Total (7440-43-9)	☒	☐	☐	< 0.50						1	ug/L				
5M. Chromium, Total (7440-47-3)	☒	☐	☐	< 2.5						1	ug/L				
6M. Copper, Total (7440-50-8)	☒	☐	☐	< 4.6						1	ug/L				
7M. Lead, Total (7439-92-1)	☒	☐	☐	0.55 (1)						1	ug/L				
8M. Mercury, Total (7439-97-6)	☒	☐	☐	0.000809						1	ug/L				
9M. Nickel, Total (7440-02-0)	☒	☐	☐	< 2.5						1	ug/L				
10M. Selenium, Total (7782-49-2)	☒	☐	☐	< 7.5						1	ug/L				
11M. Silver, Total (7440-22-4)	☒	☐	☐	< 0.25						1	ug/L				
12M. Thallium, Total (7440-28-0)	☒	☐	☐	< 0.50						1	ug/L				
13M. Zinc, Total (7440-66-6)	☒	☐	☐	< 10.0						1	ug/L				
14M. Cyanide, Total (57-12-5)	☒	☐	☐	< 5.0						1	ug/L				
15M. Phenols, Total	☒	☐	☐	< 5.0						1	ug/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	☒												
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☐	☐	☒												
2V. Acrylonitrile (107-13-1)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-011

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
3V. Benzene (71-43-2)	☐	☐	☒												
4V. Bis (Chloromethyl) Ether (542-88-1)	☐	☐	☒												
5V. Bromoform (75-25-2)	☐	☐	☒												
6V. Carbon Tetrachloride (56-23-5)	☐	☐	☒												
7V Chlorobenzene (108-90-7)	☐	☐	☒												
8V. Chlorodi-bromomethane (124-8-1)	☐	☐	☒												
9V. Chloroethane (74-00-3)	☐	☐	☒												
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	☐	☐	☒												
11V. Chloroform (67-86-3)	☐	☐	☒												
12V. Dichloro-bromomethane (75-24-4)	☐	☐	☒												
13V. Dichloro-difluoromethane (75-71-8)	☐	☐	☒												
14V. 1,1-Dichloroethane (75-34-3)	☐	☐	☒												
15V. 1,2-Dichloroethane (107-06-2)	☐	☐	☒												
16V. 1,1-Dichloroethylene (75-35-4)	☐	☐	☒												
17V. 1,2,-Dichloropropane (78-87-5)	☐	☐	☒												
18V. 1,3-Dichloropropylene (542-75-6)	☐	☐	☒												
19V. Ethylbenzene (100-41-4)	☐	☐	☒												
20V. Methyl Bromide (74-83-9)	☐	☐	☒												
21V. Methyl Chloride (74-87-3)	☐	☐	☒												
22V. Methylene Chloride (74-98-2)	☐	☐	☒												
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)	☐	☐	☒												
24V. Tetrachloroethylene (127-18-4)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-011

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
25V. Toluene (108-88-3)	☐	☐	☒												
26V. 1,2-Trans-Dichloroethylene (156-60-5)	☐	☐	☒												
27V. 1,1,2-Trichloroethane (71-55-6)	☐	☐	☒												
28V. 1,1,2-Trichloroethane (79-00-5)	☐	☐	☒												
29V. Trichloroethylene (79-01-6)	☐	☐	☒												
30V. Trichloro-fluoromethane (75-69-4)	☐	☐	☒												
31V. Vinyl Chloride (75-01-4)	☐	☐	☒												
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	☐	☐	☒												
2A. 2,4-Dichlorophenol (120-83-2)	☐	☐	☒												
3A. 2,4-Dimethylphenol (105-67-9)	☐	☐	☒												
4A. 4,6-Dinitro-O-Cresol (534-53-1)	☐	☐	☒												
5A. 2,4-Dinitrophenol (51-28-5)	☐	☐	☒												
6A. 2-Nitrophenol (88-75-5)	☐	☐	☒												
7A. 4-Nitrophenol (100-02-7)	☐	☐	☒												
8A P-Chloro-M-Cresol (59-50-7)	☐	☐	☒												
9A Pentachlorophenol (87-86-5)	☐	☐	☒												
10A Phenol (108-95-2)	☐	☐	☒												
11A 2,4,5-Trichloro-phenol (88-06-2)	☐	☐	☒												
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (63-32-9)	☐	☐	☒												
2B. Acenaphtylene (208-96-8)	☐	☐	☒												
3B. Anthracene (120-12-7)	☐	☐	☒												
4B. Benzidine (92-87-5)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-011

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
5B. Benzo *(a)* Anthracene (56-55-3)	☐	☐	☒												
6B. Benzo *(a)* Pyrene (50-32-8)	☐	☐	☒												
7B. 3,4-Benzo-fluoranthene (205-99-2)	☐	☐	☒												
8B. Benzo *(ghi)* Perylene (191-24-2)	☐	☐	☒												
9B. Benzo *(k)* Fluoranthene (207-08-9)	☐	☐	☒												
10B. Bis *(2-Chloroethoxy)* Methane (111-91-1)	☐	☐	☒												
11B. Bis *(2-chloroethyl)* Ether (111-44-4)	☐	☐	☒												
12B. Bis *(2-Chloroisopropyl)* Ether (102-60-1)	☐	☐	☒												
13B. Bis *(2-Ethylhexyl)* Phthalate (117-81-7)	☐	☐	☒												
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐	☒												
15B Butyl Benzyl Phthalate (84-68-7)	☐	☐	☒												
16B. 2-Chloronaphthalene (91-58-7)	☐	☐	☒												
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)	☐	☐	☒												
18B. Chrysene (218-01-9)	☐	☐	☒												
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	☐	☐	☒												
20B. 1,2-Dichlorobenzene (95-50-1)	☐	☐	☒												
21B. 1,3-Dichlorobenzene (541-73-1)	☐	☐	☒												
22B. 1,4-Dichlorobenzene (106-46-7)	☐	☐	☒												
23B. 3,3'-Dichlorobenzidine (92-94-1)	☐	☐	☒												
24B. Diethyl Phthalate (84-66-2)	☐	☐	☒												
25B. Dimethyl Phthalate (131-11-3)	☐	☐	☒												
26B. Di-N-Butyl Phthalate (84-74-2)	☐	☐	☒												
27B. 2,4-Dinitrotoluene (121-14-2)	☐	☐	☒												
28B. 2,6-Dinitrotoluene (606-20-2)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-011

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
29B. Di-N-Octyl Phthalate (117-84-0)	☐	☐	☒												
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	☐	☐	☒												
31B. Fluoranthene (206-44-0)	☐	☐	☒												
32B. Fluorene (86-73-7)	☐	☐	☒												
33B. Hexachlorobenzene (118-74-1)	☐	☐	☒												
34B. Hexachlorobutadiene (87-68-3)	☐	☐	☒												
35B. Hexachlorocyclopentadiene (77-47-4)	☐	☐	☒												
36B. Hexachloroethane (67-72-1)	☐	☐	☒												
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	☐	☐	☒												
38B. Isophorone (78-59-1)	☐	☐	☒												
39B. Naphthalene (91-20-3)	☐	☐	☒												
40B. Nitrobenzene (98-95-9)	☐	☐	☒												
41B N-Nitrosodimethylamine (62-75-9)	☐	☐	☒												
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☐	☐	☒												
43B. N-Nitro-sodiphenylamine (86-30-6)	☐	☐	☒												
44B Phenanthrene (85-01-8)	☐	☐	☒												
45B. Pyrene (129-00-0)	☐	☐	☒												
46B. 1,2,4-Trichlorobenzene (120-82-1)	☐	☐	☒												
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☐	☐	☒												
2P. -BHC (319-84-6)	☐	☐	☒												
3P -BHC (319-85-7)	☐	☐	☒												
4P. -BHC (58-89-9)	☐	☐	☒												
5P. -BHC (319-86-8)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-011

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
6P. Chlordane (57-74-9)	☐	☐	☒												
7P. 4,4'-DDT (50-29-3)	☐	☐	☒												
8P. 4,4'-DDE (72-55-9)	☐	☐	☒												
9P. 4,4'-DDD (72-54-8)	☐	☐	☒												
10P. Dieldrin (60-57-1)	☐	☐	☒												
11P. -Endosulfan (115-29-7)	☐	☐	☒												
12P. -Endosulfan (115-29-7)	☐	☐	☒												
13P. Endosulfan Sulfate (1031-07-8)	☐	☐	☒												
14P. Endrin (72-20-8)	☐	☐	☒												
15P. Endrin Aldehyde (7421-92-4)	☐	☐	☒												
16P. Heptachlor (76-44-8)	☐	☐	☒												
17P. Heptachlor Epoxide (1024-57-3)	☐	☐	☒												
18P. PCB-1242 (53469-21-9)	☐	☐	☒												
19P. PCB-1254 (11097-69-1)	☐	☐	☒												
20P. PCB-1221 (11104-28-2)	☐	☐	☒												
21P. PCB-1232 (11141-16-5)	☐	☐	☒												
22P. PCB-1248 (12672-29-6)	☐	☐	☒												
23P. PCB-1260 (11096-82-5)	☐	☐	☒												
24P. PCB-1016 (12674-11-2)	☐	☐	☒												
25P. Toxaphene (8001-35-2)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-012

PLEASE PRINT OR TYPE ONLY: You may report some or all of this information on separate sheets instead of completing these pages. Use the same format.
SEE INSTRUCTIONS.

VII. INTAKE AND EFFLUENT CHARACTERISTICS

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							3.. Units		4. Intake (optional)		
	a. Max. Daily Value		b. Max. 30-day Value		c. Annual Avg. Value		d. No. of Analyses	a. Concentration	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a.Carbonaceous Biochemical Oxygen Demand (CBOD)	2.8						1	mg/L				
b. Chemical Oxygen Demand (COD)	618						1	mg/L				
c. Total Organic Carbon (TOC)	9.6						1	mg/L				
d. Total Suspended Solids (TSS)	11.5						1	mg/L				
e. Total Nitrogen (as N)	0.66						1	mg/L				
f. Total Phosphorus (as P)	0.053 (1)						1	mg/L				
g. Ammonia (as N)	< 0.020						1	mg/L				
h. Flow - actual or projected	Value 472.3		Value 472.3		Value				MGD	Value		
i. Flow - design	Value 472.3		Value 472.3		Value				MGD	Value		
j. Specific Conductivity	Value 36,957		Value		Value		umhos/cm			Value		
k. Temperature (winter)	Value35.0		Value		Value 22.4		12	°C		Value		
l. Temperature (summer)	Value38.9		Value		Value 31.7		12	°C		Value		
m. . pH	Min. 7.98	Max. 7.98	Min.	Max.			1	STANDARD UNITS				

PART B - Mark "X" in column 2a for each pollutant you know or have reason to believe is present. Mark "X" in column 2b 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 additonal details and requirements.

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a. believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc...	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Bromide (24949-67-9)	☐	☐	45.6						1	mg/L				
b. Chlorine, Total Residual	☐	☐	< 3.5						1	mg/L				
c. Color	☐	☐	30.0						1	PCU				
d. Fecal Coliform	☐	☐	2.0						1	CFU/100 mL				
e. Fluoride (16984-48-8)	☐	☐	< 1.2						1	mg/L				
f. Nitrate-Nitrite (as N)	☐	☐	0.056						1	mg/L				

: Item VII-B Contd.

Facility ID. Number FL0000159 Outfall No. D-012

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a .believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
g. Nitrogen, Total Organic (as N)	☐	☐	0.60						1	mg/L				
h. Oil and grease	☐	☐	< 1.4						1	mg/L				
i. Phosphorus, Total (as P) (7723-14-0)	☐	☐	0.053 (I)						1	mg/L				
j. Radioactivity														
(1) Alpha, Total	☐	☐	5.74 (+/- 1.83)						1	pCi/L				
(2) Beta, Total	☐	☐	< 113 (+/- 65.8)						1	pCi/L				
(3) Radium, Total	☐	☐	1.57 (+/- 1.01)						1	pCi/L				
(4) Radium 226, Total	☐	☐	0.753 (+/- 0.560)						1	pCi/L				
k. Sulfate (as SO_4) (14808-79-8)	☐	☐	1,650						1	mg/L				
l. Sulfide (as S)	☐	☐	< 1.0						1	mg/L				
m. Sulfite (as SO_3) (14265-45-3)	☐	☐	< 10						1	mg/L				
n. Surfactants	☐	☐	0.40						1	mg/L				
o. Aluminum, Total (7429-90-5)	☐	☐	< 5.0						1	mg/L				
p. Barium, Total (7440-39-3)	☐	☐	< 0.050						1	mg/L				
q. Boron, Total (7440-42-8)	☐	☐	3.25						1	mg/L				
r. Cobalt, Total (7440-48-4)	☐	☐	< 0.005						1	mg/L				
s. Iron, Total (7439-89-6)	☐	☐	0.229 (I)						1	mg/L				
t. Maagnesium, Total (7439-95-4)	☐	☐	901						1	mg/L				
u. Molybdenum, Total (7439-98-7)	☐	☐	0.0082 (I)						1	mg/L				
v. Manganese, Total (7439-96-5)	☐	☐	< 0.025						1	mg/L				
w. Tin, Total (7440-31-5)	☐	☐	< 0.025						1	mg/L				
x. Titanium, Total (7440-32-6)	☐	☐	< 0.005						1	mg/L				

Facility ID. Number: FL0000159 Outfall No. D-012

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 2a for all 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 2a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2b for each pollutant you know or have reason to believe is present. Mark "X" in column 2c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one anlysis for that pollutnat if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4,dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	☒	☐	☐	< 5.0						1	ug/L				
2M. Arsenic, Total (7723-14-0)	☒	☐	☐	< 5.0						1	ug/L				
3M. Beryllium, Total (7440-41-7)	☒	☐	☐	< 0.050						1	ug/L				
4M. Cadmium, Total (7440-43-9)	☒	☐	☐	< 0.50						1	ug/L				
5M. Chromium, Total (7440-47-3)	☒	☐	☐	< 2.5						1	ug/L				
6M. Copper, Total (7440-50-8)	☒	☐	☐	< 0.93						1	ug/L				
7M. Lead, Total (7439-92-1)	☒	☐	☐	< 0.50						1	ug/L				
8M. Mercury, Total (7439-97-6)	☒	☐	☐	0.000873						1	ug/L				
9M. Nickel, Total (7440-02-0)	☒	☐	☐	< 2.5						1	ug/L				
10M. Selenium, Total (7782-49-2)	☒	☐	☐	< 7.5						1	ug/L				
11M. Silver, Total (7440-22-4)	☒	☐	☐	< 0.050						1	ug/L				
12M. Thallium, Total (7440-28-0)	☒	☐	☐	< 0.50						1	ug/L				
13M. Zinc, Total (7440-66-6)	☒	☐	☐	< 10.0						1	ug/L				
14M. Cyanide, Total (57-12-5)	☒	☐	☐	< 5.0						1	ug/L				
15M. Phenols, Total	☒	☐	☐	< 5.0						1	ug/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	☒												
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☐	☐	☒												
2V. Acrylonitrile (107-13-1)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-012

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
3V. Benzene (71-43-2)	☐	☐	☒												
4V. Bis (Chloromethyl) Ether (542-88-1)	☐	☐	☒												
5V. Bromoform (75-25-2)	☐	☐	☒												
6V. Carbon Tetrachloride (56-23-5)	☐	☐	☒												
7V Chlorobenzene (108-90-7)	☐	☐	☒												
8V. Chlorodi-bromomethane (124-8-1)	☐	☐	☒												
9V. Chloroethane (74-00-3)	☐	☐	☒												
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	☐	☐	☒												
11V. Chloroform (67-86-3)	☐	☐	☒												
12V. Dichloro-bromomethane (75-24-4)	☐	☐	☒												
13V. Dichloro-difluoromethane (75-71-8)	☐	☐	☒												
14V. 1,1-Dichloroethane (75-34-3)	☐	☐	☒												
15V. 1,2-Dichloroethane (107-06-2)	☐	☐	☒												
16V. 1,1-Dichloroethylene (75-35-4)	☐	☐	☒												
17V. 1,2,-Dichloropropane (78-87-5)	☐	☐	☒												
18V. 1,3-Dichloropropylene (542-75-6)	☐	☐	☒												
19V. Ethylbenzene (100-41-4)	☐	☐	☒												
20V. Methyl Bromide (74-83-9)	☐	☐	☒												
21V. Methyl Chloride (74-87-3)	☐	☐	☒												
22V. Methylene Chloride (74-98-2)	☐	☐	☒												
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)	☐	☐	☒												
24V. Tetrachloroethylene (127-18-4)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-012

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
25V. Toluene (108-88-3)	☐	☐	☒												
26V. 1,2-Trans-Dichloroethylene (156-60-5)	☐	☐	☒												
27V. 1,1,2-Trichloroethane (71-55-6)	☐	☐	☒												
28V. 1,1,2-Trichloroethane (79-00-5)	☐	☐	☒												
29V. Trichloroethylene (79-01-6)	☐	☐	☒												
30V. Trichloro-fluoromethane (75-69-4)	☐	☐	☒												
31V. Vinyl Chloride (75-01-4)	☐	☐	☒												
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	☐	☐	☒												
2A. 2,4-Dichlorophenol (120-83-2)	☐	☐	☒												
3A. 2,4-Dimethylphenol (105-67-9)	☐	☐	☒												
4A. 4,6-Dinitro-O-Cresol (534-53-1)	☐	☐	☒												
5A. 2,4-Dinitrophenol (51-28-5)	☐	☐	☒												
6A. 2-Nitrophenol (88-75-5)	☐	☐	☒												
7A. 4-Nitrophenol (100-02-7)	☐	☐	☒												
8A P-Chloro-M-Cresol (59-50-7)	☐	☐	☒												
9A Pentachlorophenol (87-86-5)	☐	☐	☒												
10A Phenol (108-95-2)	☐	☐	☒												
11A 2,4,5-Trichloro-phenol (88-06-2)	☐	☐	☒												
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (63-32-9)	☐	☐	☒												
2B. Acenaphtylene (208-96-8)	☐	☐	☒												
3B. Anthracene (120-12-7)	☐	☐	☒												
4B. Benzidine (92-87-5)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-012

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
5B. Benzo *(a)* Anthracene (56-55-3)	☐	☐	☒												
6B. Benzo *(a)* Pyrene (50-32-8)	☐	☐	☒												
7B. 3,4-Benzo-fluoranthene (205-99-2)	☐	☐	☒												
8B. Benzo *(ghi)* Perylene (191-24-2)	☐	☐	☒												
9B. Benzo *(k)* Fluoranthene (207-08-9)	☐	☐	☒												
10B. Bis *(2-Chloroethoxy)* Methane (111-91-1)	☐	☐	☒												
11B. Bis *(2-chloroethyl)* Ether (111-44-4)	☐	☐	☒												
12B. Bis *(2-Chloroisopropyl)* Ether (102-60-1)	☐	☐	☒												
13B. Bis *(2-Ethylhexyl)* Phthalate (117-81-7)	☐	☐	☒												
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐	☒												
15B Butyl Benzyl Phthalate (84-68-7)	☐	☐	☒												
16B. 2-Chloronaphthalene (91-58-7)	☐	☐	☒												
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)	☐	☐	☒												
18B. Chrysene (218-01-9)	☐	☐	☒												
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	☐	☐	☒												
20B. 1,2-Dichlorobenzene (95-50-1)	☐	☐	☒												
21B. 1,3-Dichlorobenzene (541-73-1)	☐	☐	☒												
22B. 1,4-Dichlorobenzene (106-46-7)	☐	☐	☒												
23B. 3,3'-Dichlorobenzidine (92-94-1)	☐	☐	☒												
24B. Diethyl Phthalate (84-66-2)	☐	☐	☒												
25B. Dimethyl Phthalate (131-11-3)	☐	☐	☒												
26B. Di-N-Butyl Phthalate (84-74-2)	☐	☐	☒												
27B. 2,4-Dinitrotoluene (121-14-2)	☐	☐	☒												
28B. 2,6-Dinitrotoluene (606-20-2)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-012

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
29B. Di-N-Octyl Phthalate (117-84-0)	☐	☐	☒												
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	☐	☐	☒												
31B. Fluoranthene (206-44-0)	☐	☐	☒												
32B. Fluorene (86-73-7)	☐	☐	☒												
33B. Hexachlorobenzene (118-74-1)	☐	☐	☒												
34B. Hexachlorobutadiene (87-68-3)	☐	☐	☒												
35B. Hexachlorocyclopentadiene (77-47-4)	☐	☐	☒												
36B. Hexachloroethane (67-72-1)	☐	☐	☒												
37B. Indeno *(1.2.3-cd)* Pyrene (193-39-5)	☐	☐	☒												
38B. Isophorone (78-59-1)	☐	☐	☒												
39B. Naphthalene (91-20-3)	☐	☐	☒												
40B. Nitrobenzene (98-95-9)	☐	☐	☒												
41B N-Nitrosodimethylamine (62-75-9)	☐	☐	☒												
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☐	☐	☒												
43B. N-Nitro-sodiphenylamine (86-30-6)	☐	☐	☒												
44B Phenanthrene (85-01-8)	☐	☐	☒												
45B. Pyrene (129-00-0)	☐	☐	☒												
46B. 1,2,4-Trichlorobenzene (120-82-1)	☐	☐	☒												
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☐	☐	☒												
2P. -BHC (319-84-6)	☐	☐	☒												
3P -BHC (319-85-7)	☐	☐	☒												
4P. -BHC (58-89-9)	☐	☐	☒												
5P. -BHC (319-86-8)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-012

1. Pollutant and CAS No. (if available)	2. Mark "X"			3. Effuent							4. Units		5. Intake (optional)		
	a. testing required	b. believed present	c. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
6P. Chlordane (57-74-9)	☐	☐	☒												
7P. 4,4'-DDT (50-29-3)	☐	☐	☒												
8P. 4,4'-DDE (72-55-9)	☐	☐	☒												
9P. 4,4'-DDD (72-54-8)	☐	☐	☒												
10P. Dieldrin (60-57-1)	☐	☐	☒												
11P. -Endosulfan (115-29-7)	☐	☐	☒												
12P. -Endosulfan (115-29-7)	☐	☐	☒												
13P. Endosulfan Sulfate (1031-07-8)	☐	☐	☒												
14P. Endrin (72-20-8)	☐	☐	☒												
15P. Endrin Aldehyde (7421-92-4)	☐	☐	☒												
16P. Heptachlor (76-44-8)	☐	☐	☒												
17P. Heptachlor Epoxide (1024-57-3)	☐	☐	☒												
18P. PCB-1242 (53469-21-9)	☐	☐	☒												
19P. PCB-1254 (11097-69-1)	☐	☐	☒												
20P. PCB-1221 (11104-28-2)	☐	☐	☒												
21P. PCB-1232 (11141-16-5)	☐	☐	☒												
22P. PCB-1248 (12672-29-6)	☐	☐	☒												
23P. PCB-1260 (11096-82-5)	☐	☐	☒												
24P. PCB-1016 (12674-11-2)	☐	☐	☒												
25P. Toxaphene (8001-35-2)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-00H

PLEASE PRINT OR TYPE ONLY: You may report some or all of this information on separate sheets instead of completing these pages. Use the same format.
SEE INSTRUCTIONS.

VII. INTAKE AND EFFLUENT CHARACTERISTICS

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							3.. Units		4. Intake (optional)		
	a. Max. Daily Value		b. Max. 30-day Value		c. Annual Avg. Value		d. No. of Analyses	a. Concentration	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Carbonaceous Biochemical Oxygen Demand (CBOD)	< 2.0						1	mg/L				
b. Chemical Oxygen Demand (COD)	38.2						1	mg/L				
c. Total Organic Carbon (TOC)	1.2						1	mg/L				
d. Total Suspended Solids (TSS)	< 5.0						1	mg/L				
e. Total Nitrogen (as N)	4.6						1	mg/L				
f. Total Phosphorus (as P)	< 0.050						1	mg/L				
g. Ammonia (as N)	4.7						1	mg/L				
h. Flow - actual or projected	Value N/A		Value		Value					Value		
i. Flow - design	Value N/A		Value		Value					Value		
j. Specific Conductivity	Value 5,727		Value		Value		1	umhos/cm		Value		
k. Temperature (winter)	Value 17.04		Value		Value		1	°C		Value		
l. Temperature (summer)	Value		Value		Value			°C		Value		
m. . pH	Min. 2.7	Max. 2.7	Min.	Max.			1	STANDARD UNITS				

PART B - Mark "X" in column 2a for each pollutant you know or have reason to believe is present. Mark "X" in column 2b 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 additonal details and requirements.

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a. believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc...	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Bromide (24949-67-9)	☐	☐	< 1.0						1	mg/L				
b. Chlorine, Total Residual	☐	☒							1	mg/L				
c. Color	☐	☐	70.0						1	PCU				
d. Fecal Coliform	☐	☐	< 2.0						1	CFU/100 mL				
e. Fluoride (16984-48-8)	☐	☐	3.8						1	mg/L				
f. Nitrate-Nitrite (as N)	☐	☐	0.040 (I)						1	mg/L				

: Item VII-B Contd.

Facility ID. Number FL0000159 Outfall No. D-00H

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a .believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
g. Nitrogen, Total Organic (as N)	☐	☐	< 0.25						1	mg/L				
h. Oil and grease	☐	☐	< 1.4						1	mg/L				
i. Phosphorus, Total (as P) (7723-14-0)	☐	☐	< 0.050						1	mg/L				
j. Radioactivity														
(1) Alpha, Total	☐	☐	7.29 (+/- 3.03)						1	pCi/L				
(2) Beta, Total	☐	☐	< 8.54 (+/- 5.28)						1	pCi/L				
(3) Radium, Total	☐	☐	0.399 (+/- 0.660)						1	pCi/L				
(4) Radium 226, Total	☐	☐	< 0.718 (+/- 0.348)						1	pCi/L				
k. Sulfate (as SO_4) (14808-79-8)	☐	☐	4,900						1	mg/L				
l. Sulfide (as S)	☐	☐	< 1.0						1	mg/L				
m. Sulfite (as SO_3) (14265-45-3)	☐	☐	not analyzed											
n. Surfactants	☐	☐	< 0.059						1	mg/L				
o. Aluminum, Total (7429-90-5)	☐	☐	184						1	mg/L				
p. Barium, Total (7440-39-3)	☐	☐	< 0.050						1	mg/L				
q. Boron, Total (7440-42-8)	☐	☐	0.455						1	mg/L				
r. Cobalt, Total (7440-48-4)	☐	☐	0.916						1	mg/L				
s. Iron, Total (7439-89-6)	☐	☐	305						1	mg/L				
t. Maagnesium, Total (7439-95-4)	☐	☐	198						1	mg/L				
u. Molybdenum, Total (7439-98-7)	☐	☐	< 0.005						1	mg/L				
v. Manganese, Total (7439-96-5)	☐	☐	21.7						1	mg/L				
w. Tin, Total (7440-31-5)	☐	☐	< 0.025						1	mg/L				
x. Titanium, Total (7440-32-6)	☐	☐	< 0.005						1	mg/L				

Facility ID. Number: FL0000159 Outfall No. D-00H

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 2a for all 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 2a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2b for each pollutant you know or have reason to believe is present. Mark "X" in column 2c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one anlysis for that pollutnat if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4,dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	☐	☐	☐	< 5.0						1	ug/L				
2M. Arsenic, Total (7723-14-0)	☐	☐	☐	< 50.0						1	ug/L				
3M. Beryllium, Total (7440-41-7)	☐	☐	☐	73.6						1	ug/L				
4M. Cadmium, Total (7440-43-9)	☐	☐	☐	22.1						1	ug/L				
5M. Chromium, Total (7440-47-3)	☐	☐	☐	81.2						1	ug/L				
6M. Copper, Total (7440-50-8)	☐	☐	☐	361						1	ug/L				
7M. Lead, Total (7439-92-1)	☐	☐	☐	1.4						1	ug/L				
8M. Mercury, Total (7439-97-6)	☐	☐	☐	0.0309						1	ug/L				
9M. Nickel, Total (7440-02-0)	☐	☐	☐	1850						1	ug/L				
10M. Selenium, Total (7782-49-2)	☐	☐	☐	13.8 (I)						1	ug/L				
11M. Silver, Total (7440-22-4)	☐	☐	☐	< 0.25						1	ug/L				
12M. Thallium, Total (7440-28-0)	☐	☐	☐	3.8						1	ug/L				
13M. Zinc, Total (7440-66-6)	☐	☐	☐	6720						1	ug/L				
14M. Cyanide, Total (57-12-5)	☐	☐	☐	< 5.0						1	ug/L				
15M. Phenols, Total	☐	☐	☐	< 5.0						1	ug/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	☒												
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☐	☐	☐	< 10.0						1	ug/L				
2V. Acrylonitrile (107-13-1)	☐	☐	☐	< 5.0						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-00H

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
3V. Benzene (71-43-2)	☐	☐	☐	< 0.50						1	ug/L				
4V. Bis (Chloromethyl) Ether (542-88-1)	☐	☐	☒												
5V. Bromoform (75-25-2)	☐	☐	☐	< 0.50						1	ug/L				
6V. Carbon Tetrachloride (56-23-5)	☐	☐	☐	< 0.50						1	ug/L				
7V Chlorobenzene (108-90-7)	☐	☐	☐	< 0.40						1	ug/L				
8V. Chlorodi-bromomethane (124-8-1)	☐	☐	☐	< 0.25						1	ug/L				
9V. Chloroethane (74-00-3)	☐	☐	☐	< 0.61						1	ug/L				
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	☐	☐	☐	< 5.0						1	ug/L				
11V. Chloroform (67-86-3)	☐	☐	☐	< 0.50						1	ug/L				
12V. Dichloro-bromomethane (75-24-4)	☐	☐	☐	< 0.30						1	ug/L				
13V. Dichloro-difluoromethane (75-71-8)	☐	☐	☐	< 0.50						1	ug/L				
14V. 1,1-Dichloroethane (75-34-3)	☐	☐	☐	< 0.50						1	ug/L				
15V. 1,2-Dichloroethane (107-06-2)	☐	☐	☐	< 0.50						1	ug/L				
16V. 1,1-Dichloroethylene (75-35-4)	☐	☐	☐	< 0.71						1	ug/L				
17V. 1,2,-Dichloropropane (78-87-5)	☐	☐	☐	< 0.50						1	ug/L				
18V. 1,3-Dichloropropylene (542-75-6)	☐	☐	☐	< 0.50						1	ug/L				
19V. Ethylbenzene (100-41-4)	☐	☐	☐	< 0.50						1	ug/L				
20V. Methyl Bromide (74-83-9)	☐	☐	☐	< 0.50						1	ug/L				
21V. Methyl Chloride (74-87-3)	☐	☐	☐	< 0.50						1	ug/L				
22V. Methylene Chloride (74-98-2)	☐	☐	☐	< 2.5						1	ug/L				
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)	☐	☐	☐	< 0.17						1	ug/L				
24V. Tetrachloroethylene (127-18-4)	☐	☐	☐	< 0.50						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-00H

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
25V. Toluene (108-88-3)	☐	☐	☐	< 0.50						1	ug/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	☐	☐	☐	< 0.50						1	ug/L				
27V. 1,1,2-Trichloroethane (71-55-6)	☐	☐	☐	< 0.50						1	ug/L				
28V. 1,1,2-Trichloroethane (79-00-5)	☐	☐	☐	< 0.50						1	ug/L				
29V. Trichloroethylene (79-01-6)	☐	☐	☐	< 0.50						1	ug/L				
30V. Trichloro-fluoromethane (75-69-4)	☐	☐	☐	< 0.66						1	ug/L				
31V. Vinyl Chloride (75-01-4)	☐	☐	☐	< 0.53						1	ug/L				
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	☐	☐	☐	< 0.65						1	ug/L				
2A. 2,4-Dichlorophenol (120-83-2)	☐	☐	☐	< 0.53						1	ug/L				
3A. 2,4-Dimethylphenol (105-67-9)	☐	☐	☐	< 1.5						1	ug/L				
4A. 4,6-Dinitro-O-Cresol (534-53-1)	☐	☐	☐	< 1.3						1	ug/L				
5A. 2,4-Dinitrophenol (51-28-5)	☐	☐	☐	< 1.5						1	ug/L				
6A. 2-Nitrophenol (88-75-5)	☐	☐	☐	< 0.77						1	ug/L				
7A. 4-Nitrophenol (100-02-7)	☐	☐	☐	< 1.0						1	ug/L				
8A P-Chloro-M-Cresol (59-50-7)	☐	☐	☐	< 0.59						1	ug/L				
9A Pentachlorophenol (87-86-5)	☐	☐	☐	< 0.63						1	ug/L				
10A Phenol (108-95-2)	☐	☐	☐	< 0.51						1	ug/L				
11A 2,4,5-Trichloro-phenol (88-06-2)	☐	☐	☐	< 0.66						1	ug/L				
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (63-32-9)	☐	☐	☐	< 0.037						1	ug/L				
2B. Acenaphtylene (208-96-8)	☐	☐	☐	< 0.035						1	ug/L				
3B. Anthracene (120-12-7)	☐	☐	☐	< 0.037						1	ug/L				
4B. Benzidine (92-87-5)	☐	☐	☐	< 0.73						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-00H

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
5B. Benzo *(a)* Anthracene (56-55-3)	☐	☐	☐	< 0.026						1	ug/L				
6B. Benzo *(a)* Pyrene (50-32-8)	☐	☐	☐	< 0.043						1	ug/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	☐	☐	☐	< 0.031						1	ug/L				
8B. Benzo *(ghi)* Perylene (191-24-2)	☐	☐	☐	< 0.033						1	ug/L				
9B. Benzo *(k)* Fluoranthene (207-08-9)	☐	☐	☐	< 0.045						1	ug/L				
10B. Bis *(2-Chloroethoxy)* Methane (111-91-1)	☐	☐	☐	< 2.8						1	ug/L				
11B. Bis *(2-chloroethyl)* Ether (111-44-4)	☐	☐	☐	< 0.71						1	ug/L				
12B. Bis *(2-Chloroisopropyl)* Ether (102-60-1)	☐	☐	☐	< 0.69						1	ug/L				
13B. Bis *(2-Ethylhexyl)* Phthalate (117-81-7)	☐	☐	☐	< 0.76						1	ug/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐	☐	< 0.64						1	ug/L				
15B Butyl Benzyl Phthalate (84-68-7)	☐	☐	☐	< 0.68						1	ug/L				
16B. 2-Chloronaphthalene (91-58-7)	☐	☐	☐	< 0.76						1	ug/L				
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)	☐	☐	☐	< 0.59						1	ug/L				
18B. Chrysene (218-01-9)	☐	☐	☐	< 0.029						1	ug/L				
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	☐	☐	☐	< 0.037						1	ug/L				
20B. 1,2-Dichlorobenzene (95-50-1)	☐	☐	☐	< 0.65						1	ug/L				
21B. 1,3-Dichlorobenzene (541-73-1)	☐	☐	☐	< 0.72						1	ug/L				
22B. 1,4-Dichlorobenzene (106-46-7)	☐	☐	☐	< 0.73						1	ug/L				
23B. 3,3'-Dichlorobenzidine (92-94-1)	☐	☐	☐	< 0.66						1	ug/L				
24B. Diethyl Phthalate (84-66-2)	☐	☐	☐	< 0.48						1	ug/L				
25B. Dimethyl Phthalate (131-11-3)	☐	☐	☐	< 0.61						1	ug/L				
26B. Di-N-Butyl Phthalate (84-74-2)	☐	☐	☐	< 0.39						1	ug/L				
27B. 2,4-Dinitrotoluene (121-14-2)	☐	☐	☐	< 0.50						1	ug/L				
28B. 2,6-Dinitrotoluene (606-20-2)	☐	☐	☐	< 0.61						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-00H

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
29B. Di-N-Octyl Phthalate (117-84-0)	☐	☐	☐	< 0.85						1	ug/L				
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	☐	☐	☐	< 0.63						1	ug/L				
31B. Fluoranthene (206-44-0)	☐	☐	☐	< 0.024						1	ug/L				
32B. Fluorene (86-73-7)	☐	☐	☐	< 0.022						1	ug/L				
33B. Hexachlorobenzene (118-74-1)	☐	☐	☐	< 0.76						1	ug/L				
34B. Hexachlorobutadiene (87-68-3)	☐	☐	☐	< 1.0						1	ug/L				
35B. Hexachlorocyclopentadiene (77-47-4)	☐	☐	☐	< 1.2						1	ug/L				
36B. Hexachloroethane (67-72-1)	☐	☐	☐	< 0.67						1	ug/L				
37B. Indeno *(1.2.3-cd)* Pyrene (193-39-5)	☐	☐	☐	< 0.037						1	ug/L				
38B. Isophorone (78-59-1)	☐	☐	☐	< 0.69						1	ug/L				
39B. Naphthalene (91-20-3)	☐	☐	☐	< 0.029						1	ug/L				
40B. Nitrobenzene (98-95-9)	☐	☐	☐	< 1.0						1	ug/L				
41B N-Nitrosodimethylamine (62-75-9)	☐	☐	☐	< 0.92						1	ug/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☐	☐	☐	< 0.89						1	ug/L				
43B. N-Nitro-sodiphenylamine (86-30-6)	☐	☐	☐	< 0.47						1	ug/L				
44B Phenanthrene (85-01-8)	☐	☐	☐	< 0.031						1	ug/L				
45B. Pyrene (129-00-0)	☐	☐	☐	< 0.020						1	ug/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	☐	☐	☐	< 0.79						1	ug/L				
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☐	☐	☒												
2P. -BHC (319-84-6)	☐	☐	☒												
3P -BHC (319-85-7)	☐	☐	☒												
4P. -BHC (58-89-9)	☐	☐	☒												
5P. -BHC (319-86-8)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-00H

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
6P. Chlordane (57-74-9)	☐	☐	☒												
7P. 4,4'-DDT (50-29-3)	☐	☐	☒												
8P. 4,4'-DDE (72-55-9)	☐	☐	☒												
9P. 4,4'-DDD (72-54-8)	☐	☐	☒												
10P. Dieldrin (60-57-1)	☐	☐	☒												
11P. -Endosulfan (115-29-7)	☐	☐	☒												
12P. -Endosulfan (115-29-7)	☐	☐	☒												
13P. Endosulfan Sulfate (1031-07-8)	☐	☐	☒												
14P. Endrin (72-20-8)	☐	☐	☒												
15P. Endrin Aldehyde (7421-92-4)	☐	☐	☒												
16P. Heptachlor (76-44-8)	☐	☐	☒												
17P. Heptachlor Epoxide (1024-57-3)	☐	☐	☒												
18P. PCB-1242 (53469-21-9)	☐	☐	☒												
19P. PCB-1254 (11097-69-1)	☐	☐	☒												
20P. PCB-1221 (11104-28-2)	☐	☐	☒												
21P. PCB-1232 (11141-16-5)	☐	☐	☒												
22P. PCB-1248 (12672-29-6)	☐	☐	☒												
23P. PCB-1260 (11096-82-5)	☐	☐	☒												
24P. PCB-1016 (12674-11-2)	☐	☐	☒												
25P. Toxaphene (8001-35-2)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-00F

PLEASE PRINT OR TYPE ONLY: You may report some or all of this information on separate sheets instead of completing these pages. Use the same format.
SEE INSTRUCTIONS.

VII. INTAKE AND EFFLUENT CHARACTERISTICS

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							3.. Units		4. Intake (optional)		
	a. Max. Daily Value		b. Max. 30-day Value		c. Annual Avg. Value		d. No. of Analyses	a. Concentration	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a Carbonaceous Biochemical Oxygen Demand (CBOD)	< 3.0						1	mg/L				
b. Chemical Oxygen Demand (COD)	1440						1	mg/L				
c. Total Organic Carbon (TOC)	8.1						1	mg/L				
d. Total Suspended Solids (TSS)	13.5						1	mg/L				
e. Total Nitrogen (as N)	1.0						1	mg/L				
f. Total Phosphorus (as P)	< 0.050						1	mg/L				
g. Ammonia (as N)	0.35						1	mg/L				
h. Flow - actual or projected	Value 43.5		Value 43.5		Value				MGD	Value		
i. Flow - design	Value 43.5		Value 43.5		Value				MGD	Value		
j. Specific Conductivity	Value 34,565		Value		Value		1	umhos/cm		Value		
k. Temperature (winter)	Value19.8		Value		Value		1	°C		Value		
l. Temperature (summer)	Value38.5		Value		Value		1	°C		Value		
m. . pH	Min. 7.7	Max 8.5	Min.	Max.			27	STANDARD UNITS				

PART B - Mark "X" in column 2a for each pollutant you know or have reason to believe is present. Mark "X" in column 2b 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 additonal details and requirements.

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a. believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc...	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Bromide (24949-67-9)	☐	☐	38.8						1	mg/L				
b. Chlorine, Total Residual	☐	☐	< 3.5						1	mg/L				
c. Color	☐	☐	20.0						1	PCU				
d. Fecal Coliform	☐	☐	6.0						1	CFU/100 mL				
e. Fluoride (16984-48-8)	☐	☐	5.6 (I)						1	mg/L				
f. Nitrate-Nitrite (as N)	☐	☐	0.031 (I)						1	mg/L				

: Item VII-B Contd. Facility ID. Number FL0000159 Outfall No. D-00F

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a .believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
g. Nitrogen, Total Organic (as N)	☐	☐	0.63						1	mg/L				
h. Oil and grease	☐	☐	< 1.4						1	mg/L				
i. Phosphorus, Total (as P) (7723-14-0)	☐	☐	< 0.050						1	mg/L				
j. Radioactivity														
(1) Alpha, Total	☐	☐	4.39 (+/- 1.55)						1	pCi/L				
(2) Beta, Total	☐	☐	346 (+/- 108)						1	pCi/L				
(3) Radium, Total	☐	☐	1.36 (+/- 0.967)						1	pCi/L				
(4) Radium 226, Total	☐	☐	< 0.0867 (+/- 0.550)						1	pCi/L				
k. Sulfate (as SO_4) (14808-79-8)	☐	☐	1,780						1	mg/L				
l. Sulfide (as S)	☐	☐	< 1.0						1	mg/L				
m. Sulfite (as SO_3) (14265-45-3)	☐	☐	< 10						1	mg/L				
n. Surfactants	☐	☐	0.48						1	mg/L				
o. Aluminum, Total (7429-90-5)	☐	☐	0.0957 (I)						1	mg/L				
p. Barium, Total (7440-39-3)	☐	☐	0.0127						1	mg/L				
q. Boron, Total (7440-42-8)	☐	☐	3.39						1	mg/L				
r. Cobalt, Total (7440-48-4)	☐	☐	< 0.005						1	mg/L				
s. Iron, Total (7439-89-6)	☐	☐	0.134						1	mg/L				
t. Maagnesium, Total (7439-95-4)	☐	☐	890						1	mg/L				
u. Molybdenum, Total (7439-98-7)	☐	☐	0.0079 (I)						1	mg/L				
v. Manganese, Total (7439-96-5)	☐	☐	< 0.012						1	mg/L				
w. Tin, Total (7440-31-5)	☐	☐	< 0.025						1	mg/L				
x. Titanium, Total (7440-32-6)	☐	☐	< 0.050						1	mg/L				

Facility ID. Number: FL0000159 Outfall No. D-00F

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 2a for all 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 2a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2b for each pollutant you know or have reason to believe is present. Mark "X" in column 2c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one anlysis for that pollutnat if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4.dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	☒	☐	☐	< 5.0						1	ug/L				
2M. Arsenic, Total (7723-14-0)	☒	☐	☐	< 5.0						1	ug/L				
3M. Beryllium, Total (7440-41-7)	☒	☐	☐	< 0.25						1	ug/L				
4M. Cadmium, Total (7440-43-9)	☒	☐	☐	< 0.50						1	ug/L				
5M. Chromium, Total (7440-47-3)	☒	☐	☐	< 12.5						1	ug/L				
6M. Copper, Total (7440-50-8)	☒	☐	☐	1.8						1	ug/L				
7M. Lead, Total (7439-92-1)	☒	☐	☐	< 0.50						1	ug/L				
8M. Mercury, Total (7439-97-6)	☒	☐	☐	0.000899						1	ug/L				
9M. Nickel, Total (7440-02-0)	☒	☐	☐	< 2.5						1	ug/L				
10M. Selenium, Total (7782-49-2)	☒	☐	☐	< 7.5						1	ug/L				
11M. Silver, Total (7440-22-4)	☒	☐	☐	< 2.5						1	ug/L				
12M. Thallium, Total (7440-28-0)	☒	☐	☐	< 0.50						1	ug/L				
13M. Zinc, Total (7440-66-6)	☒	☐	☐	< 10.0						1	ug/L				
14M. Cyanide, Total (57-12-5)	☒	☐	☐	< 5.0						1	ug/L				
15M. Phenols, Total	☒	☐	☐	< 5.0						1	ug/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	☒												
GC/MS FRACTION, VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☐	☐	☐	< 10.0						1	ug/L				
2V. Acrylonitrile (107-13-1)	☐	☐	☐	< 5.0						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-00F

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
3V. Benzene (71-43-2)	☐	☐	☐	< 0.50						1	ug/L				
4V. Bis (Chloromethyl) Ether (542-88-1)	☐	☐	☒												
5V. Bromoform (75-25-2)	☐	☐	☐	< 0.50						1	ug/L				
6V. Carbon Tetrachloride (56-23-5)	☐	☐	☐	< 0.50						1	ug/L				
7V Chlorobenzene (108-90-7)	☐	☐	☐	< 0.40						1	ug/L				
8V. Chlorodi-bromomethane (124-8-1)	☐	☐	☐	< 0.25						1	ug/L				
9V. Chloroethane (74-00-3)	☐	☐	☐	< 0.61						1	ug/L				
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	☐	☐	☐	< 5.0						1	ug/L				
11V. Chloroform (67-86-3)	☐	☐	☐	< 0.50						1	ug/L				
12V. Dichloro-bromomethane (75-24-4)	☐	☐	☐	< 0.30						1	ug/L				
13V. Dichloro-difluoromethane (75-71-8)	☐	☐	☐	< 0.50						1	ug/L				
14V. 1,1-Dichloroethane (75-34-3)	☐	☐	☐	< 0.50						1	ug/L				
15V. 1,2-Dichloroethane (107-06-2)	☐	☐	☐	< 0.50						1	ug/L				
16V. 1,1-Dichloroethylene (75-35-4)	☐	☐	☐	< 0.71						1	ug/L				
17V. 1,2,-Dichloropropane (78-87-5)	☐	☐	☐	< 0.50						1	ug/L				
18V. 1,3-Dichloropropylene (542-75-6)	☐	☐	☐	< 0.50						1	ug/L				
19V. Ethylbenzene (100-41-4)	☐	☐	☐	< 0.50						1	ug/L				
20V. Methyl Bromide (74-83-9)	☐	☐	☐	< 0.50						1	ug/L				
21V. Methyl Chloride (74-87-3)	☐	☐	☐	< 0.50						1	ug/L				
22V. Methylene Chloride (74-98-2)	☐	☐	☐	< 2.5						1	ug/L				
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)	☐	☐	☐	< 0.17						1	ug/L				
24V. Tetrachloroethylene (127-18-4)	☒	☐	☐	< 0.50						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-00F

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
25V. Toluene (108-88-3)	☐	☐	☐	< 0.50						1	ug/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	☐	☐	☐	< 0.50						1	ug/L				
27V. 1,1,2-Trichloroethane (71-55-6)	☐	☐	☐	< 0.50						1	ug/L				
28V. 1,1,2-Trichloroethane (79-00-5)	☐	☐	☐	< 0.50						1	ug/L				
29V. Trichloroethylene (79-01-6)	☐	☐	☐	< 0.50						1	ug/L				
30V. Trichloro-fluoromethane (75-69-4)	☐	☐	☐	< 0.66						1	ug/L				
31V. Vinyl Chloride (75-01-4)	☐	☐	☐	< 0.53						1	ug/L				
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	☐	☐	☐	< 0.63						1	ug/L				
2A. 2,4-Dichlorophenol (120-83-2)	☐	☐	☐	< 0.52						1	ug/L				
3A. 2,4-Dimethylphenol (105-67-9)	☐	☐	☐	< 1.5						1	ug/L				
4A. 4,6-Dinitro-O-Cresol (534-53-1)	☐	☐	☐	< 1.2						1	ug/L				
5A. 2,4-Dinitrophenol (51-28-5)	☐	☐	☐	< 1.5						1	ug/L				
6A. 2-Nitrophenol (88-75-5)	☐	☐	☐	< 0.75						1	ug/L				
7A. 4-Nitrophenol (100-02-7)	☐	☐	☐	< 1.0						1	ug/L				
8A P-Chloro-M-Cresol (59-50-7)	☐	☐	☐	< 0.58						1	ug/L				
9A Pentachlorophenol (87-86-5)	☐	☐	☐	< 0.61						1	ug/L				
10A Phenol (108-95-2)	☐	☐	☐	< 0.50						1	ug/L				
11A 2,4,5-Trichloro-phenol (88-06-2)	☐	☐	☐	< 0.64						1	ug/L				
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (63-32-9)	☐	☐	☐	< 0.018						1	ug/L				
2B. Acenaphtylene (208-96-8)	☐	☐	☐	< 0.017						1	ug/L				
3B. Anthracene (120-12-7)	☐	☐	☐	< 0.018						1	ug/L				
4B. Benzidine (92-87-5)	☐	☐	☐	< 0.72						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-00F

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
5B. Benzo *(a)* Anthracene (56-55-3)	☐	☐	☐	< 0.012						1	ug/L				
6B. Benzo *(a)* Pyrene (50-32-8)	☐	☐	☐	< 0.021						1	ug/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	☐	☐	☐	< 0.015						1	ug/L				
8B. Benzo *(ghi)* Perylene (191-24-2)	☐	☐	☐	< 0.016						1	ug/L				
9B. Benzo *(k)* Fluoranthene (207-08-9)	☐	☐	☐	< 0.022						1	ug/L				
10B. Bis *(2-Chloroethoxy)* Methane (111-91-1)	☐	☐	☐	< 2.7						1	ug/L				
11B. Bis *(2-chloroethyl)* Ether (111-44-4)	☐	☐	☐	< 0.70						1	ug/L				
12B. Bis *(2-Chloroisopropyl)* Ether (102-60-1)	☐	☐	☐	< 0.68						1	ug/L				
13B. Bis *(2-Ethylhexyl)* Phthalate (117-81-7)	☐	☐	☐	< 0.74						1	ug/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐	☐	< 0.62						1	ug/L				
15B Butyl Benzyl Phthalate (84-68-7)	☐	☐	☐	<0.67						1	ug/L				
16B. 2-Chloronaphthalene (91-58-7)	☐	☐	☐	< 0.74						1	ug/L				
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)	☐	☐	☐	< 0.58						1	ug/L				
18B. Chrysene (218-01-9)	☐	☐	☐	< 0.014						1	ug/L				
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	☐	☐	☐	< 0.018						1	ug/L				
20B. 1,2-Dichlorobenzene (95-50-1)	☐	☐	☐	< 0.63						1	ug/L				
21B. 1,3-Dichlorobenzene (541-73-1)	☐	☐	☐	< 0.71						1	ug/L				
22B. 1,4-Dichlorobenzene (106-46-7)	☐	☐	☐	< 0.72						1	ug/L				
23B. 3,3'-Dichlorobenzidine (92-94-1)	☐	☐	☐	< 0.64						1	ug/L				
24B. Diethyl Phthalate (84-66-2)	☐	☐	☐	< 0.47						1	ug/L				
25B. Dimethyl Phthalate (131-11-3)	☐	☐	☐	< 0.60						1	ug/L				
26B. Di-N-Butyl Phthalate (84-74-2)	☐	☐	☐	< 0.38						1	ug/L				
27B. 2,4-Dinitrotoluene (121-14-2)	☐	☐	☐	< 0.49						1	ug/L				
28B. 2,6-Dinitrotoluene (606-20-2)	☐	☐	☐	< 0.60						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-00F

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
29B. Di-N-Octyl Phthalate (117-84-0)	☐	☐	☐	< 0.84						1	ug/L				
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	☐	☐	☐	< 0.61						1	ug/L				
31B. Fluoranthene (206-44-0)	☐	☐	☐	< 0.011						1	ug/L				
32B. Fluorene (86-73-7)	☐	☐	☐	< 0.010						1	ug/L				
33B. Hexachlorobenzene (118-74-1)	☐	☐	☐	< 0.74						1	ug/L				
34B. Hexachlorobutadiene (87-68-3)	☐	☐	☐	< 1.0						1	ug/L				
35B. Hexachlorocyclopentadiene (77-47-4)	☐	☐	☐	< 1.2						1	ug/L				
36B. Hexachloroethane (67-72-1)	☐	☐	☐	< 0.66						1	ug/L				
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	☐	☐	☐	< 0.018						1	ug/L				
38B. Isophorone (78-59-1)	☐	☐	☐	< 0.68						1	ug/L				
39B. Naphthalene (91-20-3)	☐	☐	☐	< 0.014						1	ug/L				
40B. Nitrobenzene (98-95-9)	☐	☐	☐	< 1.0						1	ug/L				
41B N-Nitrosodimethylamine (62-75-9)	☐	☐	☐	< 0.90						1	ug/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☐	☐	☐	< 0.87						1	ug/L				
43B. N-Nitro-sodiphenylamine (86-30-6)	☐	☐	☐	< 0.46						1	ug/L				
44B Phenanthrene (85-01-8)	☐	☐	☐	< 0.015						1	ug/L				
45B. Pyrene (129-00-0)	☐	☐	☐	< 0.0094						1	ug/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	☐	☐	☐	< 0.77						1	ug/L				
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☐	☐	☒												
2P. -BHC (319-84-6)	☐	☐	☒												
3P -BHC (319-85-7)	☐	☐	☒												
4P. -BHC (58-89-9)	☐	☐	☒												
5P. -BHC (319-86-8)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-00F

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
6P. Chlordane (57-74-9)	☐	☐	☒												
7P. 4,4'-DDT (50-29-3)	☐	☐	☒												
8P. 4,4'-DDE (72-55-9)	☐	☐	☒												
9P. 4,4'-DDD (72-54-8)	☐	☐	☒												
10P. Dieldrin (60-57-1)	☐	☐	☒												
11P. -Endosulfan (115-29-7)	☐	☐	☒												
12P. -Endosulfan (115-29-7)	☐	☐	☒												
13P. Endosulfan Sulfate (1031-07-8)	☐	☐	☒												
14P. Endrin (72-20-8)	☐	☐	☒												
15P. Endrin Aldehyde (7421-92-4)	☐	☐	☒												
16P. Heptachlor (76-44-8)	☐	☐	☒												
17P. Heptachlor Epoxide (1024-57-3)	☐	☐	☒												
18P. PCB-1242 (53469-21-9)	☐	☐	☒												
19P. PCB-1254 (11097-69-1)	☐	☐	☒												
20P. PCB-1221 (11104-28-2)	☐	☐	☒												
21P. PCB-1232 (11141-16-5)	☐	☐	☒												
22P. PCB-1248 (12672-29-6)	☐	☐	☒												
23P. PCB-1260 (11096-82-5)	☐	☐	☒												
24P. PCB-1016 (12674-11-2)	☐	☐	☒												
25P. Toxaphene (8001-35-2)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. I-FG (SDT-1)

PLEASE PRINT OR TYPE ONLY: You may report some or all of this information on separate sheets instead of completing these pages. Use the same format.
SEE INSTRUCTIONS.

VII. INTAKE AND EFFLUENT CHARACTERISTICS

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							3.. Units		4. Intake (optional)		
	a. Max. Daily Value		b. Max. 30-day Value		c. Annual Avg. Value		d. No. of Analyses	a. Concentration	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a Carbonaceous Biochemical Oxygen Demand (CBOD)	3.79						1	mg/L				
b. Chemical Oxygen Demand (COD)	65.2						1	mg/L				
c. Total Organic Carbon (TOC)	16.2						1	mg/L				
d. Total Suspended Solids (TSS)	47.0		25.07		12.75		26	mg/L				
e. Total Nitrogen (as N)	6.35						1	mg/L				
f. Total Phosphorus (as P)	0.334						1	mg/L				
g. Ammonia (as N)	1.45						1	mg/L				
h. Flow - actual or projected	Value 0.0852		Value 0.0811		Value 0.0167		26		mgd	Value		
i. Flow - design	Value		Value		Value					Value		
j. Specific Conductivity	Value 424		Value		Value		1	umhos/cm		Value		
k. Temperature (winter)	Value 19.0		Value		Value		1	°C		Value		
l. Temperature (summer)	Value		Value		Value			°C		Value		
m. . pH	Min. 7.4	Max. 8.7	Min.	Max.			26	STANDARD UNITS				

PART B - Mark "X" in column 2a for each pollutant you know or have reason to believe is present. Mark "X" in column 2b 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 additonal details and requirements.

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a. believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc...	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Bromide (24949-67-9)	☐	☐	1.85						1	mg/L				
b. Chlorine, Total Residual	☐	☒												
c. Color	☐	☐	40						1	PCU				
d. Fecal Coliform	☐	☒												
e. Fluoride (16984-48-8)	☐	☐	0.140						1	mg/L				
f. Nitrate-Nitrite (as N)	☐	☐	0.0482						1	mg/L				

: Item VII-B Contd.

Facility ID. Number FL0000159 Outfall No. I-FG (SDT-1)

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effuent							4. Units		5. Intake (optional)		
	a .believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
g. Nitrogen, Total Organic (as N)	☐	☐	4.85						1	mg/L				
h. Oil and grease	☐	☐	12.5		8.29		2.63		26	mg/L				
i. Phosphorus, Total (as P) (7723-14-0)	☐	☐	0.334						1	mg/L				
j. Radioactivity														
(1) Alpha, Total	☐	☐	< 2.75 (+/- 2.40)						1	pCi/L				
(2) Beta, Total	☐	☐	20.6 (+/- 4.22)						1	pCi/L				
(3) Radium, Total	☐	☐	0.728 (+/- 0.499)						1	pCi/L				
(4) Radium 226, Total	☐	☐	1.19 (+/- 0.398)						1	pCi/L				
k. Sulfate (as SO_4) (14808-79-8)	☐	☐	15.2						1	mg/L				
l. Sulfide (as S)	☐	☐	< 0.033						1	mg/L				
m. Sulfite (as SO_3) (14265-45-3)	☐	☐	N/A											
n. Surfactants	☐	☐	0.0184 (I)						1	mg/L				
o. Aluminum, Total (7429-90-5)	☐	☐	0.117						1	mg/L				
p. Barium, Total (7440-39-3)	☐	☐	0.00827						1	mg/L				
q. Boron, Total (7440-42-8)	☐	☐	0.0525						1	mg/L				
r. Cobalt, Total (7440-48-4)	☐	☐	0.00042 (I)						1	mg/L				
s. Iron, Total (7439-89-6)	☐	☐	1.21						1	mg/L				
t. Maagnesium, Total (7439-95-4)	☐	☐	12.0						1	mg/L				
u. Molybdenum, Total (7439-98-7)	☐	☐	0.512						1	mg/L				
v. Manganese, Total (7439-96-5)	☐	☐	0.0278						1	mg/L				
w. Tin, Total (7440-31-5)	☐	☐	< 0.001						1	mg/L				
x. Titanium, Total (7440-32-6)	☐	☐	0.00273						1	mg/L				

Facility ID. Number: FL0000159 Outfall No. I-FG (SDT-1)

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 2a for all 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 2a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2b for each pollutant you know or have reason to believe is present. Mark "X" in column 2c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one anlysis for that pollutnat if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4,dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	☐	☐	☐	< 0.600						1	ug/L				
2M. Arsenic, Total (7723-14-0)	☐	☐	☐	3.49 (I)						1	ug/L				
3M. Beryllium, Total (7440-41-7)	☐	☐	☐	< 0.200						1	ug/L				
4M. Cadmium, Total (7440-43-9)	☐	☐	☐	0.128						1	ug/L				
5M. Chromium, Total (7440-47-3)	☐	☐	☐	1.25 (I)						1	ug/L				
6M. Copper, Total (7440-50-8)	☐	☐	☐	Pending											
7M. Lead, Total (7439-92-1)	☐	☐	☐	3.38						1	ug/L				
8M. Mercury, Total (7439-97-6)	☐	☐	☐	0.0173						1	ug/L				
9M. Nickel, Total (7440-02-0)	☐	☐	☐	162						1	ug/L				
10M. Selenium, Total (7782-49-2)	☐	☐	☐	8.59						1	ug/L				
11M. Silver, Total (7440-22-4)	☐	☐	☐	< 0.200						1	ug/L				
12M. Thallium, Total (7440-28-0)	☐	☐	☐	0.160 (I)						1	ug/L				
13M. Zinc, Total (7440-66-6)	☐	☐	☐	0.0945						1	mg/L				
14M. Cyanide, Total (57-12-5)	☐	☐	☐	< 1.67						1	ug/L				
15M. Phenols, Total	☐	☐	☐	pending						1	ug/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	☒												
GC/MS FRACTION-VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☐	☐	☐	< 1.50						1	ug/L				
2V. Acrylonitrile (107-13-1)	☐	☐	☐	< 1.50						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. I-FG (SDT-1)

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
3V. Benzene (71-43-2)	☐	☐	☐	< 0.300						1	ug/L				
4V. Bis (Chloromethyl) Ether (542-88-1)	☐	☐	☒												
5V. Bromoform (75-25-2)	☐	☐	☐	< 0.300						1	ug/L				
6V. Carbon Tetrachloride (56-23-5)	☐	☐	☐	< 0.300						1	ug/L				
7V Chlorobenzene (108-90-7)	☐	☐	☐	< 0.300						1	ug/L				
8V. Chlorodi-bromomethane (124-8-1)	☐	☐	☐	0.880 (I)						1	ug/L				
9V. Chloroethane (74-00-3)	☐	☐	☐	< 0.300						1	ug/L				
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	☐	☐	☐	Pending											
11V. Chloroform (67-86-3)	☐	☐	☐	< 0.300						1	ug/L				
12V. Dichloro-bromomethane (75-24-4)	☐	☐	☐	< 0.300						1	ug/L				
13V. Dichloro-difluoromethane (75-71-8)	☐	☐	☐	< 0.300						1	ug/L				
14V. 1,1-Dichloroethane (75-34-3)	☐	☐	☐	< 0.300						1	ug/L				
15V. 1,2-Dichloroethane (107-06-2)	☐	☐	☐	< 0.300						1	ug/L				
16V. 1,1-Dichloroethylene (75-35-4)	☐	☐	☐	< 0.300						1	ug/L				
17V. 1,2,-Dichloropropane (78-87-5)	☐	☐	☐	< 0.300						1	ug/L				
18V. 1,3-Dichloropropylene (542-75-6)	☐	☐	☐	< 0.300						1	ug/L				
19V. Ethylbenzene (100-41-4)	☐	☐	☐	< 0.300						1	ug/L				
20V. Methyl Bromide (74-83-9)	☐	☐	☐	< 0.300						1	ug/L				
21V. Methyl Chloride (74-87-3)	☐	☐	☐	< 0.300						1	ug/L				
22V. Methylene Chloride (74-98-2)	☐	☐	☐	< 1.00						1	ug/L				
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)	☐	☐	☐	< 0.300						1	ug/L				
24V. Tetrachloroethylene (127-18-4)	☐	☐	☐	< 0.300						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. I-FG (SDT-1)

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
25V. Toluene (108-88-3)	☐	☐	☐	0.630 (I)						1	ug/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	☐	☐	☐	< 0.300						1	ug/L				
27V. 1,1,2-Trichloroethane (71-55-6)	☐	☐	☐	< 0.300						1	ug/L				
28V. 1,1,2-Trichloroethane (79-00-5)	☐	☐	☐	< 0.300						1	ug/L				
29V. Trichloroethylene (79-01-6)	☐	☐	☐	< 0.300						1	ug/L				
30V. Trichloro-fluoromethane (75-69-4)	☐	☐	☐	< 0.300						1	ug/L				
31V. Vinyl Chloride (75-01-4)	☐	☐	☐	< 0.300						1	ug/L				
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	☐	☐	☐	pending											
2A. 2,4-Dichlorophenol (120-83-2)	☐	☐	☐	pending											
3A. 2,4-Dimethylphenol (105-67-9)	☐	☐	☐	pending											
4A. 4,6-Dinitro-O-Cresol (534-53-1)	☐	☐	☐	pending											
5A. 2,4-Dinitrophenol (51-28-5)	☐	☐	☐	pending											
6A. 2-Nitrophenol (88-75-5)	☐	☐	☐	pending											
7A. 4-Nitrophenol (100-02-7)	☐	☐	☐	pending											
8A P-Chloro-M-Cresol (59-50-7)	☐	☐	☐	pending											
9A Pentachlorophenol (87-86-5)	☐	☐	☐	pending											
10A Phenol (108-95-2)	☐	☐	☐	pending											
11A 2,4,5-Trichloro-phenol (88-06-2)	☐	☐	☐	pending											
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (63-32-9)	☐	☐	☐	pending											
2B. Acenaphtylene (208-96-8)	☐	☐	☐	pending											
3B. Anthracene (120-12-7)	☐	☐	☐	pending											
4B. Benzidine (92-87-5)	☐	☐	☐	pending											

Facility ID. Number: FL0000159 Outfall No. I-FG (SDT-1)

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
5B. Benzo *(a)* Anthracene (56-55-3)	☐	☐	☐	pending											
6B. Benzo *(a)* Pyrene (50-32-8)	☐	☐	☐	pending											
7B. 3,4-Benzo-fluoranthene (205-99-2)	☐	☐	☐	pending											
8B. Benzo *(ghi)* Perylene (191-24-2)	☐	☐	☐	pending											
9B. Benzo *(k)* Fluoranthene (207-08-9)	☐	☐	☐	pending											
10B. Bis *(2-Chloroethoxy)* Methane (111-91-1)	☐	☐	☐	pending											
11B. Bis *(2-chloroethyl)* Ether (111-44-4)	☐	☐	☐	pending											
12B. Bis *(2-Chloroisopropyl)* Ether (102-60-1)	☐	☐	☐	pending											
13B. Bis *(2-Ethylhexyl)* Phthalate (117-81-7)	☐	☐	☐	pending											
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐	☐	pending											
15B Butyl Benzyl Phthalate (84-68-7)	☐	☐	☐	pending											
16B. 2-Chloronaphthalene (91-58-7)	☐	☐	☐	pending											
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)	☐	☐	☐	pending											
18B. Chrysene (218-01-9)	☐	☐	☐	pending											
19B. Dibenzo *(a.h)* Anthracene (53-70-3)	☐	☐	☐	pending											
20B. 1,2-Dichlorobenzene (95-50-1)	☐	☐	☐	pending											
21B. 1,3-Dichlorobenzene (541-73-1)	☐	☐	☐	pending											
22B. 1,4-Dichlorobenzene (106-46-7)	☐	☐	☐	pending											
23B. 3,3'-Dichlorobenzidine (92-94-1)	☐	☐	☐	pending											
24B. Diethyl Phthalate (84-66-2)	☐	☐	☐	pending											
25B. Dimethyl Phthalate (131-11-3)	☐	☐	☐	pending											
26B. Di-N-Butyl Phthalate (84-74-2)	☐	☐	☐	pending											
27B. 2,4-Dinitrotoluene (121-14-2)	☐	☐	☐	pending											
28B. 2,6-Dinitrotoluene (606-20-2)	☐	☐	☐	pending											

Facility ID. Number: FL0000159 Outfall No. I-FG (SDT-1)

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
29B. Di-N-Octyl Phthalate (117-84-0)	☐	☐	☐	pending											
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	☐	☐	☐	pending											
31B. Fluoranthene (206-44-0)	☐	☐	☐	pending											
32B. Fluorene (86-73-7)	☐	☐	☐	pending											
33B. Hexachlorobenzene (118-74-1)	☐	☐	☐	pending											
34B. Hexachlorobutadiene (87-68-3)	☐	☐	☐	pending											
35B. Hexachlorocyclopentadiene (77-47-4)	☐	☐	☐	pending											
36B. Hexachloroethane (67-72-1)	☐	☐	☐	pending											
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	☐	☐	☐	pending											
38B. Isophorone (78-59-1)	☐	☐	☐	pending											
39B. Naphthalene (91-20-3)	☐	☐	☐	pending											
40B. Nitrobenzene (98-95-9)	☐	☐	☐	pending											
41B N-Nitrosodimethylamine (62-75-9)	☐	☐	☐	pending											
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☐	☐	☐	pending											
43B. N-Nitro-sodiphenylamine (86-30-6)	☐	☐	☐	pending											
44B Phenanthrene (85-01-8)	☐	☐	☐	pending											
45B. Pyrene (129-00-0)	☐	☐	☐	pending											
46B. 1,2,4-Trichlorobenzene (120-82-1)	☐	☐	☐	pending											
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☐	☐	☒												
2P. -BHC (319-84-6)	☐	☐	☒												
3P -BHC (319-85-7)	☐	☐	☒												
4P. -BHC (58-89-9)	☐	☐	☒												
5P. -BHC (319-86-8)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. I-FG (SDT-1)

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
6P. Chlordane (57-74-9)	☐	☐	☒												
7P. 4,4'-DDT (50-29-3)	☐	☐	☒												
8P. 4,4'-DDE (72-55-9)	☐	☐	☒												
9P. 4,4'-DDD (72-54-8)	☐	☐	☒												
10P. Dieldrin (60-57-1)	☐	☐	☒												
11P. -Endosulfan (115-29-7)	☐	☐	☒												
12P. -Endosulfan (115-29-7)	☐	☐	☒												
13P. Endosulfan Sulfate (1031-07-8)	☐	☐	☒												
14P. Endrin (72-20-8)	☐	☐	☒												
15P. Endrin Aldehyde (7421-92-4)	☐	☐	☒												
16P. Heptachlor (76-44-8)	☐	☐	☒												
17P. Heptachlor Epoxide (1024-57-3)	☐	☐	☒												
18P. PCB-1242 (53469-21-9)	☐	☐	☒												
19P. PCB-1254 (11097-69-1)	☐	☐	☒												
20P. PCB-1221 (11104-28-2)	☐	☐	☒												
21P. PCB-1232 (11141-16-5)	☐	☐	☒												
22P. PCB-1248 (12672-29-6)	☐	☐	☒												
23P. PCB-1260 (11096-82-5)	☐	☐	☒												
24P. PCB-1016 (12674-11-2)	☐	☐	☒												
25P. Toxaphene (8001-35-2)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. I-FE (LSST)

PLEASE PRINT OR TYPE ONLY: You may report some or all of this information on separate sheets instead of completing these pages. Use the same format.
SEE INSTRUCTIONS.

VII. INTAKE AND EFFLUENT CHARACTERISTICS

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							3.. Units		4. Intake (optional)		
	a. Max. Daily Value		b. Max. 30-day Value		c. Annual Avg. Value		d. No. of Analyses	a. Concentration	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a.Carbonaceous Biochemical Oxygen Demand (CBOD)	N/A											
b. Chemical Oxygen Demand (COD)	122						1	mg/L				
c. Total Organic Carbon (TOC)	27.0						1	mg/L				
d. Total Suspended Solids (TSS)	47.0		24.5		7.2		25	mg/L				
e. Total Nitrogen (as N)	9.34						1	mg/L				
f. Total Phosphorus (as P)	2.43						1	mg/L				
g. Ammonia (as N)	3.24						1	mg/L				
h. Flow - actual or projected	Value 0.0821		Value 0.0800		Value 0.0081		25		mgd	Value		
i. Flow - design	Value		Value		Value					Value		
j. Specific Conductivity	Value 561		Value		Value		1	umhos/cm		Value		
k. Temperature (winter)	Value27.0		Value		Value		1	°C		Value		
l. Temperature (summer)	Value		Value		Value			°C		Value		
m. . pH	Min. 6.1	Max. 8.8	Min.	Max.			25	STANDARD UNITS				

PART B - Mark "X" in column 2a for each pollutant you know or have reason to believe is present. Mark "X" in column 2b 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 additonal details and requirements.

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent						d. No. of Analyses	4. Units		5. Intake (optional)		
	a. believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)			a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc...	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Bromide (24949-67-9)	☐	☐	0.0835 (I)						1	mg/L				
b. Chlorine, Total Residual	☐	☒												
c. Color	☐	☐	150						1	PCU				
d. Fecal Coliform	☐	☒												
e. Fluoride (16984-48-8)	☐	☐	0.140						1	mg/L				
f. Nitrate-Nitrite (as N)	☐	☐	0.008						1	mg/L				

: Item VII-B Contd.

Facility ID. Number FL0000159 Outfall No. I-FE (LSST)

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a .believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
g. Nitrogen, Total Organic (as N)	☐	☐	6.10						1	mg/L				
h. Oil and grease	☐	☐	8.39		7.54		2.81		25	mg/L				
i. Phosphorus, Total (as P) (7723-14-0)	☐	☐	2.43						1	mg/L				
j. Radioactivity														
(1) Alpha, Total	☐	☐	< 0.501 (+/- 2.71)						1	pCi/L				
(2) Beta, Total	☐	☐	114 (+/- 8.86)						1	pCi/L				
(3) Radium, Total	☐	☐	< 0.177 (+/- 0.339)						1	pCi/L				
(4) Radium 226, Total	☐	☐	0.692 (+/- 0.282)						1	pCi/L				
k. Sulfate (as SO_4) (14808-79-8)	☐	☐	45.7						1	mg/L				
l. Sulfide (as S)	☐	☐	pending											
m. Sulfite (as SO_3) (14265-45-3)	☐	☐	N/A											
n. Surfactants	☐	☐	0.146						1	mg/L				
o. Aluminum, Total (7429-90-5)	☐	☐	0.0843						1	mg/L				
p. Barium, Total (7440-39-3)	☐	☐	0.0663						1	mg/L				
q. Boron, Total (7440-42-8)	☐	☐	1.020						1	mg/L				
r. Cobalt, Total (7440-48-4)	☐	☐	0.0013						1	mg/L				
s. Iron, Total (7439-89-6)	☐	☐	2.11						1	mg/L				
t. Maagnesium, Total (7439-95-4)	☐	☐	5.52						1	mg/L				
u. Molybdenum, Total (7439-98-7)	☐	☐	0.731						1	mg/L				
v. Manganese, Total (7439-96-5)	☐	☐	0.150						1	mg/L				
w. Tin, Total (7440-31-5)	☐	☐	< 0.001						1	mg/L				
x. Titanium, Total (7440-32-6)	☐	☐	< 0.001						1	mg/L				

Facility ID. Number: FL0000159 Outfall No. I-FE (LSST)

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 2a for all 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 2a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2b for each pollutant you know or have reason to believe is present. Mark "X" in column 2c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one anlysis for that pollutnat if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4,dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	☐	☐	☐	0.612 (I)						1	ug/L				
2M. Arsenic, Total (7723-14-0)	☐	☐	☐	< 1.66						1	ug/L				
3M. Beryllium, Total (7440-41-7)	☐	☐	☐	< 0.200						1	ug/L				
4M. Cadmium, Total (7440-43-9)	☐	☐	☐	0.092 (I)						1	ug/L				
5M. Chromium, Total (7440-47-3)	☐	☐	☐	62.3						1	ug/L				
6M. Copper, Total (7440-50-8)	☐	☐	☐	15.4						1	ug/L				
7M. Lead, Total (7439-92-1)	☐	☐	☐	14.6						1	ug/L				
8M. Mercury, Total (7439-97-6)	☐	☐	☐	pending											
9M. Nickel, Total (7440-02-0)	☐	☐	☐	59.6						1	ug/L				
10M. Selenium, Total (7782-49-2)	☐	☐	☐	< 1.50						1	ug/L				
11M. Silver, Total (7440-22-4)	☐	☐	☐	0.356 (I)						1	ug/L				
12M. Thallium, Total (7440-28-0)	☐	☐	☐	< 0.125						1	ug/L				
13M. Zinc, Total (7440-66-6)	☐	☐	☐	0.0922						1	mg/L				
14M. Cyanide, Total (57-12-5)	☐	☐	☐	2.17 (I)						1	ug/L				
15M. Phenols, Total	☐	☐	☐	24.0						1	ug/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	☒												
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☐	☐	☐	< 1.50						1	ug/L				
2V. Acrylonitrile (107-13-1)	☐	☐	☐	< 1.50						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. I-FE (LSST)

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
3V. Benzene (71-43-2)	☐	☐	☐	< 0.300						1	ug/L				
4V. Bis (Chloromethyl) Ether (542-88-1)	☐	☐	☒												
5V. Bromoform (75-25-2)	☐	☐	☐	< 0.300						1	ug/L				
6V. Carbon Tetrachloride (56-23-5)	☐	☐	☐	< 0.300						1	ug/L				
7V Chlorobenzene (108-90-7)	☐	☐	☐	< 0.300						1	ug/L				
8V. Chlorodi-bromomethane (124-8-1)	☐	☐	☐	< 0.300						1	ug/L				
9V. Chloroethane (74-00-3)	☐	☐	☐	< 0.300						1	ug/L				
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	☐	☐	☐	Pending											
11V. Chloroform (67-86-3)	☐	☐	☐	< 0.300						1	ug/L				
12V. Dichloro-bromomethane (75-24-4)	☐	☐	☐	< 0.300						1	ug/L				
13V. Dichloro-difluoromethane (75-71-8)	☐	☐	☐	< 0.300						1	ug/L				
14V. 1,1-Dichloroethane (75-34-3)	☐	☐	☐	< 0.300						1	ug/L				
15V. 1,2-Dichloroethane (107-06-2)	☐	☐	☐	< 0.300						1	ug/L				
16V. 1,1-Dichloroethylene (75-35-4)	☐	☐	☐	< 0.300						1	ug/L				
17V. 1,2,-Dichloropropane (78-87-5)	☐	☐	☐	< 0.300						1	ug/L				
18V. 1,3-Dichloropropylene (542-75-6)	☐	☐	☐	< 0.300						1	ug/L				
19V. Ethylbenzene (100-41-4)	☐	☐	☐	< 0.300						1	ug/L				
20V. Methyl Bromide (74-83-9)	☐	☐	☐	< 0.300						1	ug/L				
21V. Methyl Chloride (74-87-3)	☐	☐	☐	< 0.300						1	ug/L				
22V. Methylene Chloride (74-98-2)	☐	☐	☐	< 1.00						1	ug/L				
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)	☐	☐	☐	< 0.300						1	ug/L				
24V. Tetrachloroethylene (127-18-4)	☐	☐	☐	< 0.300						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. I-FE (LSST)

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
25V. Toluene (108-88-3)	☐	☐	☐	< 0.300						1	ug/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	☐	☐	☐	< 0.300						1	ug/L				
27V. 1,1,2-Trichloroethane (71-55-6)	☐	☐	☐	< 0.300						1	ug/L				
28V. 1,1,2-Trichloroethane (79-00-5)	☐	☐	☐	< 0.300						1	ug/L				
29V. Trichloroethylene (79-01-6)	☐	☐	☐	< 0.300						1	ug/L				
30V. Trichloro-fluoromethane (75-69-4)	☐	☐	☐	< 0.300						1	ug/L				
31V. Vinyl Chloride (75-01-4)	☐	☐	☐	< 0.300						1	ug/L				
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	☐	☐	☐	< 3.26						1	ug/L				
2A. 2,4-Dichlorophenol (120-83-2)	☐	☐	☐	< 3.26						1	ug/L				
3A. 2,4-Dimethylphenol (105-67-9)	☐	☐	☐	< 3.26						1	ug/L				
4A. 4,6-Dinitro-O-Cresol (534-53-1)	☐	☐	☐	< 3.26						1	ug/L				
5A. 2,4-Dinitrophenol (51-28-5)	☐	☐	☐	< 5.43						1	ug/L				
6A. 2-Nitrophenol (88-75-5)	☐	☐	☐	< 3.26						1	ug/L				
7A. 4-Nitrophenol (100-02-7)	☐	☐	☐	< 3.26						1	ug/L				
8A P-Chloro-M-Cresol (59-50-7)	☐	☐	☐	< 3.26						1	ug/L				
9A Pentachlorophenol (87-86-5)	☐	☐	☐	< 3.26						1	ug/L				
10A Phenol (108-95-2)	☐	☐	☐	< 3.26						1	ug/L				
11A 2,4,5-Trichloro-phenol (88-06-2)	☐	☐	☐	< 3.26						1	ug/L				
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (63-32-9)	☐	☐	☐	< 0.326						1	ug/L				
2B. Acenaphtylene (208-96-8)	☐	☐	☐	< 0.326						1	ug/L				
3B. Anthracene (120-12-7)	☐	☐	☐	< 0.326						1	ug/L				
4B. Benzidine (92-87-5)	☐	☐	☐	< 3.26						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. I-FE (LSST)

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
5B. Benzo *(a)* Anthracene (56-55-3)	☐	☐	☐	< 0.326						1	ug/L				
6B. Benzo *(a)* Pyrene (50-32-8)	☐	☐	☐	< 0.478						1	ug/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	☐	☐	☐	< 0.326						1	ug/L				
8B. Benzo *(ghi)* Perylene (191-24-2)	☐	☐	☐	< 0.326						1	ug/L				
9B. Benzo *(k)* Fluoranthene (207-08-9)	☐	☐	☐	< 0.326						1	ug/L				
10B. Bis *(2-Chloroethoxy)* Methane (111-91-1)	☐	☐	☐	< 3.26						1	ug/L				
11B. Bis *(2-chloroethyl)* Ether (111-44-4)	☐	☐	☐	< 3.26						1	ug/L				
12B. Bis *(2-Chloroisopropyl)* Ether (102-60-1)	☐	☐	☐	< 3.26						1	ug/L				
13B. Bis *(2-Ethylhexyl)* Phthalate (117-81-7)	☐	☐	☐	< 3.26						1	ug/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐	☐	< 3.26						1	ug/L				
15B Butyl Benzyl Phthalate (84-68-7)	☐	☐	☐	< 3.26						1	ug/L				
16B. 2-Chloronaphthalene (91-58-7)	☐	☐	☐	< 0.326						1	ug/L				
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)	☐	☐	☐	< 3.26						1	ug/L				
18B. Chrysene (218-01-9)	☐	☐	☐	< 0.326						1	ug/L				
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	☐	☐	☐	< 0.326						1	ug/L				
20B. 1,2-Dichlorobenzene (95-50-1)	☐	☐	☐	< 3.26						1	ug/L				
21B. 1,3-Dichlorobenzene (541-73-1)	☐	☐	☐	< 3.26						1	ug/L				
22B. 1,4-Dichlorobenzene (106-46-7)	☐	☐	☐	< 3.26						1	ug/L				
23B. 3,3'-Dichlorobenzidine (92-94-1)	☐	☐	☐	< 3.26						1	ug/L				
24B. Diethyl Phthalate (84-66-2)	☐	☐	☐	< 3.26						1	ug/L				
25B. Dimethyl Phthalate (131-11-3)	☐	☐	☐	< 3.26						1	ug/L				
26B. Di-N-Butyl Phthalate (84-74-2)	☐	☐	☐	< 3.26						1	ug/L				
27B. 2,4-Dinitrotoluene (121-14-2)	☐	☐	☐	< 3.26						1	ug/L				
28B. 2,6-Dinitrotoluene (606-20-2)	☐	☐	☐	< 3.26						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. I-FE (LSST)

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
29B. Di-N-Octyl Phthalate (117-84-0)	☐	☐	☐	< 3.26						1	ug/L				
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	☐	☐	☐	< 3.26						1	ug/L				
31B. Fluoranthene (206-44-0)	☐	☐	☐	< 0.326						1	ug/L				
32B. Fluorene (86-73-7)	☐	☐	☐	< 0.326						1	ug/L				
33B. Hexachlorobenzene (118-74-1)	☐	☐	☐	< 3.26						1	ug/L				
34B. Hexachlorobutadiene (87-68-3)	☐	☐	☐	< 3.26						1	ug/L				
35B. Hexachlorocyclopentadiene (77-47-4)	☐	☐	☐	< 3.26						1	ug/L				
36B. Hexachloroethane (67-72-1)	☐	☐	☐	< 3.26						1	ug/L				
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	☐	☐	☐	< 0.326						1	ug/L				
38B. Isophorone (78-59-1)	☐	☐	☐	< 3.26						1	ug/L				
39B. Naphthalene (91-20-3)	☐	☐	☐	< 0.326						1	ug/L				
40B. Nitrobenzene (98-95-9)	☐	☐	☐	< 3.26						1	ug/L				
41B N-Nitrosodimethylamine (62-75-9)	☐	☐	☐	< 3.26						1	ug/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☐	☐	☐	< 3.26						1	ug/L				
43B. N-Nitro-sodiphenylamine (86-30-6)	☐	☐	☐	< 3.26						1	ug/L				
44B Phenanthrene (85-01-8)	☐	☐	☐	< 0.326						1	ug/L				
45B. Pyrene (129-00-0)	☐	☐	☐	< 0.326						1	ug/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	☐	☐	☐	< 3.26						1	ug/L				
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☐	☐	☒												
2P. -BHC (319-84-6)	☐	☐	☒												
3P -BHC (319-85-7)	☐	☐	☒												
4P. -BHC (58-89-9)	☐	☐	☒												
5P. -BHC (319-86-8)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. I-FE (LSST)

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
6P. Chlordane (57-74-9)	☐	☐	☒												
7P. 4,4'-DDT (50-29-3)	☐	☐	☒												
8P. 4,4'-DDE (72-55-9)	☐	☐	☒												
9P. 4,4'-DDD (72-54-8)	☐	☐	☒												
10P. Dieldrin (60-57-1)	☐	☐	☒												
11P. -Endosulfan (115-29-7)	☐	☐	☒												
12P. -Endosulfan (115-29-7)	☐	☐	☒												
13P. Endosulfan Sulfate (1031-07-8)	☐	☐	☒												
14P. Endrin (72-20-8)	☐	☐	☒												
15P. Endrin Aldehyde (7421-92-4)	☐	☐	☒												
16P. Heptachlor (76-44-8)	☐	☐	☒												
17P. Heptachlor Epoxide (1024-57-3)	☐	☐	☒												
18P. PCB-1242 (53469-21-9)	☐	☐	☒												
19P. PCB-1254 (11097-69-1)	☐	☐	☒												
20P. PCB-1221 (11104-28-2)	☐	☐	☒												
21P. PCB-1232 (11141-16-5)	☐	☐	☒												
22P. PCB-1248 (12672-29-6)	☐	☐	☒												
23P. PCB-1260 (11096-82-5)	☐	☐	☒												
24P. PCB-1016 (12674-11-2)	☐	☐	☒												
25P. Toxaphene (8001-35-2)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. ECST

PLEASE PRINT OR TYPE ONLY: You may report some or all of this information on separate sheets instead of completing these pages. Use the same format.
SEE INSTRUCTIONS.

VII. INTAKE AND EFFLUENT CHARACTERISTICS

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							3.. Units		4. Intake (optional)		
	a. Max. Daily Value		b. Max. 30-day Value		c. Annual Avg. Value		d. No. of Analyses	a. Concentration	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Carbonaceous Biochemical Oxygen Demand (CBOD)	N/A						1	mg/L				
b. Chemical Oxygen Demand (COD)	36.3						1	mg/L				
c. Total Organic Carbon (TOC)	0.461 (I)						1	mg/L				
d. Total Suspended Solids (TSS)	< 4.0		< 4.0		< 2.0		23	mg/L				
e. Total Nitrogen (as N)	0.114						1	mg/L				
f. Total Phosphorus (as P)	< 0.017						1	mg/L				
g. Ammonia (as N)	0.0502						1	mg/L				
h. Flow - actual or projected	Value 0.0145		Value 0.0130		Value 0.0020		25		mgd	Value		
i. Flow - design	Value		Value		Value					Value		
j. Specific Conductivity	Value 5.0		Value		Value		1	umhos/cm		Value		
k. Temperature (winter)	Value		Value		Value			°C		Value		
l. Temperature (summer)	Value		Value		Value			°C		Value		
m. . pH	Min. 5.47	Max. 5.47	Min.	Max.			1	STANDARD UNITS				

PART B - Mark "X" in column 2a for each pollutant you know or have reason to believe is present. Mark "X" in column 2b 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 additonal details and requirements.

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a. believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc...	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Bromide (24949-67-9)	☐	☐	< 0.067						1	mg/L				
b. Chlorine, Total Residual	☐	☒												
c. Color	☐	☐	< 5.0						1	PCU				
d. Fecal Coliform	☐	☒												
e. Fluoride (16984-48-8)	☐	☐	< 0.033						1	mg/L				
f. Nitrate-Nitrite (as N)	☐	☐	0.0748						1	mg/L				

: Item VII-B Contd. Facility ID. Number FL0000159 Outfall No. ECST

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a .believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
g. Nitrogen, Total Organic (as N)	☐	☐	< 0.033						1	mg/L				
h. Oil and grease	☐	☐	3.7		2.9		< 1.5		25	mg/L				
i. Phosphorus, Total (as P) (7723-14-0)	☐	☐	< 0.017						1	mg/L				
j. Radioactivity														
(1) Alpha, Total	☐	☐	< 0.500 (+/- 2.52						1	pCi/L				
(2) Beta, Total	☐	☐	105 (+/- 8.55)						1	pCi/L				
(3) Radium, Total	☐	☐	< 0.207 (+/- 0.404)						1	pCi/L				
(4) Radium 226, Total	☐	☐	< 0.384 (+/- 0.295)						1	pCi/L				
k. Sulfate (as SO_4) (14808-79-8)	☐	☐	0.516						1	mg/L				
l. Sulfide (as S)	☐	☐	< 0.033						1	mg/L				
m. Sulfite (as SO_3) (14265-45-3)	☐	☐	N/A											
n. Surfactants	☐	☐	< 0.032						1	mg/L				
o. Aluminum, Total (7429-90-5)	☐	☐	< 0.015						1	mg/L				
p. Barium, Total (7440-39-3)	☐	☐	< 0.0005						1	mg/L				
q. Boron, Total (7440-42-8)	☐	☐	164.0						1	mg/L				
r. Cobalt, Total (7440-48-4)	☐	☐	< 0.0001						1	mg/L				
s. Iron, Total (7439-89-6)	☐	☐	0.012 (I)						1	mg/L				
t. Maagnesium, Total (7439-95-4)	☐	☐	< 0.010						1	mg/L				
u. Molybdenum, Total (7439-98-7)	☐	☐	< 0.000167						1	mg/L				
v. Manganese, Total (7439-96-5)	☐	☐	< 0.001						1	mg/L				
w. Tin, Total (7440-31-5)	☐	☐	< 0.001						1	mg/L				
x. Titanium, Total (7440-32-6)	☐	☐	< 0.001						1	mg/L				

Facility ID. Number: FL0000159 Outfall No. ECST

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 2a for all 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 2a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2b for each pollutant you know or have reason to believe is present. Mark "X" in column 2c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one anlysis for that pollutnat if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4,dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	☐	☐	☐	< 0.600						1	ug/L				
2M. Arsenic, Total (7723-14-0)	☐	☐	☐	< 1.66						1	ug/L				
3M. Beryllium, Total (7440-41-7)	☐	☐	☐	< 0.200						1	ug/L				
4M. Cadmium, Total (7440-43-9)	☐	☐	☐	< 0.030						1	ug/L				
5M. Chromium, Total (7440-47-3)	☐	☐	☐	< 1.00						1	ug/L				
6M. Copper, Total (7440-50-8)	☐	☐	☐	2.10						1	ug/L				
7M. Lead, Total (7439-92-1)	☐	☐	☐	< 0.500						1	ug/L				
8M. Mercury, Total (7439-97-6)	☐	☐	☐	0.000842						1	ug/L				
9M. Nickel, Total (7440-02-0)	☐	☐	☐	< 0.500						1	ug/L				
10M. Selenium, Total (7782-49-2)	☐	☐	☐	< 1.50						1	ug/L				
11M. Silver, Total (7440-22-4)	☐	☐	☐	< 0.200						1	ug/L				
12M. Thallium, Total (7440-28-0)	☐	☐	☐	< 0.125						1	ug/L				
13M. Zinc, Total (7440-66-6)	☐	☐	☐	51.4						1	ug/L				
14M. Cyanide, Total (57-12-5)	☐	☐	☐	< 1.67						1	ug/L				
15M. Phenols, Total	☐	☐	☐	< 1.67						1	ug/L				
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	☒												
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☐	☐	☐	< 1.50						1	ug/L				
2V. Acrylonitrile (107-13-1)	☐	☐	☐	< 1.50						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. ECST

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
3V. Benzene (71-43-2)	☐	☐	☐	< 0.300						1	ug/L				
4V. Bis (Chloromethyl) Ether (542-88-1)	☐	☐	☒												
5V. Bromoform (75-25-2)	☐	☐	☐	< 0.300						1	ug/L				
6V. Carbon Tetrachloride (56-23-5)	☐	☐	☐	< 0.300						1	ug/L				
7V Chlorobenzene (108-90-7)	☐	☐	☐	< 0.300						1	ug/L				
8V. Chlorodi-bromomethane (124-8-1)	☐	☐	☐	< 0.300						1	ug/L				
9V. Chloroethane (74-00-3)	☐	☐	☐	< 0.300						1	ug/L				
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	☐	☐	☐	< 1.50						1	ug/L				
11V. Chloroform (67-86-3)	☐	☐	☐	< 0.300						1	ug/L				
12V. Dichloro-bromomethane (75-24-4)	☐	☐	☐	< 0.300						1	ug/L				
13V. Dichloro-difluoromethane (75-71-8)	☐	☐	☐	< 0.300						1	ug/L				
14V. 1,1-Dichloroethane (75-34-3)	☐	☐	☐	< 0.300						1	ug/L				
15V. 1,2-Dichloroethane (107-06-2)	☐	☐	☐	< 0.300						1	ug/L				
16V. 1,1-Dichloroethylene (75-35-4)	☐	☐	☐	< 0.300						1	ug/L				
17V. 1,2,-Dichloropropane (78-87-5)	☐	☐	☐	< 0.300						1	ug/L				
18V. 1,3-Dichloropropylene (542-75-6)	☐	☐	☐	< 0.300						1	ug/L				
19V. Ethylbenzene (100-41-4)	☐	☐	☐	< 0.300						1	ug/L				
20V. Methyl Bromide (74-83-9)	☐	☐	☐	< 0.300						1	ug/L				
21V. Methyl Chloride (74-87-3)	☐	☐	☐	< 0.300						1	ug/L				
22V. Methylene Chloride (74-98-2)	☐	☐	☐	< 1.00						1	ug/L				
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)	☐	☐	☐	< 0.300						1	ug/L				
24V. Tetrachloroethylene (127-18-4)	☐	☐	☐	< 0.300						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. ECST

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
25V. Toluene (108-88-3)	☐	☐	☐	< 0.300						1	ug/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	☐	☐	☐	< 0.300						1	ug/L				
27V. 1,1,2-Trichloroethane (71-55-6)	☐	☐	☐	< 0.300						1	ug/L				
28V. 1,1,2-Trichloroethane (79-00-5)	☐	☐	☐	< 0.300						1	ug/L				
29V. Trichloroethylene (79-01-6)	☐	☐	☐	< 0.300						1	ug/L				
30V. Trichloro-fluoromethane (75-69-4)	☐	☐	☐	< 0.300						1	ug/L				
31V. Vinyl Chloride (75-01-4)	☐	☐	☐	< 0.300						1	ug/L				
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	☐	☐	☐	< 2.83						1	ug/L				
2A. 2,4-Dichlorophenol (120-83-2)	☐	☐	☐	< 2.83						1	ug/L				
3A. 2,4-Dimethylphenol (105-67-9)	☐	☐	☐	< 2.83						1	ug/L				
4A. 4,6-Dinitro-O-Cresol (534-53-1)	☐	☐	☐	< 2.83						1	ug/L				
5A. 2,4-Dinitrophenol (51-28-5)	☐	☐	☐	< 4.72						1	ug/L				
6A. 2-Nitrophenol (88-75-5)	☐	☐	☐	< 2.83						1	ug/L				
7A. 4-Nitrophenol (100-02-7)	☐	☐	☐	< 2.83						1	ug/L				
8A P-Chloro-M-Cresol (59-50-7)	☐	☐	☐	< 2.83						1	ug/L				
9A Pentachlorophenol (87-86-5)	☐	☐	☐	< 2.83						1	ug/L				
10A Phenol (108-95-2)	☐	☐	☐	< 2.83						1	ug/L				
11A 2,4,5-Trichloro-phenol (88-06-2)	☐	☐	☐	< 2.83						1	ug/L				
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (63-32-9)	☐	☐	☐	< 0.283						1	ug/L				
2B. Acenaphtylene (208-96-8)	☐	☐	☐	< 0.283						1	ug/L				
3B. Anthracene (120-12-7)	☐	☐	☐	< 0.283						1	ug/L				
4B. Benzidine (92-87-5)	☐	☐	☐	< 2.83						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. ECST

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
5B. Benzo *(a)* Anthracene (56-55-3)	☐	☐	☐	< 0.283						1	ug/L				
6B. Benzo *(a)* Pyrene (50-32-8)	☐	☐	☐	< 0.415						1	ug/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	☐	☐	☐	< 0.283						1	ug/L				
8B. Benzo *(ghi)* Perylene (191-24-2)	☐	☐	☐	< 0.283						1	ug/L				
9B. Benzo *(k)* Fluoranthene (207-08-9)	☐	☐	☐	< 0.283						1	ug/L				
10B. Bis *(2-Chloroethoxy)* Methane (111-91-1)	☐	☐	☐	< 2.83						1	ug/L				
11B. Bis *(2-chloroethyl)* Ether (111-44-4)	☐	☐	☐	< 2.83						1	ug/L				
12B. Bis *(2-Chloroisopropyl)* Ether (102-60-1)	☐	☐	☐	< 2.83						1	ug/L				
13B. Bis *(2-Ethylhexyl)* Phthalate (117-81-7)	☐	☐	☐	< 2.83						1	ug/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐	☐	< 2.83						1	ug/L				
15B Butyl Benzyl Phthalate (84-68-7)	☐	☐	☐	< 2.83						1	ug/L				
16B. 2-Chloronaphthalene (91-58-7)	☐	☐	☐	< 0.283						1	ug/L				
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)	☐	☐	☐	< 2.83						1	ug/L				
18B. Chrysene (218-01-9)	☐	☐	☐	< 0.283						1	ug/L				
19B. Dibenzo *(a,h)* Anthracene (53-70-3)	☐	☐	☐	< 0.283						1	ug/L				
20B. 1,2-Dichlorobenzene (95-50-1)	☐	☐	☐	< 2.83						1	ug/L				
21B. 1,3-Dichlorobenzene (541-73-1)	☐	☐	☐	< 2.83						1	ug/L				
22B. 1,4-Dichlorobenzene (106-46-7)	☐	☐	☐	< 2.83						1	ug/L				
23B. 3,3'-Dichlorobenzidine (92-94-1)	☐	☐	☐	< 2.83						1	ug/L				
24B. Diethyl Phthalate (84-66-2)	☐	☐	☐	< 2.83						1	ug/L				
25B. Dimethyl Phthalate (131-11-3)	☐	☐	☐	< 2.83						1	ug/L				
26B. Di-N-Butyl Phthalate (84-74-2)	☐	☐	☐	< 2.83						1	ug/L				
27B. 2,4-Dinitrotoluene (121-14-2)	☐	☐	☐	< 2.83						1	ug/L				
28B. 2,6-Dinitrotoluene (606-20-2)	☐	☐	☐	< 2.83						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. ECST

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
29B. Di-N-Octyl Phthalate (117-84-0)	☐	☐	☐	< 2.83						1	ug/L				
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	☐	☐	☐	< 2.83						1	ug/L				
31B. Fluoranthene (206-44-0)	☐	☐	☐	< 0.283						1	ug/L				
32B. Fluorene (86-73-7)	☐	☐	☐	< 0.283						1	ug/L				
33B. Hexachlorobenzene (118-74-1)	☐	☐	☐	< 2.83						1	ug/L				
34B. Hexachlorobutadiene (87-68-3)	☐	☐	☐	< 2.83						1	ug/L				
35B. Hexachlorocyclopentadiene (77-47-4)	☐	☐	☐	< 2.83						1	ug/L				
36B. Hexachloroethane (67-72-1)	☐	☐	☐	< 2.83						1	ug/L				
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	☐	☐	☐	< 0.283						1	ug/L				
38B. Isophorone (78-59-1)	☐	☐	☐	< 2.83						1	ug/L				
39B. Naphthalene (91-20-3)	☐	☐	☐	< 0.283						1	ug/L				
40B. Nitrobenzene (98-95-9)	☐	☐	☐	< 2.83						1	ug/L				
41B N-Nitrosodimethylamine (62-75-9)	☐	☐	☐	< 2.83						1	ug/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☐	☐	☐	< 2.83						1	ug/L				
43B. N-Nitro-sodiphenylamine (86-30-6)	☐	☐	☐	< 2.83						1	ug/L				
44B Phenanthrene (85-01-8)	☐	☐	☐	< 0.283						1	ug/L				
45B. Pyrene (129-00-0)	☐	☐	☐	< 0.283						1	ug/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	☐	☐	☐	< 2.83						1	ug/L				
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☐	☐	☒												
2P. -BHC (319-84-6)	☐	☐	☒												
3P -BHC (319-85-7)	☐	☐	☒												
4P. -BHC (58-89-9)	☐	☐	☒												
5P. -BHC (319-86-8)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. ECST

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
6P. Chlordane (57-74-9)	☐	☐	☒												
7P. 4,4'-DDT (50-29-3)	☐	☐	☒												
8P. 4,4'-DDE (72-55-9)	☐	☐	☒												
9P. 4,4'-DDD (72-54-8)	☐	☐	☒												
10P. Dieldrin (60-57-1)	☐	☐	☒												
11P. -Endosulfan (115-29-7)	☐	☐	☒												
12P. -Endosulfan (115-29-7)	☐	☐	☒												
13P. Endosulfan Sulfate (1031-07-8)	☐	☐	☒												
14P. Endrin (72-20-8)	☐	☐	☒												
15P. Endrin Aldehyde (7421-92-4)	☐	☐	☒												
16P. Heptachlor (76-44-8)	☐	☐	☒												
17P. Heptachlor Epoxide (1024-57-3)	☐	☐	☒												
18P. PCB-1242 (53469-21-9)	☐	☐	☒												
19P. PCB-1254 (11097-69-1)	☐	☐	☒												
20P. PCB-1221 (11104-28-2)	☐	☐	☒												
21P. PCB-1232 (11141-16-5)	☐	☐	☒												
22P. PCB-1248 (12672-29-6)	☐	☐	☒												
23P. PCB-1260 (11096-82-5)	☐	☐	☒												
24P. PCB-1016 (12674-11-2)	☐	☐	☒												
25P. Toxaphene (8001-35-2)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-C2R

PLEASE PRINT OR TYPE ONLY: You may report some or all of this information on separate sheets instead of completing these pages. Use the same format.
SEE INSTRUCTIONS.

VII. INTAKE AND EFFLUENT CHARACTERISTICS

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							3.. Units		4. Intake (optional)		
	a. Max. Daily Value		b. Max. 30-day Value		c. Annual Avg. Value		d. No. of Analyses	a. Concentration	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Carbonaceous Biochemical Oxygen Demand (CBOD)	< 3.0						1	mg/L				
b. Chemical Oxygen Demand (COD)	2020						1	mg/L				
c. Total Organic Carbon (TOC)	16.7						1	mg/L				
d. Total Suspended Solids (TSS)	53				34.2		5	mg/L				
e. Total Nitrogen (as N)	18.7						1	mg/L				
f. Total Phosphorus (as P)	< 0.050						1	mg/L				
g. Ammonia (as N)	1.2						1	mg/L				
h. Flow - actual or projected	Value N/A		Value		Value					Value		
i. Flow - design	Value N/A		Value		Value					Value		
j. Specific Conductivity	Value 15,740		Value		Value		1	umhos/cm		Value		
k. Temperature (winter)	Value 18.9		Value		Value		1	°C		Value		
l. Temperature (summer)	Value		Value		Value			°C		Value		
m. . pH	Min. 7.5	Max. 7.9	Min.	Max.			5	STANDARD UNITS				

PART B - Mark "X" in column 2a for each pollutant you know or have reason to believe is present. Mark "X" in column 2b 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 additonal details and requirements.

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a. believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc...	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
a. Bromide (24949-67-9)	☐	☐	58.6						1	mg/L				
b. Chlorine, Total Residual	☐	☐	0.1						1	mg/L				
c. Color	☐	☐	50.0						1	PCU				
d. Fecal Coliform	☐	☐	< 2.0						1	CFU/100 mL				
e. Fluoride (16984-48-8)	☐	☐	25.3						1	mg/L				
f. Nitrate-Nitrite (as N)	☐	☐	14.7						1	mg/L				

: Item VII-B Contd.

Facility ID. Number FL0000159 Outfall No. D-C2R

1. Pollutant and CAS No. (if available)	2. Mark "X"		3. Effluent							4. Units		5. Intake (optional)		
	a .believed present	b. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
			(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
g. Nitrogen, Total Organic (as N)	☐	☐	2.8						1	mg/L				
h. Oil and grease	☐	☐	< 1.2				< 1.15		2	mg/L				
i. Phosphorus, Total (as P) (7723-14-0)	☐	☐	< 0.050						1	mg/L				
j. Radioactivity														
(1) Alpha, Total	☐	☐	63.3 (+/- 11.8)						1	pCi/L				
(2) Beta, Total	☐	☐	< 27.1 (+/- 16.0)						1	pCi/L				
(3) Radium, Total	☐	☐	11.5 (+/- 2.70)						1	pCi/L				
(4) Radium 226, Total	☐	☐	11.2 (+/- 2.41)						1	pCi/L				
k. Sulfate (as SO_4) (14808-79-8)	☐	☐	1,290						1	mg/L				
l. Sulfide (as S)	☐	☐	< 1.0						1	mg/L				
m. Sulfite (as SO_3) (14265-45-3)	☐	☐	< 10						1	mg/L				
n. Surfactants	☐	☐	0.78						1	mg/L				
o. Aluminum, Total (7429-90-5)	☐	☐	< 0.050						1	mg/L				
p. Barium, Total (7440-39-3)	☐	☐	0.258						1	mg/L				
q. Boron, Total (7440-42-8)	☐	☐	306						1	mg/L				
r. Cobalt, Total (7440-48-4)	☐	☐	0.0115						1	mg/L				
s. Iron, Total (7439-89-6)	☐	☐	0.071 (I)						1	mg/L				
t. Maagnesium, Total (7439-95-4)	☐	☐	1,940						1	mg/L				
u. Molybdenum, Total (7439-98-7)	☐	☐	0.0295						1	mg/L				
v. Manganese, Total (7439-96-5)	☐	☐	3.350						1	mg/L				
w. Tin, Total (7440-31-5)	☐	☐	< 0.025						1	mg/L				
x. Titanium, Total (7440-32-6)	☐	☐	< 0.025						1	mg/L				

Facility ID. Number: FL0000159 Outfall No. D-C2R

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 2a for all 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 2a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2b for each pollutant you know or have reason to believe is present. Mark "X" in column 2c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one anlysis for that pollutnat if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4,dinitrophenol, or 2-methyl-4,6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)	☐	☐	☐	< 5.0						1	ug/L				
2M. Arsenic, Total (7723-14-0)	☐	☐	☐	4.0 (I)						1	ug/L				
3M. Beryllium, Total (7440-41-7)	☐	☐	☐	< 0.50						1	ug/L				
4M. Cadmium, Total (7440-43-9)	☐	☐	☐	65.0						1	ug/L				
5M. Chromium, Total (7440-47-3)	☐	☐	☐	< 4.0						1	ug/L				
6M. Copper, Total (7440-50-8)	☐	☐	☐	12.0						1	ug/L				
7M. Lead, Total (7439-92-1)	☐	☐	☐	2.1 (I)						1	ug/L				
8M. Mercury, Total (7439-97-6)	☐	☐	☐	0.013						1	ug/L				
9M. Nickel, Total (7440-02-0)	☐	☐	☐	200						1	ug/L				
10M. Selenium, Total (7782-49-2)	☐	☐	☐	11.0						1	ug/L				
11M. Silver, Total (7440-22-4)	☐	☐	☐	0.079 (I)						1	ug/L				
12M. Thallium, Total (7440-28-0)	☐	☐	☐	6.6						1	ug/L				
13M. Zinc, Total (7440-66-6)	☐	☐	☐	68.0 (I)						1	ug/L				
14M. Cyanide, Total (57-12-5)	☐	☐	☐	33.0						1	ug/L				
15M. Phenols, Total	☐	☐	☐	< 5.0						1	ug/L				
DIOXIN															
2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6)	☐	☐	☒												
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)	☐	☐	☐	< 10.0						1	ug/L				
2V. Acrylonitrile (107-13-1)	☐	☐	☐	< 5.0						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-C2R

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
3V. Benzene (71-43-2)	☐	☐	☐	< 0.50						1	ug/L				
4V. Bis (Chloromethyl) Ether (542-88-1)	☐	☐	☒												
5V. Bromoform (75-25-2)	☐	☐	☐	< 0.50						1	ug/L				
6V. Carbon Tetrachloride (56-23-5)	☐	☐	☐	< 0.50						1	ug/L				
7V Chlorobenzene (108-90-7)	☐	☐	☐	< 0.40						1	ug/L				
8V. Chlorodi-bromomethane (124-8-1)	☐	☐	☐	< 0.25						1	ug/L				
9V. Chloroethane (74-00-3)	☐	☐	☐	< 0.61						1	ug/L				
10V. 2-Chloro-ethylvinyl Ether (110-75-8)	☐	☐	☐	< 5.0						1	ug/L				
11V. Chloroform (67-86-3)	☐	☐	☐	< 0.50						1	ug/L				
12V. Dichloro-bromomethane (75-24-4)	☐	☐	☐	< 0.30						1	ug/L				
13V. Dichloro-difluoromethane (75-71-8)	☐	☐	☐	< 0.50						1	ug/L				
14V. 1,1-Dichloroethane (75-34-3)	☐	☐	☐	< 0.50						1	ug/L				
15V. 1,2-Dichloroethane (107-06-2)	☐	☐	☐	< 0.50						1	ug/L				
16V. 1,1-Dichloroethylene (75-35-4)	☐	☐	☐	< 0.71						1	ug/L				
17V. 1,2.-Dichloropropane (78-87-5)	☐	☐	☐	< 0.50						1	ug/L				
18V. 1,3-Dichloropropylene (542-75-6)	☐	☐	☐	< 0.50						1	ug/L				
19V. Ethylbenzene (100-41-4)	☐	☐	☐	< 0.50						1	ug/L				
20V. Methyl Bromide (74-83-9)	☐	☐	☐	< 0.50						1	ug/L				
21V. Methyl Chloride (74-87-3)	☐	☐	☐	< 0.50						1	ug/L				
22V. Methylene Chloride (74-98-2)	☐	☐	☐	< 2.5						1	ug/L				
23V. 1,1,2,2-Tetra-chloroethane (79-34-5)	☐	☐	☐	< 0.17						1	ug/L				
24V. Tetrachloroethylene (127-18-4)	☐	☐	☐	< 0.50						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-C2R

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
25V. Toluene (108-88-3)	☐	☐	☐	< 0.50						1	ug/L				
26V. 1,2-Trans-Dichloroethylene (156-60-5)	☐	☐	☐	< 0.50						1	ug/L				
27V. 1,1,2-Trichloroethane (71-55-6)	☐	☐	☐	< 0.50						1	ug/L				
28V. 1,1.2-Trichloroethane (79-00-5)	☐	☐	☐	< 0.50						1	ug/L				
29V. Trichloroethylene (79-01-6)	☐	☐	☐	< 0.50						1	ug/L				
30V. Trichloro-fluoromethane (75-69-4)	☐	☐	☐	< 0.66						1	ug/L				
31V. Vinyl Chloride (75-01-4)	☐	☐	☐	< 0.53						1	ug/L				
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)	☐	☐	☐	< 6.4						1	ug/L				
2A. 2,4-Dichlorophenol (120-83-2)	☐	☐	☐	< 5.3						1	ug/L				
3A. 2,4-Dimethylphenol (105-67-9)	☐	☐	☐	< 15.0						1	ug/L				
4A. 4,6-Dinitro-O-Cresol (534-53-1)	☐	☐	☐	< 12.5						1	ug/L				
5A. 2,4-Dinitrophenol (51-28-5)	☐	☐	☐	< 14.9						1	ug/L				
6A. 2-Nitrophenol (88-75-5)	☐	☐	☐	< 7.7						1	ug/L				
7A. 4-Nitrophenol (100-02-7)	☐	☐	☐	< 10.2						1	ug/L				
8A P-Chloro-M-Cresol (59-50-7)	☐	☐	☐	< 5.9						1	ug/L				
9A Pentachlorophenol (87-86-5)	☐	☐	☐	< 6.2						1	ug/L				
10A Phenol (108-95-2)	☐	☐	☐	< 5.1						1	ug/L				
11A 2,4,5-Trichloro-phenol (88-06-2)	☐	☐	☐	< 6.5						1	ug/L				
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (63-32-9)	☐	☐	☐	< 0.018						1	ug/L				
2B. Acenaphtylene (208-96-8)	☐	☐	☐	< 0.017						1	ug/L				
3B. Anthracene (120-12-7)	☐	☐	☐	< 0.018						1	ug/L				
4B. Benzidine (92-87-5)	☐	☐	☐	< 7.3						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-C2R

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
5B. Benzo *(a)* Anthracene (56-55-3)	☐	☐	☐	< 0.012						1	ug/L				
6B. Benzo *(a)* Pyrene (50-32-8)	☐	☐	☐	< 0.021						1	ug/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)	☐	☐	☐	< 0.015						1	ug/L				
8B. Benzo *(ghi)* Perylene (191-24-2)	☐	☐	☐	< 0.016						1	ug/L				
9B. Benzo *(k)* Fluoranthene (207-08-9)	☐	☐	☐	< 0.022						1	ug/L				
10B. Bis *(2-Chloroethoxy)* Methane (111-91-1)	☐	☐	☐	< 27.9						1	ug/L				
11B. Bis *(2-chloroethyl)* Ether (111-44-4)	☐	☐	☐	< 7.1						1	ug/L				
12B. Bis *(2-Chloroisopropyl)* Ether (102-60-1)	☐	☐	☐	< 6.9						1	ug/L				
13B. Bis *(2-Ethylhexyl)* Phthalate (117-81-7)	☐	☐	☐	< 7.6						1	ug/L				
14B. 4-Bromophenyl Phenyl Ether (101-55-3)	☐	☐	☐	< 6.3						1	ug/L				
15B Butyl Benzyl Phthalate (84-68-7)	☐	☐	☐	< 6.8						1	ug/L				
16B. 2-Chloronaphthalene (91-58-7)	☐	☐	☐	< 7.6						1	ug/L				
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)	☐	☐	☐	< 5.9						1	ug/L				
18B. Chrysene (218-01-9)	☐	☐	☐	< 0.014						1	ug/L				
19B. Dibenzo *(a.h)* Anthracene (53-70-3)	☐	☐	☐	< 0.018						1	ug/L				
20B. 1,2-Dichlorobenzene (95-50-1)	☐	☐	☐	< 6.4						1	ug/L				
21B. 1,3-Dichlorobenzene (541-73-1)	☐	☐	☐	< 7.2						1	ug/L				
22B. 1,4-Dichlorobenzene (106-46-7)	☐	☐	☐	< 7.3						1	ug/L				
23B. 3,3'-Dichlorobenzidine (92-94-1)	☐	☐	☐	< 6.5						1	ug/L				
24B. Diethyl Phthalate (84-66-2)	☐	☐	☐	< 4.8						1	ug/L				
25B. Dimethyl Phthalate (131-11-3)	☐	☐	☐	< 6.1						1	ug/L				
26B. Di-N-Butyl Phthalate (84-74-2)	☐	☐	☐	< 3.9						1	ug/L				
27B. 2,4-Dinitrotoluene (121-14-2)	☐	☐	☐	< 5.0						1	ug/L				
28B. 2,6-Dinitrotoluene (606-20-2)	☐	☐	☐	< 6.1						1	ug/L				

Facility ID. Number: FL0000159 Outfall No. D-C2R

1. Pollutant and CAS No. (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. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
29B. Di-N-Octyl Phthalate (117-84-0)	☐	☐	☐	< 8.5						1	ug/L				
30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7)	☐	☐	☐	< 6.2						1	ug/L				
31B. Fluoranthene (206-44-0)	☐	☐	☐	< 0.011						1	ug/L				
32B. Fluorene (86-73-7)	☐	☐	☐	< 0.010						1	ug/L				
33B. Hexachlorobenzene (118-74-1)	☐	☐	☐	< 7.6						1	ug/L				
34B. Hexachlorobutadiene (87-68-3)	☐	☐	☐	< 10.2						1	ug/L				
35B. Hexachlorocyclopentadiene (77-47-4)	☐	☐	☐	< 12.1						1	ug/L				
36B. Hexachloroethane (67-72-1)	☐	☐	☐	< 6.7						1	ug/L				
37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5)	☐	☐	☐	< 0.018						1	ug/L				
38B. Isophorone (78-59-1)	☐	☐	☐	< 6.9						1	ug/L				
39B. Naphthalene (91-20-3)	☐	☐	☐	< 0.014						1	ug/L				
40B. Nitrobenzene (98-95-9)	☐	☐	☐	< 10.3						1	ug/L				
41B N-Nitrosodimethylamine (62-75-9)	☐	☐	☐	< 9.2						1	ug/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)	☐	☐	☐	< 8.9						1	ug/L				
43B. N-Nitro-sodiphenylamine (86-30-6)	☐	☐	☐	< 4.7						1	ug/L				
44B Phenanthrene (85-01-8)	☐	☐	☐	< 0.015						1	ug/L				
45B. Pyrene (129-00-0)	☐	☐	☐	< 0.0095						1	ug/L				
46B. 1,2,4-Trichlorobenzene (120-82-1)	☐	☐	☐	< 7.9						1	ug/L				
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)	☐	☐	☒												
2P. -BHC (319-84-6)	☐	☐	☒												
3P -BHC (319-85-7)	☐	☐	☒												
4P. -BHC (58-89-9)	☐	☐	☒												
5P. -BHC (319-86-8)	☐	☐	☒												

Facility ID. Number: FL0000159 Outfall No. D-C2R

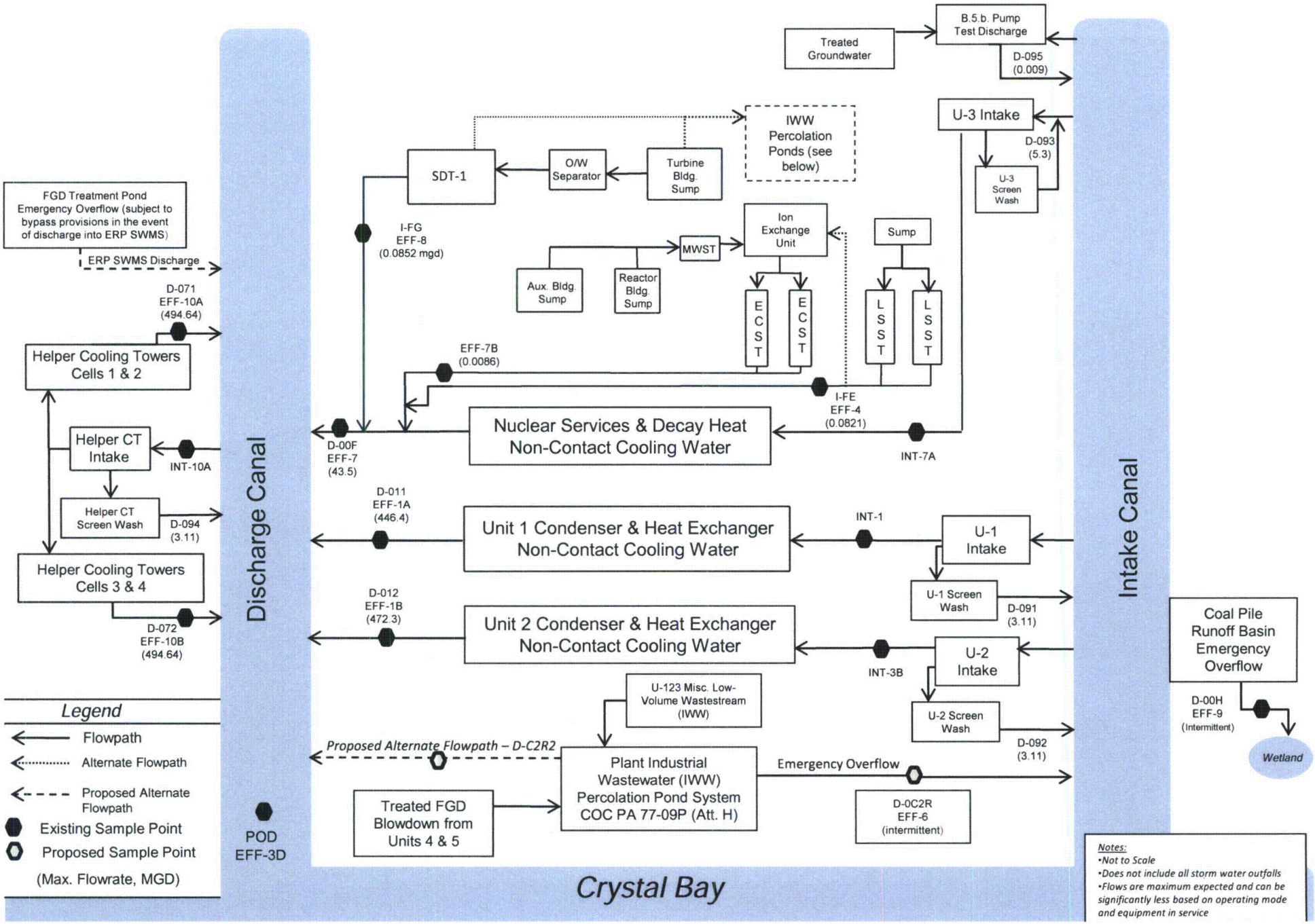
1. Pollutant and CAS No. (if available)	2. Mark "X"			3. Effluent							4. Units		5. Intake (optional)		
	a. testing required	b. believed present	c. believed absent	a. Maximum Daily Value		b. Max. 30-day Value (if available)		c. Long Term Avg. Value (if available)		d. No. of Analyses	a. Conc.	b. Mass	a. Long Term Avg. Value		b. No. of Analyses
				(1) Conc.	(2) Mass	(1) Conc.	(2) Mass	(1) Conc.	(2) Mass				(1) Conc.	(2) Mass	
6P. Chlordane (57-74-9)	☐	☐	☒												
7P. 4,4'-DDT (50-29-3)	☐	☐	☒												
8P. 4,4'-DDE (72-55-9)	☐	☐	☒												
9P. 4,4'-DDD (72-54-8)	☐	☐	☒												
10P. Dieldrin (60-57-1)	☐	☐	☒												
11P. -Endosulfan (115-29-7)	☐	☐	☒												
12P. -Endosulfan (115-29-7)	☐	☐	☒												
13P. Endosulfan Sulfate (1031-07-8)	☐	☐	☒												
14P. Endrin (72-20-8)	☐	☐	☒												
15P. Endrin Aldehyde (7421-92-4)	☐	☐	☒												
16P. Heptachlor (76-44-8)	☐	☐	☒												
17P. Heptachlor Epoxide (1024-57-3)	☐	☐	☒												
18P. PCB-1242 (53469-21-9)	☐	☐	☒												
19P. PCB-1254 (11097-69-1)	☐	☐	☒												
20P. PCB-1221 (11104-28-2)	☐	☐	☒												
21P. PCB-1232 (11141-16-5)	☐	☐	☒												
22P. PCB-1248 (12672-29-6)	☐	☐	☒												
23P. PCB-1260 (11096-82-5)	☐	☐	☒												
24P. PCB-1016 (12674-11-2)	☐	☐	☒												
25P. Toxaphene (8001-35-2)	☐	☐	☒												

ATTACHMENT 2 – OUTFALL LOCATIONS


Crystal River Units 1, 2, & 3 NPDES Discharge Outfalls – FL0000159
= existing outfall/effluent sampling point
= proposed alternate outfall/effluent sampling point
Crystal Bay
POD
D-072
D-071
D-094
D-00F (includes I-FG & I-FE)
D-011
D-012
Discharge Canal
D-C2R2
(proposed)
D-095
D-092
D-091
D-093
Intake Canal
D-C2R
D-00H
©2009 Google
© 2011 Google
Imagery Date: Jan 27, 2011
28°57'34.86" N 82°42'37.25" W
Eye alt 7539 ft

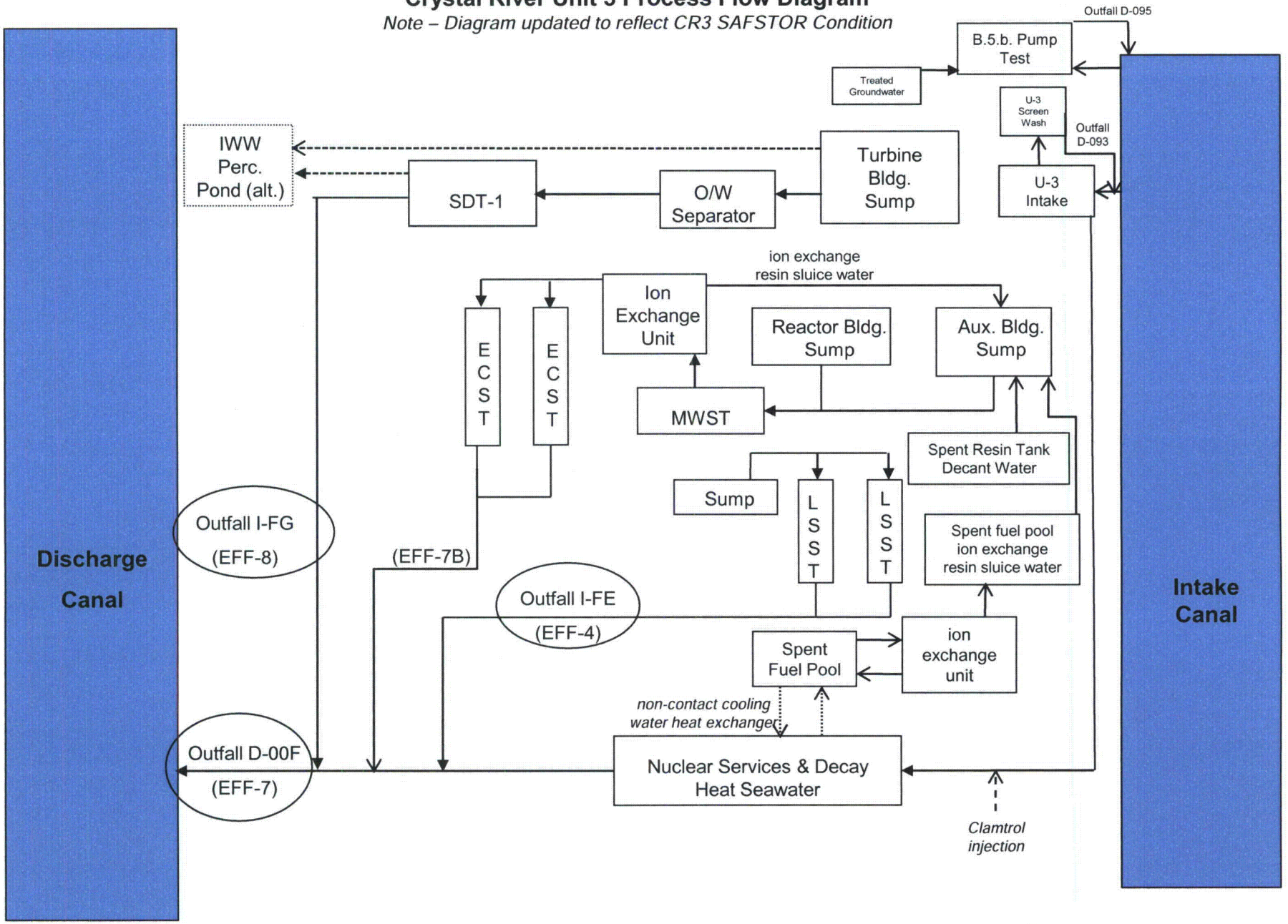
ATTACHMENT 3 – FLOW DIAGRAMS

Crystal River Units 1, 2, & 3 NPDES Process Flow Diagram – FL0000159



Crystal River Unit 3 Process Flow Diagram

Note – Diagram updated to reflect CR3 SAFSTOR Condition



Note: Outfalls are listed in the ovals with associated sampling points in parentheses

Progress Energy

ATTACHMENT 4
WASTE WATER DESCRIPTION

The following contains descriptions of the contributory wastewater streams and wastewater treatment employed at Crystal River Units 1, 2, & 3. Descriptions of chemical usage and chemicals that have the potential to be discharged via the permitted outfalls are provided in attachment 8.

D-011 and D-012

- **Once through cooling water**
  The Crystal River Power Plant Unit 1 (D-011) and Unit 2 (D-012), utilize once through non-contact cooling water (OTCW) withdrawn from Crystal Bay via the Units 1, 2, 3, intake canal. With the announced retirement of Unit 3 on February 5, 2013, this unit will no longer discharge OTCW. It has not discharged OTCW since September 2009.

  The water is circulated through the facilities and discharged back in to Crystal Bay via the Units 1, 2, & 3 main discharge canal. Special Condition I.C.11 allows for an on-line mechanical condenser cleaning systems, as well as use of oxidizing biocides, however, current practice is to take the Units 1 and 2 condensers out of service for manual cleaning.

  - Method of flow measurement
    - D-011, D-012 flows are calculated based on pump curves/flow testing and time of operation.

D-00F

- **Nuclear Services and Decay Heat Seawater System**
  Even with the announced retirement of Unit 3, this system will be in operation for the foreseeable future. The Nuclear Services and Decay Heat Seawater system also referred to as the Raw Water (RW) system is comprised of two "sub-systems". One sub-system services the nuclear services closed cycle cooling water system heat exchangers, also referred to as the RW/SW system. The other sub-system services the decay heat closed cycle cooling system heat exchangers, also referred to as the RW/DC system.

  This outfall consists of once through cooling water as well as discharges from internal processes as described in I-FE and I-FG. Progress Energy is also authorized to treat the process that supplies this discharge with a biocide. This biocide is known as Clamtrol (Spectrus CT1300) which is injected into the system approximately every 21 days. The current permit requires chronic Whole Effluent Toxicity (WET) testing quarterly, with the option to reduce this frequency to semi-annually following four passing quarterly tests and review/approval by the Department.

  - Method of flow measurement
    - D-00F flow is determined by pump design rating and pump logs that are maintained by the computer data logging system.

I-FE

- **Laundry Shower and Sump Tanks (LSST)**
  This system, associated with the recently retired Unit 3, will be in operation for the foreseeable future due to continued operation of the spent fuel pool and other systems. The LSSTs utilize cartridge and bag filters to control total suspended solids (TSS). Additionally, this outfall can be directed to the ECST (rad-waste treatment system) for further treatment depending on radiological sample results. The treated wastewater is discharged by batch releases via an internal outfall (I-FE) to outfall D-00F. The wastestreams treated in this system consist of the following:

  Laundry Shower and Sump Tanks (LSSTs)
  This wastewater includes miscellaneous low volume waste streams (per 40 CFR 423) including, but are not limited to:
  - laundry wash water
  - mop water
  - floor drain wastewater
  - laboratory wastewater from the primary laboratory, regent laboratory, and the annex laboratory.
  - leakage from auxiliary plant systems
  - wastewater from hydrolasing activities (past activity that may occur in the future).

  - Method of flow measurement
    - I-FE flows are determined by flow instrumentation or tank level change.

I-FG

- **Station Drain Tank-1 (SDT-1)**
  The SDT-1 system (non-radwaste treatment system) will also remain in place for the foreseeable future. This system employs oil/water separation to control oil and grease (O&G) as well as mixing to aid in buffering pH. The treated wastewater is discharged by batch releases via an internal outfall through outfall D-00F. CR3 also has the ability to route this discharge to the on-site industrial wastewater percolation pond under COC PA 77-09P (Att. H) either directly from the turbine building sump or from SDT-1.

  The wastestreams treated in SDT-1 consist of the following:

  Station Drain Tank (SDT-1) System
  This wastewater includes miscellaneous low volume waste streams (per 40 CFR 423) including, but are not limited to:
  - turbine building floor drains
  - turbine building sump
  - turbine building equipment drains
  - laboratory wastes from system evaluation
  - intermediate cooling system and water supply laboratory waste
  - water leakage from auxiliary plant systems

Station Drain Tank (SDT-1) System (cont.)

- wastewater from hydrolasing activities (past activity that may occur in the future).
- miscellaneous secondary-side system drainage/leak-off
- generic equipment wash water

- Method of flow measurement
  - I-FG flows are determined by flow instrumentation or tank level change.

Evaporator Condensate Storage Tanks (ECST) & Building Sumps

The ECST system (rad-waste treatment system) utilizes an ion exchange system as pollution control. Spent resins are sluiced to a spent resin storage tank along with other spent resins (i.e., those used to polish water used for the spent fuel pool), whereby they are then disposed off-site. The treated sluice water is then discharged by batch releases via the ECST internal outfall through outfall D-00F. The treated wastewater is then discharged by batch releases via an internal outfall through outfall D-00F.

ECST System:
A Miscellaneous Waste Storage Tank (MWST) receives low-volume wastestreams from a number of sources consisting mostly of sump and floor drains within the reactor and auxiliary buildings. Attachment 3 contains a diagram detailing inputs to the MWST. Please note that, per NRC regulations, wastewater from these internal CR3 outfalls are required to be monitored and meet limits for several radionuclides.

This wastewater includes miscellaneous low volume waste streams (per 40 CFR 423) including, but not limited to:

- auxiliary building sump
- auxiliary building floor drains
- auxiliary building equipment drains
- reactor building sump
- miscellaneous primary-side system drainage
- steam generator cleaning process wastewater
- laundry shower and sump tank discharge (alternate flowpath)

- Method of flow measurement
  - ECST flows are determined by flow instrumentation or tank level change.

D-091, D-092, D-093 and D-094

- **Screen Water Wash**
  D-091, D-092, D-093 and D-094 are discharges produced when water from the intake canal (for outfalls D-091, D-092 and D-093) and discharge canal (for outfall D-094) are used to wash debris from the rotating traveling screens protecting the intake pumps at Units 1 and 2; the raw water pumps at Unit 3, and also the Helper Cooling Towers.

These outfalls discharge to the intake canal (for outfalls D-091, D-092) into the Unit 3 intake tunnel behind the bar racks (outfall D-093); and discharge canal (for outfall D-094).

D-071 and D-072

- **Helper Cooling Tower - Once through cooling water**
  The Helper Cooling Towers (HCTs) withdraw water directly from the site discharge canal for additional cooling. The once through cooling water is then directed back to the discharge canal through outfalls D-071 and D-072. In addition, the HCTs are permitted to inject an oxidizing biocide to control biofouling although this treatment system is currently not in service.

    - Method of flow measurement
      - D-071 and D-072 flows are measured using pump times and design flows.

D-00H

- **Coal Pile Runoff**
  Runoff from the coal pile is captured in a collection ditch and pond system. This system has a single valved outfall. This outfall can be allowed to discharge to a marshy area south of the coal pile storage area. The valve that serves this outfall is kept in the closed position, and only opened manually during emergency conditions to protect berm integrity. Discharge can also be accomplished with the use of portable pumps.

  This discharge has not been used due to the adequacy of the overall capacity and percolation capability of the pond system; however the outfall should be maintained for future emergency use if needed.

    - Method of flow measurement
      - In the event the outfall valve was to be opened during emergency conditions allowing a discharge, flow would be estimated based on discharge pipe size and duration of discharge or determined by pump capacity and pump run time should portable pumps be used.

D-C2R

- **Plant Waste Water Pond System**
  Wastewater discharged via this outfall would be the result of emergency discharge from the Units 1, 2, and 3 Industrial Wastewater (IWW) evaporation/percolation pond system. This system receives various low volume wastes from Units 1, 2 & 3 including the discharge from Units 1 & 2 domestic wastewater treatment plant and Treated FGD blowdown from Units 4 & 5. These discharges are monitored in accordance with COC PA 77-09P (Att. H). This outfall is currently permitted to discharge to the site intake canal.

- Method of flow measurement
  - Discharges via D-C2R can only be accomplished with the use of portable pumps. Flows are determined by pump capacity and run time.

D-095 - B.5.b. Backup Pump Test Discharge

Per Nuclear Regulatory Commission (NRC) guidance, the CR3 facility is required to maintain a backup, independently-powered, portable water supply pump to provide an emergency source of water for various activities such as fire-fighting, containment spray, flooding the Spent Fuel Pool, etc. The directive also mandates that the pump be tested periodically. During testing events, which are required once every 2 months, the pump will be operated for approximately 30 minutes at 300 gpm producing a discharge of approximately 9,000 gallons of service water (treated groundwater), with an annual test using intake canal water (seawater). Water is discharged back into the intake canal within the vicinity of the CR3 intake structure.

Various Potential Miscellaneous Discharges

- **Treated Groundwater**

  At Crystal River, all groundwater is treated to drinking water standards by lime softening or microfiltration/R.O. processes. This water is then chlorinated and used as potable and/or service water. The service water typically enters the surface water, or is discharged to the ground, by incidental leak offs, bar rack cleaning, pump bearing seals, fugitive dust suppression, and various other flushing/draining activities, including, but not limited to, releases during piping repair, replacement or abandonment; flushing of lines for testing/maintenance; pump priming activities; flushing of heat exchangers; and from pressure relief valves. At Crystal River Units 1, 2, and 3, the estimated release from continuous sources is approximately 118 GPM with an additional 23 GPM from non-continuous sources. This treated water enters the intake and/or discharge canal at various locations which includes storm drains, the facilities' intake structures, and at the Helper Cooling Tower intake structures. A small but undetermined amount of service water may be discharged during routine plant operations. Additionally, treated water may be used in an emergency in place of screen wash water and for fire-fighting training activities or from other fire suppression systems. The treated water would be used if the screen wash pumps failed or were unable to keep up with traveling screen fouling as may be caused by excessive influx of sea grass. At times, untreated groundwater is used for the processes listed above and has the potential to be discharged in lieu of treated groundwater.

- **AC Condensate**

  At times, uncontaminated condensate from the outside of various HVAC, air handling or other heat exchange systems, has the potential to be discharged via the various storm water outfalls.

- **Coal**

  Coal may be discharged to the intake canal in the course of barge unloading operations or incidental spillage from the coal conveyor system. These releases are minimized through the use of Best Management Practices. Coal is recovered from the canal on a periodic basis.

- **Pesticide/Herbicide Use**

  Pesticides/herbicides are used at various locations around the plant site. These products are applied by licensed applicators to reduce insect infestations around buildings and to control vegetation. These products are applied away from locations where aquatic contact is probable. The exception is herbicide application along the intake/discharge canals where licensed applicators apply FIFRA-approved herbicides due to requirements of the Marine Transportation Safety Act (MTSA), which requires that vegetation be controlled at these areas to enhance surveillance activities.

- **Miscellaneous Discharges**

  Various containment structures and electrical manholes/vaults are drained of storm water from time to time via one of the permitted outfalls. Before such water is drained, it is inspected for oil sheen and/or excessive turbidity/color and only allowed to be drained if no unusual conditions are noted.

- **Unit 3 Activities**

  It is unknown at this time the exact types and volumes of discharges that may be associated with Crystal River Unit 3 SAFSTOR activities. We anticipate that most will be via existing permitted outfalls – I-FE, I-FG or the ECST. It is possible that small amounts of drain water, involving either seawater or treated groundwater, may be discharged via the old condenser discharge outfall (D-013). These are expected to be minimal and of short duration.

ATTACHMENT 5

Form 2CS – Section IV.D.

1. Power generating facilities are interconnected to the electrical grid, and, therefore have a reliable backup power supply. In addition, CR3 maintains backup emergency diesel generators as part of NRC requirements relative to redundant backup power supply. However, in the unlikely event of complete power loss, several discharge outfalls, such as condenser discharges, etc., would cease since these discharges are dependent on electric-powered water supply pumps. In the event of loss of essential pollution control equipment, the discharges would be stopped pending return to service.

Form 2CS - Section VI - Improvements

1. Administrative Order (A.O. -024-TL) issued during the last permit renewal requires the Permittee to submit a feasibility study report (Report) for engineering options to meet the marine water impingement mortality reduction requirements of the final regulations for 316(b).

2. Permit Section VI.1 requires continued implementation of a Best Management Practices Pollution Prevention Plan (BMP3). CR123 continues to maintain the plan and provide updates to the plan as needed.

Form 2CS – Section VII – Intake and Effluent Characteristics - Clarification

1. Given the lack of historic discharge from D-00H – South Coal Pile Runoff Basin, which is designed to contain a 10-yr, 24-hr. rainfall event and has rarely ever discharged, we collected grab samples from the perimeter ditch/pond system directly in front of the outfall location, and hence, these samples likely represent worst-case conditions should this outfall discharge.

2. During the weeks immediately following Tropical Storm Debby in late June 2012, D-C2R experienced a discharge lasting approximately nine (9) days. During that time, samples for certain parameters were collected pursuant to existing NPDES permit condition. These results are summarized as a supplement to this attachment. These results are also provided in Form 2CS for the sampled parameters. However, since this outfall historically does not discharge, remaining Form 2CS parameters were collected within the percolation pond in the vicinity of D-C2R. These sample results also likely reflect the worst-case conditions should this outfall discharge in the future.

3. In order to more accurately characterize discharges entering Crystal Bay from the site discharge canal, sampling was performed at the Point of Discharge (POD) located at the end of the canal. The sampling point is delineated in the existing NPDES permit as EFF-3D. A complete suite of Form 2CS parameters, Section VII, Parts A, B, and C (exclusive of pesticides) is provided, as are intake sample results.

Miscellaneous Additional Clarification to Form 2CS Application

Many of these issues were discussed in a pre-application meeting and subsequent conversations with the Department:

- For those parameters for which routine DMR data is collected, we summarized data from October 2010 through December 2012 for inclusion in applicable Form 2CS parts for that outfall.

- Results below the Method Detection Limit (MDL) are reported as "less-than" (<) the MDL. Results between the MDL and the Practical Quantitation Limit (PQL) are reported and provided with an "I" code.

- Twenty four-hour composite samples were collected for Outfalls D-011, D-012, D-00F, the Intake Canal, and at the POD. This applied to all analyses that require a composite sample except for low-level mercury and those parameters for which composite samples are not allowed (i.e. field parameters, oil & grease, etc.). Per the Department's instructions, we performed low-level mercury sampling and analysis on a single grab sample. Mercury results on the forms are provided in micrograms per liter (µg/L).

- Form 2CS states that single grab samples would be acceptable for those outfalls taken from holding ponds or impoundments with a retention time of greater than 24 hours. At Crystal River Unit 3, there are a number of internal outfalls that discharge via "batch" releases from tanks. These include the SDT-1, LSSTs, and ECST system releases. Given that these tanks have the ability to have retention times of greater than 24 hours (i.e. only one tank release occurs within a 24-hour period), we believe that single grab samples accurately characterize the discharges from these tanks, and hence, would be representative of the discharge. Current NPDES permit requirements reflect these batch releases in that single grab samples are required for NPDES compliance sampling purposes.

- Form 2CS, Section VII instructions requires sampling of all non-storm water outfalls for all parameters in Parts A and B. However, for Part C parameters, it appears that all "non-process wastewater outfalls" only require analyses of Part C parameters through total phenols (i.e. excludes requiring to analyze for dioxin, GC/MS-Volatiles, GC/MS Acid Compounds, and GC/MS Base-Neutral Compounds).

Per previous discussions with the Department, we believe, and the Department concurs, that non-contact cooling water would be considered a non-process wastewater. Accordingly, we sampled and analyzed for those parameters on Parts A and B and Part C through total phenols for Outfalls D-011, and D-012. For all other outfalls, including D-00F, I-FE, I-FG, ECST, D-00H, D-C2R and the intake and POD, we analyzed for the complete Part C list (exclusive of pesticides) in addition to all Part A and B parameters.

- Samples were not collected for the Part C, GC/MS Volatile compound 4v. – Bis (Chloromethly) Ether. There are few, if any, labs that are certified to perform this analysis. Per USEPA Document EPA-600/S4-81-062 relative to performing analysis of haloethers in industrial and municipal wastewaters, this particular haloether was dropped from the study due to its extreme volatility and hydrolytic instability.

- Sampling was not performed on Outfalls D-071 and D-072 – the helper cooling tower discharges, since these have been off-line since early fall and only run seasonally. Sampling of these outfalls will be performed once the towers become operational with results forwarded to the Department as an addendum to this application.

- As with the previous permit renewal sampling involving CR3, NRC guidance allows samples collected from the CR3 internal outfalls (I-FE, I-FG, and ECST system discharges) to be analyzed only by laboratories that have a valid Radioactive Material License (RML). Consequently, arrangements were again made with GEL Laboratories, LLC, in Charleston, SC, to perform these analyses. GEL has both a radioactive material license and is NELAC certified in Florida for the analyses required to be performed. However, due to the distance, results for those parameters with short holding times would not be valid. Consequently, during the last permit renewal, the Department waived the sampling requirements for these short holding time parameters.

- During recent sampling of the CR3 internal outfalls, the I-FG (SDT-1) samples for semi-volatile parameters, and the VOC 2-Chloroethylvinyl ether for I-FG and I-FE (LSST)l, were broken in transit. Sampling has been rescheduled and results will be forwarded to the Department at a later date as an addendum to this application. Difficulties were also encountered with the low-level mercury, copper, and/or sulfide samples from outfalls I-FE (SDT-1) and/or I-FG (LSST). Re-sample results will also be included as a later addendum. Finally, due to the infrequent operation of the B.5.b. pump (outfall D-095), sample collection was delayed such that results will also be included in a later addendum.

- The contract lab performing analyses for the Units 1 & 2 outfalls, including intake and POD samples inadvertently failed to conduct analyses for gross beta on the intake and POD samples. Additional samples will be collected with results forwarded in the later addendum.

- Stormwater outfalls D-100 – D-600 are now covered under a separate MSGP.

Requested Reissued Permit Changes

Progress Energy requests the following changes and clarifications be made to the reissued NPDES permit. Details regarding existing and/or new chemical usage are provided in Attachment 7.

Announced Retirement of Crystal River Unit 3: On February 5, 2013, the Company announced the retirement of Crystal River Unit 3 (CR3). This Unit had been off-line since September 2009. As a result of the announcement, two (2) outfalls are no longer expected to discharge. These are D-013 – the CR3 condenser cooling water discharge, and the CD (condensate) system. However, all of the remaining existing CR3 NPDES outfalls, including D-00F, I-FG, I-FE, the ECST, D-093 (intake screen wash water), and D-095 (the backup emergency pump test discharge), are expected to discharge for the foreseeable future.

Application of Water Quality-Based Effluent Limits (WQBELs): As stated in the previous permit renewal application, the main discharge canal is a discrete conveyance (point source) and therefore any applicable WQBELs should apply downstream of the final existing permitted outfall point (D-072).

D-C2R backup outfall point: Currently, Outfall D-C2R – Emergency IWW percolation pond discharge, is permitted to discharge to the site intake canal. This was due to the anticipated construction of the Helper Cooling Tower South (HCTS) associated with the CR3 power uprate. Given the CR3 retirement announcement, the HCTS will not be constructed. Therefore, we request that D-C2R have an alternate discharge point to the site discharge canal in the vicinity of the original D-0C2 outfall.

Attachment 5 - Supplemental No. 1

Form 2CS, Section X., Contract Analysis Information

Name	Address	Telephone	Pollutants Analyzed (list)
Pace Analytical Services, Inc. (Ormond Beach, FL) FL DOH No E83079	8 East Tower Circle, Ormond Beach, FL 32174	(386) 672 5668	All parameters (excluding fecal coliform, LL Hg, and Rads.)
Pace Analytical Services, Inc. (Tampa, FL) FL DOH No. E84973	1209 Tech Blvd., Suite 207, Tampa, FL 33619	(813) 627-0003	Fecal coliform.
Pace Analytical Services, Inc. (Pittsburgh, PA) FL DOH No. E87683	1638 Roseytown Road, Suite 2-3-4 Greensburg, PA 15601	(724) 850-5600	Gross Alpha, Gross Beta, Total Radium and Radium 226
Pace Analytical Services, Inc. (Green Bay, WI) FL DOH No. E87948	1241 Bellevue Street, Suite 9 Green Bay, WI 54302	(920) 469-2436	Low-level Hg
GEL Laboratories, LLC FL DOH No. E87156	P.O. Box 30172 Charleston, SC 29417	(843) 556-8171	All for CR3 internal outfalls (I-FE, I-FG, ECST, and outfall D-095).

Progress Energy

Robby A. Odom
Plant Manager, Crystal River
Fossil Plant & Fuel Operations

September 13, 2012

Submitted via email to:
Rachel.McGraw@dep.state.fl.us

Florida Department of Environmental Protection
Southwest District Office
Industrial Wastewater
13051 N. Telecom Parkway
Temple Terrace, FL 33637

Dear Ms. McGraw:

Re: Progress Energy Florida
Crystal River Units 1, 2
Permit ID# NPDES FL0000159-001-IW1S
Re-submittal of DMR Part A for Outfall D-C2R

As stated in the cover letter associated with transmittal of the July, 2012 DMRs for the subject permit, enclosed is a re-submitted copy of DMR Part A for Outfall D-C2R. Also enclosed is a supplemental document with attachments explaining exceedences associated with discharges from this outfall. As previously reported to the Department, discharge from this outfall was a direct consequence of Tropical Storm Debby, during which, the site had one event that exceeded the 25-yr, 24-hr rainfall total.

If you should have any questions concerning this information, please contact Erika Tuchbaum-Biro of my staff at (352) 464-7909 or Doug Yowell at (727) 820-5228.

Sincerely,

Robby A. Odom
Plant Manager, Crystal River
Fossil Plant & Fuel Operations

Enclosures

Progress Energy

cc: Pat Garner – PEF-903
File: 12520B

Effective with DMR's submitted in May 2012, submittals are made via email of scanned documents to the SW District only. Submittals are made to the facility inspector.

FDEP Facility Inspector:
Rachel McGraw
Rachel.McGraw@dep.state.fl.us
(813) 632-7600, extension 334

Template for Subject Line:
DMR Submittal for *month year*: NPDES FL0000159-001-IW1S

Template for email message:

Rachel,

Attached is the *Month Year* NPDES DMR submittal for Crystal River South, NPDES FL0000159-001-IW1S.
I would appreciate a reply email to acknowledge receipt.

Thank you.

Progress Energy

September 7, 2012

Subject: Supplement to Discharge Monitoring Report for July, 2012
NPDES Permit No. FL0000159
Progress Energy Florida, Inc. (PEF) - Crystal River Units 1, 2, & 3
Discharges from Outfall D-C2R

On July 20, 2012, PEF submitted, via e-mail, notice to the Department pursuant to Section IX., General Condition 17 of the subject permit that we had anticipated exceedence of certain permit limits involving potential discharges from Outfall D-C2R as a result of Tropical Storm (T.S.) Debby. This was preceded by other e-mails and conversations, as well as post-event conversations with the Department. The following contains a summary of those discharges and the events leading up to them. In addition, Department staff viewed the discharge occurring during a routine, annual NPDES inspection on July 24, 2012.

Background:
Beginning on June 21, 2012, the Crystal River Energy Complex (CREC) began to experience the effects of Tropical Storm Debby (TS Debby). During the TS (from approximately June 21 through June 28), the site received approximately 12.5 inches of rainfall with approximately 9 inches falling during a single 24 hour time period ending on June 25. This latter event exceeded the 25-year, 24-hr rainfall event total for the site. This was followed by a number of rainfall events from July 10 through July 31. During that 3-week period, the site received an additional 13.5 inches of rainfall.

On June 25, 2012, the Governor signed Executive Order No. 12-140, and a second amended order on July 25, 2012, which extended the first order for another 30 days in several counties, including Citrus County. Therefore, all discharges from D-C2R occurred within the time frames of the initial and amended orders.

D-C2R Discharge Details:
On July, 20, 2012, at approximately 6:30 pm, discharge from D-C2R commenced from IWW pond no. 4. As you know, this outfall is an emergency discharge point from the Crystal River Units 1, 2, & 3 Industrial Wastewater (IWW) pond system. This outfall discharges to the site intake canal and replaces Outfall D-0C2, which formerly discharged to the site discharge canal. The discharge was performed utilizing two (2) 2,000 gpm pumps that pumped water from IWW pond no. 4 into the site intake canal. Elevation in pond #4 at the start of pumping was 17.68 ft. NGVD. See attachment 1 for flow summary.

Pumping continued more or less continuously (except for brief intervals for pump re-fueling/maintenance) until 6:00 am on July 29, 2012 when the elevation of pond #4 reached approximately 8.00 ft. NGVD. During this time, a total of 47.64 million gallons was discharged via Outfall D-C2R. Maximum daily flow was 5.76 mgd, while the monthly average daily flow was 1.54 mgd (calculated by taking total flow and averaging over 31 days in the month as described in FDEP instructions relative to reporting flow data on DMRs).

The NPDES permit requirement for this outfall is to collect total suspended solids (TSS) 3/week; Oil & Grease (O&G) 1/week; and the remaining parameters (mostly metals) 1/month. These results are summarized in Part A of the Discharge Monitoring Report (DMR).

In conjunction with this sampling, PEF also performed sampling for these same parameters in the intake canal upstream of the D-C2R discharge, and in the site discharge canal at the POD prior to entry into the Gulf of Mexico. These results are provided as an attachment to this supplemental report with comparison to the Class III Marine WQBELs. This sampling was conducted on July 23 to allow for theoretical travel time through the system such that the POD samples would reflect discharges from D-C2R.

There were four parameters that exceeded permit limits: monthly average for TSS; and daily maximum for cadmium, copper, and nickel. With respect to the monthly TSS, this value was influenced by a single high result obtained near the end of the discharge. We suspect that, as the pond was lowered to the target elevation, this sample reflected entrainment of solids from the pond bottom.

Regarding the remaining exceedences, as discussed with the Department prior to commencing discharge, it was agreed to collect samples from the final point of discharge (POD) within the main site discharge canal prior to entering the Gulf. As stated above, this sampling was performed approximately 3 days after discharge from D-C2R commenced such that the POD discharge would reflect discharges from D-C2R. All of these results, including those for cadmium, copper and nickel, were below the Class III Marine Water Quality Limits.

Summary:
Given that the discharge from D-C2R was a result of T.S. Debby, during which, and after, the site received extensive rainfall, including a single 24 hour period during which 9.01 inches of rainfall was recorded at the site (for Crystal River, this exceeded the 25-yr, 24-hr rainfall event total of 8.60 inches), we believe this qualifies as an upset pursuant to Section IX, General Condition 23 of the subject NPDES permit. Additionally, these discharges from D-C2R occurred within time frames of the Governors original and extended emergency orders issued as a result of the tropical storm.

Attachment 1

NPDES Permit No. FL0000159
D-C2R Discharge - July 2012
Flow Summary

		Hr. meters				
		Pump 1 (102)		Pump 2 (051)		
	Start/Check Time	Reading	Diff	Reading	Diff	IWW Pond #4 Elev. (ft. NGVD)
7/20/2012	6:30 PM	6,893		1,875		17.86
7/21/2012	9:00 AM	6,906	13	1,888	13	
	4:00 PM	6,913	7	1,895	7	
7/22/2012	7:00 AM	6,929	16	1,909	14	
	4:00 PM	6,937	8	1,916	7	
7/23/2012	7:00 AM	6,952	15	1,932	16	
	3:30 PM	6,958	6	1,937	5	
7/24/2012	7:00 AM	6,976	18	1,955	18	
	3:00 PM	6,984	8	1,965	10	
7/25/2012	7:00 AM	7,000	16	1,979	14	
	3:30 PM	7,007	7	1,987	8	
7/26/2012	7:00 AM	7,023	16	2,003	16	
	3:00 PM	7,031	8	2,011	8	
7/27/2012	7:00 AM	7,047	16	2,026	15	
	3:00 PM	7,055	8	2,035	9	
7/28/2012	8:00 AM	7,072	17	2,051	16	
	3:00 PM	7,078	6	2,057	6	
7/29/2012	7:00 AM	7,093	15	2,072	15	8.00
		total hrs =	200		197	
		total (days) =	8		8	

Pump capac. = 2,000 gpm each

total flow per pump =	24,000,000		23,640,000
total flow (gal) =	47,640,000		
total flow (mg) =	47.64		
avg. daily flow over entire month =	1.54	mgd	monthly avg. daily flow
max. daily flow (mgd) =	5.760	mgd	

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When Completed mail this report to: Department of Environmental Protection, Wastewater Compliance Evaluation Section, MS 3551, 2600 Blair Stone Road, Tallahassee, FL 32399-2400

PERMITTEE NAME:	Progress Energy Florida (PEF)	PERMIT NUMBER:	FL0000159-013-1W1S		
MAILING ADDRESS:	15760 Power Line Street Crystal River, Florida 34428-6708	LIMIT:	Final	REPORT FREQUENCY:	Monthly
		CLASS SIZE:	MA	PROGRAM:	Industrial
FACILITY:	Crystal River Units 1,2 & 3	MONITORING GROUP NUMBER:	D-C2R		
LOCATION:	15760 W Power Line St Crystal River, Florida 34428-6708	MONITORING GROUP DESCRIPTION:	Industrial Wastewater pond system wastewater (Unit 1 and 2 combined) (formerly D-0C2)		
		RE-SUBMITTED DMR:	X		
		NO DISCHARGE FROM SITE:			
COUNTY:	Citrus	MONITORING PERIOD	From: 07/01/2012	To: 07/31/2012	
OFFICE:	Southwest District				

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Flow	Sample Measurement	1.54	5.76	MGD	*****	*****	*****	*****	0	Daily, when discharging	Calculated
PARM Code 50050 1 Mon. Site No. FLW-2	Permit Requirement	Report (Mo. Avg.)	Report (Day.Max.)		*****	*****	*****			Daily, when discharging	Calculated
Oil and Grease	Sample Measurement	*****	*****	*****	*****	< 1.2	< 1.2	mg/L	0	Weekly, when discharging	Grab
PARM Code 00556 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	5.0 (Mo.Avg.)	5.0 (Day.Max.)			Weekly, when discharging	Grab
Solids, Total Suspended	Sample Measurement	*****	*****	*****	*****	34.2	53	mg/L	1	3/Week, when discharging	Grab
PARM Code 00530 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	30.0 (Mo.Avg.)	100.0 (Day.Max.)			3/Week, when discharging	Grab
Arsenic, Total Recoverable	Sample Measurement	*****	*****	*****	*****	2	2	ug/L	0	Monthly, when discharging	Grab
PARM Code 00978 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	36.0 (Mo.Avg.)	36.0 (Day.Max.)			Monthly, when discharging	Grab
Cadmium, Total Recoverable	Sample Measurement	*****	*****	*****	*****	65	65	ug/L	2	Monthly, when discharging	Grab
PARM Code 01113 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	8.8 (Mo.Avg.)	8.8 (Day.Max.)			Monthly, when discharging	Grab
Chromium, Total Recoverable	Sample Measurement	*****	*****	*****	*****	< 4	< 4	ug/L	0	Monthly, when discharging	Grab
PARM Code 01118 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	50.0 (Mo.Avg.)	50.0 (Day.Max.)			Monthly, when discharging	Grab

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.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE NO	DATE (mm/dd/yyyy)
Robby A. Odom, Station Manager		(352) 563-4910	09/11/2012

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

See Supplemental Attachments

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Progress Energy Florida - Crystal River Units 1, 2 & 3 MONITORING GROUP NUMBER: D-C2R PERMIT NUMBER: FL0000159-013-IW1S

MONITORING PERIOD From: 07/01/2012 To: 07/31/2012

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Copper, Total Recoverable	Sample Measurement	*****	*****	*****	*****	12	12	ug/L	2	Monthly, when discharging	Grab
PARM Code 01119 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	3.7 (Mo.Avg.)	3.7 (Day.Max.)			Monthly, when discharging	Grab
Lead, Total Recoverable	Sample Measurement	*****	*****	*****	*****	2	2	ug/L	0	Monthly, when discharging	Grab
PARM Code 01114 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	8.5 (Mo.Avg.)	8.5 (Day.Max.)			Monthly, when discharging	Grab
Iron, Total Recoverable	Sample Measurement	*****	*****	*****	*****	0.02	0.02	mg/L	0	Monthly, when discharging	Grab
PARM Code 00980 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	0.3 (Mo.Avg.)	0.3 (Day.Max.)			Monthly, when discharging	Grab
Mercury, Total Recoverable	Sample Measurement	*****	*****	*****	*****	0.013	0.013	ug/L	0	Monthly, when discharging	Grab
PARM Code 71901 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	0.025 (Mo.Avg.)	0.025 (Day.Max.)			Monthly, when discharging	Grab
Nickel, Total Recoverable	Sample Measurement	*****	*****	min	*****	200	200	ug/L	2	Monthly, when discharging	Grab
PARM Code 01074 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	8.3 (Mo.Avg.)	8.3 (Day.Max.)			Monthly, when discharging	Grab
Selenium, Total Recoverable	Sample Measurement	*****	*****	*****	*****	11	11	ug/L	0	Monthly, when discharging	Grab
PARM Code 00981 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	71 (Mo.Avg.)	71 (Day.Max.)			Monthly, when discharging	Grab
pH	Sample Measurement	*****	*****	*****	8.1	*****	8.1	s.u.	0	Monthly, when discharging	In-situ
PARM Code 00400 7 Mon. Site No. INT-1	Permit Requirement	*****	*****		Report (Day.Min.)	*****	Report (Day.Max.)			Monthly, when discharging	In-situ
pH	Sample Measurement	*****	*****	*****	7.5	*****	7.9	s.u.	0	Monthly, when discharging	In-situ
PARM Code 00400 Q Mon. Site No. EFF-6	Permit Requirement	*****	*****		6.5 (Day.Min.)	*****	8.5 (Day.Max.)			Monthly, when discharging	In-situ
Zinc, Total Recoverable	Sample Measurement	*****	*****	*****	*****	3	3	ug/L	0	Monthly, when discharging	Grab
PARM Code 01094 1 Mon. Site No. EFF-6	Permit Requirement	*****	*****		*****	86 (Mo.Avg.)	86 (Day.Max.)			Monthly, when discharging	Grab

Attachment 6

- Request to Continue 316(a) Variance
- 316(b) Information

Progress Energy offers the following information regarding continuance of the 316(a) variance:

1. Studies completed in 1985 led to the conclusion that thermal discharges from the operation of Units 1, 2, & 3 were having an impact involving seagrass in the vicinity of the discharge into Crystal Bay. The permittee proposed installation of helper cooling towers which would return the discharge temperatures to approximate levels that existed prior to the operation of Unit 3.

2. EPA/FDEP accepted the proposal and granted the permittee a Section 316(a) variance which permitted the use of the helper cooling towers to limit the impacts to pre-Unit 3 levels and imposed a temperature limit of 96.5 ° F expressed as a 3-hour rolling average. To meet these levels, Units 1 & 2 may be to de-rated at certain times, particularly when intake temperatures are high. A predictive model is employed to ensure compliance with the thermal limit.

3. The concept of a multi-species marine hatchery to mitigate fisheries impacts in Crystal Bay was developed as an innovative, cost-effective alternative to conventional engineering solutions to address Sections 316(a) and (b) of the Clean Water Act (CWA). The Crystal River Mariculture Center became part of the negotiated settlement and will remain operational as part of the existing 316(a) variance demonstration.

4. Administrative Order AO-024-TL that accompanied the reissued NPDES permit in March, 2012, required the submittal of a thermal Plan of Study (POS). The POS was subsequently submitted to the Department. It is anticipated that a revised POS may be required to reflect retirement of Crystal River Unit 3.

5. There are no immediate planned changes to Crystal River Units 1 and 2 that will significantly change the plant operating conditions or load. However, due to the announced retirement of Unit 3, there will no longer be condenser cooling water discharge associated with approximately 890 MW of generation, effectively cutting the amount of heated discharge water by one-half.

6. Current plans are for the new Levy County Nuclear Plant (LNP) cooling tower blowdown to discharge into the Crystal River Units 1, 2 & 3 discharge canal. However, the LNP discharge will not occur until potentially year 2022 and therefore, will not impact the existing Unit 1, 2, & 3 discharge canal temperatures during the life of the reissued NPDES permit.

Based on the above information, we believe the size of the thermal plume will not increase beyond existing conditions and therefore, that the thermal variance be continued. In fact, due to the retirement of Crystal River Unit 3, the thermal plume is expected to be greatly reduced to pre-Unit 3 levels.

316(b) Information

In accordance with Section 316(b) of the Clean Water Act and Rule 62-620.100(3)(z) F.A.C., compliance with the rules relative to cooling water intake structures are determined on a case-by-case best professional judgment (BPJ) basis pending issuance of the final 316(b) rule expected June 27, 2013.

Due to the retirement of Crystal River Unit 3, intake flows used to support condenser cooling (approximately 979.2 mgd), will no longer be required, thus reducing the amount of intake flow of Units 1, 2, & 3 combined by roughly one-half. The only intake flow involving CR3 that will continue is approximately 43.5 mgd used for the spent fuel pool heat decay system. For the foreseeable future, Units 1 and 2 will continue to operate at their current designed intake flow rates of approximately 918.7 mgd (combined).

Attachment 7

Chemical Usage/Discharge

Below are descriptions of chemicals used at CR123 that have the potential to be discharged via one of the NPDES-permitted outfalls. Material Safety Data Sheets (MSDSs) are attached. Other chemical usage is also partially described in attachment 4.

D-00F

Even with the announced retirement of CR3, the heat decay system (a non-contact cooling water system associated with the spent fuel pool) will continue to operate for the foreseeable future. Chemical use for the Nuclear Services and Decay Heat Seawater System (also known as the Raw Water or RW system) currently involves use of the molluscicide, Spectrus CT1300 (also generically referred to as "Clamtrol"), manufactured by GE Betz. Target concentrations during treatment are maintained at $\leq$ 2.5 mg/L. No changes to the existing treatment regime as outlined in the current NPDES permit are anticipated.

Secondary-Side Chemical Usage

The secondary side steam cycle (non-radioactive cycle) has been in a lay-up condition since September 2009. Since that time, part of the system is in dry lay-up; other parts are in wet lay-up. Evaluations are underway to determine a long-term solution for this system. Currently small amounts hydrazine, morpholine, hydroquinone and ammonia are used as maintenance chemicals in the wet lay-up portion with the only discharges coming from minor leaks or small bleed and feed operations. Consequently, discharges of wastewater containing these chemicals are anticipated to be much less than as described in the previous permit renewal application.

Reactor Cavity Cleaning Activities

Historically, during outages, the reactor cavity had undergone cleaning and decontamination. Two chemicals were used for this activity, which are Neutral Multi-Use Cleaner and Crud Remover. The first uses hydrogen peroxide as the active ingredient, while the second is a sodium hydroxide-based product. During these cleaning operations, a majority of this product was collected and disposed off-site. However, a small portion contained in rinse water had the ability to be sent through the ECST system (radwaste treatment system). Given the small amount of this product that makes up the ECST discharge, the final discharge concentrations were virtually immeasurable.

It is unknown at this time if further reactor cavity cleaning activities will occur. However, it's expected that any future cleaning that may occur will follow prior protocols stated above. The Department will be notified in advance of any significant changes from past reactor cavity cleaning practice.

Instrument Air Heat Exchangers

CR3 utilizes closed-cycle mechanical draft evaporative cooling towers. These include the Instrument Air Heat Exchangers (IAHE) 6B and 6C. These cooling towers are part of a heat exchange system that cools various instrument air compressors at CR3. The water source for these towers is treated groundwater (service water).

Currently, the station uses two GE Betz products, Spectrus OX903 and Continuum AT901 to control scaling and corrosion (MSDSs attached). Concentrations of Spectrus OX903 are expected to be maintained at 5 ppm within the towers, while concentrations of Continuum AT901 are expected to be 30 ppm. Typically, the IAHE towers discharge to the SDT-1 system at 1-5 gpm each (only one tower is in service and therefore only 1 of the 2 towers discharges to the SDT-1 at any one time). The SDT-1 tank has a volume of 100,000 gallons, and only one SDT-1 tank release occurs during a day, resulting in a dilution factor of 0.072 (5 gpm x 1440 minutes = 7200 gallons/100,000 gallons SDT-1 tank volume = 0.072). The SDT-1 discharges at a maximum flow rate of 0.0852 mgd to the D-00F system which has an average flow rate of 43.5 mgd, resulting in additional dilution factor of 0.002. Applying the concentration above would result in worst-case discharge concentrations of 0.007 ppm for Spectrus OX903 and 0.004 ppm for Continuum AT901 from the D-00F outfall.

In addition to the above-named products, the IAHE system has the ability to utilize Nalco 71D5, an anti-foaming additive that is a direct replacement for the previously-permitted GE Betz Foamtrol product. The anti-foaming agent is only used when foaming is a problem. It has actually not been used for several years.

Antifouling Coatings

Over the life of the current NPDES permit, Progress Energy has obtained several authorizations relative to the use of the copper-based anti-fouling coating Ameron ABC#3. Monitoring data previously submitted to the Department to evaluate the release of copper have shown no exceedences to the Class III marine water quality standard for copper. This finding was subsequently acknowledged by the Department in a letter dated June 4, 2002.

Based on these previous conclusions and the fact that the Department has historically authorized use of this product, we request that intermittent use of the product be allowed. Past usage had involved re-coating the CR3 condenser inlet water boxes, pump suction housings, and inlet screen sensing tubes approximately once every two years or when a system is replaced. Given that the condenser cooling water system will no longer operate, it's expected that future use of this product would be limited to the heat decay system intake components only.

In addition to use of this product at CR3, we request that the same systems at CR 1&2, i.e. the inlet/outlet water boxes, circulating and screen wash pump suction housings, and packing drains on the circulating water screen wash pumps, also be allowed to utilize Ameron ABC#3 as a part of routine maintenance activity.

As with all applications involving this product, the product will be applied per manufacturer's instructions and allowed to completely cure before the system is placed back into operation.

Attachment 8 - Supplemental

Material Safety Data Sheets

For chemicals used and have the potential to be discharged via one of the NPDES-permitted outfalls under FL0000159.

- Sodium Hypochlorite
- Sodium Bromide
- Actibrom (sodium bromide with surfactant added)
- Sodium Bisulfite
- Sodium Metabisulfite
- Hydrazine (Cortrol OS5010)
- Morpholine
- Hydroquinone
- Ammonium Hydroxide
- Spectrus CT1300 (Clamtrol)
- Nalco 71D5 (anti-foaming agent)
- Spectrus OX903
- Continuum AT901
- Neutral Multi-Use Cleaner
- Crud Remover
- Hydrochloric Acid
- Sulfuric Acid
- Sodium Hydroxide
- Ameron ABC#3

ODYSSEY
MANUFACTURING CO.

MATERIAL SAFETY DATA SHEET

REVISED 7/2/00

SECTION I CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

ODYSSEY MANUFACTURING CO.
1484 Massaro Boulevard
Tampa, Florida 33619
1-813-635-0339

EMERGENCY RESPONSE NUMBER:
1-800-ODYSSEY (FLORIDA)
1-813-635-0339 (24 hours)

SUBSTANCE: SODIUM HYPOCHLORITE
TRADE NAME: Ultra-CHLOR
CHEMICAL NAME/SYNONYMS: Sodium Hypochlorite Solution, Bleach Solution, Bleach Liquor, Hypo-solution, Bleach, and Liquid Bleach.
CAS NUMBER: 7681-52-9
CHEMICAL FAMILY: Alkali
FORMULA: NaOCl
DOT PROPER SHIPPING NAME: Hypochlorite Solution
DOT HAZARD CLASS: 8 (Corrosive) PG III; PG II (For solutions greater than 16% available chlorine)
DOT IDENTIFICATION NO: UN1791
RQ: 100 pounds
DOT EMERGENCY GUIDE NO: 154

SECTION II COMPOSITION, INFORMATION ON INGREDIENTS

INGREDIENT(S):	
Sodium Hypochlorite (NaOCl)	10.0 - 20.0% wt
Sodium Hydroxide (NaOH)	0.1 - 0.4% wt
Water (H_2O)	79.7 - 89.9% wt

SECTION III HAZARDS IDENTIFICATION

NFPA CLASSIFICATION (SCALE 0-4): Health=2 Fire=0 Reactivity=1
EC CLASSIFICATION (ASSIGNED): C (Corrosive)

EMERGENCY OVERVIEW
COLOR: Yellow
PHYSICAL FORM: Liquid
ODOR: Chlorine Odor
MAJOR HEALTH HAZARDS: Respiratory Tract Burns, Skin Burns, Mucous Membrane Burns, and Eye Irritation
HAZARDOUS MIXTURES WITH OTHER LIQUIDS, SOLIDS, OR GASES: Reacts violently with acids liberating chlorine gas. Also reacts with organic substance. When heated, gives off oxygen that may increase fire hazard.

POTENTIAL HEALTH EFFECTS

INHALATION:

- SHORT TERM EXPOSURE: Irritation to respiratory tract. May have same as effects reported in other routes of exposure, burns, blisters, nausea, difficulty breathing, and lung congestion.
- LONG TERM EXPOSURE: Same as effects reported in short term exposure.

SKIN CONTACT:

- SHORT TERM EXPOSURE: Irritant, reddening of the skin. May have burns, blisters, and itching
- LONG TERM EXPOSURE: Same as effects reported in short term exposure.

EYE CONTACT:

- SHORT TERM EXPOSURE: Irritation (possibly severe), possible eye damage
- LONG TERM EXPOSURE: Same as effects reported in short term exposure.

INGESTION:

- SHORT TERM EXPOSURE: Burns, vomiting stomach pain, disorientation, bluish skin color, convulsions, coma
- LONG TERM EXPOSURE: Same as effects reported in short term exposure.

CARCINOGEN STATUS

OSHA: N
NTP: N
IARC: N

SECTION IV FIRST AID MEASURES

INHALATION: Remove from exposure and get fresh air. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Keep warm and at rest. Get medical attention immediately if artificial respiration is required.

SKIN CONTACT: Remove contaminated clothing, jewelry, and shoes immediately. Flush affected area with large amounts of water, preferably a safety shower. Use soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). For burns, cover affected area securely with sterile, dry, loose fitting dressing. If skin is burned, get medical attention immediately.

EYE CONTACT: Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains (at least 15 minutes). Continue irrigating with a normal saline solution until ready to transport to physician. Cover with sterile bandages. Get medical attention immediately.

INGESTION: Rinse mouth with water. Drink large quantities of milk (water if no milk is available). Milk of magnesia may be helpful. **DO NOT USE ACIDIC ANTIDOTES SUCH AS SODIUM BICARBONATE.** When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, do not induce vomiting and turn their head to the side. Never make an unconscious person vomit or drink fluids. Get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen. For ingestion, avoid gastric lavage, emesis, sodium bicarbonate and acid solutions. Consider the use of antacids.

SECTION V FIRE FIGHTING MEASURES

FLASH POINT: Non-flammable

FLAMMABLE LIMITS: Non-flammable

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard. Oxidizer. This material will react with some metals and cause liberation of oxygen. May ignite or explode on contact with combustible materials. Toxic fumes can be liberated by contact with acid or heat.

EXTINGUISHING MEDIA: Regular dry chemical, carbon dioxide, water, or foam suitable for surrounding fire. For large fires, use regular foam or flood with fine water spray.

FIRE FIGHTING: Wear self-contained breathing apparatus and full protective clothing. Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Use extinguishing agents appropriate for surrounding fire. Do not get water directly on material. For large fires, flood with fine water spray. Reduce vapors with water spray. Apply water from a protected location or from a safe distance. Avoid body contact or inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

SECTION VI ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE: Do not touch spilled material. Stop leak if possible without personal risk. For small spills, collect spilled material in appropriate container for disposal and consider absorbing with sand or other non-combustible material (e.g., do not use sawdust or other combustible material). Be advised, however, that the use of absorbing material is creating hazardous waste and this absorbing material must now be disposed of properly. Collect spilled material in appropriate container for disposal. For small dry spills, move containers away from spill to a safe area. For large spills, dike for later disposal. If possible, do not allow material to enter sewers, streams, ponds or storm conduits as concentrated solutions will seriously injure aquatic life. Keep unnecessary people away, isolate hazard area and deny entry. Contain in as small an area as possible, such as a holding area for dilution and neutralization. Contain spill in plastic drums when available. Dispose of in accordance with Federal, State, and local regulations. Personnel engaged in cleanup operations must be equipped with NIOSH approved respirator protection, rubber boots, gloves, and clothing to avoid body contact. Reportable Quantity (RQ): 100 pounds. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section103, notify the National Response Center at (800) 424-8802 (USA) or (202) 426-2675 (USA).

ADVANCE PLANNING: Plan in advance for an occupational release and have necessary equipment and neutralization agents on-site. Contact Odyssey Manufacturing for assistance.

SECTION VII HANDLING AND STORAGE

Store in vented, closed containers that provide protection from direct sunlight. Keep separated from incompatible substances and do not store near acids, heat, or oxidizable materials or organics. When handling, do not mix with other cleaning agents that may liberate chlorine gas vapors (e.g., acidic agents).

Store and handle in accordance with all current regulations and standards including NFPA 430 Code for the Storage of Liquid and Oxidizing Materials.

SECTION VIII EXPOSURE CONTROLS AND PERSONNEL PROTECTION

EXPOSURE LIMITS: 2 mg/m3 AIHA recommended STEL 15 minute(s) for Sodium Hypochlorite
VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.
EYE PROTECTION: Splash goggles are preferred to a faceshield. Another option is to wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
CLOTHING: It is recommended to wear appropriate chemical resistant clothing to avoid body contact such as a rubber apron or rain suit. Boots are preferred for footwear.
GLOVES: Wear appropriate chemical resistant gloves.
RESPIRATOR: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

- Any chemical cartridge respirator with organic vapor cartridge(s).
- Any chemical cartridge respirator with a full facepiece and organic vapor cartridge(s)
- Any air-purifying respirator with a full facepiece and an organic vapor canister
- Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply (Use for Unknown Concentrations or those that may be Immediately Dangerous to Life or Health)
- Any self-contained breathing apparatus with a full facepiece (Use for High Concentrations or those which are immediately Dangerous to Life or Health)

SECTION IX PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL APPEARANCE: Liquid
APPEARANCE AND ODOR: Clear - Chlorine odor like household bleach.
COLOR: Greenish –Yellowish cast
MOLECULAR WEIGHT: 74.44
MOLECULAR FORMULA: Na-O-Cl

BOILING POINT: Degrades at 230 Degrees Fahrenheit
FREEZING POINT: 7 Degrees Fahrenheit
SPECIFIC GRAVITY: 1.15 - 1.17 at 60 Degrees Fahrenheit
PH: Approximately 11 - 13
VAPOR PRESSURE (mm HG): Vapor Pressure of water + decomposition product Vapor Pressure
VAPOR DENSITY: Not Available
SOLUBILITY IN WATER: Complete
VOLATILITY: Not Available
EVAPORATION RATE: >1
COEFFICIENT OF WATER /OIL DISTRIBUTION: Not Available

SECTION X STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.
CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Dangerous gases may accumulate in confined spaces. May ignite or explode on contact with combustible materials.
INCOMPATIBLES: Acids, metals, amines, combustible materials, reducing agents. Specific reactions with sodium hypochlorite include the following:
ACIDS: Violent reaction.
ALUMINUM: Corrosive action.
AMINES: Form explosive chloramines.
AMMONIA: Form explosive chloramines.
AMMONIUM SALTS: May form explosive product.
BENZYL CYANIDE (ACIDIFIED): Explosive reaction.
CELLOLOSE: Violent reaction
ETHYLENEIMINE: Forms explosive 1-chloroethyleneimine.
FORMIC ACID: Explosive mixture.
METHANOL: May form explosive compound.
NITROGEN COMPOUNDS: Forms explosive N-chloro compounds.
ORGANIC AND COMBUSTIBLE MATERIALS: Fire and explosion hazard.
OXALIC ACID: Intense reaction
REDUCING AGENTS: Fire and explosion hazard
ZINC: Corrosive
HAZARDOUS DECOMPOSITION:
Thermal decomposition products – Chlorine and Hydrochloric Acid Vapors
Decomposition Products – Hypochlorous Acid Vapors
POLYMERIZATION: Will not polymerize.

SECTION XI SODIUM HYPOCHLORITE TOXILOGICAL INFORMATION

IRRITATION DATA: 10 mg eyes – rabbit moderate
TOXICITY DATA:
1gm/ kg oral-woman; TDLo; 45mg/kg intravenous-man TDLo; 5800 mg/ kg oral-mouse LD5O; 140 mg/ kq/9 week(s) continuous oral-rat TDLo
CARCINOGEN STATUS: According to the IARC, animal inadequate evidence, human no adequate data, Group 3 (Hypochlorite salts)
LOCAL EFFECTS:
Corrosive: inhalation, skin contact, eye, ingestion hazards
ACUTE TOXICITYLEVEL:
Slightly Toxic if ingested
MUTAGENIC DATA:
Mutation in micro organisms – Salmonella typhimurium 1mg / plate (-S9); DNA repair – Escherichiacoli 20ug/ disc; DNA damage – Esoherichiacoli 420 umol/L; phage inhibition capacity – Esoherichiacoli 103 ug/ well; micronucleus test - non-mammalian species multiple 200 ppb; cytogenetic analysis - non-mammalian species multiple 120 ug/ L; cytogenetic analysis – human lymphocyte 100 ppm 24hour(s); sister chromatid exchange – human embryo 149 mg/ L; cytogenetic analysis – hamster lung 100 mg/ L
HEALTH EFFECTS:
INHALATION
ACUTE EXPOSURE: May cause severe bronchial irritation, sore throat with possible blistering, coughing,

stomatitis, nausea, labored breathing, shortness of breath and pulmonary epedema. 10-20 mg/m3 causes burning of the nose and throat; 40-60 mg/m3 may be fatal. If sufficient amounts are absorbed, may cause effects as detailed in acute ingestion.

CHRONIC EXPOSURE: No data available.

SKIN CONTACT

ACUTE EXPOSURE: Extent of damage depends on concentration, pH, volume of solution and duration of contact. May cause redness, pain, blistering, itchy eczema and chemical burns. Sensitization reactions are possible in previously exposed persons.

CHRONIC EXPOSURE: Effects depend on concentration and duration of exposure. Repeated or prolonged contact with corrosive substances may result in dermatitis or effects similar to acute exposure. Allergic dermatitis has also been reported.

EYE CONTACT

ACUTE EXPOSURE: May cause redness, pain, and blurred vision. Solutions of 5% splashed in human eyes have caused a burning sensation and later only slight superficial disturbance of the corneal epithelium which cleared completely in the next day or two without special treatment. However, one animal study reports a 5% solution causing only moderate irritation with clearing within 7 days. A higher concentration of 15% tested on rabbit eyes caused immediate severe pain, hemorrhages, rapid onset of ground-glass appearance of the corneal epithelium, moderate bluish edema of the whole cornea, chemosis and discharge for several days. Such eyes have sometimes healed in 2-3 weeks with slight or no residual corneal damage but they had neovascularization of the conjunctiva and distortion of the nictitating membrane by scarring.

CHRONIC EXPOSURE: Depending on concentration and duration of exposure, symptoms may be as those of acute exposure.

INGESTION

ACUTE EXPOSURE: May cause irritation and erosion of the mucous membranes, vomiting (possibly bloody) and abdominal pain and spasms. A drop in blood pressure, shallow respiration, edema (possibly severe) of pharynx, larynx, and glottis, confusion, convulsions, delirium and coma may occur. Cyanosis and circulatory collapse are possible. Esophageal or gastric perforation and strictures are rare. Death may occur, usually due to complications of severe local injury such as toxemia, shock, perforations, hemorrhage, infection and obstruction. Massive ingestions may produce fatal hyperchloremic metabolic acidosis or aspiration pneumonitis.

CHRONIC EXPOSURE: Sensitization reactions are reported in individuals who are exposed in small amounts through their water supply. High doses have caused sperm abnormality in mice.

SECTION XII ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: 94.0 ug/L 96h hour(s) LC5O (Mortality) Cutthroat trout (Oncorhynchus clarki)
INVERTEBRATE TOXICITY: 31.6 ug/L 7 hour(s) 1C50 (Species Diversity) Protozoan phylum (Protozoa)
ALGAL TOXICITY: 90 ug/L 96 hour(s) LC5O (Mortality) Algae, phytoplankton, algai mat (Algae)
PHYTOTOXICITY: 230 ug/L 35 hour(s) (Biomass) Curled pondweed (Potamogeton crispus)
OTHER TOXICITY: 2.1 ug/L 28 day(s) (Chlorophyll) Aquatic community (Aquatic community)

ENVIRONMENTAL SUMMARY: Highly toxic to aquatic life.

SECTION XIII DISPOSAL CONSIDERATIONS

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. Dispose in accordance with all applicable regulations.

SECTION XIV TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101 SHIPPING NAME-UN NUMBER: Sodium Hypochlorite) - UN1791
U.S. DOT 49 CER 172.101 HAZARD CLASS OR DIVISION: 8
U.S. DOT 49 CFR 172 .101 PACKING GROUP: III (less than 16% available chlorine) / II (16% or more available chlorine)
U.S. DOT 49 CFR 172.101 AND SUBPART E LABELING REQUIREMENTS: Corrosive
U.S. DOT 49 CFR 172.101 PACKAGING AUTHORIZATIONS:
EXCEPTIONS: 49 CFR 173.154

NON- BULK PACKAGING: 49 CFR 173.203 (less than 16% available chlorine) / 49 CFR 173.202 (16% or more available chlorine)
BULK PACKAGING: 49 CFR 173.241 (less than 16% available chlorine) / : 49 CFR 173.242 (16% or more available chlorine)
U.S. DOT 49 CFR 172.101 QUANTITY LIMITATIONS:
PASSENGER AIRCRAFT OR RAILCAR: 5 LITERS / (less than 16% available chlorine) / 1 LITERS (16% or more available chlorine)
CARGO AIRCRAFT ONLY: 60 LITERS / (less than 16% available chlorine) / 30 LITERS (16% or more available chlorine)

SECTION XV REGULATORY INFORMATION

U.S. REGULATIONS
TSCA INVENTORY STATUS: Y

TSCA 12(b) EXPORT NOTIFICATION: Not listed.
CERCLA SECTION 103 (40CFR302.4): Y
SODIUM HYPOCHLORITE: 100 LBS RQ
SARA SECTION 302 (40CFR355.30) : N
SARA SECTION 304 (40CFR355.40) : N
SARA SECTION 313 (40CFR372.65) : N
SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):
ACUTE: Y
CHRONIC: N
FIRE: N
REACTIVE: N
SUDDEN RELEASE: N
OSHA PROCESS SAFETY (29CFR1S1O.119): N
STATE REGULATIONS:
California Proposition 65: N EUROPEAN REGULATIONS:
EC NUMBER (BINECS) : 231-668-3

EC RISK AND SAFETY PHRASES:

R 31	Contact with acids liberates toxic gas.
R 34	Causes burns.
S ½	Keep locked-up and out of reach of children.
S 28b	After contact with skin, wash immediately with plenty of soap and water.
S 45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
S 50	Do not mix with incompatible materials.

CONCENTRATION LIMITS:

C>10%	C	R 31-34
5%<=C<=l0%	Xi	R 31-36/38

GERMAN REGULATIONS:
WATER HAZARD CLASS (WGK) : 2 (Official German Classification)

SECTION XVI OTHER INFORMATION

For additional information, contact our technical service department.

Information contained in this MSDS refers only to the specific material designated and does not relate to any process or use involving other materials. This information is based on data believed to be reliable, and the Product is intended to be used in a manner that is customary and reasonably foreseeable. Since actual use and handling are beyond our control, no warranty, express or implied, is made and no liability is assumed by Odyssey Manufacturing in connection with the use of this information.

APPLIED SPECIALTIES, INC.
33555 PIN OAK PARKWAY
AVON LAKE, OHIO 44012

AS-740

07254740-1
September 11, 2007
TELEPHONE (440) 933-9442
EMERGENCY: (216) 973-6118

MATERIAL SAFETY DATA

SECTION 1 MATERIAL IDENTIFICATION

PRODUCT NAME OR SYNONYMS	AS-740 Sodium Bromide Biocide	EPA # 5185-451-46982

SECTION 2 INGREDIENTS AND HAZARDS

COMPONENT	CAS. NUMBER	%	TWA/CEILING	REFERENCE
Sodium Bromide	7647-15-6	40%	Not Established	

Emergency Overview: Odorless, Colorless Liquid. CAUTION: May Be Harmful If Swallowed. May Cause Skin, And Eye Irritation With Redness And Swelling. Do Not Get In Eyes, On Skin Or On Clothing. Wash With Soap And Water After Handling. Remove Contaminated Clothing And Wash Before Use. Keep Container Tightly Closed. Use Only With Adequate Ventilation.

SECTION 3 REGULATORY INFORMATION

OSHA STATUS This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard
TSCA STATUS This substance is subject to regulation under FIFRA and is therefore exempt US Toxic Substance Control Act Inventory listing requirements.

CERCLA REPORTABLE QUANTITY None listed
SARA TITLE III:
SECTION 302 (EXTREMELY HAZARDOUS SUBSTANCE) Not listed

SECTION 311/312 (HAZARDOUS SUBSTANCES
Classification Under Section 311/312 of SARA (40 CFR 370): Acute (Y) Chronic (Y) Fire (N) Reactive (N) Pressure (N)
SECTION 313 SUPPLIER NOTIFICATION: None listed
RCRA STATUS Not regulated as supplied
OSHA, ACGIH, NTP & IARC STATUS None listed

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

HEALTH - 1 FIRE - 0 REACTIVITY - 0

0 MINIMAL
1 SLIGHT HAZARD
2 MODERATE HAZARD
3 SERIOUS HAZARD
4 SEVERE HAZARD

Chemical identity of some ingredients may be withheld as confidential as permitted by 29 CFR 1910.1200 and various State right to know laws.

SECTION 4 HEALTH HAZARD AND PROTECTION DATA

TARGET ORGANS
Eyes Skin Respiratory System

ROUTES OF ENTRY INTO BODY
Skin or Eye Contact, Inhalation, Ingestion

SIGNS AND SYMPTOMS OF EXPOSURE:
Moderate eye irritant. May cause tearing with redness, and pain. Prolonged and excessive inhalation or ingestion may cause rashes, central nervous system depression and emaciation and, in severe cases, psychoses and mental deterioration; severity depends on concentration and duration of contact. May cause respiratory irritation. Overdose may cause gastrointestinal or cardiovascular irregularities. Sodium Bromide has been shown to cause embryo-fetal toxicity and malformations in rats at dose levels that also produce maternal toxicity. The No-Observed Effect Level is 100 mg/kg/day, and the Acceptable Daily Intake for sodium bromide from food and drinking water in humans is 1 mg/kg/day. Comparable high does of sodium chloride (table salt) similarly cause malformation, embryo-fetal toxicity and maternal toxicity in mice.

TOXICOLOGICAL INFORMATION
Acute: Dermal LD50: >20000mg/kg (Rabbits) Oral LD50: >5000mg/kg (Rats)
Eye: May Cause Irritation Skin: Not expected to be irritating to the skin.
Reproductive Effects: A 3 generation Study in rats fed 4800 mg/kg showed a decrease in fertility; no effects were observed at lower levels according to the literature.

PROTECTIVE EQUIPMENT REQUIRED:
Employees should be required to use impervious clothing, rubber gloves, over boots, safety glasses with side shields as a minimum and other appropriate protective clothing to prevent skin contact. Employees shall be required to use splash-proof safety goggles (ANSI Z87.1 or equivalent) where the material may contact the eyes in addition to face shield. Clothing wet with product should be placed in a closed container until provisions are made for it to be discarded or laundered. Any clothing that becomes wet with the material should be removed immediately and not re-worn until the clothing has been properly cleaned. The employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use. RESPIRATORY: Use only in well ventilated areas. Where the potential for excessive exposures exists which cannot be controlled by mechanical means, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations. ESCAPE & FIRE FIGHTING: Use self-contained breathing apparatus (pressure demand MSHA/NIOSH approved or equivalent) and full protective gear.

FIRST AID
SKIN CONTACT: Wash affected skin thoroughly with mild soap and plenty of water. Remove and wash contaminated clothing thoroughly before re-use. **Get medical attention immediately for any sign of irritation.**

EYE CONTACT: If material gets into the eyes, flush the eyes immediately with large amounts of water for at least 30 minutes, lifting the lower and upper lids occasionally. **Get MEDICAL attention immediately**. Contact lenses should not be worn when working with this substance or any other chemicals.

INHALATION: Remove to fresh air. Keep person quiet and warm. If person is not breathing call 911 then give artificial respiration and **Get medical attention immediately**. Treat symptomatically and supportively.

INGESTION: Never give anything by mouth to an unconscious person. Treat symptomatically and supportively. **Get medical attention immediately &** Contact poison control center. If vomiting occurs, keep head lower than hips to prevent aspiration. Do not induce vomiting unless told to do so by poison control or a medical doctor. Have person sip a glass of water if alert and able to swallow.

NOTE TO PHYSICIAN: Treat symptomatically and supportively. The following antidote for Bromide poisoning has been recommended. The decision to administer any antidote should be made only by qualified medical personnel. Give Sodium Chloride, 1 gram every hour in water or as salt tablets; for severe involvement give normal saline, 1 liter every 8 hours to a maximum of 2 liters per day. Sodium chloride therapy must be continued until the blood bromide level drops below 50mg/dL. Simultaneous administration of diuretics is also useful. (Driesback, Handbook of Poisoning, 12th Ed.)

SECTION 5 PHYSICAL DESCRIPTION

APPEARANCE AND ODOR	Colorless clear liquid; odorless.
BOILING POINT	103 C (217F) to 104 C (219F)
MELTING POINT	Not applicable
FLASH POINT	Not Flammable
VAPOR PRESSURE	No data
SPECIFIC GRAVITY	1.43 +/- 0.02 g/ml
PRODUCT pH	7.00 (+/- 0.5)
SOLUBILITY IN WATER	Soluble

SECTION 6 INCOMPATIBILITIES AND STORAGE

Hazardous polymerization will not occur.
Stable under normal conditions. Can evolve hydrogen bromide/bromine when strongly heated.
Hazardous decomposition products: hydrogen bromide, bromide gas and sodium oxide.
Incompatible with strong acids and strong oxidizers.
Store in a dry, well-ventilated area. Keep containers tightly closed when not in use. Store at 0F or above.

SECTION 7 REGULATIONS/OSHA

OSHA Standard 29 CFR 1910.1200	HAZARD COMMUNICATION
OSHA Standard 29 CFR 1910.1000	AIR CONTAMINANTS Table Z-1
OSHA Standard 29 CFR 1910.94	VENTILATION
OSHA Standard 29 CFR 1910.134	RESPIRATORY PROTECTION
OSHA Standard 29 CFR 1910.20	ACCESS TO EMPLOYEE EXPOSURE
OSHA Standard 29 CFR 1910.132	PERSONAL PROTECTIVE EQUIPMENT
OSHA Standard 29 CFR 1910.141	SANITATION
OSHA Standard 29 CFR 1910.151	MEDICAL SERVICES AND FIRST AID
OSHA Standard 29 CFR 1910.133	EYE AND FACE PROTECTION

SECTION 8 EMERGENCY HANDLING OF HAZARDOUS MATERIALS

IF MATERIAL IS ON FIRE OR INVOLVED IN FIRE: .
Negligible fire hazard when exposed to heat or flame. Product is non-combustible as supplied. Use water, foam, carbon dioxide or dry chemical to extinguish fire as appropriate to surrounding fire. Fire may result into the release of toxic fumes of bromine, hydrogen bromide and sodium oxide. Product may react with some metals (aluminum, zinc, tin, etc.) to release flammable hydrogen gas. Move container from fire area if you can without risk. Apply cooling water to sides to keep cool. Do not use water directly on material.

IF MATERIAL IS NOT ON FIRE OR NOT INVOLVED IN FIRE: Keep material out of water sources and sewers.

PERSONAL DANGER SITUATION PROTECTION:
Keep upwind. Avoid breathing dust/vapors/fumes from material. Avoid bodily contact with material. Wear boots, protective gloves and gas-tight goggles. Wear full protective clothing including SCBA (regular FIRE FIGHTERS' gear is inadequate).

SECTION 9 SPILL, LEAK AND DISPOSAL PROCEDURES

Persons not wearing protective equipment and clothing should be restricted from spill areas until clean-up has been completed. If AS-740 is spilled, take the following steps:

1 – Ventilate area. Contain spills immediately with inert materials (sand, earth). The floor may be slippery, exercise caution to avoid falls.
2 - Transfer liquids and solid diking material to separate suitable containers for recovery or disposal. Wash spill site after material pickup is complete.
3 - Incinerate any material and the absorbent material in accordance to all FEDERAL, STATE, AND LOCAL REGULATIONS.

NOTE: DO NOT wash or pour AS-740 into any surface waters or streams or directly into sewers.

SECTION 10 SHIPPING AND TRANSPORTATION DATA

PROPER SHIPPING NAME	Disinfectant, NOIBN other than Medicinal
HAZARD CLASS	Not Regulated
IDENTIFICATION NUMBER	None
LABEL REQUIRED	None

SECTION 11 ECOLOGICAL INFORMATION

This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, pond or estuaries, oceans, or other waters unless in accordance with the requirements of a NPDES permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

H. Garcia-Munoz / A Scheurman

PENNSYLVANIA and MASSACHUSETTS RIGHT-TO-KNOW INFORMATION:

The following comprises the CHEMICAL IDENTIFICATION LIST

	CAS#
Water	7732-18-5
Sodium Bromide	7647-15-6

NEW JERSEY RIGHT-TO-KNOW TOTAL INGREDIENTS LABEL:

	CAS#
Water	7732-18-5
Sodium Bromide	7647-15-6

CALIFORNIA PROPOSITION 65:

This product does not contain toxic chemicals currently on the California list of known carcinogens and reproductive toxins

Pursuant to the California Safe Drinking Water and Toxic Enforcement Act of 1986 (proposition 65), this information is provided. This law requires that " clear and reasonable warning " be provided to any individual, knowingly or intentionally exposed to any substances identified by the state as being cancer or reproductive hazards unless, it can be shown that the exposure poses "no significant risk". Based on available data, the following chemicals listed by Proposition 65 may be present in this product:

NONE

NALCO

SAFETY DATA SHEET

PRODUCT

ACTI-BROM(R) 1338

EMERGENCY TELEPHONE NUMBER(S)
(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **ACTI-BROM(R) 1338**

APPLICATION : CHLORINE ENHANCER, BIODISPERSANT

COMPANY IDENTIFICATION : Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S) : (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH : 1 / 1 FLAMMABILITY : 0 / 0 INSTABILITY : 0 / 0 OTHER :
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has identified the following chemical substance(s) as hazardous.

Hazardous Substance(s)	CAS NO	% (w/w)
Sodium Bromide	7647-15-6	30 - 60

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

WARNING
HARMFUL IF SWALLOWED. HARMFUL IF ABSORBED THROUGH SKIN. CAUSES MODERATE EYE IRRITATION.
Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.
Wear suitable protective clothing, gloves and eye/face protection.
Not flammable or combustible.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Can cause mild to moderate irritation.

SKIN CONTACT :
May cause irritation with prolonged contact.

INGESTION :
Not a likely route of exposure. May be harmful if swallowed.

INHALATION :
Not a likely route of exposure. Repeated or prolonged exposure may irritate the respiratory tract.

SYMPTOMS OF EXPOSURE :
Acute :
A review of available data does not identify any symptoms from exposure not previously mentioned.
Chronic :
A review of available data does not identify any symptoms from exposure not previously mentioned.

AGGRAVATION OF EXISTING CONDITIONS :
A review of available data does not identify any worsening of existing conditions.

HUMAN HEALTH HAZARDS - CHRONIC :
No adverse effects expected other than those mentioned above.

4. FIRST AID MEASURES

EYE CONTACT :
Immediately flush eye with water for at least 15 minutes while holding eyelids open. If irritation persists, repeat flushing. Get immediate medical attention.

SKIN CONTACT :
Immediately flush with plenty of water for at least 15 minutes. If symptoms persist, call a physician.

INGESTION :
If swallowed, induce vomiting only if victim is conscious and not convulsing. Give 240 to 300 mL of water. DO NOT attempt to give anything by mouth to an unconscious or convulsing person. Get prompt medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. Get medical attention.

IF SWALLOWED: Induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person.

IF IN EYES: Flush eyes with plenty of water. Get medical attention if irritation persists.

IF ON SKIN: Wash with plenty of soap and water. Get medical attention.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : None

EXTINGUISHING MEDIA :
Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :
Not flammable or combustible.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Stop or reduce any leaks if it is safe to do so. Do not touch spilled material. Ventilate spill area if possible. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection).

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters, unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

7. HANDLING AND STORAGE

HANDLING :
Avoid eye and skin contact. Do not take internally. Ensure all containers are labeled. Keep the containers closed when not in use.

STORAGE CONDITIONS :
Store the containers tightly closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
This product does not contain any substance that has an established exposure limit.

ENGINEERING MEASURES :
General ventilation is recommended.

RESPIRATORY PROTECTION :
Respiratory protection is not normally needed.

HAND PROTECTION :
Neoprene gloves, Nitrile gloves, Butyl gloves, PVC gloves

SKIN PROTECTION :
Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots.

EYE PROTECTION :
Wear chemical splash goggles.

HYGIENE RECOMMENDATIONS :
Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Use good work and personal hygiene practices to avoid exposure. Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is:
Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Colorless
ODOR	None

SPECIFIC GRAVITY	1.43 - 1.49 @ 77 °F / 25 °C
DENSITY	12.0 - 12.4 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	4.0 - 9.0
VISCOSITY	5 cps @ 72 °F / 22 °C
FREEZING POINT	-13 °F / -25 °C
BOILING POINT	230 °F / 110 °C
VAPOR PRESSURE	7.6 mm Hg @ 68 °F / 20 °C
VOC CONTENT	0.00 %

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Freezing temperatures.

MATERIALS TO AVOID :
Contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors. Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. Reducing agents

HAZARDOUS DECOMPOSITION PRODUCTS :
Under acidic conditions: Hydrogen bromide

11. TOXICOLOGICAL INFORMATION

The following results are for a similar product.

ACUTE ORAL TOXICITY :

Species	LD50	Test Descriptor
Rat	> 5,000 mg/kg	Similar Product

Rating : Non-Hazardous

ACUTE DERMAL TOXICITY :

Species	LD50	Test Descriptor
Rabbit	> 2,000 mg/kg	Similar Product

Rating : Non-Hazardous

PRIMARY SKIN IRRITATION :

Draize Score	Test Descriptor
0.4 / 8.0	Similar Product

Rating : Minimally irritating
Not irritating

PRIMARY EYE IRRITATION :

Draize Score	Test Descriptor
10.8 / 110.0	Similar Product

Rating : Practically non-irritating

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Low

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Rainbow Trout	96 hrs	> 1,000 mg/l	Product
Bluegill Sunfish	96 hrs	> 1,000 mg/l	Product
Fathead Minnow	96 hrs	> 1,000 mg/l	Product
Guppy	96 hrs	538 mg/l	Product
Sheepshead Minnow	96 hrs	0.19 mg/l	HOBr (Generated from NaBr)
Rainbow Trout	96 hrs	0.23 mg/l	HOBr (Generated from NaBr)
Fathead Minnow	96 hrs	0.097 mg/l	HOBr (Generated from NaBr)
Bluegill Sunfish	96 hrs	0.52 mg/l	HOBr (Generated from NaBr)
Inland Silverside	96.00 hrs	> 5,000.000 mg/l	Product

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	> 1,000 mg/l		Product
Mysid Shrimp (Mysidopsis bahia)	96.00 hrs	1,827.000 mg/l		Product
Mysid Shrimp (Mysidopsis bahia)	96 hrs	0.17 mg/l		HOBr (Generated from NaBr)
American Oyster	96 hrs	0.54 mg/l		HOBr (Generated from NaBr)
Daphnia magna	48 hrs	0.038 mg/l		HOBr (Generated from NaBr)

PERSISTENCY AND DEGRADATION :

Total Organic Carbon (TOC) : 2,000 mg/l

Chemical Oxygen Demand (COD) : 53,000 mg/l

Biological Oxygen Demand (BOD) : This material is an oxidizing biocide and is not expected to persist in the environment.

Greater than 95% of this product consists of inorganic substances for which a biodegradation value is not applicable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
<5%	30 - 50%	50 - 70%

The portion in water is expected to be soluble or dispersible.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: High
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Moderate

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

METAL CONTAINERS: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. ^PLASTIC CONTAINERS: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Based on our hazard evaluation, the following substance(s) in this product is/are hazardous and the reason(s) is/are shown below.

Sodium Bromide : Non-Hazardous

CERCLA/SUPERFUND, 40 CFR 117, 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found this product to be hazardous. The product should be reported under the following indicated EPA hazard categories:

X	Immediate (Acute) Health Hazard
	Delayed (Chronic) Health Hazard
	Fire Hazard
	Sudden Release of Pressure Hazard
	Reactive Hazard

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act :
When use situations necessitate compliance with FDA regulations, this product is acceptable under : the following use conditions.

This product may be used to treat pulp and papermill water systems in situations requiring FDA sanction provided the bromide concentration in the water is kept below 22 ppm. The product must be used in conjunction with an oxidant such as bleach or gaseous chlorine. Follow instructions for use in pulp and papermill on the product label.

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA) :
EPA Reg. No. 1706-168

In all cases follow instructions on the product label.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
None of the substances are specifically listed in the regulation.

CLEAN AIR ACT, Sec. 112 (40 CFR 61, Hazardous Air Pollutants), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
None of the substances are specifically listed in the regulation.

CALIFORNIA PROPOSITION 65 :
This product does not contain substances which require warning under California Proposition 65.

MICHIGAN CRITICAL MATERIALS :
None of the substances are specifically listed in the regulation.

STATE RIGHT TO KNOW LAWS :
This product is a registered biocide and is exempt from State Right to Know Labelling Laws.

NATIONAL REGULATIONS, CANADA :

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) :
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS CLASSIFICATION :
Pesticide controlled products are not regulated under WHMIS.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Chemical Control Law and are listed on the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substance(s) in this preparation are included in or exempted from the EINECS or ELINCS inventories

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Ministry of International Trade & industry List (MITI).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Low

* The environmental risk is: Moderate

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS CD-ROM Version), Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH, (TOMES CPS CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 10/10/2008
Version Number : 1.14

Applied Specialties, Inc.
33555 Pin Oak Parkway
Avon Lake, Ohio 44012

AS-9838

071499838-5
May 29, 2007
Telephone (440) 933-9442
Emergency: (216) 973-6118

MATERIAL SAFETY DATA

SECTION 1 MATERIAL IDENTIFICATION

PRODUCT NAME OR SYNONYMS	AS-9838 BOILER WATER TREATMENT

SECTION 2 INGREDIENTS AND HAZARDS

COMPONENT	CAS. NUMBER	TWA/CEILING	REFERENCE
Sodium Bisulfite	7631-90-5	5 mg/m^3	ACGIH

EMERGENCY OVERVIEW: Clear Liquid, Sulfurous Odor. CAUTION! May Cause Eye Irritation And Burns. May Cause Skin Irritation. Harmful If Ingested Or Inhaled. May Cause Reactions In Sulfite Sensitive Individuals.

SECTION 3 REGULATORY INFORMATION

OSHA STATUS This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard
TSCA STATUS All components are listed

CERCLA REPORTABLE QUANTITY Sodium Bisulfite -5,000 lbs.

SECTION 302 (EXTREMELY HAZARDOUS SUBSTANCE) Not Listed
SECTION 311/312 (HAZARDOUS SUBSTANCES)
Classification Under Section 311/312 of SARA (40 CFR 370): Acute (Yes) Chronic (No) Fire (No) Reactive (N) Pressure (No)
SECTION 313 (TOXIC CHEMICALS): None
RCRA STATUS Not Regulated.
NTP, OSHA, ACGIH & IARC STATUS Not listed

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

HEALTH - 2 FIRE - 0 REACTIVITY - 0

0 MINIMAL
1 SLIGHT HAZARD
2 MODERATE HAZARD
3 SERIOUS HAZARD
4 SEVERE HAZARD

Chemical identity of some ingredients may be withheld as confidential as permitted by 29 CFR 1910.1200 and various State right to know laws.

SECTION 4 HEALTH HAZARD AND PROTECTION DATA

TARGET ORGANS

Eyes Skin Gastrointestinal System Respiratory System Mucous Membranes
Pulmonary Tract

ROUTES OF ENTRY INTO BODY

Inhalation Ingestion Skin Or Eye Contact

SIGNS AND SYMPTOMS OF EXPOSURE

Eye Irritation And Burns Skin Irritation Gastrointestinal Distress
Eye Reddness & Itching Tearing Or Blurry Vision
Coughing Chest Tightness Mucous Membrane Irritation
Respiratory Irritation Dermatitis Nausea Vomiting Diarrhea
Headache Note: May Cause Severe Reactions In Asthmatics And Sulfite Sensitive Individuals.

PROTECTIVE EQUIPMENT REQUIRED:

Employees should be provided with and required to use impervious clothing such as apron, boots, pants and jacket, gloves, splash goggles or safety glasses as a minimum and other appropriate protective clothing to prevent skin contact. Employees shall be provided with and required to use splash-proof safety goggles where the material may contact the eyes in addition to face shield. Appropriate gloves include those made from neoprene and nitrile. Clothing wet with product should be placed in a closed container until provisions are made for it to be discarded or laundered. If the clothing is to be laundered the person performing the laundering should be informed of the hazardous properties of the material. Any clothing that becomes wet with the material should be removed immediately and not reworn until the clothing has been properly cleaned. RESPIRATOR SELECTION - Use only in well ventilated areas. Where the potential for excessive exposures exists which cannot be controlled by mechanical means, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations. ESCAPE & FIRE FIGHTING - Self-contained breathing apparatus with a face-piece operated in a pressure demand or other positive-pressure mode.

FIRST AID

SKIN CONTACT: Skin that becomes contaminated should be washed or showered with large amounts of water to remove any chemical from skin. Contaminated clothing should be removed and the skin washed with soap and water. Clothing should be washed before it is reused. Discard contaminated footwear, which can not be decontaminated. If irritation persists, seek medical attention.

EYE CONTACT: If material gets into the eyes, flush the eyes immediately with large amounts of water for at least 30 minutes, lifting the lower and upper lids occasionally. Get **MEDICAL** attention immediately. Contact lenses should not be worn when working with this substance or any other chemical. Eyewash should be available.

INHALATION: If a person breathes in large amounts of product mist, move the person to fresh air. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

INGESTION: If conscious, give 2 glasses of water. **Get medical attention immediately**. Never give anything by mouth to an unconscious person.

SECTION 5 PHYSICAL DESCRIPTION

APPEARANCE AND ODOR	Clear liquid; sulfurous odor.
BOILING POINT	Not determined
MELTING POINT	Not applicable
FLASH POINT	Not applicable
VAPOR PRESSURE	Not determined
SPECIFIC GRAVITY	1.336 +/- 0.02 g/ml
PRODUCT pH	5.55 +/- 0.50 standard pH units
SOLUBILITY IN WATER	Complete

SECTION 6 INCOMPATIBILITIES AND STORAGE

Stable
Hazardous Polymerization Will Not Occur
Keep Containers Closed When Not In Use. Do Not Store In Unlined Steel Drums Or Equipment
Store Containers With Labels Visible

SECTION 7 REGULATIONS/OSHA

OSHA Standard 29 CFR 1910.1200	HAZARD COMMUNICATION
OSHA Standard 29 CFR 1910.1000	AIR CONTAMINANTS Table Z-1
OSHA Standard 29 CFR 1910.94	VENTILATION
OSHA Standard 29 CFR 1910.134	RESPIRATORY PROTECTION
OSHA Standard 29 CFR 1910.20	ACCESS TO EMPLOYEE EXPOSURE
OSHA Standard 29 CFR 1910.132	PERSONAL PROTECTIVE EQUIPMENT
OSHA Standard 29 CFR 1910.141	SANITATION
OSHA Standard 29 CFR 1910.151	MEDICAL SERVICES AND FIRST AID
OSHA Standard 29 CFR 1910.133	EYE AND FACE PROTECTION

SECTION 8 EMERGENCY HANDLING OF HAZARDOUS MATERIALS

IF MATERIAL IS ON FIRE OR INVOLVED IN FIRE:
Use water, alcohol foam or carbon dioxide CO_2 or dry chemical extinguishers or any agents suitable for surrounding fire. Keep material out of water sources and sewers.

IF MATERIAL IS NOT ON FIRE OR NOT INVOLVED IN FIRE: Keep material out of water sources and sewers.

PERSONAL DANGER SITUATION PROTECTION:
Keep upwind. Avoid breathing dust/vapors/fumes from material. Avoid bodily contact with material. Wear boots, protective gloves and gas-tight goggles. Wear full protective clothing (regular FIRE FIGHTERS' gear is inadequate).

SECTION 9 SPILL, LEAK AND DISPOSAL PROCEDURES

Persons not wearing protective equipment and clothing should be restricted from spill areas until clean-up has been completed. If AS-9838 is spilled, take the following steps:

1. Ventilate the spill area. Contain by diking.
2. Collect spilled material using an approved liquid vacuum for reuse.
3. Apply an absorbing compound to any residual material and shovel into a disposal drum.
4. Discard any vacuumed material and the absorbent material in accordance to all FEDERAL, STATE AND LOCAL REGULATIONS.

NOTE: DO NOT wash or pour AS-9838 into any surface waters or streams or directly into sewers.

SECTION 10 SHIPPING AND TRANSPORTATION DATA

Drums and/or Bulk < 1,396 gallons or 15,355 lbs.

PROPER SHIPPING NAME	Compounds, Boiler Cleansing, Preserving, Scale Preventing Or Scale Removing Liquid
HAZARD CLASS	None
NFMC RATING	50093 SUB 2
LABEL REQUIRED	None

Bulk > 1,396 gallons or 15,355 lbs.

PROPER SHIPPING NAME	Environmentally Hazardous Substance, Liquid, N. O. S., (Sodium Bisulfite)
HAZARD CLASS	9
IDENTIFICATION NUMBER	UN3082
PACKAGING GROUP	III
LABEL REQUIRED	Class 9

T. L. Molnar / H. García-Muñoz

PENNSYLVANIA RIGHT-TO-KNOW INFORMATION

The following comprises the CHEMICAL IDENTIFICATION list under PENNSYLVANIA RIGHT-TO-KNOW:

	CAS #
Water	7732-18-5
Sodium Bisulfite	7631-90-5
Sodium Sulfite	7757-83-7
Potassium Bisulfite	7773-03-7
Potassium Sulfite	10117-38-7

NEW JERSEY RIGHT-TO-KNOW TOTAL INGREDIENTS LABEL:

	CAS #
Water	7732-18-5
Sodium Bisulfite	7631-90-5
Sodium Sulfite	7757-83-7
Potassium Bisulfite	7773-03-7
Potassium Sulfite	10117-38-7

CALIFORNIA PROPOSITION 65:

This product does not contain toxic chemicals currently on the California list of known carcinogens and reproductive toxins

Pursuant to the California Safe Drinking Water and Toxic Enforcement Act of 1986 (proposition 65), this information is provided. This law requires that " clear and reasonable warning " be provided to any individual, knowingly or intentionally exposed to any substances identified by the state as being cancer or reproductive hazards unless, it can be shown that the exposure poses "no significant risk". Based on available data, the following chemicals listed by Proposition 65 may be present in this product:

NO SUBSTANCES FOUND TO BE PRESENT IN DETECTABLE LEVELS.

Material Safety Data Sheet
Material Name: Sodium Metabisulphite or Sodium Metabisulfite ID: C1-143

* * * Section 1 - Chemical Product and Company Identification * * *

Chemical Name: Sodium Metabisulphite (Technical, Photo and Food Grades) or Sodium Metabisulfite
Product Use: For Commercial Use
Synonyms: Disulfurous acid, Disodium salt, Fertisilo; Pyrosulfurous acid, disodium salt; Sodium disulfite; Disodium pyrosulfite; Sodium pyrosulfite.
Supplier Information

Chem One Ltd.
8017 Pinemont Drive, Suite 100
Houston, Texas 77040-6519
Phone: (713) 896-9966
Fax: (713) 896-7540
Emergency # (800) 424-9300 or (703) 527-3887

General Comments: FOR COMMERCIAL USE ONLY; NOT TO BE USED AS A PESTICIDE.
NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

* * * Section 2 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
7681-57-4	Sodium Metabisulfite	> 95%

Component Related Regulatory Information
This product may be regulated, have exposure limits or other information identified as the following: Sulfites.
Component Information/Information on Non-Hazardous Components
This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

* * * Section 3 - Hazards Identification * * *

Emergency Overview
Sodium Metabisulfite is a white crystal or white/yellow powder form. May cause severe allergic reaction in asthmatics and sulfite sensitive individuals. May be harmful if swallowed. May cause eye, skin and respiratory tract irritation. This product is not flammable. Thermal decomposition of this product produces irritating vapors and toxic gases (e.g. sulfur dioxide), which may increase fire hazard due to the flammability of sulfur dioxide. Emergency responders should wear proper personal protective equipment for the releases to which they are responding.
Hazard Statements
WARNING! CAUSES SKIN AND EYE IRRITATION. HARMFUL IF INHALED. MAY CAUSE ALLERGIC SKIN OR RESPIRATORY REACTION. Keep from contact with clothing. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing dusts or particulates. Avoid prolonged or repeated contact with skin. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. **WARNING! Contact with acids, water or ice releases sulfur dioxide gas which may be harmful or deadly if inhaled. Use of this product in confined spaces may cause suffocation leading to death. Do not use in unventilated areas such as in the holds of fishing boats, walk-in coolers or confined spaces. Use only in ventilated areas.**
Potential Health Effects: Eyes
Exposure to particulates or solution of this product may cause stinging, tearing and redness. Prolonged contact with solutions of this product may cause conjunctivitis, ulceration and corneal abnormalities.
Potential Health Effects: Skin
This product can cause irritation of the skin, especially after prolonged exposures. Repeated skin contact may lead to skin sensitization, an allergic reaction and dermatitis (red, cracked skin). Skin contact can cause allergic skin reaction in susceptible individuals, with symptoms including itching, rash and welts.
Potential Health Effects: Ingestion
Ingestion of this product can irritate the tissues of the mouth, esophagus, and other tissues of the digestive system. Symptoms of exposure can include central nervous system depression, gastrointestinal and cardiac abnormalities, and violent colic. Sulfite compounds, such as this product, can cause a severe allergic reaction in sensitive individuals and some asthmatics, which can be life-threatening.
Potential Health Effects: Inhalation
Breathing dusts or particulates generated by this product can lead to irritation of the nose, throat or respiratory system. Symptoms of such exposure could include coughing and sneezing. This product can cause an asthma-like allergy with symptoms such as shortness of breath, wheezing, coughing, urticaria, angioedema, nasal congestion, nasal polyp swelling and chest tightness. Severe general (anaphylactic) reactions can occur, which can be life-threatening in some cases.
HMIS Ratings: Health Hazard: 2* **Fire Hazard:** 0 **Physical Hazard:** 1
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, rinse immediately with plenty of water for at least 20 minutes. Seek immediate medical attention if any adverse effect occurs.

First Aid: Skin

Remove all contaminated clothing. For skin contact, wash thoroughly with soap and water for at least 20 minutes. Seek immediate medical attention if irritation develops or persists.

First Aid: Ingestion

Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim rinse mouth thoroughly with water, if conscious. Contact a physician or poison control center immediately. Never give anything by mouth to a victim who is unconscious or having convulsions.

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically.

* * * Section 5 - Fire Fighting Measures * * *

Flash Point: Not flammable
Method Used: Not applicable
Upper Flammable Limit (UEL): Not applicable
Lower Flammable Limit (LEL): Not applicable
Auto Ignition: Not applicable
Flammability Classification: Not applicable
Rate of Burning: Not applicable

General Fire Hazards

When involved in a fire, this material may decompose and produce irritating vapors, acrid smoke and toxic gases (i.e. sulfur oxides and sodium oxides). Contact with acids, water and ice produces sulfur oxide, which presents a fire hazard due to its flammability. Sodium Metabisulfite is a reducing agent and reacts explosively with oxidizers.

Hazardous Combustion Products

Sodium sulfide and sulfur oxides.

Extinguishing Media

In case of fire, use water fog, dry chemical, carbon dioxide or regular foam.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self-contained breathing apparatus. If possible control runoff from fire control or dilution water to prevent environmental contamination.

NFPA Ratings: Health: 2 **Fire:** 0 **Reactivity:** 1 **Other:**
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Stop the flow of material, if this can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information).

Clean-Up Procedures

Small releases can be cleaned-up wearing gloves, goggles and suitable body protection. In case of a large spill (in which excessive dusts can be generated), clear the affected area, protect people, and respond with trained personnel. Place all spill residues in an appropriate container and seal. Thoroughly wash the area after a spill or leak clean-up. Prevent spill rinsate from contamination of storm drains, sewers, soil or groundwater.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling. Avoid accumulation of dusts of this product. Remove contaminated clothing immediately. Keep in dust-tight containers. Keep away from all heat sources. **Individuals responsible for the procurement, use or application of Sodium Metabisulfite must familiarize themselves with the appropriate safety and handling precautions involved. Specifically, for the prevention of Black Spot on shrimp, Sodium Metabisulfite should only be used as a dilute (1.25%) solution and only in well-ventilated area. NEVER USE SODIUM METABISULFITE IN A DRY FORM DIRECTLY ON THE SHRIMP AND NEVER IN A CONFINED SPACE SUCH AS THE HOLD OF A SHRIMP BOAT OR A WALK-IN COOLER. DEADLY SULFUR DIOXIDE GAS CAN BE GENERATED AND ACCUMULATED IN CONFINED SPACES, CREATING AN EXTREMELY HAZARDOUS CONDITION WHICH CAN CAUSE SUFFOCATION LEADING TO DEATH.**

Storage Procedures

All employees who handle this material should be trained to handle it safely. Open containers slowly on a stable surface. Containers of this product must be properly labeled. Empty containers may contain residual amounts of this product; therefore, empty containers should be handled with care. Keep this product in an airtight container. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see Section 10, Stability and Reactivity). Keep container tightly closed when not in use. Inspect all incoming containers before storage to ensure containers are properly labeled and not damaged. Do not store this material in open or unlabeled containers. Limit quantity of material stored.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines

A: General Product Information

Sulfur Dioxide, which is released slowly at ambient temperatures from this material, has established exposure limits as follows:

ACGIH: 5.2 mg/m^3 TWA
13 mg/m^3 STEL
OSHA: 13 mg/m^3 TWA; 5 mg/m^3(Vacated 1989 PEL)
13 mg/m^3 (Vacated 1989 PEL)
NIOSH: 5 mg/m^3 TWA
13 mg/m^3 STEL
100 ppm (IDLH)
DFG MAKs 5.3 mg/m^3 TWA (Inhalable fraction of the aerosol)
1•MAK 15 min., average value, 1-hr interval

B: Component Exposure Limits

The exposure limits given are for Sodium Metabisulfite (7681-57-4).

ACGIH: 5 mg/m^3 TWA
NIOSH: 5 mg/m^3 TWA

Engineering Controls

Use mechanical ventilation such as dilution and local exhaust, necessary for use in enclosed or confined spaces due to the slow release of sulfur dioxide. Use a corrosion-resistant ventilation system and exhaust directly to the outside. Treatment of exhaust gases may be required to prevent environmental contamination. Supply ample air replacement.

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.

Personal Protective Equipment: Eyes/Face

Wear safety glasses (or goggles). If necessary, refer to U.S. OSHA 29 CFR 1910.133.

Personal Protective Equipment: Skin

Wear impervious gloves, boots and coveralls to avoid skin contact. Gloves should be tested to determine their suitability for prolonged contact with this material. If necessary, refer to U.S. OSHA 29 CFR 1910.138.

* * * Section 8 - Exposure Controls / Personal Protection (Continued) * * *

Personal Protective Equipment: Respiratory

If airborne concentration is high, use an appropriate respirator or dust mask. If airborne concentrations are above the applicable exposure limits, use NIOSH-approved respiratory protection. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

Personal Protective Equipment: General

Wash hands thoroughly after handling material. Do not eat, drink or smoke in work areas. Have a safety shower or eyewash fountain available. Use good hygiene practices when handling this material, including changing and laundering work clothes after use. Discard contaminated shoes and leather goods.

* * * Section 9 - Physical & Chemical Properties * * *

Physical Properties: Additional Information

The data provided in this section are to be used for product safety handling purposes. Please refer to Product Data Sheets, Certificates of Conformity or Certificates of Analysis for chemical and physical data for determinations of quality and for formulation purposes.

Appearance:	White to yellowish crystalline powder	**Odor:**	Mild odor of rotten eggs (sulfurous)
Physical State:	Solid	**pH:**	4.5-5 (10% solution)
Vapor Pressure:	Not applicable	**Vapor Density:**	Not applicable
Boiling Point:	Not applicable	**Freezing/Melting Point:**	302 deg F (150 deg C)
Solubility (H2O):	40% @ 20 deg C	**Specific Gravity:**	1.4 (H2O = 1)
Softening Point:	Decomposes upon heating	**Particle Size:**	Not determined
Molecular Weight:	190.13	**Bulk Density:**	1.48 g/cc
		Chemical Formula:	Na2S2O5

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

Product is normally stable. Sodium Metabisulfite is air and moisture sensitive and releases sulfur dioxide slowly at ambient temperatures. Sodium Metabisulfite will decompose on heating to form sodium sulfate.

Chemical Stability: Conditions to Avoid

Avoid moisture, high temperatures, exposure to air and incompatible materials.

Incompatibility

This material is incompatible with strong oxidizers, sodium nitrite and alkalis. Sodium Metabisulfite may produce sulfur dioxide gas when in contact with acids and/or water and ice. Large-scale addition of solid sodium disulfite to an unstirred and too-concentrated solution of sodium nitrite may cause a vigorous exothermic reaction.

Hazardous Decomposition

Products of thermal decomposition include sodium sulfate, sulfur oxides, and sodium oxide. Products of hydrolysis include sodium dioxide.

Hazardous Polymerization

Will not occur.

* * * Section 11 - Toxicological Information * * *

Acute and Chronic Toxicity

A: General Product Information

May cause eye, skin, nose, throat and respiratory tract irritation. May be harmful if swallowed.

Chronic: Long term skin overexposure to this product may lead to dermatitis (red, itchy skin). Prolonged or repeated contact may cause allergic respiratory and skin reactions in sensitive individuals. Respiratory sensitization can be life-threatening in some cases.

B: Component Analysis - LD50/LC50

Sodium Metabisulfite (7681-57-4):

LD_{50}-Intravenous-rat: 115 mg/kg; LD_{50}-Parenteral-mouse: 910 mg/kg; LD_{50}-Oral-mouse: 5989 mg/kg; LDLo-Intravenous-mouse: 1220 mg/kg; LD_{50}-Intravenous-rabbit: 1220 mg/kg

* * * Section 11 - Toxicological Information (Continued) * * *

Acute and Chronic Toxicity (continued):

B: Component Analysis - TDLo/LDLo

Sodium Metabisulfite (7681-57-4):

LDLo-Intravenous-rabbit: 192 mg/kg; TDLo-Oral-rat: 75 mg/kg/15 days-continuous: Kidney, Urethra, Bladder: other changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: phosphatases, Enzyme inhibition, induction, or change in blood or tissue levels:- dehydrogenases; TDLo - Oral - pig: 562 gm/kg/48 weeks-continuous: Liver: changes in liver weight Kidney, Urethra, Bladder: changes in bladder weight Nutritional and Gross Metabolic - weight loss or decreased weight gain; TDLo-Oral-rat: 20 gm/kg: multigenerations: Reproductive: Effects on Newborn: stillbirth; TDLo-Oral-rat: 40 gm/kg: multigenerations: Reproductive: Effects on Newborn: weaning or lactation index (e.g., # alive at weaning per # alive at day 4); Cytogenetic analysis-hamster Ovary: 180 µg/L; Sister chromatid exchange: Rodent-hamster Ovary: 200 µg/L; TDLo-Subcutaneous-mouse: 806 mg/kg/26 weeks-intermittent: Tumorigenic: equivocal tumorigenic agent by RTECS criteria Skin and Appendages: tumors; TDLo-Oral-mouse: 14 gm/kg: female 8-12 day(s) after conception: Reproductive: Effects on Newborn: other neonatal measures or effects; TDLo-Parenteral-mouse: 60 mg/kg: female 8 day(s) after conception: Reproductive: Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus), Specific Developmental Abnormalities: musculoskeletal system

Carcinogenicity

A: General Product Information

No information available.

B: Component Carcinogenicity

Sodium Metabisulfite (7681-57-4)

ACGIH: TLV-A4 - Not classifiable as a Human Carcinogen

Sulfur Dioxide (decomposition product)

ACGIH: TLV-A4 - Not classifiable as a Human Carcinogen

IARC: Group 3 - Not classifiable as to carcinogenicity in humans.

Epidemiology

Sodium metabisulfite has caused severe allergic reactions in asthmatics and sulfite sensitive individuals.

Neurotoxicity

Has not been identified.

Mutagenicity

Human mutation data are available for Sodium Metabisulfite, these data were obtained during clinical studies on specific human tissues exposed to high doses of this compound.

Teratogenicity

Clinical studies on test animals exposed to relatively high doses of Sodium Metabisulfite provided teratogenic data.

Other Toxicological Information

No information available.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

This product is expected to be harmful to aquatic life in low concentration.

B: Ecotoxicity

No information available.

Environmental Fate

Sodium Metabisulfite:

Water Solubility = 470 g/L (20°C).

Chemical Oxygen Demand (COD) = 165 mg oxygen/g compound

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Number & Descriptions

A: General Product Information

Sodium Metabisulfite is considered hazardous to the environment in aqueous solutions. EPA waste number for reactivity (D003) may be applicable to wastes of this product.

* * * Section 13 - Disposal Considerations (Continued) * * *

US EPA Waste Number & Descriptions (continued):

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

All wastes must be handled in accordance with local, state and federal regulations or with regulations of Canada and its Provinces. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

* * * Section 14 - Transportation Information * * *

NOTE: The shipping classification information in this section (Section 14) is meant as a guide to the overall classification of the product. However, transportation classifications may be subject to change with changes in package size. Consult shipper requirements under I.M.O., I.C.A.O. (I.A.T.A.) and 49 CFR to assure regulatory compliance.

US DOT Information

Shipping Name: Not Regulated
Hazard Class: Not Classified
UN/NA #: Not Classified
Packing Group: None
Required Label(s): None

International Air Transport Association (IATA)

For Shipments by Air transport: We classify this product as hazardous (Class 9) when shipped by air because 49 CFR 173.140 (a). "For the purposes of this subchapter, miscellaneous hazardous material (Class 9) means a material which presents a hazard during transportation, but which does not meet the definition of any other hazard class. This class includes: (a) Any material which has an anesthetic, noxious, or other similar property which could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties."

UN: UN 3077
Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s. (sodium metabisulfite)
Hazard Class: 9
Packing Group: III
Passenger & Cargo Aircraft Packing Instruction: 911
Passenger & Cargo Aircraft Maximum Net Quantity: 400 kg
Limited Quantity Packing Instruction (Passenger & Cargo Aircraft): Y911
Limited Quantity Maximum Net Quantity (Passenger & Cargo Aircraft): 30 kg
Special Provisions: A97 A 149
ERG Code: 9L

International Maritime Organization (I.M.O.) Classification

Sodium Metabisulfite is not regulated under I.M.O.

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

No additional information.

B: Component Analysis

This material does not contain any chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

SARA 302 (EHS TPQ) There are no specific Threshold Planning Quantities for Sodium Metabisulfite. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lbs (4,540 kg) therefore applies, per 40 CFR 370.20.

C: Sara 311/312 Tier II Hazard Ratings:

Component	CAS #	Fire Hazard	Reactivity Hazard	Pressure Hazard	Immediate Health Hazard	Chronic Health Hazard
Sodium Metabisulfite	7681-57-4	No	Yes	No	Yes	Yes

* * * Section 15 - Regulatory Information (Continued) * * *

US Federal Regulations (continued)

U.S. State Regulations

A: General Product Information

California Proposition 65

Sodium Metabisulfite is not on the California Proposition 65 chemical lists.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substance lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Sodium Metabisulfite	7681-57-4	Yes	Yes	Yes	Yes	Yes	No

Other Regulations

A: General Product Information

No other information available.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS
Sodium Metabisulfite	7681-57-4	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Sodium Metabisulfite	7681-57-4	1 percent

ANSI LABELING (Z129.1):

WARNING! MAY BE FATAL IF SWALLOWED. CAUSES SKIN AND EYE IRRITATION. HARMFUL IF INHALED. MAY CAUSE ALLERGIC SKIN AND SEVERE RESPIRATORY REACTION. RESPIRATORY REACTIONS MAY BE LIFE-THREATENING. Keep from contact with clothing. Do not taste or swallow. Do not get on skin or in eyes. Avoid breathing dusts or particulates. Avoid prolonged or repeated contact with skin. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Wear gloves, goggles, faceshields, suitable body protection, and NIOSH/MSHA-approved respiratory protection, as appropriate. **FIRST-AID:** In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If inhaled, remove to fresh air. If ingested, do not induce vomiting. Get medical attention. **IN CASE OF FIRE:** Use water fog, dry chemical, CO_2, or "alcohol" foam. **IN CASE OF SPILL:** Absorb spill with inert material. Place residue in suitable container. Consult Material Safety Data Sheet for additional information.

* * * Section 16 - Other Information * * *

Other Information

Chem One Ltd. ("Chem One") shall not be responsible for the use of any information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this Information. In no event shall Chem One be responsible for damages of any nature whatsoever resulting from the use of this product or products, or reliance upon this Information. By providing this Information, Chem One neither can nor intends to control the method or manner by which you use, handle, store, or transport Chem One products. If any materials are mentioned that are not Chem One products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed. Chem One makes no representations or warranties, either express or implied of merchantability, fitness for a particular purpose or of any other nature regarding this information, and nothing herein waives any of Chem One's conditions of sale. This information could include technical inaccuracies or typographical errors. Chem One may make improvements and/or changes in the product (s) and/or the program (s) described in this information at any time. If you have any questions, please contact us at Tel. 713-896-9966 or E-mail us at Safety@chemone.com.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration

Contact: Sue Palmer-Koleman, PhD **Contact Phone:** (713) 896-9966

Revision Log

08/28/00 4:23 PM SEP Changed company name, Sect 1 and 16, from Corporation to Ltd.
06/02/01 9:31 AM HDF Checked exposure limits; made changes to Sect 9; overall review, add SARA 311/312 Haz Ratings.
08/20/01 3:20 PM CLJ Add Shipments by Air information to Section 14, Changed contact to Sue, non-800 Chemtrec Num.
02/18/02 11:13 AM HDF Up-date of SARA Hazard Ratings.
11/20/03 11:50 AM HDF General review and up-date of entire MSDS. Up-graded Section 10 Reactivity Information. Up-date of HMIS categories. Up-date of Section 8. Up-date of Section 14.
06/22/05 1:18 pm SEP Updated IATA Section 14
10/22/07 4:23 PM SEP Updated IATA Section 14

This is the end of MSDS # C1-143

GE
Water & Process Technologies

Material Safety Data Sheet

Issue Date: 29-APR-2009
Supercedes: 10-NOV-2000

CORTROL OS5010

1 Identification

Identification of substance or preparation
CORTROL OS5010

Product Application Area
Water based dissolved oxygen scavenger/metal passivator.

Company/Undertaking Identification
GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355-3300, F 215 953 5524

Emergency Telephone
(800) 877-1940

Prepared by Product Stewardship Group: T 215-355-3300 Prepared on: 29-APR-2009

2 Hazard(s) identification

****

EMERGENCY OVERVIEW

DANGER

Severe irritant to the skin. Absorbed by skin. Potential sensitizer. Corrosive to the eyes. Vapors, gases, mists and/or aerosols cause irritation to the upper respiratory tract.

DOT hazard: Toxic
Odor: Ammonia; Appearance: Colorless To Light Brown, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

****

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; Toxic; Severe irritant to the skin. Absorbed by skin. Potential sensitizer.

ACUTE EYE EFFECTS:
Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:
Primary route of exposure;Vapors, gases, mists and/or aerosols

cause irritation to the upper respiratory tract.

INGESTION EFFECTS:
Toxic;
May cause severe irritation or burning of mouth, throat, and gastrointestinal tract with severe chest and abdominal pain, nausea, vomiting, diarrhea, lethargy and collapse. Possible death when ingested in very large doses.

TARGET ORGANS:
Repeated exposure may cause skin sensitization and/or toxicity to the liver, kidney, nervous system, and blood system. Component(s) may cause reproductive toxicity at maternal toxic levels. Limited evidence for increased risk of cancer.

MEDICAL CONDITIONS AGGRAVATED:
Pre-existing skin, liver or kidney disorders.

SYMPTOMS OF EXPOSURE:
Inhalation of vapors/mists/aerosols cause eye, nose, throat and lung irritation. Skin contact may cause redness, itching, dermatitis, or skin sensitization.

3 Composition / information on ingredients

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range(w/w%)
302-01-2	HYDRAZINE Corrosive; highly toxic (by skin absorption); toxic (by ingestion); possible human carcinogen (IARC=2B; NTP=anticipated) and liver, kidney, blood or reproductive toxin	30-60

4 First-aid measures

SKIN CONTACT:
URGENT! Wash thoroughly with soap and water. Remove contaminated clothing. Get immediate medical attention. Thoroughly wash clothing before reuse.

EYE CONTACT:
URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:
Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get immediate medical attention.

INGESTION:
Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician.

Rinse mouth with plenty of water. Dilute contents of stomach using 4-10 fluid ounces (120-300 mL) of milk or water.

NOTES TO PHYSICIANS:

Material is corrosive. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage.

5 Fire-fighting measures

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

oxides of nitrogen, ammonia

FLASH POINT:

> 200F > 93C P-M(CC)

MISCELLANEOUS:

Toxic

UN 3293;Emergency Response Guide #152

6 Accidental release measures

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Isolate spill by diking. Dilute spill to a 5% or less concentration. Neutralize with an equal amount of a 5% or less concentration of a hypochlorite solution.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility,in accordance with any local agreement,a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 Handling and storage

HANDLING:

Basic. Vent slowly before opening. Do not mix with acidic material.

STORAGE:

Keep containers closed when not in use. Store in cool ventilated location. Store away from oxidizers. Shelf life 360 days.

8 Exposure controls / personal protection

EXPOSURE LIMITS

CHEMICAL NAME

HYDRAZINE

PEL (OSHA): 1.0 PPM(SKIN)

TLV (ACGIH): 0.01 PPM(SKIN)-A3

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure

limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
An air-supplying respirator (positive pressure full facepiece) may be needed for this product.

SKIN PROTECTION:

gauntlet type butyl or PVC gloves, impervious full body protective suit, rubber boots-- Wash off after each use.
Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles, face shield

9 Physical and chemical properties

Specific Grav.(70F,21C)	1.026	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	< -30	Vapor Density (air=1)	~ 1.00
Freeze Point (C)	< -34		
Viscosity(cps 70F,21C)	10	% Solubility (water)	100.0

Odor		Ammonia
Appearance		Colorless To Light Brown
Physical State		Liquid
Flash Point	P-M(CC)	> 200F > 93C
pH 1% Sol. (approx.)		10.5
Evaporation Rate (Ether=1)		< 1.00
Percent VOC:		0.0

NA = not applicable ND = not determined

10 Stability and reactivity

CHEMICAL STABILITY:

Stable under normal storage conditions.

POSSIBILITY OF HAZARDOUS REACTIONS:

No known hazardous reactions.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

oxides of nitrogen, ammonia

11 Toxicological information

Oral LD50 RAT:	185 mg/kg
Reproductive Toxicity ANIMALS:	
NOTE - Effects only at maternal toxic levels	
Carcinogenicity ANIMALS:	Positive
NOTE - Suspect human carcinogen	
Dermal LD50 RABBIT:	420 mg/kg
Inhalation LC50 RAT:	1,600 ppm/4hr
Non-Ames Mutagenicity :	Positive

12 Ecological information

AQUATIC TOXICOLOGY
No Data Available.

BIODEGRADATION
No Data Available.

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
U133=Hydrazine.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 Transport information

DOT HAZARD:	Toxic
PROPER SHIPPING NAME:	HYDRAZINE AQUEOUS SOLUTION
	6.1, UN 3293, PG III, RQ

DOT EMERGENCY RESPONSE GUIDE #: 152
Note: Some containers may be DOT exempt, please check BOL for exact container classification

15 Regulatory information

TSCA:
All components of this product are included on or are in compliance with the U.S. TSCA regulations.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):
0.3 gallons due to HYDRAZINE;

NSF Registered and/or meets USDA (according to 1998 Guidelines):
Registration number: Not Registered

SARA SECTION 312 HAZARD CLASS:
Immediate(acute);Delayed(Chronic)

SARA SECTION 302 CHEMICALS:

CAS#	CHEMICAL NAME
302-01-2	HYDRAZINE

SARA SECTION 313 CHEMICALS:

CAS#	CHEMICAL NAME	RANGE
302-01-2	HYDRAZINE	31.0-40.0%

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):
This product contains one or more ingredients known to the state of California to cause cancer.

MICHIGAN REGULATORY INFORMATION

CAS#	CHEMICAL NAME
302-01-2	HYDRAZINE

16 Other information

HMIS vII		CODE TRANSLATION
Health	3	Serious Hazard
Fire	1	Slight Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	X	Ask Your Supervisor

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
MSDS status:	26-OCT-2000		** NEW **
	10-NOV-2000	4	26-OCT-2000
	29-APR-2009	4,5,7,10	10-NOV-2000

Fisher Scientific
Part of Thermo Fisher Scientific

MATERIAL SAFETY DATA SHEET

Section 1 - Chemical Product and Company Identification

MSDS Name: Morpholine

Catalog Numbers: AC158680000, AC158680010, AC158680025, AC158680050, AC415160000, AC415160030 AC415160030, AC415160050, 41516-5000, M263-1

Synonyms: 1-Oxa-4-azacyclohexane; Tetrahydro-2H-1,4-oxazine.

Company Identification:
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410

For information in the US, call: 201-796-7100

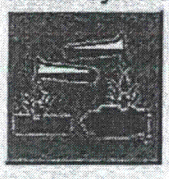
Emergency Number US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#:	110-91-8
Chemical Name:	Morpholine
%:	99+
EINECS#:	203-815-1

Hazard Symbols: C



Risk Phrases: 10 20/21/22 34

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! Flammable liquid and vapor. Hygroscopic (absorbs moisture from the air). Harmful if swallowed, inhaled, or absorbed through the skin. Causes burns by all exposure routes. Target Organs: Blood, kidneys, central nervous system, liver, spleen, lungs, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye burns. Lachrymator (substance which increases the flow of tears).

Skin: Harmful if absorbed through the skin. Causes skin burns.

Ingestion: Harmful if swallowed. Causes gastrointestinal tract burns. Possible aspiration hazard. May cause lung damage.

Inhalation: Harmful if inhaled. Causes chemical burns to the respiratory tract.

Chronic: May cause liver and kidney damage. Repeated exposure may cause damage to the spleen. Chronic inhalation can cause pneumoconiosis. Adverse reproductive effects have been reported in animals. Laboratory experiments have resulted in mutagenic effects. Chronic exposure may cause blood effects. Exposure to high concentrations may cause central nervous system depression. Animal studies have reported the development of tumors.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion: Potential for aspiration if swallowed. Get medical aid immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs naturally, have victim lean forward.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Notes to Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Will burn if involved in a fire. Containers may explode in the heat of a fire. Flammable liquid and vapor.

Extinguishing Media: Use water spray to cool fire-exposed containers. Use foam, dry chemical, or carbon dioxide.

Autoignition Temperature: 255 deg C (491.00 deg F)

Flash Point: 32 deg C (89.60 deg F)

Explosion Limits: Lower: 2 vol %

Explosion Limits: Upper: 11.2 vol %

NFPA Rating: health: 3; flammability: 3; instability: 1;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Remove all sources of ignition. Use a spark-proof tool. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Take precautionary measures against static discharges. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood.

Storage: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Morpholine	20 ppm; Skin - potential significant contribution to overall exposure by the cutaneous r oute	20 ppm TWA; 70 mg/m3 TWA 1400 ppm IDLH (10% LEL)	20 ppm TWA; 70 mg/m3 TWA

OSHA Vacated PELs: Morpholine: 20 ppm TWA; 70 mg/m3 TWA

Engineering Controls:

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

Personal Protective Equipment

Eyes:	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin:	Wear appropriate protective gloves to prevent skin exposure.
Clothing:	Wear appropriate protective clothing to prevent skin exposure.
Respirators:	A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Color: APHA: 15 max
Odor: characteristic odor
pH: Not available
Vapor Pressure: 11 mbar @ 20 deg C
Vapor Density: 3.0 (air=1)
Evaporation Rate: Not available
Viscosity: 2.23 cP @ 20 deg C
Boiling Point: 126 - 130 deg C @ 760 mmHg
Freezing/Melting Point: -5 deg C (23.00°F)
Decomposition Temperature: Not available
Solubility in water: Miscible
Specific Gravity/Density: 0.990
Molecular Formula: C4H9NO
Molecular Weight: 87.12

Section 10 - Stability and Reactivity

Chemical Stability:	Hygroscopic: absorbs moisture or water from the air.
Conditions to Avoid:	Incompatible materials, ignition sources, excess heat, exposure to moist air or water.
Incompatibilities with Other Materials	Strong oxidizing agents, acids, aluminum, nitriles (e.g. acetonitrile, methyl cyanide).
Hazardous Decomposition Products	Nitrogen oxides, carbon monoxide, carbon dioxide, ammonia.
Hazardous Polymerization	Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 110-91-8: QD6475000

LD50/LC50: RTECS:
CAS# 110-91-8: Draize test, rabbit, eye: 2 mg Severe;
Draize test, rabbit, skin: 995 mg/24H Severe;
Inhalation, mouse: LC50 = 1320 mg/m3/2H;
Inhalation, rat: LC50 = 8000 ppm/8H;
Oral, mouse: LD50 = 525 mg/kg;
Oral, rat: LD50 = 1450 mg/kg;
Skin, rabbit: LD50 = 500 uL/kg;

Carcinogenicity: Morpholine - IARC: Group 3 (not classifiable)

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity: Water flea Daphnia: LC50=100.0-119.0mg/L; 24 Hr.; Unspecified
Fish: Bluegill/Sunfish: LC50=350.0mg/L; 96 Hr.; Static conditions, 18-22°C
Bacteria: Phytobacterium phosphoreum: EC50=37mg/L; 30min.; Microtox test

Other: Do not empty into drains.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: MORPHOLINE
Hazard Class: 8
UN Number: UN2054
Packing Group: I
Canada TDG
Shipping Name: MORPHOLINE
Hazard Class: 8
UN Number: UN2054
Packing Group: I

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: C

Risk Phrases:

R 10 Flammable.

R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R 34 Causes burns.

Safety Phrases:

S 23 Do not inhale gas/fumes/vapour/spray.

S 36 Wear suitable protective clothing.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 110-91-8: 2

Canada

CAS# 110-91-8 is listed on Canada's DSL List

Canadian WHMIS Classifications: B2, D1B, E

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 110-91-8 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 110-91-8 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 6/04/1999

Revision #13 Date 3/07/2008

Revisions were made in Sections: 3, 4, 5, 6, 7, 8, 9, 10, 11, 1

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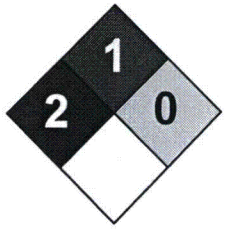

Health	2
Fire	1
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Hydroquinone MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydroquinone

Catalog Codes: SLH1351, SLH2197

CAS#: 123-31-9

RTECS: MX3500000

TSCA: TSCA 8(b) inventory: Hydroquinone

CI#: Not applicable.

Synonym: 1,4-Benzenediol

Chemical Name: 1,4-Dihydroxybenzene

Chemical Formula: C6H4(OH)2

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Hydroquinone	123-31-9	100

Toxicological Data on Ingredients: Hydroquinone: ORAL (LD50): Acute: 320 mg/kg [Rat.]. DERMAL (LD50): Acute: 5970 mg/kg [Mammal].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, the nervous system, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 515.56°C (960°F)

Flash Points: CLOSED CUP: 165°C (329°F).

Flammable Limits: Not available.

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Slightly flammable to flammable in presence of open flames and sparks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Combustible when exposed to heat or flame.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as oxidizing agents, alkalis.

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Combustible materials should be stored away from extreme heat and away from strong oxidizing agents.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.4 (ppm) TWA: 2 (mg/m3) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Crystals solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 110.11 g/mole

Color: White.

pH (1% soln/water): 7 [Neutral.]

Boiling Point: 286°C (546.8°F)

Melting Point: 170°C (338°F)

Critical Temperature: Not available.

Specific Gravity: 1.33 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: 3.81 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether.

Solubility: Soluble in cold water, hot water, methanol, diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Air and light sensitive.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 320 mg/kg [Rat.]. Acute dermal toxicity (LD50): 5970 mg/kg [Mammal].

Chronic Effects on Humans: The substance is toxic to lungs, the nervous system, mucous membranes.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: An allergen.

Special Remarks on other Toxic Effects on Humans: Material is irritating to mucous membranes and upper respiratory tract.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Hydroquinone : UN2662 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Hydroquinone Massachusetts RTK: Hydroquinone TSCA 8(b) inventory: Hydroquinone SARA 302/304/311/312 extremely hazardous substances: Hydroquinone SARA 313 toxic chemical notification and release reporting: Hydroquinone CERCLA: Hazardous substances.: Hydroquinone

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R36/38- Irritating to eyes and skin.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Material safety data sheet emitted by: la Commission de la SantÃ© et de la SÃ©curitÃ© du Travail du QuÃ©bec. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du rÃ¨glement sur le transport des marchandises dangeureuses au canada. Centre de conformitÃ© internatinal LtÃ©e. 1986.

Other Special Considerations: Not available.

Created: 10/11/2005 12:06 PM

Last Updated: 06/09/2012 12:00 PM

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MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	AMMONIUM HYDROXIDE
Version #	08
Revision date	03-06-2012
CAS #	Mixture
Product Codes	**J.T.Baker: 0889, 4807, 5358, 5604, 5817, 5820, 5980, 5993, 7874, 9717, 9718, 9719, 9721, 9729, 9731, 9733, 9741, 9743** **Macron: 0127, 3246, 3256, 3258, 3261, 37826, 6665, H893, IM0889, IM5980, V006, V188, V222, V649, V893, XL002, XM187, XM189**
Synonym(s)	Ammonia aqueous * Ammonia solutions
Manufacturer	Avantor Performance Materials, Inc.
Address	3477 Corporate Parkway Suite #200 Center Valley, PA 18034 US
Customer Service	855-282-6867
24 Hour Emergency	908-859-2151
Chemtrec	800-424-9300

2. Hazards Identification

Emergency overview	DANGER Corrosive. Causes severe skin and eye burns. Causes digestive tract burns. Harmful if swallowed. Mist or vapor extremely irritating to eyes and respiratory tract.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Ingestion. Inhalation. Skin contact. Eye contact.
Eyes	Corrosive. Causes severe eye burns. Vapor or spray may cause eye damage, impaired sight or blindness.
Skin	Corrosive. Causes severe skin burns.
Inhalation	Corrosive. May cause damage to mucous membranes in nose, throat, lungs and bronchial system.
Ingestion	Harmful if swallowed. Corrosive. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.
Target organs	Eyes. Skin. Respiratory system.
Chronic effects	Corrosive. Prolonged contact causes serious tissue damage.
Potential environmental effects	Expected to be very toxic to aquatic organisms.

3. Composition / Information on Ingredients

Hazardous components	CAS #	Percent
AMMONIUM HYDROXIDE	1336-21-6	18 - 72
Non-hazardous components	**CAS #**	**Percent**
WATER	7732-18-5	28 - 82

Composition comments Contains 10 - 35% NH3.

4. First Aid Measures

First aid procedures	
Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention immediately.
Skin contact	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.
Inhalation	Move to fresh air. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.
Notes to physician	Keep victim under observation. Treat symptomatically.
General advice	In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Show this safety data sheet to the doctor in attendance. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties	The product is not flammable. No unusual fire or explosion hazards noted.
Extinguishing media	
Suitable extinguishing media	Water spray. Carbon dioxide (CO2). Dry chemical powder. Foam.
Unsuitable extinguishing media	None known.
Protection of firefighters	
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Protective equipment and precautions for firefighters	Use water spray to cool unopened containers. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for fire-fighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.
Specific methods	In the event of fire and/or explosion do not breathe fumes.

6. Accidental Release Measures

Personal precautions	Wear appropriate protective equipment and clothing during clean-up. Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.
Methods for containment	Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Dike the spilled material, where this is possible.

Methods for cleaning up	Large Spills: Neutralize spill area and washings with dilute acetic acid. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Dike far ahead of spill for later disposal. Small Spills: Neutralize spill area and washings with dilute acetic acid. Wipe up with absorbent material (e.g. cloth, fleece). Collect in a non-combustible container for prompt disposal. Never return spills in original containers for re-use. Clean surface thoroughly to remove residual contamination. Clean up in accordance with all applicable regulations. J. T. Baker NEUTRACIT®-2 or BuCAIM® caustic neutralizers are recommended for spills of solutions of this product.

7. Handling and Storage

Handling	Wear appropriate personal protective equipment. Do not breathe mist or vapor. Do not get in eyes, on skin, on clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. Do not eat, drink or smoke when using the product. Considerable heat is generated when water or acid is added, therefore when making solutions always add the caustic to the water or acid with constant stirring. See Section 8 of the MSDS for Personal Protective Equipment.
Storage	Do not store in metal containers. Keep tightly closed in a dry, cool and well-ventilated place.

8. Exposure Controls / Personal Protection

ACGIH

Components	Type	Value
AMMONIUM HYDROXIDE (1336-21-6)	STEL	35.0000 ppm
	TWA	25.0000 ppm

Occupational exposure limits

U.S. - OSHA

Components	Type	Value
AMMONIUM HYDROXIDE (1336-21-6)	PEL	50.0000 ppm 35.0000 mg/m3

Engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Explosion proof exhaust ventilation should be used.
Personal protective equipment	
Eye / face protection	Chemical goggles and face shield are recommended.
Skin protection	Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with specific cartridge and full facepiece providing protection against the compound of concern.
General hygeine considerations	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	Clear.
Color	Colorless.
Odor	Ammoniacal.
Odor threshold	Not available.

Physical state	Liquid.
Form	Liquid.
pH	13.8 (29% NH3)
Melting point	-101.6 °F (-74.4 °C) (28.5% NH3)
Freezing point	-101.6 °F (-74.4 °C) (28.5% NH3)
Boiling point	81 °F (27.2 °C) (29.4% NH3)
Flash point	Not available.
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	28 % (NH3)
Flammability limits in air, lower, % by volume	15 % (NH3)
Vapor pressure	287.971 kPa
Specific gravity	0.9 (28% NH3)
Relative density	Not available.
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available
Decomposition temperature	Not available.
Molecular weight	35.05
Molecular formula	H5-N-O

10. Chemical Stability & Reactivity Information

Chemical stability	Stable under normal temperature conditions.
Conditions to avoid	Excessive heat.
Incompatible materials	Strong oxidizing agents. Water. Acids. Metals. Halogens. Nitromethane.
Hazardous decomposition products	Ammonia. Nitrogen oxides (NOx).
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Components	Test Results
AMMONIUM HYDROXIDE (1336-21-6)	Acute Oral LD50 Rat: 350 mg/kg

Sensitization	Not a skin sensitizer.
Acute effects	Harmful if swallowed.
Local effects	Causes severe burns. Mist or vapor extremely irritating to eyes and respiratory tract.
Chronic effects	Corrosive. Prolonged contact causes serious tissue damage.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin corrosion/irritation	Corrosive to skin and eyes.
Epidemiology	No epidemiological data is available for this product.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Reproductive effects	Contains no ingredient listed as toxic to reproduction
Teratogenicity	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Symptoms and target organs	Corrosive effects.

Further information	Danger of very serious irreversible effects. Symptoms may be delayed.

12. Ecological Information

Ecotoxicological data

Components	Test Results
AMMONIUM HYDROXIDE (1336-21-6)	LC50 Water flea (Daphnia magna): 0.66 mg/l 48.00 hours LC50 Western mosquitofish (Gambusia affinis): 15 mg/l 96.00 hours

Ecotoxicity	Expected to be very toxic to aquatic organisms.
Environmental effects	Very toxic to aquatic organisms. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and degradability	Expected to be readily biodegradable.
Partition coefficient (n-octanol/water)	Not available

13. Disposal Considerations

Waste codes	D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
Disposal instructions	Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. All wastes must be handled in accordance with local, state and federal regulations.
Contaminated packaging	Since emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

14. Transport Information

DOT

Basic shipping requirements:

UN number	UN2672
Proper shipping name	Ammonia solution (with 10 - 35% ammonia)
Hazard class	8
Packing group	III

Additional information:

Special provisions	IB3, IP8, T7, TP1

Basic shipping requirements:

Labels required	8

Additional information:

Packaging exceptions	154
Packaging non bulk	203
Packaging bulk	241
ERG number	154

IATA

Basic shipping requirements:

UN number	2672
Proper shipping name	Ammonia solution (with 10 - 35% ammonia)
Hazard class	8
Packing group	III

Additional information:

ERG code	8L

IMDG

Basic shipping requirements:

UN number	2672
Proper shipping name	AMMONIA SOLUTION (WITH 10 - 35% AMMONIA)

Hazard class	8
Packing group	III

DOT

IATA

IMDG

15. Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

AMMONIUM HYDROXIDE (CAS 1336-21-6) 1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

AMMONIUM HYDROXIDE (CAS 1336-21-6) Listed.

CERCLA (Superfund) reportable quantity

AMMONIUM HYDROXIDE: 1000.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 311 hazardous chemical Yes

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - Pennsylvania RTK - Hazardous Substances: Listed substance

AMMONIUM HYDROXIDE (CAS 1336-21-6) Listed.

Saf-T-Data	Health: 2 - Moderate (Poison) Flammability: 1 - Slight Reactivity: 1 - Slight Contact: 4 - Extreme (Corrosive) Lab Protective Equip: D - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES Storage Color Code: WS - White Stripe (Store Separately)

16. Labeling Info

Label Hazard Warning	DANGER Corrosive. Causes severe skin and eye burns. Causes digestive tract burns. Harmful if swallowed. Mist or vapor extremely irritating to eyes and respiratory tract.
Label Precautions	Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling. Keep container tightly closed in a cool, well-ventilated place.
Label First Aid	Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention immediately. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance.

17. Other Information

NFPA ratings	Health: 3 Flammability: 1 Instability: 0
Disclaimer	THE INFORMATION PRESENTED IN THIS MATERIAL SAFETY DATA SHEET (MSDS/SDS) WAS PREPARED BY TECHNICAL PERSONNEL BASED ON DATA THAT THEY BELIEVE IN THEIR GOOD FAITH JUDGMENT IS ACCURATE. HOWEVER, THE INFORMATION PROVIDED HEREIN IS PROVIDED "AS IS," AND AVANTOR PERFORMANCE MATERIALS MAKES AND GIVES NO REPRESENTATIONS OR WARRANTIES WHATSOEVER, AND EXPRESSLY DISCLAIMS ALL WARRANTIES REGARDING SUCH INFORMATION AND THE PRODUCT TO WHICH IT RELATES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF ACCURACY, COMPLETENESS, MERCHANTABILITY, NON-INFRINGEMENT, PERFORMANCE, SAFETY, SUITABILITY, STABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE. THIS MSDS/SDS IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PROPERLY TRAINED PERSON USING THIS PRODUCT, AND IS NOT INTENDED TO BE COMPREHENSIVE AS TO THE MANNER AND CONDITIONS OF USE, HANDLING, STORAGE, OR DISPOSAL OF THE PRODUCT. INDIVIDUALS RECEIVING THIS MSDS/SDS MUST ALWAYS EXERCISE THEIR OWN INDEPENDENT JUDGMENT IN DETERMINING THE APPROPRIATENESS OF SUCH ISSUES. ACCORDINGLY, AVANTOR PERFORMANCE MATERIALS ASSUMES NO LIABILITY WHATSOEVER FOR THE USE OF OR RELIANCE UPON THIS INFORMATION. NO SUGGESTIONS FOR USE ARE INTENDED AS, AND NOTHING HEREIN SHALL BE CONSTRUED AS, A RECOMMENDATION TO INFRINGE ANY EXISTING PATENTS OR TO VIOLATE ANY FEDERAL, STATE, LOCAL, OR FOREIGN LAWS. AVANTOR PERFORMANCE MATERIALS REMINDS YOU THAT IT IS YOUR LEGAL DUTY TO MAKE ALL INFORMATION IN THIS MSDS/SDS AVAILABLE TO YOUR EMPLOYEES.
Issue date	03-06-2012

GE
Water & Process Technologies

Material Safety Data Sheet

Issue Date: 12-FEB-2009
Supercedes: 10-DEC-2007

SPECTRUS CT1300

1 Identification

Identification of substance or preparation
SPECTRUS CT1300

Product Application Area
Water-based microbial control agent.

Company/Undertaking Identification
GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355-3300, F 215 953 5524

Emergency Telephone
(800) 877-1940

Prepared by Product Stewardship Group: T 215-355-3300 Prepared on: 12-FEB-2009

2 Hazard(s) identification

****
EMERGENCY OVERVIEW

DANGER

Corrosive to skin. Potential skin sensitizer. Corrosive to the eyes. Vapors, gases, mists and/or aerosols may cause irritation to upper respiratory tract.

DOT hazard: Corrosive to skin, Flammable
Odor: Mild; Appearance: Colorless To Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide or foam--Avoid water if possible.
****

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; Corrosive to skin. Potential skin sensitizer.

ACUTE EYE EFFECTS:
Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:
Vapors, gases, mists and/or aerosols may cause irritation to upper

respiratory tract.

INGESTION EFFECTS:
Toxic;
May cause severe irritation or burning of mouth, throat, and gastrointestinal tract with severe chest and abdominal pain, nausea, vomiting, diarrhea, lethargy and collapse. Possible death when ingested in very large doses.

TARGET ORGANS:
Prolonged or repeated exposures may cause CNS depression, tissue narcoses, skin sensitization, and/or toxicity to the liver and kidney.

MEDICAL CONDITIONS AGGRAVATED:
Not known.

SYMPTOMS OF EXPOSURE:
Inhalation of vapors/mists/aerosols may cause eye, nose, throat and lung irritation. Skin contact may cause severe irritation or burns.

3 Composition / information on ingredients

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range(w/w%)
68424-85-1	(C12-16)ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDE Corrosive (eyes and skin);toxic (by ingestion)	40-70
64-17-5	ETHYL ALCOHOL Flammable liquid; irritant (eyes); may cause CNS depression; potential liver, kidney, brain, heart and male reproductive toxin; produced mutagenic effects in germ cells and somatic cells (in vivo)	7-13

4 First-aid measures

SKIN CONTACT:
URGENT! Wash thoroughly with soap and water. Remove contaminated clothing. Get immediate medical attention. Thoroughly wash clothing before reuse.

EYE CONTACT:
URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:
Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get immediate medical attention.

INGESTION:
Do not feed anything by mouth to an unconscious or convulsive

victim. Dilute contents of stomach. Induce vomiting by one of the standard methods. Immediately contact a physician.

NOTES TO PHYSICIANS:

Material is corrosive. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage.

5 Fire-fighting measures

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide or foam--Avoid water if possible.

HAZARDOUS DECOMPOSITION PRODUCTS:

oxides of carbon and nitrogen, hydrogen chloride

FLASH POINT:

130F 54C P-M(CC)

MISCELLANEOUS:

Corrosive to skin, Flammable
UN 2920;Emergency Response Guide #132

6 Accidental release measures

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Remove ignition sources. Flush area with water. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility,in accordance with any local agreement,a permitted waste treatment facility or discharged under a permit. Product as is - Dispose of in approved pesticide facility or according to label instructions.

7 Handling and storage

HANDLING:

Combustible. Corrosive to skin and/or eyes.

STORAGE:

Keep containers closed when not in use. Keep away from flames or sparks. Bond containers during filling or discharge when performed at temperatures at or above the product flash point. Shelf life 360 days.

8 Exposure controls / personal protection

EXPOSURE LIMITS

CHEMICAL NAME

(C12-16)ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDE
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): NOT DETERMINED

ETHYL ALCOHOL

PEL (OSHA): 1,000 PPM
TLV (ACGIH): 1,000 PPM

ENGINEERING CONTROLS:
Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:
Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:
A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
If air-purifying respirator use is appropriate, use organic vapor cartridges and any of the following particulate respirators: N95, N99, N100, R95, R99, R100, P95, P99 or P100.

SKIN PROTECTION:
gauntlet-type rubber, butyl or neoprene gloves, chemical resistant apron -- Wash off after each use. Replace as necessary.

EYE PROTECTION:
splash proof chemical goggles, face shield

9 Physical and chemical properties

Specific Grav.(70F,21C)	0.965	Vapor Pressure (mmHG)	44.0
Freeze Point (F)	-7	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-22		
Viscosity(cps 70F,21C)	73	% Solubility (water)	100.0

Odor		Mild
Appearance		Colorless To Yellow
Physical State		Liquid
Flash Point	P-M(CC)	130F 54C
pH As Is (approx.)		8.9
Evaporation Rate (Ether=1)		< 1.00
Percent VOC:		ND

NA = not applicable ND = not determined

10 Stability and reactivity

CHEMICAL STABILITY:
Stable under normal storage conditions.

POSSIBILITY OF HAZARDOUS REACTIONS:

INCOMPATIBILITIES:
May react with strong oxidizers.

DECOMPOSITION PRODUCTS:
oxides of carbon and nitrogen, hydrogen chloride

11 Toxicological information

Oral LD50 RAT: 445 mg/kg
Dermal LD50 RABBIT: >1,800 mg/kg
Skin Sensitization G.PIG: NEGATIVE
NOTE - Active component was neither a photoallergen nor a skin sensitizer

12 Ecological information

AQUATIC TOXICOLOGY

Annelida(Lumbriculus variegatus) 96 Hour Acute Toxicity
LC50= 1.47; LC10= .37 mg/L
Benthic Crustacean(Gammerus pseutolimnaeus) 96 Hour Acute Toxicity
LC50= .07 mg/L
Ceriodaphnia 48 Hour Static Renewal Bioassay
LC50= .35; No Effect Level= .15 mg/L
Ceriodaphnia 7 Day Chronic Bioassay
IC25 = .098 mg/L
Channel Catfish 96 Hour Acute Toxicity
LC50= .86; No Effect Level= .54 mg/L
Daphnia magna 48 Hour Flow-Thru Bioassay
LC50= .04; No Effect Level= .026 mg/L
Daphnia magna 48 Hour Static Acute Bioassay
LC50= .11; No Effect Level= .06 mg/L
Daphnia pulex 48 Hour Static Renewal Bioassay
LC50= .05; No Effect Level= .031 mg/L
Fathead Minnow 7 Day Chronic Bioassay
IC25 = .259 mg/L
Fathead Minnow 96 Hour Flow-Thru Bioassay
LC50= .72; No Effect Level= .41 mg/L
Freshwater Snail(Physa sp.) 96 Hour Acute Toxicity
LC50= .46; No Effect Level= .36 mg/L
Menidia beryllina (Silversides) 96 Hour Flow-Thru Bioassay
LC50= .62; No Effect Level= .35 mg/L
Midge larvae (Chironomus tentans) 96 Hour Acute Toxicity
LC50= .5; No Effect Level= .13 mg/L
Mysid Shrimp 96 Hour Flow-Thru Bioassay
LC50= .16; No Effect Level= .03 mg/L
Rainbow Trout 96 Hour Flow-Thru Bioassay
LC50= 2; No Effect Level= 1.2 mg/L
Sheepshead Minnow 96 Hour Flow-Thru Bioassay
LC50= 1.76; No Effect Level= 1 mg/L

No Data Available.

BIODEGRADATION

BOD-28 (mg/g): 156
BOD-5 (mg/g): 43
COD (mg/g): 1470
TOC (mg/g): 380

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Exempt D001 per 40 CFR 261.21(a)(1).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 Transport information

DOT HAZARD:	Corrosive to skin, Flammable
PROPER SHIPPING NAME:	CORROSIVE LIQUIDS, FLAMMABLE, N.O.S.(QUATERNARY AMMONIUM COMPOUNDS, ETHYL ALCOHOL) 8(3), UN 2920, PG II
DOT EMERGENCY RESPONSE GUIDE #:	132

Note: Some containers may be DOT exempt, please check BOL for exact container classification

15 Regulatory information

TSCA:
This is an EPA registered biocide and is exempt from TSCA inventory requirements.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):
No regulated constituent present at OSHA thresholds

FIFRA REGISTRATION NUMBER:
3876- 149

FOOD AND DRUG ADMINISTRATION:
21 CFR 176.300 (slimicides for wet end use)
When used in this specified application, all ingredients comprising this product are authorized by FDA for the manufacture of paper and paperboard that may contact aqueous and fatty foods as per 21 CFR 176.170(a)(4).

NSF Registered and/or meets USDA (according to 1998 Guidelines):
Registration number: Not Registered
G5, G7

SARA SECTION 312 HAZARD CLASS:
Immediate(acute);Delayed(Chronic);Fire

SARA SECTION 302 CHEMICALS:
No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:
No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):
No regulated constituents present

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other information

HMIS vII		CODE TRANSLATION
Health	3	Serious Hazard
Fire	2	Moderate Hazard
Reactivity	0	Minimal Hazard
Special	CORR	DOT corrosive
(1) Protective Equipment	D	Goggles,Face Shield,Gloves,Apron

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
MSDS status:	18-NOV-1997		** NEW **
	27-FEB-1998	15	18-NOV-1997
	15-MAY-1998	2	27-FEB-1998
	20-MAY-1998	11	15-MAY-1998
	17-AUG-1998	15	20-MAY-1998
	27-OCT-1998	;EDIT:9	17-AUG-1998
	12-NOV-1998	;EDIT:9	27-OCT-1998
	03-MAY-2000	12	12-NOV-1998
	05-JUL-2001	12	03-MAY-2000
	24-SEP-2001	3,4,5,7,8,14,16	05-JUL-2001
	16-NOV-2001	12	24-SEP-2001
	30-DEC-2005	13;EDIT:15	16-NOV-2001
	19-DEC-2006	13;EDIT:15	30-DEC-2005
	05-APR-2007	2	19-DEC-2006
	10-DEC-2007	5,7,8,10	05-APR-2007
	12-FEB-2009	12	10-DEC-2007

NALCO

SAFETY DATA SHEET

PRODUCT

NALCO® 71D5 PLUS

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: NALCO® 71D5 PLUS

APPLICATION: ANTIFOAM

COMPANY IDENTIFICATION: Nalco Company
1601 W. Diehl Road
Naperville, Illinois
60563-1198

EMERGENCY TELEPHONE NUMBER(S): (800) 424-9300 (24 Hours) CHEMTREC

NFPA 704M/HMIS RATING
HEALTH: 2 / 2 FLAMMABILITY: 2 / 2 INSTABILITY: 0 / 0 OTHER:
0 = Insignificant 1 = Slight 2 = Moderate 3 = High 4 = Extreme * = Chronic Health Hazard

2. COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has identified the following chemical substance(s) as hazardous. Consult Section 15 for the nature of the hazard(s).

Hazardous Substance(s)	CAS NO	% (w/w)
Paraffin Wax	8002-74-2	0.0 1.0
Hydrotreated Light Distillate	64742-47-8	10.0 - 20.0
Straight Run Middle Distillate	64741-44-2	30.0 - 60.0
Polypropylene Glycol	25322-69-4	5.0 - 10.0
Aliphatic alcohol	Proprietary	1.0 - 5.0
Aliphatic alcohol	Proprietary	1.0 - 5.0

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

WARNING
Combustible. Repeated exposure may cause skin dryness or cracking.
Keep away from heat. Keep away from sources of ignition - No smoking. Keep container tightly closed. Do not get in eyes, on skin, on clothing. Avoid breathing vapor. Use with adequate ventilation. Protect product from freezing. Do not take internally. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of soap and water.
Wear suitable protective clothing, gloves and eye/face protection.
Combustible Liquid; may form combustible mixtures at or above the flash point. Empty product containers may contain product residue. Do not pressurize, cut, heat, weld, or expose containers to flame or other sources of ignition. May evolve oxides of carbon (COx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE:
Eye, Skin, Inhalation

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Can cause moderate irritation.

SKIN CONTACT :
Frequent or prolonged contact with product may defat and dry the skin, leading to discomfort and dermatitis.

INGESTION :
Not a likely route of exposure. May cause nausea and vomiting. Can cause chemical pneumonia if aspirated into lungs following ingestion. Can cause central nervous system depression. There may be irritation to the gastro-intestinal tract.

INHALATION :
Repeated or prolonged exposure may irritate the respiratory tract.

SYMPTOMS OF EXPOSURE :
Acute :
Inhalation of high concentrations of organic solvents can cause nausea, dizziness, vomiting, stupor or unconsciousness.
Chronic :
Frequent or prolonged contact with product may defat and dry the skin, leading to discomfort and dermatitis.

AGGRAVATION OF EXISTING CONDITIONS :
Skin contact may aggravate an existing dermatitis condition.

4. FIRST AID MEASURES

EYE CONTACT :
Immediately flush eye with water for at least 15 minutes while holding eyelids open. Get medical attention.

SKIN CONTACT :
Immediately wash with plenty of soap and water. If symptoms develop, seek medical advice.

INGESTION :
Do not induce vomiting: contains petroleum distillates and/or aromatic solvents. If conscious, washout mouth and give water to drink. Get medical attention.

INHALATION :
Remove to fresh air, treat symptomatically. If symptoms develop, seek medical advice.

NOTE TO PHYSICIAN :
Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.

5. FIRE FIGHTING MEASURES

FLASH POINT : 197 °F / 92 °C (PMCC)

EXTINGUISHING MEDIA :
Alcohol foam, Carbon dioxide, Foam, Dry powder, Other extinguishing agent suitable for Class B fires. For large fires, use water spray or fog, thoroughly drenching the burning material.
Water mist may be used to cool closed containers.

UNSUITABLE EXTINGUISHING MEDIA :
Do not use water unless flooding amounts are available.

FIRE AND EXPLOSION HAZARD :
Combustible Liquid; may form combustible mixtures at or above the flash point. Empty product containers may contain product residue. Do not pressurize, cut, heat, weld, or expose containers to flame or other sources of ignition. May evolve oxides of carbon (COx) under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE FIGHTING :
In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Ensure clean-up is conducted by trained personnel only. Ventilate spill area if possible. Do not touch spilled material. Remove sources of ignition. Stop or reduce any leaks if it is safe to do so. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Notify appropriate government, occupational health and safety and environmental authorities.

METHODS FOR CLEANING UP :
SMALL SPILLS: Soak up spill with absorbent material. Place residues in a suitable, covered, properly labeled container. Wash affected area. LARGE SPILLS: Contain liquid using absorbent material, by digging trenches or by diking. Reclaim into recovery or salvage drums or tank truck for proper disposal. Clean contaminated surfaces with water or aqueous cleaning agents. Contact an approved waste hauler for disposal of contaminated recovered material. Dispose of material in compliance with regulations indicated in Section 13 (Disposal Considerations).

ENVIRONMENTAL PRECAUTIONS :
Prevent material from entering sewers or waterways.

7. HANDLING AND STORAGE

HANDLING :
Use with adequate ventilation. Keep the containers closed when not in use. Do not use in locations where vapor is likely to travel to welding flames or arcs or to other hot surfaces. Vapors are much heavier than air, this can result in uneven distribution. Do not take internally. Do not breathe vapors/gases/dust. Do not get in eyes, on skin, on clothing. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

STORAGE CONDITIONS :
Store away from heat and sources of ignition. Store separately from oxidizers. Store the containers tightly closed. Use proper grounding procedures. Have appropriate fire extinguishers available in and near the storage area. Store in suitable labeled containers. Connections must be grounded to avoid electrical charges. Keep at temperatures above 18 °C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS :
Exposure guidelines have not been established for this product. Available exposure limits for the substance(s) are shown below.

Substance(s)	Category	ppm	mg/m3	Non-Standard Unit
Oil Mist, (Mist)	OSHA Z1/PEL		5	
Oil Mist (inhalable fraction.)	ACGIH/TWA		5	
Paraffin Wax Fume (Fume)	ACGIH/TWA		2	
Polypropylene Glycol	AIHA/WEEL/TWA		10	

ENGINEERING MEASURES :
The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fumehood. Provide mechanical ventilation of confined spaces.

RESPIRATORY PROTECTION :
Where concentrations in air may exceed the limits given in this section, the use of a half face filter mask or air supplied breathing apparatus is recommended. A suitable filter material depends on the amount and type of chemicals being handled. Consider the use of filter type: Multi-contaminant cartridge, with a Particulate pre-filter. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

HAND PROTECTION :
When handling this product, the use of chemical gauntlets is recommended. The choice of work glove depends on work conditions and what chemicals are handled. Please contact the PPE manufacturer for advice on what type of glove material may be suitable. Gloves should be replaced immediately if signs of degradation are observed.

SKIN PROTECTION :
When handling this product, the use of overalls, a chemical resistant apron and rubber boots is recommended. A full slicker suit is recommended if gross exposure is possible.

EYE PROTECTION :
Wear chemical splash goggles.

HYGIENE RECOMMENDATIONS :
Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Always wash thoroughly after handling chemicals. When handling this product never eat, drink or smoke.

HUMAN EXPOSURE CHARACTERIZATION :
Based on our recommended product application and personal protective equipment, the potential human exposure is: Moderate

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Clear Light yellow
ODOR	Hydrocarbon

SPECIFIC GRAVITY	0.84 @ 77 °F / 25 °C
DENSITY	7.0 lb/gal
SOLUBILITY IN WATER	Insoluble
VISCOSITY	10 cps @ 72 °F / 22.2 °C
PRECIPITATION POINT	50 °F / 10 °C
POUR POINT	-50 °F / -45 °C
INITIAL BOILING POINT	270 °F / 132.2 °C
VAPOR PRESSURE	5.1 mm Hg @ 100 °F / 37.8 °C

Note: These physical properties are typical values for this product and are subject to change.

10. STABILITY AND REACTIVITY

STABILITY :
Stable under normal conditions.

HAZARDOUS POLYMERIZATION :
Hazardous polymerization will not occur.

CONDITIONS TO AVOID :
Heat and sources of ignition including static discharges. Extremes of temperature Keep at temperatures above 18 °C

MATERIALS TO AVOID :
Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. Bases Contact with strong alkalies (e.g. ammonia and its solutions, carbonates, sodium hydroxide (caustic), potassium hydroxide, calcium hydroxide (lime), cyanide, sulfide, hypochlorites, chlorites) may generate heat, splattering or boiling and toxic vapors.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: Oxides of carbon

11. TOXICOLOGICAL INFORMATION

The following results are for the product.

ACUTE ORAL TOXICITY :

Species:	Rat
LD50:	> 15,380 mg/kg
Test Descriptor:	Product

ACUTE DERMAL TOXICITY :

Species:	Rabbit
LD50:	> 3,038 mg/kg
Test Descriptor:	Product

PRIMARY SKIN IRRITATION :

Species:	Rabbit
Draize Score:	3.1 /8.0
Test Descriptor:	Product

PRIMARY EYE IRRITATION :

Species:	Rabbit
Draize Score:	6.0 /110.0
Test Descriptor:	Product

SENSITIZATION :
This product is not expected to be a sensitizer.

CARCINOGENICITY :
None of the substances in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the American Conference of Governmental Industrial Hygienists (ACGIH).

HUMAN HAZARD CHARACTERIZATION :
Based on our hazard characterization, the potential human hazard is: Moderate

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Bluegill Sunfish	96 hrs	121 mg/l	Similar Product
Rainbow Trout	96 hrs	310 mg/l	Product
Fathead Minnow	96 hrs	190 mg/l	Similar Product

ACUTE INVERTEBRATE RESULTS

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	220 mg/l	130 mg/l	Product
Ceriodaphnia dubia	48 hrs	4.32 mg/l		Similar Product

PERSISTENCY AND DEGRADATION

Total Organic Carbon (TOC) : 195,870 mg/l

Chemical Oxygen Demand (COD) : 2,200,000 mg/l

Biological Oxygen Demand (BOD)

Incubation Period	Value	Test Descriptor
	102,440 mg/l	Product

OECD 301 D (Closed Bottle) 28 Day 70-80%

The organic portion of this preparation is expected to be inherently biodegradable.

MOBILITY :
The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	Water	Soil/Sediment
10 - 30%	30 - 50%	30 - 50%

The portion in water is expected to float on the surface.

BIOACCUMULATION POTENTIAL
This preparation or material is not expected to bioaccumulate.

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Low
Based on our recommended product application and the product's characteristics, the potential environmental exposure is: High

If released into the environment, see CERCLA/SUPERFUND in Section 15.

13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

As a non-hazardous waste, it is not subject to federal regulation. Consult state or local regulation for any additional handling, treatment or disposal requirements. For disposal, contact a properly licensed waste treatment, storage, disposal or recycling facility.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation. Typical Proper Shipping Names for this product are as follows.

LAND TRANSPORT :

For Packages Less Than Or Equal To 119 Gallons:

Proper Shipping Name :	PRODUCT IS NOT REGULATED DURING TRANSPORTATION

For Packages Greater Than 119 Gallons:

Proper Shipping Name :	COMBUSTIBLE LIQUID, N.O.S.
Technical Name(s) :	PETROLEUM HYDROCARBON
UN/ID No:	NA 1993
Hazard Class - Primary :	COMBUSTIBLE
Packing Group :	III
Flash Point :	92 °C / 197 °F

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	PRODUCT IS NOT REGULATED DURING TRANSPORTATION

MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	PRODUCT IS NOT REGULATED DURING TRANSPORTATION

15. REGULATORY INFORMATION

This section contains additional information that may have relevance to regulatory compliance. The information in this section is for reference only. It is not exhaustive, and should not be relied upon to take the place of an individualized compliance or hazard assessment. Nalco accepts no liability for the use of this information.

NATIONAL REGULATIONS, USA :

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :
Based on our hazard evaluation, the following substance(s) in this product is/are hazardous and the reason(s) is/are shown below.

Paraffin Wax : Exposure Limit
Hydrotreated Light Distillate : Exposure Limit

Straight Run Middle Distillate : Combustible., HARMFUL
Polypropylene Glycol : Exposure Limit
Aliphatic alcohol : Combustible.
Aliphatic alcohol : Combustible.

CERCLA/SUPERFUND, 40 CFR 302 :
Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (TITLE III) - SECTIONS 302, 311, 312, AND 313 :

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355) :
This product does not contain substances listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 AND 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370) :
Our hazard evaluation has found this product to be hazardous. The product should be reported under the following indicated EPA hazard categories.

X	Immediate (Acute) Health Hazard
-	Delayed (Chronic) Health Hazard
X	Fire Hazard
-	Sudden Release of Pressure Hazard
-	Reactive Hazard

Under SARA 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are: 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :
This product does not contain substances on the List of Toxic Chemicals.

TOXIC SUBSTANCES CONTROL ACT (TSCA) :
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :
NSF Registration number for this product is : 138905
This product is acceptable for treatment of cooling and retort water (G5) in and around food processing areas.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Naphthalene	Sec. 307, Sec. 311
• Sulfuric Acid	Sec. 311

CLEAN AIR ACT, Sec. 112 (Hazardous Air Pollutants, as amended by 40 CFR 63), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :
This product may contain trace levels (<0.1% for carcinogens, <1% all other substances) of the following substance(s) listed under the regulation. Additional components may be unintentionally present at trace levels.

Substance(s)	Citations
• Naphthalene	Sec. 112

CALIFORNIA PROPOSITION 65 :
Substances known to the State of California to cause cancer and/or reproductive toxicity are present as an impurity or residue.

MICHIGAN CRITICAL MATERIALS :
Substances listed under this regulation are not intentionally added or expected to be present in this product. Listed components may be present at trace levels.

STATE RIGHT TO KNOW LAWS :
The following substances are disclosed for compliance with State Right to Know Laws:

Paraffin Wax	8002-74-2
Aliphatic alcohol	Proprietary
Aliphatic alcohol	Proprietary
Straight Run Middle Distillate	64741-44-2

INTERNATIONAL CHEMICAL CONTROL LAWS :

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on the Inventory of Existing Chemical Substances China (IECSC).

EUROPE
The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

KOREA
All substances in this product comply with the Toxic Chemical Control Law (TCCL) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996 and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

16. OTHER INFORMATION

Due to our commitment to Product Stewardship, we have evaluated the human and environmental hazards and exposures of this product. Based on our recommended use of this product, we have characterized the product's general risk. This information should provide assistance for your own risk management practices. We have evaluated our product's risk as follows:

* The human risk is: Moderate

* The environmental risk is: Low

Any use inconsistent with our recommendations may affect the risk characterization. Our sales representative will assist you to determine if your product application is consistent with our recommendations. Together we can implement an appropriate risk management process.

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to insure safe workplace operations. Please consult your local sales representative for any further information.

REFERENCES

Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices, American Conference of Governmental Industrial Hygienists, OH., (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Hazardous Substances Data Bank, National Library of Medicine, Bethesda, Maryland (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, Geneva: World Health Organization, International Agency for Research on Cancer.

Integrated Risk Information System, U.S. Environmental Protection Agency, Washington, D.C. (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Annual Report on Carcinogens, National Toxicology Program, U.S. Department of Health and Human Services, Public Health Service.

Title 29 Code of Federal Regulations, Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA), (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

Registry of Toxic Effects of Chemical Substances, National Institute for Occupational Safety and Health, Cincinnati, OH, (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Ariel Insight™ (An integrated guide to industrial chemicals covered under major regulatory and advisory programs), North American Module, Western European Module, Chemical Inventories Module and the Generics Module (Ariel Insight™ CD-ROM Version), Ariel Research Corp., Bethesda, MD.

The Teratogen Information System, University of Washington, Seattle, WA (TOMES CPS™ CD-ROM Version), Micromedex, Inc., Englewood, CO.

Prepared By : Product Safety Department
Date issued : 03/11/2011
Version Number : 1.24

GE Infrastructure
Water & Process Technologies

Solid

Fact Sheet

Spectrus* OX903

Solid Microbiological Control Agent

- Simple, dependable, convenient
- Compact, hands- off automated feeder
- Improved worker safety
- No handling of potentially hazardous liquids
- Eliminates the risk of chemical spillage
- 98% active ingredient
- Fast acting and non-foaming
- Powerful bromine based antimicrobial
- Produces a total halogen residual

Description and Use

Spectrus* OX903 is a specially formulated organic bromine based biocide that is fully compatible with halogens.

Spectrus OX903 controls bacterial, fungal and algal slimes in recirculating cooling water in commercial and industrial cooling systems.

Control of microbial populations in cooling systems is essential in order to prevent biofouling. Biofouling in heat exchangers and cooling tower fill reduces heat transfer efficiency leading to higher energy costs. Biofouling can also damage equipment through microbiologically influenced corrosion (MIC) and force unscheduled shutdowns, or extended turnarounds, resulting in lost production.

Biofouling in cooling system can provide an ideal environment for proliferation of *Legionella* bacteria, the cause of Legionnaires disease. The active in Spectrus OX903 has proven highly effective against *Legionella* bacteria in laboratory tests. However, chemical treatment alone will not be effective in reducing health hazards associated with *Legionella* bacteria. System design, location, maintenance practices and awareness of personnel are essential elements of a successful risk reduction programme.

Typical Applications

Spectrus OX903 is also EPA registered for use in brewery pasteurisers, air washer systems, non-potable reverse osmosis systems and pulp and paper mills.

Treatment and Feeding Requirements

Proper treatment levels of Spectrus OX903 depend on many factors, such as system cleanliness, microbial species, nutrient concentration, temperature, pH, system half-life, and conditions particular to a given installation. The product should be used in accordance with control procedures that GE Infrastructure Water & Process Technologies establishes for a specific application.

Spectrus OX903 is designed to be fed via RediFeed* equipment, using good quality water. Feed is controlled by a simple and accurate halogen test.

Tanks, pumps, valves and associated piping should be made of polyethylene or most other common plastics.

General Properties

Physical properties of Spectrus OX903 are shown on the Safety Data Sheet, a copy of which is available upon request.

Packaging Information

Spectrus OX903 is a solid, available in a customised polyethylene container. Contact your GE representative for details.

Storage

Store Spectrus OX903 at ambient temperatures and keep dry.

Safety Precautions

A Safety Data Sheet containing detailed information about this product is available upon request.

Visit us online at www.gewater.com

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GE
Water & Process Technologies

Material Safety Data Sheet

Issue Date: 24-JUN-2009
Supercedes: 24-JUL-2008

SPECTRUS OX903

1 Identification

Identification of substance or preparation
SPECTRUS OX903

Product Application Area
Solid microbial control agent.

Company/Undertaking Identification
GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355-3300, F 215 953 5524

Emergency Telephone
(800) 877-1940

Prepared by Product Stewardship Group: T 215-355-3300 Prepared on: 24-JUN-2009

2 Hazard(s) identification

****
EMERGENCY OVERVIEW

DANGER

May cause moderate irritation to the skin. Potential skin sensitizer. Corrosive to the eyes. Mists/aerosols cause irritation to the upper respiratory tract.

DOT hazard: Toxic
Odor: Mild; Appearance: White, Powder

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water
****

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; May cause moderate irritation to the skin. Potential skin sensitizer.

ACUTE EYE EFFECTS:
Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:
Primary route of exposure;Highly Toxic;Mists/aerosols cause

irritation to the upper respiratory tract.

INGESTION EFFECTS:
Toxic;
May cause severe irritation or burning of mouth, throat, and gastrointestinal tract with severe chest and abdominal pain, nausea, vomiting, diarrhea, lethargy and collapse. Possible death when ingested in very large doses.

TARGET ORGANS:
Repeated skin contact may cause sensitization.

MEDICAL CONDITIONS AGGRAVATED:
Not known.

SYMPTOMS OF EXPOSURE:
Causes redness or itching of skin, possibly leading to burns (dependent on the length of exposure).

3 Composition / information on ingredients

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range(w/w%)
10222-01-2	DBNPA (2,2-DIBROMO-3-NITRILOPROPIONAMIDE) Corrosive (eyes); highly toxic(by inhalation); toxic(by ingestion); potential sensitizer	60-100

4 First-aid measures

SKIN CONTACT:
Wash thoroughly with soap and water for at least 15 minutes. Remove contaminated clothing. Thoroughly wash clothing before reuse. Get immediate medical attention.

EYE CONTACT:
URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:
Remove to fresh air. Apply necessary first aid treatment. Immediately contact a physician.

INGESTION:
Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Wash mouth with water. Do not give water to drink.

NOTES TO PHYSICIANS:
Material is corrosive. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage.

5 Fire-fighting measures

FIRE FIGHTING INSTRUCTIONS:
Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).
EXTINGUISHING MEDIA:
dry chemical, carbon dioxide, foam or water
HAZARDOUS DECOMPOSITION PRODUCTS:
elemental oxides
FLASH POINT:
> 200F > 93C P-M(CC)
MISCELLANEOUS:
Toxic
UN 2811;Emergency Response Guide #154

6 Accidental release measures

PROTECTION AND SPILL CONTAINMENT:
Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Spread sand/grit. Neutralize with soda ash.
DISPOSAL INSTRUCTIONS:
Water contaminated with this product may be sent to a sanitary sewer treatment facility,in accordance with any local agreement,a permitted waste treatment facility or discharged under a permit. Product as is - Dispose of in approved pesticide facility or according to label instructions.

7 Handling and storage

HANDLING:
Corrosive to eyes.
STORAGE:
Keep containers closed when not in use. Keep dry. Store below 140F (60C). Store away from reducing agents and oxidizers.

8 Exposure controls / personal protection

EXPOSURE LIMITS
CHEMICAL NAME

DBNPA (2,2-DIBROMO-3-NITRILOPROPIONAMIDE)
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): NOT DETERMINED
MISC: Note- manufacturer's recommended exposure limit: 2 mg/m3(ceiling)-for powder.

ENGINEERING CONTROLS:
Adequate ventilation to maintain air contaminants below exposure limits.
PERSONAL PROTECTIVE EQUIPMENT:
Use protective equipment in accordance with 29CFR 1910 Subpart I
RESPIRATORY PROTECTION:
A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER

WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
If air-purifying respirator use is appropriate, use a respirator with organic vapor/acid gas cartridges and dust/mist prefilters.

SKIN PROTECTION:
butyl gloves-- Wash off after each use. Replace as necessary.

EYE PROTECTION:
airtight chemical goggles

9 Physical and chemical properties

Density	NO DATA	Vapor Pressure (mmHG)	< 0.1
Freeze Point (F)	NA	Vapor Density (air=1)	< 1.00
Freeze Point (C)	NA		
Viscosity(cps 70F,21C)	NA	% Solubility (water)	1.5

Odor		Mild
Appearance		White
Physical State		Powder
Flash Point	P-M(CC)	> 200F > 93C
pH 1.5% Solution (approx.)		6.8
Evaporation Rate (Ether=1)		< 1.00
Percent VOC:		0.0

NA = not applicable ND = not determined

10 Stability and reactivity

CHEMICAL STABILITY:
Stable under normal storage conditions.

POSSIBILITY OF HAZARDOUS REACTIONS:
No known hazardous reactions.

INCOMPATIBILITIES:
Above 120 deg. C bromine, cyanogen bromide and dibromoacetonitrile are formed. May react with bases or strong oxidizers.

DECOMPOSITION PRODUCTS:
elemental oxides

11 Toxicological information

Oral LD50 RAT:	308 mg/kg
Dermal LD50 RAT:	>2000 mg/kg
Inhalation LC50 RAT:	0.32 mg/l/4hour

12 Ecological information

AQUATIC TOXICOLOGY

Bluegill Sunfish 96 Hour Static Acute Bioassay
LC50= 32.5 mg/L

Daphnia magna 21 Day Flow-Thru Life-Cycle Chronic Bioassay
Reproduction EC50= 3.25; Reproduction NOEL= 1.75 mg/L

Daphnia magna 48 Hour Static Renewal Bioassay
LC50= 16.5; No Effect Level= 10.75 mg/L
Fathead Minnow 96 Hour Static Renewal Bioassay
LC50= 43.5; No Effect Level= 15.5 mg/L
Rainbow Trout 96 Hour Static Acute Bioassay
LC50= 11.5; No Effect Level= 9 mg/L
Sheepshead Minnow 96 Hour Static Acute Bioassay
LC50= 35 mg/L

BIODEGRADATION
No Data Available.

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 Transport information

DOT HAZARD:	Toxic
PROPER SHIPPING NAME:	TOXIC SOLID,ORGANIC,N.O.S.(2,2-DIBROMO-3-NITRILOPROPIONAMIDE)
	6.1, UN2811, PG II

DOT EMERGENCY RESPONSE GUIDE #: 154
Note: Some containers may be DOT exempt, please check BOL for exact container classification

15 Regulatory information

TSCA:
This is an EPA registered biocide and is exempt from TSCA inventory requirements.
CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):
No regulated constituent present at OSHA thresholds
FIFRA REGISTRATION NUMBER:
8622-56-3876
NSF Registered and/or meets USDA (according to 1998 Guidelines):
Registration number: 140721
Category Code(s):
G5 Cooling and retort water treatment products - all food processing areas
G7 Boiler treatment products - all food processing areas/nonfood contact
SARA SECTION 312 HAZARD CLASS:
Immediate(acute);Delayed(Chronic);Reactive
SARA SECTION 302 CHEMICALS:
No regulated constituent present at OSHA thresholds
SARA SECTION 313 CHEMICALS:
No regulated constituent present at OSHA thresholds
CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):

No regulated constituents present

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other information

HMIS vII		**CODE TRANSLATION**
Health	3	Serious Hazard
Fire	1	Slight Hazard
Reactivity	1	Slight Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
MSDS status:	23-JAN-2001		** NEW **
	23-MAR-2001	15	23-JAN-2001
	10-AUG-2001	15	23-MAR-2001
	24-SEP-2002	15	10-AUG-2001
	21-OCT-2002	12	24-SEP-2002
	20-NOV-2003	15	21-OCT-2002
	24-JUL-2008	11	20-NOV-2003
	24-JUN-2009	10,15	24-JUL-2008

GE Infrastructure
Water & Process Technologies

Solid

Fact Sheet

Continuum* AT901

Alkaline Phosphate Cooling Water Treatment

- Cost effective solid concentrate
- Improved worker safety
- No handling of potentially hazardous liquids
- Eliminates the risk of chemical spillage
- Corrosion inhibitor and deposit control blend
- Maximises corrosion protection of mild steel without the use of heavy metals
- Contains azole for protection of copper metallurgies
- Molybdate traced

Description and Use

Continuum* AT901 is a blend of inhibitors designed to control corrosion, scale formation and fouling, in an alkaline phosphate treatment programme, within open evaporative cooling systems. Continuum AT901 provides all the benefits of Continuum technology in a single product.

The anti-nucleating and dispersant properties of the proprietary organic agents in the product extend the solubility of calcium, carbonate, phosphate and iron salts to prevent scale and other deposit formation. This allows cooling systems to be operated in highly buffered, alkaline environments, eliminating the need to feed hazardous acid for pH control.

Continuum AT901 protects many commonly used metals from corrosion by forming a protective, inhibiting film on the metal surface. Whilst the corrosivity of waters decreases in alkaline pH conditions, it is still necessary to chemically treat to inhibit corrosion, especially in cooling systems containing copper or copper alloy metallurgies.

Typical Applications

Continuum AT901 is a combined corrosion inhibitor, scale inhibitor and dispersant product for alkaline pH phosphate based programmes. The product allows the application of inorganic and organic phosphates to promote the formation of a persistent protective oxide film on steel surfaces without the formation of calcium phosphate scale deposits. The polymeric component within the product inhibits the precipitation of calcium phosphate. The Continuum treatment programme is also designed to inhibit corrosion of copper metallurgies and to control fouling caused by suspended solids and inorganic scales, such as calcium carbonate.

Treatment and Feeding Requirements

Proper treatment levels of Continuum AT901 depend on many factors, such as corrosion and scale potential, and conditions particular to a given installation. The product should be used in accordance with control procedures that GE Infrastructure Water & Process Technologies establishes for a specific application.

Continuum AT901 is designed to be fed via RediFeed* equipment, using good quality water to produce a solution of convenient strength. Feed is controlled by a simple and accurate orthophosphate or molybdate test.

Tanks, pumps, valves and associated piping should be made of Hastalloy, mild steel, stainless steel, polyethylene or most other common plastics.

Visit us online at www.gewater.com

Global Headquarters
Trevose, PA
+1-215-355-3300

Americas
Minnetonka, MN
+1-952-933-2277

Europe/Middle East/Africa
Heverlee, Belgium
+32-16-40-20-00

Asia/Pacific
Shanghai, China
+86-21-5298-4573

General Properties

Physical properties of Continuum AT901 are shown on the Safety Data Sheet, a copy of which is available upon request.

Packaging Information

Continuum AT901 is a solid blend, available in a customised polyethylene container. Contact your GE representative for details.

Storage

Store Continuum AT901 at ambient temperatures and keep dry.

Safety Precautions

A Safety Data Sheet containing detailed information about this product is available upon request.

GE
Water & Process Technologies

Material Safety Data Sheet

Issue Date: 18-JUN-2009
Supercedes: 28-MAY-2009

CONTINUUM AT901

1 Identification

Identification of substance or preparation
CONTINUUM AT901

Product Application Area
Solid corrosion inhibitor/deposit control agent

Company/Undertaking Identification
GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355-3300, F 215 953 5524

Emergency Telephone
(800) 877-1940

Prepared by Product Stewardship Group: T 215-355-3300 Prepared on: 18-JUN-2009

2 Hazard(s) identification

****

EMERGENCY OVERVIEW

CAUTION

May cause moderate irritation to the skin. Corrosive to the eyes.
Dusts may cause irritation to the upper respiratory tract.

DOT hazard is not applicable
Odor: Slight; Appearance: Yellow To Brown, Solid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

****

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; May cause moderate irritation to the skin.

ACUTE EYE EFFECTS:
Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:
Primary route of exposure;Dusts may cause irritation to the upper respiratory tract.

INGESTION EFFECTS:
May cause gastrointestinal irritation.

TARGET ORGANS:
Prolonged or repeated exposures may cause toxicity to the nervous system and lung.

MEDICAL CONDITIONS AGGRAVATED:
Not known.

SYMPTOMS OF EXPOSURE:
Inhalation of dust and/or vapors may cause eye, nose, throat and respiratory tract irritation.

3 Composition / information on ingredients

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range(w/w%)
7601-54-9	TRISODIUM PHOSPHATE (SODIUM PHOSPHATE,TRIBASIC) Irritant (eyes)	7-13
15217-42-2	1-H-BENZOTRIAZOLE, SODIUM SALT Irritant (eyes and skin); potential nervous system toxin	7-13
40372-66-5	1,2,4-BUTANETRICARBOXYLIC ACID, 2-PHOSPHONO-, SODIUM SALT Irritant (eyes)	7-13
7558-79-4	DISODIUM PHOSPHATE (SODIUM PHOSPHATE,DIBASIC) Irritant (eyes)	3-7
7631-95-0	SODIUM MOLYBDATE (MOLYBDIC ACID,DISODIUM SALT) Potential irritant (respiratory); potential lung toxicity	3-7

4 First-aid measures

SKIN CONTACT:
Wash thoroughly with soap and water. Remove contaminated clothing. Thoroughly wash clothing before reuse. Get medical attention if irritation develops or persists.

EYE CONTACT:
URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:
If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 2-8 fluid ounces (60-240 mL) of milk or water.

NOTES TO PHYSICIANS:

No special instructions

5 Fire-fighting measures

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

elemental oxides

FLASH POINT:

> 200F > 93C P-M(CC)

6 Accidental release measures

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Sweep up and remove. Minimize dust generation.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility,in accordance with any local agreement,a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 Handling and storage

HANDLING:

Clean spill immediately. Wash contaminated skin promptly.

STORAGE:

Keep containers closed when not in use. Protect from freezing and high temperature storage. Avoid moisture contamination. Do not store near strong acids, alkalies or oxidizers.

8 Exposure controls / personal protection

EXPOSURE LIMITS

CHEMICAL NAME

TRISODIUM PHOSPHATE (SODIUM PHOSPHATE,TRIBASIC)
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): NOT DETERMINED

1-H-BENZOTRIAZOLE, SODIUM SALT
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): NOT DETERMINED

1,2,4-BUTANETRICARBOXYLIC ACID, 2-PHOSPHONO-, SODIUM SALT
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): NOT DETERMINED

DISODIUM PHOSPHATE (SODIUM PHOSPHATE,DIBASIC)
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): NOT DETERMINED

SODIUM MOLYBDATE (MOLYBDIC ACID,DISODIUM SALT)
PEL (OSHA): 5 MG/M3(AS Mo)
TLV (ACGIH): 0.5 MG/M3(AS Mo) RESPIRABLE FRACTION

8) EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

ENGINEERING CONTROLS:
Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:
Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:
A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
If air-purifying respirator use is appropriate, use any of the following particulate respirators: N95, N99, N100, R95, R99, R100, P95, P99 or P100.

SKIN PROTECTION:
rubber, butyl, viton or neoprene gloves -- Wash off after each use. Replace as necessary.

EYE PROTECTION:
airtight chemical goggles

9 Physical and chemical properties

Density	NO DATA	Vapor Pressure (mmHG)	< 1.0
Freeze Point (F)	NA	Vapor Density (air=1)	< 1.00
Freeze Point (C)	NA		
Viscosity(cps 70F,21C)	NA	% Solubility (water)	~ 10.0

Odor		Slight
Appearance		Yellow To Brown
Physical State		Solid
Flash Point	P-M(CC)	> 200F > 93C
pH 1% Sol. (approx.)		~ 11.0
Evaporation Rate (Ether=1)		< 1.00
Percent VOC:		0.0

NA = not applicable ND = not determined

10 Stability and reactivity

CHEMICAL STABILITY:
Stable under normal storage conditions.
POSSIBILITY OF HAZARDOUS REACTIONS:
No known hazardous reactions.
INCOMPATIBILITIES:
May react with strong oxidizers.
DECOMPOSITION PRODUCTS:
elemental oxides

11 Toxicological information

No Data Available.

12 Ecological information

AQUATIC TOXICOLOGY
Daphnia magna 48 Hour Static Renewal Bioassay (pH adjusted)
LC50= 1670; No Effect Level= 820 mg/L
Fathead Minnow 96 Hour Static Renewal Bioassay (pH adjusted)
LC50= 1060; No Effect Level= 824 mg/L

BIODEGRADATION
No Data Available.

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 Transport information

DOT HAZARD: Not Applicable
PROPER SHIPPING NAME:

DOT EMERGENCY RESPONSE GUIDE #: Not applicable
Note: Some containers may be DOT exempt, please check BOL for exact container classification

15 Regulatory information

TSCA:
All components of this product are included on or are in compliance with the U.S. TSCA regulations.
CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):
No regulated constituent present at OSHA thresholds
NSF Registered and/or meets USDA (according to 1998 Guidelines):

Registration number: 140951
Category Code(s):
G5 Cooling and retort water treatment products - all food processing areas
G7 Boiler treatment products - all food processing areas/nonfood contact

SARA SECTION 312 HAZARD CLASS:
Immediate(acute);Delayed(Chronic)

SARA SECTION 302 CHEMICALS:
No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:
No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):
No regulated constituents present

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other information

HMIS vII		**CODE TRANSLATION**
Health	2	Moderate Hazard
Fire	1	Slight Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
MSDS status:	14-JUL-2000		** NEW **
	03-OCT-2001	15	14-JUL-2000
	09-JAN-2002	2,3,8	03-OCT-2001
	10-JAN-2003	2,7,8	09-JAN-2002
	24-MAR-2005	2	10-JAN-2003
	26-MAY-2006	8	24-MAR-2005
	15-MAY-2009	4,8,10,15	26-MAY-2006
	28-MAY-2009	3,6,8,15	15-MAY-2009
	18-JUN-2009	15	28-MAY-2009

CORPORATE EXPRESS
1 Environmental Way
Broomfield, CO 80021
Business Phone: 1.888.203.5101
24-HR MEDICAL AND DOT EMERGENCIES: 1.888.322.0912

MSDS #: MSDS SEB6400

Hazard Rating	HMIS	NFPA
Health	1	1
Flammability	0	0
Reactivity	0	0
Special	None	None

MATERIAL SAFETY DATA SHEET

Complies with ANSI Z400.1 Format

SECTION 1: PRODUCT IDENTIFICATION

Product: NEUTRAL MULTI-USE CLEANER Sustainable Earth® 64 MSDS CODE: SEB6400.1007

This MSDS applies to Product Numbers: SEB6401, SEB6402QM, SEB6404HM, SEB6405, SEB6409, SEB6409T, SEB6415 and SEB6434

GENERIC DESCRIPTION	DATE ISSUED	SUPERSEDES	PREPARED BY
Concentrated General Purpose Cleaner	10-1-07	6-1-07	Regulatory Specialist

SECTION 2: COMPOSITION AND INFORMATION ON INGREDIENTS

Components*	% by Wt.	CAS #	Exposure Limit	LC_{50}/LD_{50}
Hydrogen Peroxide	0.5-1.0	7722-84-1	**OSHA** TWA: 1.4 mg/m3 **ACGIH** TWA: 1.4 mg/m3	ORAL 1518 mg/kg (rat) DERMAL 4060 mg/kg (rat) VAPOR 2000 mg/m³ 4-hrs (rat)
Alcohol Ethoxylate	10-15	68439-46-3	Not Established	
Water	60-100	7732-18-5	Not Established	

SECTION 3: HAZARD IDENTIFICATION

Primary Entry Routes: Skin Contact **Signs & Symptoms of Exposure:** Incidental skin contact is not expected to cause any significant irritation. **Effects of Overexposure:** Based on Corrositex *in vitro* testing this product is not corrosive and with prolonged skin contact or eye contact may cause slight reddening but will be non-irritating. This product has a low potential for skin absorption based upon review of the absorption information provided by individual ingredients manufacturers.

SECTION 4: FIRST AID MEASURES

Emergency First Aid Procedures: SKIN CONTACT: Rinse skin thoroughly with water. EYE CONTACT: Flush eyes with water for 15-20 minutes. If reddening occurs and persists then get prompt medical aid. INGESTION: Drink large amounts of water, consult a physician.
24-HR MEDICAL EMERGENCY PHONE: 1.888.322.0912

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: None- This product is not considered a fire hazard, nor will it support combustion. **Extinguishing Media:** Use standard firefighting measures to extinguish fires involving this material (water spray, dry chemicals or foam).

SECTION 6: ACCIDENTAL RELEASE MEASURES

Release or Spill: Recover liquid with wet mop or wet/dry vacuum. Flush residue to sanitary sewer with water. Use care, floor may become slippery. All Federal, State and Local regulations should be carefully followed. Discarded product is not a hazardous waste according to RCRA, 40 CFR 261.

SECTION 7: HANDLING AND STORAGE

Keep out of reach of children. Avoid eye and prolonged skin contact.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory Protection: No special requirements under normal use conditions. **Protective Gloves:** No special requirements for normal use conditions. **Eye Protection:** No special requirements for normal use conditions.
Other Protective Measures: None

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Odor: Yellow Liquid **Boiling Point:** >212F **Evap. Rate:** NA **pH Concentrated Form:** 8.5
Vapor Density: ND **Vapor Pressure:** <1.0 **Specific Gravity:** 1.01 **Solubility in Water:** Soluble **%Volatile:** 100
V.O.C. Content (by weight): <1%

SECTION 10: STABILITY AND REACTIVITY

Neutral Multi-Use Cleaner is stable and non-reactive.

SECTION 11: TOXICOLOGICAL INFORMATION

Oral Toxicity: This product is non-toxic based upon current information available to Corporate Express and provided by all ingredient manufacturers. It exhibits acute oral LD_{50} values greater than >5g/kg for rats and acute dermal LD_{50} values greater than >2g/Kg for rabbits. **No PBTs:** This product contains none of the persistent, bioaccumulative and toxic chemicals (PBT) as listed by EPA: dioxins & furans, toxaphene, PCBs, Mirex, Mercury & compounds, Octachlorostyrene, alkyl-lead, DDT, Hexachlorobenzene, aldrin/dieldrin, benzo(a)pyrene and chlordane. **No Butyl:** Contains no 2-butoxyethanol (butyl). **No Endocrine Modifiers:** *Based upon information provided by manufacturers of all ingredients used to manufacture this product,* none of the ingredients used in this product contain APE, OPE, NPE or dibutyl phthalate.

SECTION 12: ECOLOGICAL INFORMATION

The organic ingredients are readily biodegradable based upon the Modified OECD screening tests. After this product's use, it will biodegrade in sewage systems and/or the environment. Contains no nonyl phenol ethoxylates or alkyphenol ethoxylates (APE). No ingredients used to make this product are listed in the toxic release inventory (TRI) chemicals list under Superfund Amendments and Reauthorization Act (SARA) Title III, Section 313. This product contains no ozone-depleting chlorinated compounds as specified by the Montreal Protocol. This product contains no paradichlorobenzene 1,4-dioxane, sodium hypochlorite, NTA or sodium EDTA.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Information: Waste Disposal Information: No special method. Observe all applicable Federal, State and Local regulations, rules and/or ordinances regarding disposal of non-hazardous materials. Discarded product is not a hazardous waste according to RCRA, 40 CFR 261. This product is not considered a hazardous waste as defined in WAC 173-303-070 or as characterized in WAC 173-303-090. Observe all applicable Federal, State and Local regulations, rules and/or ordinances regarding disposal of non-hazardous materials.

SECTION 14: TRANSPORT INFORMATION

DOT EMERGENCY 24-HR: 1.888.322.0912 **U.S. DOT Class:** Not Regulated
DOT Shipping Name: Compound, Cleaning Liquid

SECTION 15: REGULATORY INFORMATION

SARA Title III Section 313 and 40 CFR Part 372 Notification: See section 2.
No ingredients in this product are currently listed as carcinogens by NTP, IARC or OSHA. All components of this product are listed or are excluded from listing on the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

SECTION 16: OTHER INFORMATION

Always follow label directions carefully when using this or any other chemical product. If information about this product is required, please contact CORPORATE EXPRESS at 1.888.203.5101 or visit our website at www.corporateexpress.com . Keep MSD Sheets filed and organized in an area accessible to workers according to the Hazard Communication Standards.

MATERIAL SAFETY DATA SHEET

CRUD REMOVER™ CLEANS IN SECONDS!

PRODUCT BULLETIN **03**

Chemical Product and Company Identification

Product Name: **CRUD REMOVER** PPC Catalog Number: **03**
Manufacturers Name and Address:
Protective Products Corp., Box 246, Johnston, IA 50131
Product Use: **Cleaner/Degreaser**
24 Hr. Emergency Telephone: **888-772-1277**
Information Telephone: **515-986-5070**
Issue Date: **04-01-05** Prepared by: **Dean Bibler**

Composition/Information on Ingredients

Hazardous Components: **Sodium Hydroxide CAS #1310-73-2 <4%**
2-Butoxyethanol CAS #111-76-2 <11%

Hazardous Identification

HMIS and NFPA Hazard Ratings:
Health - 1, Flammability - 0, Reactivity -0.
Skin: **Can cause drying, cracking; burns with prolonged contact.**
Eyes: **Can cause irritation, redness; burns with prolonged contact.**
Ingestion: **Can cause tissue damage in mouth and throat if swallowed.**
Inhalation: **Vapor and mist can cause irritation; minor burns to nose and mucous linings.**

First Aid Measures

Skin: **Flush with plenty of cool water; remove any affected clothing.**
Eyes: **Flush with cool water immediately for 15 minutes; rinse with boric acid solution, get medical attention.**
Ingestion: **Drink copious amounts of acidic fruit juice or milk; do not induce vomiting; get medical attention.**
Inhalation: **Move to fresh air. Treat symptomatically.**

Fire Fighting Measures

None. Non-flammable solution.

Accidental Release measures

Large Spills: **Flush affected area with water; neutralize with citric acid; flush to sewer with water.**
Small Spills: **Absorb with paper towels, newspapers, vermiculite, etc. Flush area with water; mop dry.**

Handling and Storage

Storage: **Keep from freezing. Keep away from food products.**
Handling: **Avoid breathing mist and vapors. Use with adequate ventilation. Avoid contact with eyes, skin, clothing. Do not ingest. Wash thoroughly after handling. Rinse all bulk containers prior to disposal.**

Exposure Controls/Personal Protection

General Use: **No specific protection required; use appropriately as per directions on label.**
Ventilation: **Local fan; good general ventilation.**
Eye Protection: **Safety glasses or goggles.**
Skin Protection: **Rubber gloves; appropriate clothing.**
Respiratory Protection: **Approved chemical mask if spraying bulk product at full strength.**
Recommended Decontamination Facilities: **Eyebath, washing facilities, safety shower.**

Physical/Chemical Properties

Physical Form: **Yellow liquid with bland odor.**
Boiling Point: **212° F.** Freezing Point: **28° F.**
Vapor Pressure/Density: **Not Determined.** pH: **13.5.**
Solubility in Water: **100%.** Specific Gravity (water=1): **1.08.**
Evaporation Rate (butylacetate=1): **<1.**

Stability and Reactivity

Chemical Stability: **100%.**
Hazardous Polymerization: **Will not occur.**
Hazardous Decomposition Products: **None known.**
Incompatibility: **Will attack aluminum upon prolonged contact due to alkaline nature.**

Toxicological Information

Non-carcinogenic, non-mutagenic, essentially non-hazardous when used as directed following cautionary information.

Ecological Information

Fully biodegradable as determined by individual laboratory testing. Neutralize product waste with citric acid and dispose of in accordance with all local, state and federal regulations.

Disposal Considerations

This product is not considered a hazardous waste when disposed of properly. See "Ecological Information" above.

Transport Information

This product is not regulated.

Regulatory Information

This document has been prepared according to OSHA Standard 29 CFR 1910-1200. It is your responsibility and legal duty to make all information in this MSDS available to our employees, and to anyone who requests this information after product purchase.
TSCA: **All product components are listed on or exempted from the Toxic Substance Control Act inventory list.**
CERCLA: **None.**
SARA Title III: **None.**
CA Prop 65: **None.**

Other Information

The information contained herein is believed to be accurate, based on current component MSDS knowledge and experience. It is provided independently of any sale of this product for purpose of hazard communication as part of PPC's product safety program. It is not intended to constitute performance information concerning this product. No responsibility is assumed that the information is sufficient or correct in all cases. No express or implied warranty of merchantability or fitness for particular purpose is made with respect to the product or the information contained herein. This information and product are provided on the condition that the user shall make determination as to the suitability for a particular purpose, and on the condition that user shall assume all risks of use thereof.

PPC

www.protectiveproductscorp.com
Products that WORK!

Product No. 03

Proven Superior Cleaning Strength!

CRUD REMOVER

CLEANS IN SECONDS!

Stronger, Faster, Safer Than Solvents!

- Biodegradable soap formula outperforms most solvents.
- Can be diluted, heated or applied in any manner.

Concentrated, Versatile, USDA Approved!

- Can be used on machinery, engines, plumbing, HVAC units, fireplaces, barbeque, carpeting, shower stalls, clothing, boat bilges, whitewalls, building maintenance, etc., etc.

Cleans/Degreases Most Anything!

- Removes diesel, oil, grease, soot, brake dust, blood, ink, algae, mildew, soap scum, surface rust, spray paint, bug splatter, grass stain, floor wax, etc., etc. Also loosens bolts!

Also: Gallons • 5-Gallons • 55-Gallons

Known as the strongest cleaner in the U.S.

From PPC . . . Products That Work!

Protective Products Corp. • Box 246 • Johnston, IA 50131 • **888-772-1277** • www.protectiveproductscorp.com

ISO9001:2000 Certified

Material Safety Data Sheet

Hydrochloric acid solutions, 0.5%-50% v/v, 0.01N-6.25N

Section 1 - Chemical Product and Company Identification

MSDS Name:

Hydrochloric acid solutions, 0.5%-50% v/v, 0.01N-6.25N

Catalog Numbers:

LC14970, LC15000, LC15050, LC15070, LC15090, LC15100, LC15130, LC15150, LC15170, LC15200, LC15220, LC15240, LC15250, LC15280, LC15290, LC15300, LC15320, LC15330, LC15340, LC15345, LC15360, LC15370, LC15380

Synonyms:

Muriatic acid, chlorohydric acid

Company Identification:

LabChem, Inc.
200 William Pitt Way
Pittsburgh, PA 15238

Company Phone Number:

(412) 826-5230

Emergency Phone Number:

(800) 424-9300

CHEMTREC Phone Number:

(800) 424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	Percent
7732-18-5	Water	balance
7647-01-0	Hydrogen chloride	0.5 - 50

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Colorless liquid
Danger! Corrosive. Causes severe eye and skin burns. Causes severe digestive and respiratory tract burns.
Target Organs: None.

Potential Health Effects

Eye:

Vapors are irritating to the eye, liquid contact may result in clouding of the cornea, erosion, up to total corneal opacification and loss of the eye.

Skin:

May cause severe burns and ulceration. Skin may turn brown-yellow. Deep burns are slow to heal and scarring may occur.

Ingestion:

Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract.

Inhalation:

May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Palpitation, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema may result from inhalation exposure.

Chronic:

Chronic exposure may result in dental erosion, jaw necrosis, respiratory disease, dermatitis, conjunctivitis, corneal scarring and fever.

Section 4 - First Aid Measures

Eyes:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids until chemical is gone. Get medical aid at once. SPEEDY ACTION IS CRITICAL!

Skin:

Get medical aid at once. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. SPEEDY ACTION IS CRITICAL!

Ingestion:

Do NOT induce vomiting. Give conscious victim 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid at once.

Inhalation:

Get medical aid at once. Move victim to fresh air immediately. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

Notes to Physician:

Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Extinguishing Media:

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam.

Autoignition Temperature:

Not applicable.

Flash Point:

Not applicable.

NFPA Rating:

CAS# 7732-18-5: Not published.
CAS# 7647-01-0: Health - 3; flammability - 0; reactivity - 1.

Explosion Limits:

Lower: No information Upper: No information

Section 6 - Accidental Release Measures

General Information:

Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:

Absorb spills with absorbent (vermiculite, sand, fuller's earth) and place in plastic bags for later disposal. Large spills may be neutralized with dilute alkaline solutions of soda ash, or lime. Clean up spills immediately, observing precautions in the Protective Equipment section.

Section 7 - Handling and Storage

Handling:

Wash thoroughly after handling. Wash hands before eating. Use only in a well ventilated area. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Do not allow contact with water. Use caution when opening.

Storage:

Store in a cool, dry area. Store in a tightly closed container.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name:	ACGIH	NIOSH	OSHA
Water	None of the components are on this list.	None of the components are on this list.	None of the components are on this list.
Hydrogen chloride	None of the components are on this list.	None of the components are on this list.	C 5 ppm; C 7 mg/m3;

OSHA Vacated PELs

Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29CFR 1910.134. Always use a NIOSH-approved respirator when necessary.

Section 9 - Physical and Chemical Properties

Physical State:	Liquid
Color:	Colorless
Odor:	Pungent at high concentrations
pH:	Acidic (<7)
Vapor Pressure:	14 mm Hg @ 20°C
Vapor Density:	0.7 (Air=1)
Evaporation Rate:	>1 (ether=1)
Viscosity:	No information found.
Boiling Point:	212-227°F
Freezing/Melting Point:	32°F (0.00°C)
Decomposition Temperature:	No information found.
Solubility in water:	No information found.
Specific Gravity/Density:	1.0-1.2 (Water=1)
Molecular Formula:	HCl
Molecular Weight	36.46

Section 10 - Stability and Reactivity

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

High temperatures, strong oxidants.

Incompatibilities with Other Materials

Acids (organic, e.g. acetic acid, benzoic acid, formic acid, methanoic acid, oxalic acid), alcohols and glycols (e.g. butyl alcohol, ethanol, methanol, ethylene glycol), aldehydes (e.g. acetaldehyde, acrolein, chloral hydrate, formaldehyde), amides (e.g. butyramide, diethyltoluamide, dimethyl formamide), amines (aliphatic and aromatic, e.g. dimethyl amine, propylamine, pyridine, triethylamine), azo, diazo, and hydrazines (e.g. dimethyl hydrazine, hydrazine, methyl hydrazine), carbamates (e.g. carbanolate, carbofuran), caustics (e.g. ammonia, ammonium hydrozide, calcium hydroxide, potassium hydroxide, sodium hydroxide), cyanides (e.g. potassium cyanide, sodium cyanide), dithiocarbamates (e.g. ferbam, maneb, metham, thiram), esters (e.g. butyl acetate, ethyl acetate, propyl formate), ethers (e.g. dioxane, furfuran, tetrahydrofuran (THF)), fluorides (inorganic, e.g. ammonium fluoride, calcium fluoride, cesium fluoride), hydrocarbons (aromatic, e.g. benzene, chrysene, cumene, toluene), halo.

Hazardous Decomposition Products

Hydrogen chloride, hydrogen gas.

Hazardous Polymerization

Has not been reported.

Section 11 - Toxicological Information

RTECS:

CAS# 7732-18-5: ZC0110000.
CAS# 7647-01-0: MW4025000.

LD50/LC50:

CAS# 7732-18-5:
Oral, rat: LD50 = >90 mL/kg.
CAS# 7647-01-0:
Inhalation, mouse: LC50 =1108 ppm/1H
Inhalation, rat: LC50 =3124 ppm/1H
Oral, rabbit: LD50 = 900 mg/kg.

Carcinogenicity:

CAS# 7732-18-5: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.
CAS# 7647-01-0
ACGIH: Not listed.
California: Not listed.
NIOSH: Not listed.
NTP: Not listed.
OSHA: Not listed.
IARC: Group 3

Epidemiology:

No information available.

Teratogenicity:

Embryo or Fetus: Stunted fetus, ihl-rat TCL0=450 mg/m3/1H Specific Developmental Abnormalities: homeostatis, ihl-rat TCL0=450 mg/m3/1H

Reproductive:

No information available.

Mutagenicity

Sln-dmg-ihl:100 ppm/24H sln-dmg-orl:100 ppm cyt-grh-par:20 mg cyt-ham lung:30 mmol/l cyt-ovr-ham:8 mmol/l

Neurotoxicity

No information found.

Section 12 - Ecological Information

Ecotoxicity:

Trout LC100=10 mg/l/24H Shrimp LC50=100-330 ppm Starfish LC50=100-330 mg/l/48H Shore crab LC50=240 mg/l/48H Chronic plant toxicity=100 ppm Fish-toxicity LC50:862 mg/l

Environmental:

Substance will neutralize soil carbonate-based components.

Physical:

No information available.

Other:

None.

Section 13 - Disposal Considerations

Dispose of in accordance with Federal, State, and local regulations.

Section 14 - Transport Information

US DOT

	1% to 40% W/W	0.5% to 1% W/W	0% to 0.5% W/W
Shipping Name:	Hydrochloric acid solution	Hydrochloric acid solution	Not regulated
Hazard Class:	8	8	
UN Number:	UN1789	UN1789	
Packing Group:	PG II	PG III	

Section 15 - Regulatory Information

US Federal

TSCA

CAS# 7732-18-5 is listed on the TSCA Inventory.
CAS# 7647-01-0 is listed on the TSCA Inventory.

SARA Reportable Quantities (RQ)

CAS# 7647-01-0: final RQ = 5000 pounds (2270 kg)

CERCLA/SARA Section 313

This material contains Hydrogen chloride (CAS# 7647-01-0, 1-50%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

OSHA - Highly Hazardous

CAS# 7647-01-0 is considered highly hazardous by OSHA.

US State

State Right to Know

Hydrogen chloride can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

California Regulations

European/International Regulations

Canadian DSL/NDSL

CAS# 7732-18-5 is listed on Canada's DSL List.
CAS# 7647-01-0 is listed on Canada's DSL List.

Canada Ingredient Disclosure List

CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.
CAS# 7647-01-0 is listed on Canada's Ingredient Disclosure List.

Section 16 - Other Information

MSDS Creation Date: November 1, 1997

Material Safety Data Sheet

Hydrochloric acid solutions, 0.5%-50% v/v, 0.01N-6.25N

Revision Date: September 19, 2007

Information in this MSDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc. assumes no liability resulting from the use of this MSDS. The user must determine suitability of this information for his application.

KOCH

MATERIAL SAFETY DATA SHEET

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

TRADE NAME(S)	SULFURIC ACID
CAS NUMBER	7664-93-9
MSDS NUMBER	5371
PRODUCT CODE	ND
SYNONYM(S)	OIL OF VITRIOL
MANUFACTURER / SUPPLIER	Koch Sulfur Products Company PO Box 2256 Wichita, KS 67201

TELEPHONE NUMBERS - 24 HOUR ASSISTANCE

Chemtrec:	800-424-9300 Reference Koch Subsidiary: Koch Sulfur Products Company

TELEPHONE NUMBERS - GENERAL ASSISTANCE

8-5 (M-F, CST)	316-828-3019
8-5 (M-F, CST) MSDS Assistance	316-828-8488

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Concentration*	Exposure Limits / Health Hazards
SULFURIC ACID	7664-93-9	7 - 100 %	1 mg/m3 8-Hour TWA (OSHA) 1 mg/m3 8-Hour TWA (ACGIH) 3 mg/m3 15-Min STEL (ACGIH)

*Values do not reflect absolute minimums and maximums; these values are typical which may vary from time to time.

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER!

HEALTH HAZARDS
MAY BE CORROSIVE TO THE SKIN, EYES AND RESPIRATORY TRACT
ASPIRATION HAZARD IF SWALLOWED-CAN ENTER LUNGS AND CAUSE DAMAGE
CANCER HAZARD
SEE "TOXICOLOGICAL INFORMATION" (SECTION 11) FOR MORE INFORMATION

FLAMMABILITY HAZARDS
NON-COMBUSTIBLE

REACTIVITY HAZARDS
MAY REACT VIOLENTLY WITH WATER

POTENTIAL HEALTH EFFECTS, SKIN

CORROSIVE. Contact may cause reddening, itching, inflammation, burns, blistering and possibly severe tissue damage. Repeated or prolonged contact may result in drying, reddening, itching, pain, inflammation, cracking and possible secondary infection with tissue damage.

POTENTIAL HEALTH EFFECTS, EYE

CORROSIVE. Exposure may cause severe burns, destruction of eye tissue and possible permanent injury or blindness. Prolonged or repeated exposure may cause irritation and conjunctivitis.

POTENTIAL HEALTH EFFECTS, INHALATION

EXTREMELY IRRITATING AND CORROSIVE. May cause severe burns and tissue damage to the respiratory tract. Symptoms may include throat burns, constriction of the windpipe (bronchospasms), severe pulmonary edema and death, depending on the concentration and duration of exposure.

Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information" (Section 11).

Other specific symptoms of exposure are listed under "Toxicological Information" (Section 11).

POTENTIAL HEALTH EFFECTS, INGESTION

CORROSIVE. May cause painful irritation and burning of the mouth and throat, painful swallowing, labored breathing, burns or perforation of the gastrointestinal tract leading to ulceration and secondary infection. Corrosive damage to the stomach and esophagus may be delayed.

Aspiration into lungs may cause chemical pneumonia and lung damage.

Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information" (Section 11).

Other specific symptoms of exposure are listed under "Toxicological Information" (Section 11).

4 FIRST AID MEASURES

SKIN

Immediately flush skin with plenty of water, for at least 15 minutes, while removing contaminated clothing and shoes. GET IMMEDIATE MEDICAL ATTENTION.

Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Discard contaminated leather goods.

EYE

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. GET IMMEDIATE MEDICAL ATTENTION.

INHALATION

Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear and give oxygen.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

INGESTION

If victim is conscious and alert, give 1-3 glasses of water to dilute stomach contents. Rinse mouth out with water. Do not induce vomiting unless directed by medical personnal. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs keep head below hips to prevent aspiration and monitor for breathing difficulty.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

5 FIRE FIGHTING MEASURES

HAZARDOUS COMBUSTION PRODUCTS

Decomposes to form sulfur dioxide and sulfur trioxide.

EXTINGUISHING MEDIA

Use carbon dioxide or dry chemical to extinguish fire.

BASIC FIRE FIGHTING PROCEDURES

Do not add water to acid. Water applied directly results in evolution of heat and splattering of acid. Acid can react with metals to liberate flammable hydrogen gas, especially when diluted with water. Evacuate area and fight fire from a safe distance.

Use water spray to cool adjacent structures and to protect personnel. Do not get water inside sulfuric acid containers. Shut off source of flow if possible. Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire.

Firefighters must wear MSHA/NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

UNUSUAL FIRE & EXPLOSION HAZARDS

Material will not burn.

Reacts with most metals to produce hydrogen gas which can form an explosive mixture with air.

Flash Point	ND
Autoignition Temperature	ND
Flammability Limits in Air, Lower, % by Volume	ND
Flammability Limits in Air, Upper, % by Volume	ND

6 ACCIDENTAL RELEASE MEASURES

EMERGENCY ACTION

Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind. Isolate for 1/2 mile in all directions if tank, rail car or tank truck is involved in fire. Evacuate area endangered by release as required. (See Exposure Control/Personal Protection - Section 8).

ENVIRONMENTAL PRECAUTIONS

If product is released to the environment, take immediate steps to stop and contain release. Caution should be exercised regarding personnel safety and exposure to the released product. Notify local authorities and the National Response Center, if required.

SPILL OR LEAK PROCEDURE

Keep unnecessary people away. Isolate area for at least 50-100 meters (160-330 feet) to preserve public safety. For large spills, consider initial evacuation for at least 300 meters (1000 feet).

Large spills may be neutralized with dilute alkaline solutions of soda ash or lime. Stop leak when safe to do so.

See Exposure Controls/Personal Protection (Section 8).

7 HANDLING & STORAGE

HANDLING

This material should be stored and shipped in plastic or plastic lined containers. Do not use with materials or equipment sensitive to acidic solutions.

Do not eat, drink or smoke in areas of use or storage.

STORAGE

Avoid contact with combustible materials, water, metals and alkalies. Store in a vented container. Sulfuric acid reacts with most metals to produce hydrogen gas which can form an explosive mixture with air.

Empty containers may contain product residue. Do not reuse without adequate precautions.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Ventilation and other forms of engineering controls are the preferred means for controlling exposures.

EYE PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Wear chemical safety goggles and face shield. Have eye washing facilities readily available where eye contact can occur.

SKIN PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Avoid skin contact with this material. Use appropriate chemical protective gloves when handling.

Additional protection may be necessary to prevent skin contact including use of apron, gauntlets, boots, impervious protective suit and face shield or splash goggles. Provide safety showers at any location where skin contact can occur.

Use good personal hygiene.

RESPIRATORY PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

A NIOSH/MSHA approved air purifying respirator with an appropriate acid gas cartridge or canister may be appropriate under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

9 PHYSICAL & CHEMICAL PROPERTIES

ODOR AND APPEARANCE

COLORLESS TO CLOUDY OILY LOOKING LIQUID WITH A PUNGENT ODOR

Boiling Point	7-85% - 215-440 °F, 93% - 541 °F, 96% - 586 °F, 99% - 625 °F
Specific Gravity	7-85% - 1.04-1.79, 93% - 1.84, 96% - 1.84, 99% - 1.84
Melting Point	ND
Percent Volatile	ND
Vapor Pressure	AT 100 °F (7-85% - 48-<1, 93%-<1, 96%-<1, 99%-<1)
Vapor Density	ND
Bulk Density	ND
Solubility in Water	100 %
Octanol/Water Partn	ND
Volatile Organic	ND
Pour Point	ND
pH Value	< 1
Freezing Point	7-85% - 30-(-40) °F, 85% - (-40) °F, 93% - (-29) °F, 96% - 10 °F, 99% - 45 °F
Viscosity	ND
Evaporation Rate	ND
Molecular Formula	H2SO4
Molecular Weight	98.07
Chemical Family	MINERAL ACID
Odor Threshold	ND

10 STABILITY & REACTIVITY

STABILITY/INCOMPATIBILITY

Avoid contact with water.

Incompatible with combustible materials, water, metals and alkalies. See precautions under Handling & Storage (Section 7).

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS

Decomposes to form sulfur dioxide and sulfur trioxide.

11 TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE

Inhalation, ingestion, skin and eye contact.

LD50

LD50: Sulfuric Acid , Rat , Oral , 2140 mg/kg.

TOXICOLOGICAL DATA

Acute or chronic overexposure to this material or its components may cause systemic toxicity, including adverse effects to the following: kidney, liver, teeth, respiratory and cardiovascular systems.

Exposure to components of this material may cause the following specific symptoms, depending on the concentration and duration of exposure: attacks enamel of teeth, vomiting, clammy skin, weak and rapid pulse. Other symptoms of exposure may include the following: shallow respiration, chronic bronchitis, lung function changes and scanty urine.

CARCINOGENICITY

IARC has determined that there is sufficient evidence for the carcinogenicity of occupational exposure to strong inorganic acid mists containing sulfuric acid in humans (IARC Class 1).

PRE-EXISTING CONDITIONS AGGRAVATED BY EXPOSURE

Pre-existing medical conditions which may be aggravated by exposure include disorders of the skin and respiratory system.

12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

ND

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

This product as supplied, when discarded or disposed of, is a hazardous waste according to Federal regulations (40 CFR 261) due to its corrosivity and reactivity. Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the product to determine, at the time of disposal, whether the material is a hazardous waste subject to RCRA.

The transportation, storage, treatment and disposal of RCRA waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Disposal of this material must be conducted in compliance with all federal, state and local regulations.

14 TRANSPORT INFORMATION

BILL OF LADING - BULK (U. S. DOT)

RQ, Sulfuric Acid, 8, UN1830, PG II (use with more than 51% acid)
RQ, Sulfuric Acid, 8, UN2796, PG II (use with not more than 51% acid)

BILL OF LADING - NON-BULK (U. S. DOT)

RQ, Sulfuric Acid, 8, UN1830, PG II (use with more than 51% acid)
RQ, Sulfuric Acid, 8, UN2796, PG II (use with not more than 51% acid)

U. S. Department of Transportation (DOT) Requirements

General Transportation Information for Bulk Shipments

Proper Shipping Name	Sulfuric Acid		
Hazard Class	8	UN/NA Code	UN1830, UN2796
Packaging Group	PG II		
Labels Required	Corrosive		
Placards Required	Corrosive, UN1830 (>51%), UN2796 (<=51%)		
Reportable Quantity	See Regulatory Information (Section 15)		

General Transportation Information for Non-Bulk Shipments

Proper Shipping Name	Sulfuric Acid		
Hazard Class	8	UN/NA Code	UN1830, UN2796
Packaging Group	PG II		
Labels Required	Corrosive		
Placards Required	Corrosive, UN1830 (>51%), UN2796 (<=51%)		
Reportable Quantity	See Regulatory Information (Section 15)		

The above description may not cover shipping in all cases, please consult 49 CFR 172.101 for specific shipping information.

15 REGULATORY INFORMATION

FEDERAL REGULATIONS

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

This product, as supplied, contains sulfuric acid, a Hazardous Substance as per 40 CFR Part 302.4 and an Extremely Hazardous Substance as per 40 CFR Part 355. The reportable quantity for sulfuric acid is 1000 pounds. Any release of this product equal to or exceeding the reportable quantity must be reported to the National Response Center (800-424-8802) and appropriate state and local regulatory agencies as described in 40 CFR Part 302.6 and 40 CFR 355.40, respectively. Failure to report may result in substantial civil and criminal penalties. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations.

This product contains one or more components designated as hazardous substances or toxic pollutants pursuant to the Federal Clean Water Act (40 CFR 116.4 Table A; 40 CFR 401.15). Any unpermitted introduction of this product into a facility stormwater or wastewater discharge may constitute a violation of the Clean Water Act. Facilities must notify the appropriate permitting agency prior to introducing this product into the aforementioned discharges.

This product contains one or more substances listed as hazardous, toxic or flammable air pollutants under Section 112 of the Clean Air Act.

There may be specific regulations at the local, regional or state/provincial level that pertain to this product.

STATE REGULATIONS

Based on available information this product does not contain any components or chemicals currently known to the State of California to cause cancer, birth defects or reproductive harm at levels which would be subject to Proposition 65. Reformulation, use or processing of this product may affect its composition and require re-evaluation.

SARA TITLE III RATINGS

Immediate Hazard:	X	Delayed Hazard:	X	Fire Hazard:	-	Pressure Hazard:	
Reactivity Hazard:	X						

NFPA RATINGS

Health	3	Flammability	0	Reactivity	2	Special Hazards	W

HMIS RATINGS

Health	3*	Flammability	0	Reactivity	2

Following Ingredients of this product are listed in SARA313

SARA Listed Ingredient Name	CAS Number	Maximum %
SULFURIC ACID	7664-93-9	100.0

16 OTHER INFORMATION

DISCLAIMER

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, MSDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

Current Revision Date 23-Apr-2002 Replaces Sheet Dated 19-Apr-2002

Completed By Safety & Emergency Response, Koch Industries, Inc.

MSDS Number: **S4034** * * * * * *Effective Date: 05/04/07* * * * * * *Supercedes: 07/07/04*

MSDS Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865

Mallinckrodt CHEMICALS | J.T.Baker

24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

SODIUM HYDROXIDE

1. Product Identification

Synonyms: Caustic soda; lye; sodium hydroxide solid; sodium hydrate
CAS No.: 1310-73-2
Molecular Weight: 40.00
Chemical Formula: NaOH
Product Codes:
J.T. Baker: 1508, 3717, 3718, 3721, 3722, 3723, 3728, 3734, 3736, 5045, 5565
Mallinckrodt: 7001, 7680, 7708, 7712, 7772, 7798

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Sodium Hydroxide	1310-73-2	99 - 100%	Yes

3. Hazards Identification

Emergency Overview

POISON! DANGER! CORROSIVE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES BURNS TO ANY AREA OF CONTACT. REACTS WITH WATER, ACIDS AND OTHER MATERIALS.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 4 - Extreme (Poison)
Flammability Rating: 0 - None
Reactivity Rating: 2 - Moderate
Contact Rating: 4 - Extreme (Corrosive)
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: White Stripe (Store Separately)

Potential Health Effects

Inhalation:
Severe irritant. Effects from inhalation of dust or mist vary from mild irritation to serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may include sneezing, sore throat or runny nose. Severe pneumonitis may occur.
Ingestion:
Corrosive! Swallowing may cause severe burns of mouth, throat, and stomach. Severe scarring of tissue and death may result. Symptoms may include bleeding, vomiting, diarrhea, fall in blood pressure. Damage may appear days after exposure.
Skin Contact:
Corrosive! Contact with skin can cause irritation or severe burns and scarring with greater exposures.
Eye Contact:
Corrosive! Causes irritation of eyes, and with greater exposures it can cause burns that may result in permanent impairment of vision, even blindness.
Chronic Exposure:
Prolonged contact with dilute solutions or dust has a destructive effect upon tissue.
Aggravation of Pre-existing Conditions:
Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

---

4. First Aid Measures

Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
Ingestion:
DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Skin Contact:
Immediately flush skin with plenty of water for at least 15 minutes while removing

contaminated clothing and shoes. Call a physician, immediately. Wash clothing before reuse.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:
Perform endoscopy in all cases of suspected sodium hydroxide ingestion. In cases of severe esophageal corrosion, the use of therapeutic doses of steroids should be considered. General supportive measures with continual monitoring of gas exchange, acid-base balance, electrolytes, and fluid intake are also required.

5. Fire Fighting Measures

Fire:
Not considered to be a fire hazard. Hot or molten material can react violently with water. Can react with certain metals, such as aluminum, to generate flammable hydrogen gas.

Explosion:
Not considered to be an explosion hazard.

Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire. Adding water to caustic solution generates large amounts of heat.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal.
US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Always add the caustic to water while stirring; never the reverse. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product. Do not store with aluminum or magnesium. Do not mix with acids or organic materials.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
- OSHA Permissible Exposure Limit (PEL):
2 mg/m3 Ceiling
- ACGIH Threshold Limit Value (TLV):
2 mg/m3 Ceiling

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:
White, deliquescent pellets or flakes.

Odor:
Odorless.

Solubility:

111 g/100 g of water.
Specific Gravity:
2.13
pH:
13 - 14 (0.5% soln.)
% Volatiles by volume @ 21C (70F):
0
Boiling Point:
1390C (2534F)
Melting Point:
318C (604F)
Vapor Density (Air=1):
> 1.0
Vapor Pressure (mm Hg):
Negligible.
Evaporation Rate (BuAc=1):
No information found.

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Very hygroscopic. Can slowly pick up moisture from air and react with carbon dioxide from air to form sodium carbonate.
Hazardous Decomposition Products:
Sodium oxide. Decomposition by reaction with certain metals releases flammable and explosive hydrogen gas.
Hazardous Polymerization:
Will not occur.
Incompatibilities:
Sodium hydroxide in contact with acids and organic halogen compounds, especially trichloroethylene, may causes violent reactions. Contact with nitromethane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas. Sodium hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce carbon monoxide. Precautions should be taken including monitoring the tank atmosphere for carbon monoxide to ensure safety of personnel before vessel entry.
Conditions to Avoid:
Moisture, dusting and incompatibles.

11. Toxicological Information

Irritation data: skin, rabbit: 500 mg/24H severe; eye rabbit: 50 ug/24H severe; investigated as a mutagen.

--------\Cancer Lists\----------

Ingredient	---NTP Carcinogen--- Known	Anticipated	IARC Category
Sodium Hydroxide (1310-73-2)	No	No	None

12. Ecological Information

Environmental Fate:
No information found.
Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: SODIUM HYDROXIDE, SOLID
Hazard Class: 8
UN/NA: UN1823
Packing Group: II
Information reported for product/size: 300LB

International (Water, I.M.O.)

Proper Shipping Name: SODIUM HYDROXIDE, SOLID
Hazard Class: 8
UN/NA: UN1823
Packing Group: II
Information reported for product/size: 300LB

15. Regulatory Information

--------\Chemical Inventory Status - Part 1\--------

Ingredient	TSCA	EC	Japan	Australia
Sodium Hydroxide (1310-73-2)	Yes	Yes	Yes	Yes

Ingredient	Korea	Canada DSL	Canada NDSL	Canada Phil.
Sodium Hydroxide (1310-73-2)	Yes	Yes	No	Yes

Ingredient	SARA 302 RQ	SARA 302 TPQ	SARA 313 List	SARA 313 Chemical Catg.
Sodium Hydroxide (1310-73-2)	No	No	No	No

Ingredient	CERCLA	RCRA 261.33	TSCA 8(d)
Sodium Hydroxide (1310-73-2)	1000	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
Reactivity: Yes (Pure / Solid)

Australian Hazchem Code: 2R
Poison Schedule: S6
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 3 Flammability: 0 Reactivity: 1
Label Hazard Warning:
POISON! DANGER! CORROSIVE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES BURNS TO ANY AREA OF CONTACT. REACTS WITH WATER, ACIDS AND OTHER MATERIALS.
Label Precautions:
Do not get in eyes, on skin, or on clothing.
Do not breathe dust.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.
Label First Aid:
If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and

shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately.

Product Use:
Laboratory Reagent.

Revision Information:
No Changes.

Disclaimer:
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Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)

SAFETY DATA SHEET

ABC 3 ANTIFOULING

AMERON INTERNATIONAL

1. Identification of the preparation and of the company

Product name	: ABC 3 ANTIFOULING
SDS no.	: M-V0283SA
Area of application	For professional use only.
Product use	: TIN FREE SELF POLISHING ANTIFOULING
Supplier/Manufacturer	: Ameron B.V. Performance Coatings & Finishes J.F Kennedylaan 7 P.O. Box 6, 4190 CA, Geldermalsen The Netherlands
Telephone no.	: +(31) 345 587 587
Fax no.	: +(31) 345 587 551
Emergency telephone number	: +(31) 345 587 587

2. Composition/information on ingredients

Substances presenting a health or environmental hazard within the meaning of the Dangerous Substances Directive 67/548/EEC.

Chemical name*	CAS number	%	EC number	Classification
dicopper oxide	1317-39-1	25 - 50	215-270-7	Xn; R22 N; R50/53
zinc oxide	1314-13-2	10 - 25	215-222-5	N; R50/53
Colophony	8050-09-7	2.5 - 10	232-475-7	R43
2-Methylpropan-1-ol	78-83-1	2.5 - 10	201-148-0	R10 Xi; R37/38, R41 R67
Xylene	1330-20-7	2.5 - 10	215-535-7	R10 Xn; R20/21 Xi; R38
ziram (ISO)	137-30-4	2.5 - 10	205-288-3	T+; R26 Xn; R22, R48/22 Xi; R37, R41 R43 N; R50/53
Ethylbenzene	100-41-4	1 - 2.5	202-849-4	F; R11 Xn; R20

See section 16 for the full text of the R-phrases declared above

Occupational exposure limits, if available, are listed in section 8.

3. Hazards identification

The preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification	: R10 T; R23 Xn; R22 Xi; R41 R43 N; R50/53
Physical/chemical hazards	: Flammable.
Human health hazards	: Harmful if swallowed. Toxic by inhalation. Risk of serious damage to eyes. May cause sensitisation by skin contact.
Environmental hazards	: Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

4. First-aid measures

First-aid measures

General	:	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.
Inhalation	:	Remove to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Give nothing by mouth. If unconscious, place in recovery position and seek medical advice.
Skin contact	:	Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Do not use solvents or thinners.
Eye contact	:	Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open.
Ingestion	:	If swallowed, seek medical advice immediately and show the container or label. Keep person warm and at rest. Do not induce vomiting.

5. Fire-fighting measures

Extinguishing media	:	Recommended: alcohol-resistant foam, CO_2, powders, water spray. Not to be used: water jet.
Recommendations	:	Fire will produce dense black smoke. Exposure to decomposition products may cause a health hazard. Appropriate breathing apparatus may be required. Cool closed containers exposed to fire with water. Do not release runoff from fire to sewers or waterways.

6. Accidental release measures

Personal precautions	:	Exclude sources of ignition and ventilate the area. Avoid breathing vapour or mist. Refer to protective measures listed in sections 7 and 8.
Spill	:	Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Do not allow to enter drains or watercourses. Preferably clean with a detergent. Avoid using solvents. If the product contaminates lakes, rivers, or sewers, inform the appropriate authorities in accordance with local regulations.

Note: see section 8 for personal protective equipment and section 13 for waste disposal.

7. Handling and storage

Handling : Vapours are heavier than air and may spread along floors. Vapours may form explosive mixtures with air. Prevent the creation of flammable or explosive concentrations of vapours in air and avoid vapour concentrations higher than the occupational exposure limits.

In addition, the product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Electrical equipment should be protected to the appropriate standard.

To dissipate static electricity during transfer, earth drum and connect to receiving container with bonding strap. Operators should wear antistatic footwear and clothing and floors should be of the conducting type.

Keep container tightly closed. Keep away from heat, sparks and flame. No sparking tools should be used.

Avoid contact with skin and eyes. Avoid the inhalation of dust, particulates, spray or mist arising from the application of this preparation. Avoid inhalation of dust from sanding.

Eating, drinking and smoking should be prohibited in area where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking.

Put on appropriate personal protective equipment (see section 8).

Never use pressure to empty. Container is not a pressure vessel. Always keep in containers made from the same material as the original one.

Comply with the health and safety at work laws.

7. Handling and storage

ventilation is unlikely to be sufficient to control particulates and solvent vapour in all cases. In such circumstances they should wear a compressed air-fed respirator during the spraying process and until such time as the particulates and solvent vapour concentration has fallen below the exposure limits.

Storage : Store in accordance with local regulations. Observe label precautions. Store between 5 to 40°C (41 to 104°F). Store in a cool, well-ventilated area away from incompatible materials and ignition sources.

Keep away from: oxidising agents, strong alkalis, strong acids.
No smoking. Prevent unauthorised access. Containers that have been opened must be carefully resealed and kept upright to prevent leakage.
Do not empty into drains..

8. Exposure controls/personal protection

Engineering measures : Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and solvent vapours below the OEL, suitable respiratory protection must be worn.

Ingredient name	Occupational exposure limits
2-Methylpropan-1-ol	EH40-WEL (United Kingdom (UK), 1/2005). STEL: 231 mg/m³ 15 minute/minutes. Form: All forms STEL: 75 ppm 15 minute/minutes. Form: All forms TWA: 154 mg/m³ 8 hour/hours. Form: All forms TWA: 50 ppm 8 hour/hours. Form: All forms
Xylene	EH40-WEL (United Kingdom (UK), 1/2005). Skin STEL: 441 mg/m³ 15 minute/minutes. Form: All forms STEL: 100 ppm 15 minute/minutes. Form: All forms TWA: 220 mg/m³ 8 hour/hours. Form: All forms TWA: 50 ppm 8 hour/hours. Form: All forms
Ethylbenzene	EH40-WEL (United Kingdom (UK), 1/2005). Skin STEL: 552 mg/m³ 15 minute/minutes. Form: All forms STEL: 125 ppm 15 minute/minutes. Form: All forms TWA: 441 mg/m³ 8 hour/hours. Form: All forms TWA: 100 ppm 8 hour/hours. Form: All forms

Personal protective equipment

Respiratory system : If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators.

Dry sanding, flame cutting and/or welding of the dry paint film will give rise to dust and/or hazardous fumes. Wet sanding/flatting should be used wherever possible. If exposure cannot be avoided by the provision of local exhaust ventilation, suitable respiratory protective equipment should be used.

Skin and body : Personnel should wear antistatic clothing made of natural fibres or of high-temperature-resistant synthetic fibres.

Hands

Gloves : For prolonged or repeated handling, use gloves: nitrile.

Barrier creams may help to protect the exposed areas of the skin but should not be applied once exposure has occurred.

The user must check that the final choice of type of glove selected for handling this product is the most appropriate and takes into account the particular conditions of use, as included in the user's risk assessment.

Eyes : Use safety eyewear designed to protect against splash of liquids.

Environmental exposure controls

Do not allow to enter drains or watercourses.

9. Physical and chemical properties

Physical state : Liquid.

Odour : Solvent.

Colour :

Flash point : Closed cup: 25°C (77°F). (Setaflash.)

Viscosity : 100 - 120 KU @ 25°C ASTM D-562

Relative density : 1.95 g/cm³ (25°C / 77°F)

Vapour density : 2.6 [Air = 1]

9. Physical and chemical properties

Vapour pressure : 10.7 kPa (80.3 mm Hg) (at 20°C)

Solubility : Insoluble in cold water, hot water.

Auto-ignition temperature : The lowest known value is 414.85°C (778.7°F) (2-Methylpropan-1-ol).

10. Stability and reactivity

Stable under recommended storage and handling conditions (see section 7).

Hazardous decomposition products: carbon monoxide, carbon dioxide, smoke, oxides of nitrogen.

Keep away from the following materials to prevent strong exothermic reactions: oxidising agents, strong alkalis, strong acids.

11. Toxicological information

There is no data available on the preparation itself. The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and classified for toxicological hazards accordingly. See sections 2 and 15 for details.

Exposure to component solvent vapour concentrations in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on the kidneys, liver and central nervous system. Solvents may cause some of the above effects by absorption through the skin. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, loss of consciousness. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin, resulting in non-allergic contact dermatitis and absorption through the skin. If splashed in the eyes, the liquid may cause irritation and reversible damage.

Contains (Colophony, ziram (ISO)). May produce an allergic reaction.

12. Ecological information

There is no data available on the preparation itself.
Do not allow to enter drains or watercourses.

The preparation has been assessed following the conventional method of the Dangerous Preparations Directive 1999/45/EC and is classified for eco-toxicological properties accordingly. See Sections 2 and 15 for details.

Ecotoxicity data

Product/ingredient name	Species	Period	Result
zinc oxide	Daphnia magna (EC50)	48 hour/hours	>1000 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	1.1 mg/l
2-Methylpropan-1-ol	Lepomis macrochirus (LC50)	96 hour/hours	>320 mg/l
	Pimephales promelas (LC50)	96 hour/hours	2246 mg/l
	Scenedesmus subspicatus (EC50)	48 hour/hours	230 mg/l
	Daphnia pulex (EC50)	48 hour/hours	1100 mg/l
	Scenedesmus subspicatus (EC50)	48 hour/hours	1250 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	1330 mg/l
	Pimephales promelas (LC50)	96 hour/hours	1430 mg/l
	Pimephales promelas (LC50)	96 hour/hours	1510 mg/l
Xylene	Oncorhynchus mykiss (LC50)	96 hour/hours	3.3 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	8.2 mg/l
	Lepomis macrochirus (LC50)	96 hour/hours	8.6 mg/l
	Lepomis macrochirus (LC50)	96 hour/hours	12 mg/l
	Lepomis macrochirus (LC50)	96 hour/hours	13.3 mg/l
	Pimephales promelas (LC50)	96 hour/hours	13.4 mg/l
ziram (ISO)	Daphnia magna (EC50)	48 hour/hours	0.048 mg/l
	Pimephales promelas (LC50)	96 hour/hours	0.008 mg/l
	Lepomis macrochirus (LC50)	96 hour/hours	0.0097 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	0.27 mg/l
	Poecilia reticulata (LC50)	96 hour/hours	0.75 mg/l

12. Ecological information

Ethylbenzene	(LC50)		
	Daphnia magna (EC50)	48 hour/hours	2.93 mg/l
	Daphnia magna (EC50)	48 hour/hours	2.97 mg/l
	Selenastrum capricornutum (EC50)	48 hour/hours	7.2 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	4.2 mg/l
	Pimephales promelas (LC50)	96 hour/hours	9.09 mg/l
	Poecilia reticulata (LC50)	96 hour/hours	9.6 mg/l

13. Disposal considerations

Do not allow to enter drains or watercourses.
Dispose of according to all federal, state and local applicable regulations.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

14. Transport information

Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Land - road/railway

UN number	: UN1263
Transport document name	: Paint.
Special provision 640	: E
ADR/RID Class	: 3
Hl/Kemler number	: 30
Packing group	: III
ADR/RID Label	: Exempted according to 2.2.3.1.5 (Viscous substance exemption)

Sea

UN number	: UN1263
Proper shipping name	: Paint.
IMDG Class	: 3
Packing group	: III
IMDG Label	: Exempted according to 2.3.2.5 (Viscous substance exemption)

Marine pollutant	: No.
Emergency schedules (EmS)	: F-E, S-E

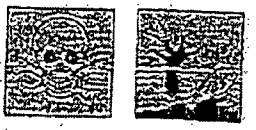
Air

UN number	: UN1263
Proper shipping name	: Paint.
ICAO/IATA Classification	: 3
Packing group	: III
ICAO/IATA label	:

15. Regulatory information

EU regulations : The product is classified and labelled for supply in accordance with the Directive 1999/45/EC as follows:

Hazard symbol/symbols :



Toxic, Dangerous for the environment.

Risk phrases : R10- Flammable.
R23- Toxic by inhalation.
R22- Harmful if swallowed.
R41- Risk of serious damage to eyes.
R43- May cause sensitisation by skin contact.
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases : S23- Do not breathe vapour / spray.
S24- Avoid contact with skin.
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39- Wear suitable gloves and eye/face protection.
S38- In case of insufficient ventilation, wear suitable respiratory equipment.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Contains : dicopper oxide
Colophony
ziram (ISO)

Industrial use : The information contained in this safety data sheet does not constitute the user's own assessment of workplace risks, as required by other health and safety legislation. The provisions of the national health and safety at work regulations apply to the use of this product at work.

This product does not contain organotin compounds acting as biocides and complies with the International Convention on the Control of Harmful Anti-fouling Systems as adopted by IMO in October 2001 (IMO document AFS/CONF/26)

Type of Antifouling System: Tin free self-polishing
Name of manufacturer: Ameron International
Name of paint: ABC3 Antifouling
Note: This name is shown on the product container. All Ameron International product containers carrying this name, comply with the IMO Convention (AFS/CONF/26). This applies to all colours of this product.
Active ingredient(s): Ziram (CAS no. 137-30-4)
Dicopperoxide (CAS no. 1317-39-1)

16. Other information

CEPE Classification : 1

Full text of R-phrases referred to in sections 2 and 3 - United Kingdom (UK) : R1- Highly flammable.
R10- Flammable.
R26- Very toxic by inhalation.
R23- Toxic by inhalation.
R20- Harmful by inhalation.
R20/21- Harmful by inhalation and in contact with skin.
R22- Harmful if swallowed.
R48/22- Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R37- Irritating to respiratory system.
R37/38- Irritating to respiratory system and skin.
R38- Irritating to skin.
R41- Risk of serious damage to eyes.
R43- May cause sensitisation by skin contact.
R67- Vapours may cause drowsiness and dizziness.
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

The information in this Safety Data Sheet is required pursuant to EU Directive 91/155/EEC and its amendments.

Date of printing : 2/2/2006.

Date of Issue : 1/17/2006.

16. Other information

Notice to reader

The information in this SDS is based on the present state of our knowledge and on current laws. The product is not to be used for purposes other than those specified under section 1 without first obtaining written handling instructions. It is always the responsibility of the user to take all necessary steps to fulfil the demands set out in the local rules and legislation. The information in this SDS is meant to be a description of the safety requirements for our product. It is not to be considered a guarantee of the product's properties.