



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

June 2, 2009  
NOC-AE-09002433  
STI: 32479342

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852

South Texas Project  
Units 1 and 2  
Docket Nos. STN 50-498 and STN 50-499  
TPDES Permit Renewal Application 01908

Please find attached a copy of the Renewal Application for the South Texas Project TPDES Permit No. 01908.

Appendix B of the South Texas Project Operating License requires the NRC be provided a copy of the application for renewal of the TPDES Permit at the same time the application is submitted to the permitting agency.

There are no commitments in this letter.

If you should have any questions on this matter, please contact me at (361) 972-8328.

A handwritten signature in black ink, appearing to read "S. L. Dannhardt".

S. L. Dannhardt  
Manager, Environmental

MK

Attachment: TPDES Permit Renewal Application for TPDES Permit No. 01908

COOL  
NRR

**STP Nuclear Operating Company  
South Texas Project Electric  
Generating Station  
TPDES Application 2009  
Permit 01908**

cc:  
(paper copy)

Regional Administrator, Region IV  
U. S. Nuclear Regulatory Commission  
612 East Lamar Blvd, Suite 400  
Arlington, Texas 76011-4125

Mohan C. Thadani  
Senior Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint North (MS 7 D1)  
11555 Rockville Pike  
Rockville, MD 20852

Senior Resident Inspector  
U. S. Nuclear Regulatory Commission  
P. O. Box 289, Mail Code: MN116  
Wadsworth, TX 77483

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852

C. M. Canady  
City of Austin  
Electric Utility Department  
721 Barton Springs Road  
Austin, TX 78704

(electronic copy)

A. H. Gutterman, Esquire  
Morgan, Lewis & Bockius LLP

Mohan C. Thadani  
U. S. Nuclear Regulatory Commission

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NRG South Texas LP

Ed Alarcon  
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Jon C. Wood  
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Richard A. Ratliff  
Texas Department of State Health  
Services

Alice Rogers  
Texas Department of State Health  
Services

**STP Nuclear Operating Company  
South Texas Project Electric Generating Station  
TPDES Application 2009  
Permit 01908**

**Application Contents**

- Copy of application fee check
- Administrative Report 1.0
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**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

**INDUSTRIAL WASTEWATER PERMIT APPLICATION**

**SUBMISSION CHECKLIST - SUBMIT THIS WITH THE APPLICATION  
DO NOT SUBMIT THE INSTRUCTIONS WITH THE APPLICATION**

**INDICATE IF THE FOLLOWING ARE INCLUDED IN THE APPLICATION. ADDITIONAL BLANK SPACES PROVIDED FOR REFERENCING APPLICANT'S ATTACHMENTS TO THE APPLICATION.**

<b>WORKSHEET</b>	<b>Y</b>	<b>N</b>	<b>WORKSHEET</b>	<b>Y</b>	<b>N</b>
ADMINISTRATIVE REPORT 1.0	✓		WORKSHEET 7.0		✓
ADMINISTRATIVE REPORT 1.1		✓	WORKSHEET 8.0		✓
SPIF	✓		WORKSHEET 9.0		✓
TECHNICAL REPORT 1.0	✓		WORKSHEET 10.0		✓
WORKSHEET 1.0	✓		ORIGINAL USGS MAP	✓	
WORKSHEET 2.0	✓		AFFECTED LANDOWNER MAP		✓
WORKSHEET 3.0		✓	LANDOWNER DISK OR LABELS		✓
WORKSHEET 3.1		✓	COPY OF APPLICATION FEE CHECK	✓	
WORKSHEET 3.2		✓	ALL FEES OWED TCEQ ARE PAID	✓	
WORKSHEET 3.3		✓	FLOW DIAGRAM	✓	
WORKSHEET 4.0	✓		SITE DRAWING	✓	
WORKSHEET 4.1		✓	ORIGINAL PHOTOGRAPHS		✓
WORKSHEET 5.0	✓		SOLIDS MANAGEMENT PLAN		✓
WORKSHEET 6.0		✓	WATER BALANCE	✓	

**Note: Worksheet 11.0 Cooling Water Intake Structures is also included.**  
Please indicate by a check mark the amount submitted for the application fee:

<b>EPA Classification</b>	<b>New</b>	<b>Major Amend.</b>	<b>Renewal</b>	<b>Minor Amend./Mod.</b>
Minor facility not subject to categorical standards promulgated by the EPA (40 CFR Part 400-471)	_____ \$350	_____ \$350	_____ \$315	_____ \$150
Minor facility subject to categorical standards promulgated by the EPA (40 CFR Part 400-471)	_____ \$1,250	_____ \$1,250	_____ \$1,215	_____ \$150
Major facility	N/A *	\$2,050	✓ \$2,015	\$450

\* All facilities are designated as minors until formerly classified as a major by EPA.

**A COPY OF THE CHECK MUST BE SUBMITTED AS PART OF THE APPLICATION**

<b>For Commission Use Only:</b>	
Segment Number _____	County _____
Expiration Date _____	Region _____
Proposed/Current Permit Number _____	

ADMINISTRATIVE REPORT 1.0 - INDUSTRIAL

**THE FOLLOWING IS REQUIRED FOR ALL APPLICATIONS, RENEWAL, NEW AND AMENDMENT. The instructions MUST BE FOLLOWED while completing the application. Failure to do so will result in significant delays in the processing of the application.**

Type of application: (check all that apply)

- New TPDES
- Major amendment to existing permit
- Renewal of existing permit
- Storm water only discharges
- New TLAP
- Minor modification to permit
- Minor amendment to permit

If applying for an amendment/modification to a permit, briefly describe the reason for the proposed amendment.

- 1) Remove Item 14 from the Other Requirements of the permit because it refers to regulations for cooling water intake structures that do not apply to the closed-cycle recirculating system at the facility.
- 2) Remove Item 15 from the Other Requirements of the permit because wastewater characterization data are provided with this application.
- 3) Add storm water to Outfalls 101, 401, 501, and 601.
- 4) Add uncontaminated groundwater to Outfall 001.
- 5) Allow DPD method for total residual chlorine in Item 5 in the Other Requirements of the permit.

**1. APPLICANT INFORMATION** (Instructions, Page 14)

a. Facility owner\*: STP Nuclear Operating Company

\* Owner of the facility must apply for the permit

Charter Number (issued by the Texas Secretary of State): 1459553-01

Mailing address for use on the permit and permit correspondence:

Street No. \_\_\_\_\_ Street Name: \_\_\_\_\_ Street Type: \_\_\_\_\_

P.O. Box: 289 City: Wadsworth State: TX ZIP Code: 77483

Telephone Number: (361)972-8328

Tax Identification Number issued by the State Comptroller: 1-76-0517597-9

Check one:  The TCEQ has issued this Customer Reference Number to the owner. CN: 601658669

The owner has not yet received a Customer Reference Number. A completed Core Data Form (TCEQ-10400) listing the owner as a customer and this facility as the regulated entity is attached to this application.

**b. Co-Permittee information** (complete only if the operator must be a co-permittee)

Facility operator: n/a

Charter Number (issued by the Texas Secretary of State): \_\_\_\_\_

Mailing address for use on the permit and permit correspondence:

Street No. \_\_\_\_\_ Street Name: \_\_\_\_\_ Street Type: \_\_\_\_\_

P.O. Box: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_

Telephone Number: \_\_\_\_\_ Date of Birth: \_\_\_\_\_

Tax Identification Number issued by the State Comptroller: \_\_\_\_\_

Check one:  The TCEQ has issued this Customer Reference Number to the owner. CN: \_\_\_\_\_

The owner has not yet received a Customer Reference Number. A completed Core Data Form (TCEQ-10400) listing the owner as a customer and this facility as the regulated entity is attached to this application.

Provide a brief description as to the need for a co-permittee.

n/a

**c. Individual information** (complete only if the facility owner or co-permittee is an individual)

Name: n/a Check one:  Male  Female

State Identification Number: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Assumed business or professional name: \_\_\_\_\_

Home Address: \_\_\_\_\_

Street No. \_\_\_\_\_ Street Name: \_\_\_\_\_ Street Type: \_\_\_\_\_

P.O. Box: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Business name: \_\_\_\_\_

Check one:  The TCEQ has issued this Customer Reference Number to this person. CN: \_\_\_\_\_

This person has not yet received a Customer Reference Number. A completed Core Data Form (TCEQ-10400) listing this person as a customer and this facility as the regulated entity is attached to this application.

**2. CONTACT INFORMATION** (Instructions, Pages 15)

Name: S.L. Dannhardt Company: STP Nuclear Operating Company

Telephone number: (361) 972-8328 Fax number: (361) 972-7760 E-Mail: sldannhardt@STPEGS.COM

Street No. \_\_\_\_\_ Street name: \_\_\_\_\_ Street type: \_\_\_\_\_

P.O. Box: 289 City: Wadsworth State: TX ZIP code: 77483

Check one or more:  Administrative contact  Technical contact

Name: n/a Company: \_\_\_\_\_

Telephone number: \_\_\_\_\_ Fax number: \_\_\_\_\_ E-Mail: \_\_\_\_\_

Street No. \_\_\_\_\_ Street name: \_\_\_\_\_ Street type: \_\_\_\_\_

P.O. Box: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP code: \_\_\_\_\_

Check one or more:  Administrative contact  Technical contact

**3. NOTICE INFORMATION** (Instructions, Page 15)

**a. Individual publishing the notices**

Name: S.L. Dannhardt Telephone number: (361) 972-8328

Company: STP Nuclear Operating Company Fax number: (361) 972-7760

Street No: \_\_\_\_\_ Street name: \_\_\_\_\_ Street type: \_\_\_\_\_

P.O. Box: 289 City: Wadsworth State: TX ZIP code: 77483

**b. Method of receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package and Instructions**  
(Check one)

E-mail: E-mail address: sldannhardt@STPEGS.COM  
 Fax: Fax number: \_\_\_\_\_  
 Overnight/Priority mail: (self addressed, prepaid envelope required)  
 Regular Mail: Street No. \_\_\_\_\_ Street name: \_\_\_\_\_  
Street type: \_\_\_\_\_ P.O. Box: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP code: \_\_\_\_\_

**c. Contact in the notice**

Name: S.L. Dannhardt Telephone number: (361) 972-8328  
Company: STP Nuclear Operating Company Fax number: (361) 972-7760  
Street No. \_\_\_\_\_ Street name: \_\_\_\_\_ Street type: \_\_\_\_\_  
P.O. Box: 289 City: Wadsworth State: TX ZIP code: 77483

**d. Public place information**

(If the facility and/or outfall is located in more than one county, a public viewing place for each county must be provided.)

Location of public building: Matagorda County Courthouse  
Public building name: Matagorda County Courthouse  
Street No. 1700 Street name: 7th Street type: Street  
City: Bay City County: Matagorda State: TX ZIP Code: 77414

**e. Bilingual Notice Requirements:**

**FOR NEW PERMIT APPLICATIONS, MAJOR AMENDMENT AND RENEWAL APPLICATIONS**  
(Not applicable for minor amendment or minor modification applications.)

Please call the bilingual/ESL coordinator for the nearest elementary and middle schools and obtain the following information to determine if an alternative language notice is required:

1. Is a bilingual education program required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility?  
\_\_\_\_ Yes  No (If No, alternative language notice publication is not required; skip to item 4.  
FACILITY INFORMATION.)
2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?  
\_\_\_\_ Yes \_\_\_\_ No
3. Do the students at these schools attend a bilingual education program at another location?  
\_\_\_\_ Yes \_\_\_\_ No
4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC Section 89.1205(g)?  
\_\_\_\_ Yes \_\_\_\_ No



5. If the answer is yes to either 2, 3, or 4, public notice in an alternative language is required. Which language is required by the bilingual program?

Name of language: \_\_\_\_\_

(Complete instructions on publishing the alternative language notice will be available in your full public notice package. This section of the application is only used to determine if alternative language notice will be needed.)

**4. FACILITY INFORMATION** (Instructions, Page 16)

a. State/TPDES Permit No. 01908 Expiration date: December 1, 2009

EPA ID. No. TX0064947 Expiration date: n/a

Check one:  The TCEQ has issued this Regulated Entity Reference Number for this facility. RN: 102395654

No Regulatory Entity Reference Number has been received for this facility. One or more completed Core Data Forms (TCEQ-10400) listing this facility as the regulated entity is attached to this application.

b. Plant Name: South Texas Project Electric Generating Station

County in which the facility is located: Matagorda

County in which the outfall is located: Matagorda

ZIP code in which the facility is located: 77483

c. Owner of treatment plant: STP Nuclear Operating Company\* (see note below)

Street No. \_\_\_\_\_ Street name: P.O. Box 289 Street type: \_\_\_\_\_

City: Wadsworth State: TX ZIP code: 77483

d. Owner of land where treatment plant is/will be: STP Nuclear Operating Company\*

(If not the same as the facility owner, there must be a long term lease agreement in effect for at least six years. In some cases, a lease may not suffice - see instructions.)

Street No. \_\_\_\_\_ Street name: P.O. Box 289 Street type: \_\_\_\_\_

City: Wadsworth State: TX ZIP code: 77483

e. Ownership of effluent disposal site: n/a

(If not the same as the facility owner, there must be a long term lease agreement in effect for at least six years.)

Street No. \_\_\_\_\_ Street name: \_\_\_\_\_ Street type: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP code: \_\_\_\_\_

f. Owner of sewage sludge disposal site: n/a

(Required only if authorization is being sought in the permit for sludge disposal on property owned/controlled by the applicant.)

Street No. \_\_\_\_\_ Street name: \_\_\_\_\_ Street type: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP code: \_\_\_\_\_

**5. LOCATION INFORMATION** (Instructions, Pages 17-18)

a. Is the location of the facility used in the existing permit correct:  Yes  No

Provide an address for the facility, if available (address must be validated through the US Postal Service or your local police (911 service) as a valid address. If the location description is not accurate or this is a new permit application, please provide an accurate description.

If no, or a new permit application, please give an accurate description:

n/a

b. Is the point of discharge and discharge route in the existing permit correct:  Yes  No

If no, or a new or amendment permit application, please give an accurate description:

n/a

c. If a TLAP, is the location of the effluent disposal in the existing permit accurate:  Yes  No

If no, or a new or amendment permit application, please give an accurate description:

n/a

d. If a TLAP, provide the flow of effluent from the treatment facility to the effluent disposal site.

n/a

e. For TLAP applications, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: n/a

f. Is the location of the sewage sludge disposal site in the existing permit accurate:  Yes  No

If no, or a new permit application, please give an accurate description:

n/a

g. Provide an **original** USGS Map with all required information. Indicate by a check mark that the information is provided. **See USGS maps (4): Blessing SE, Palacios NE, Wadsworth, Matagorda; and Water Well Report.**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Applicant's property boundary                      | <input checked="" type="checkbox"/> Treatment plant boundaries  |
| <input checked="" type="checkbox"/> Point of discharge and highlighted discharge route | <input type="checkbox"/> Effluent disposal site boundaries      |
| <input checked="" type="checkbox"/> All ponds  | <input type="checkbox"/> Sewage sludge disposal site            |
| <input checked="" type="checkbox"/> 1 mile radius and 3 miles downstream information   | <input checked="" type="checkbox"/> New and future construction |

h. Is the facility located in Bexar, Comal, Hays, Kinney, Medina, Travis, Uvalde, or Williamson County?

Yes  No

If yes, additional information concerning protection of the Edwards Aquifer may be required.

i. Identify the name and distance to the nearest city from the facility: Wadsworth, 8 miles

j. Is/will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?  Yes  No

If yes, indicate by a check mark if:  Authorization granted  Authorization pending  
For new and amendment permit applications, provide copies of letters that show proof of contact and upon receipt, the approval letter. **Additional USGS maps attached.**

k. Is the facility located on or does the treated effluent cross Indian Land?  Yes  No

6. **MISCELLANEOUS INFORMATION** (Instructions, Page 19)

a. Provide two names of individuals that can be contacted during the permit term.

Name: S.L. Dannhardt Telephone number: (361) 972-8328  
Company: STP Nuclear Operating Company Fax number: (361) 972-7760  
Street No. \_\_\_\_\_ Street name: \_\_\_\_\_ Street type: \_\_\_\_\_  
P.O. Box: 289 City: Wadsworth State: TX ZIP code: 77483

Name: R. A. Gangluff Telephone number: (361) 972-7879  
Company: STP Nuclear Operating Company Fax number: (361) 972-8273  
Street No. \_\_\_\_\_ Street name: \_\_\_\_\_ Street type: \_\_\_\_\_  
P.O. Box: 289 City: Wadsworth State: TX ZIP code: 77483

b. List each person formerly employed by the TCEQ who represented your company and was paid for service regarding the application. n/a

c. For all applications involving an average daily discharge of 5 million gallons per day or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge.

**Matagorda**

d. Please provide the address for receiving self-reporting/DMR forms:

Company: STP Nuclear Operating Company Department: Environmental

Name: S.L. Dannhardt

Street No. \_\_\_\_\_ Street Name: \_\_\_\_\_ Street Type: \_\_\_\_\_

P.O. Box: 289 City: Wadsworth State: TX ZIP code: 77483

Please provide the address for receiving Annual Billing Invoices: \_\_\_\_\_

Company: STP Nuclear Operating Company Department: Environmental

Name: S.L. Dannhardt

Street No. \_\_\_\_\_ Street Name: \_\_\_\_\_ Street Type: \_\_\_\_\_

P.O. Box: 289 City: Wadsworth State: TX ZIP code: 77483

e. Do you owe fees to the TCEQ?

\_\_\_\_\_ Yes  No **Confirmed with TCEQ database, 4-24-09.**

If yes, please provide the amount past due, the type of fee, and an identifying number.

N/A
-----

Do you owe any penalties to the TCEQ?

\_\_\_\_\_ Yes  No **Confirmed with TCEQ database, 4-24-09.**

If yes, please provide the amount past due, the type of penalty, and an identifying number.

N/A
-----

7. SIGNATURE PAGE (Instructions, Page 20)

I, R. A. Gangluff

Chemistry, Environmental and Health  
Physics Manager

*Typed or printed name*

*Title*

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 gathered and evaluated 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 there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.

I further certify that I am authorized under 30 Texas Administrative Code § 305.44 to sign this document and can provide documentation in proof of such authorization upon request.

Signature: *R. A. Gangluff*

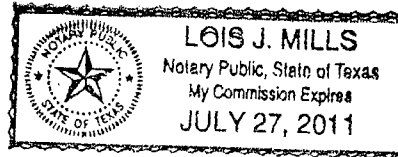
Date: *5/28/09*

Subscribed and Sworn to before me by the said *R. A. Gangluff* on this *28<sup>th</sup>* day of *May*, 20*09*

My commission expires on the *27<sup>th</sup>* day of *July*, 20*11*  
*Lois J. Mills* [SEAL]

Notary Public

*Matagorda*  
County, Texas



NOTE: If co-permittees are necessary, both entities must submit separate Signature Pages.

TCEQ USE ONLY:			
Application type:	_____ Renewal	_____ Major Amendment	_____ Minor Amendment _____ New
County:	_____ Admin Complete Date: _____		
Agency Receiving SPIF:	_____ Texas Historical Commission	_____ U.S. Fish and Wildlife	
	_____ Texas Parks and Wildlife	_____ Army Corps of Engineers	

**8. SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF) (Instructions, Page 20)**

**This form applies to TPDES permit applications only.** The SPIF must be completed as a separate document. The TCEQ will mail a copy of the SPIF to each agency as required by the TCEQ agreement with EPA. If any of the items are not completely addressed and/or further information is needed, you will be contacted to provide the information before the permit is issued. Each item must be completely addressed. **DO NOT REFER TO A RESPONSE OF ANY ITEM IN THE PERMIT APPLICATION FORM.** Each attachment must be provided with this form, separately from the administrative report of the application. The application will not be declared administratively complete without this form being completed in its entirety including all attachments

**The following applies to all applications:**

1. Permittee: STP Nuclear Operating Company
2. Permit No. 01908 (NPDES Permit No./EPA ID No.) TX0064947
3. Address of the project (location description that includes street/highway, city/vicinity, county):  
Located on Farm-to-Market Road 521, approximately 10 miles north of Matagorda Bay and 12 miles south-southwest of the City of Bay City, Matagorda County, Texas.
4. Provide the name, address, telephone and fax number of an individual that can be contacted to answer specific questions about the property:  
Name: S.L. Dannhardt Telephone number: (361) 972-8328  
Company: STP Nuclear Operating Compny Fax number: (361) 972-7760  
Street No.: \_\_\_\_\_ Street name: P.O. 289 Street type: \_\_\_\_\_  
City: Wadsworth State: TX ZIP code: 77483-0289
5. List the county in which the facility is located: Matagorda
6. If the property is publicly owned and the owner is different that the permittee/applicant, please identify the owner of the property: STP Nuclear Operating Company\*
7. Identify the name of the water body (receiving waters) or TCEQ segment number that will receive the discharge: Colorado River Tidal in Segment No. 1401 of the Colorado River Basin

8. Please provide a separate 7.5 minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. (This map is required in addition to the map in the administrative report)

**See USGS maps (Blessing SE, Palacios NE) and aerial photo (South Texas Project).**

9. Please provide original photographs of any structures 50 years or older on the property.

**There are no structures 50 years or older.**

10. Does your project involve any of the following? If yes, circle the appropriate letter.

**Yes.**

- a. Proposed access roads, utility lines, construction easements
- b. Visual effects that could damage or detract from a historic property's integrity
- c. Vibration effects during construction, or as a result of project design
- ✓  d. Additional phases of development that are planned for the future
- e. Sealing caves, fractures, sinkholes, other karst features
- ✓  f. Disturbance of vegetation or wetlands **(vegetation only)**

11. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves or other karst features):

The South Texas Project site has a total of 12,220 acres. Approximately 244 acres will be impacted by the construction and operation of Units 3 and 4. Excavation for Units 3 and 4 will be to a depth of approximately 85 feet. Isolation of the shallow aquifer will be accomplished with a slurry wall during construction. Wetlands and jurisdictional drainage ditches will be protected. There are no caves or karst features onsite.

12. Describe existing disturbances, vegetation & land use

The area surrounding the South Texas Project is characterized by coastal plain with farmland and pasture predominating. Sixty-five of the 12,220 acres are occupied by the two current power plants. Plant facilities include a 7,000-acre cooling reservoir and a 47-acre essential cooling pond. Many smaller bodies of water onsite include wetlands, Kelly Lake, and natural and engineered drainage ditches. Much of the land east of the reservoir is leased for cattle grazing. Approximately 1,700 acres remain in a more natural state as a lowland habitat. A 110-acre wetland habitat was established northeast of the power plants.

**The following applies only to applications for New TPDES permits and Major Amendments to TPDES Permits**

13. List construction dates of any buildings or structures on the property:

n/a

14. Provide a brief history of the property, and name of the architect/builder, if known:

n/a

**THIS PAGE IS AN  
OVERSIZED DRAWING OR  
FIGURE,  
THAT CAN BE VIEWED  
AT THE RECORD TITLED:  
“BLESSING SE QUADRANGLE,  
TEXAS-MATAGORDA CO.  
7.5 MINUTE SERIES  
(TOPOGRAPHIC)”**

**WITHIN THIS PACKAGE... OR  
BY SEARCHING USING THE  
DOCUMENT/REPORT NO.**

**D-01**



**THIS PAGE IS AN  
OVERSIZED DRAWING OR  
FIGURE,  
THAT CAN BE VIEWED AT THE  
RECORD TITLED:  
“PALACIOS NE QUADRANGLE,  
TEXAS-MATAGORDA CO.  
7.5 MINUTE SERIES  
(TOPOGRAPHIC)”**

**WITHIN THIS PACKAGE... OR  
BY SEARCHING USING THE  
DOCUMENT/REPORT NO.**

**D-02**

# South Texas Project



**TECHNICAL REPORT 1.0 - INDUSTRIAL**

**THE FOLLOWING IS REQUIRED FOR ALL APPLICATIONS, RENEWAL, NEW, AND AMENDMENT**

**1. FACILITY/SITE INFORMATION** (Instructions, page 24)

a. Describe the type of activity and general nature of your business.

**South Texas Project (STP) Electric Generating Station is a nuclear fueled, steam-electric generating facility. Electricity is generated from steam driven turbines.**

b. SIC Code(s) 4911 , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_  
 NAICS Code(s) 221113 , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

c. Describe the wastewater generating processes.

**Main Cooling Reservoir – Outfall 001**  
 Outfall 001 is the discharge point for the 7,000-acre main cooling reservoir. This reservoir is part of the main recirculating cooling water loop used to remove heat from the steam-electric generating units. There has not been a discharge from Outfall 001 since March 1997 other than minor permitted leakage through the closed spillway gates and relief wells. If a discharge were to occur, blowdown from the main cooling reservoir would make up the largest percentage of wastewater. A discharge from Outfall 001 would flow to the Colorado River (Colorado River Tidal in Segment 1401 of the Colorado River Basin).

All internal outfalls (Outfall 101, 201, 401, and 601) discharge to the main cooling reservoir. Outfall 501 would also discharge to the reservoir via Outfall 101, but has not discharged since 1992.

**Low Volume Wastewater (Outfalls 101 and 201)**  
 Low volume wastewater results from water treatment operations, boiler blowdown, HVAC blowdown, floor drains and SPCC sources and their associated oily water treatment system discharges, and other miscellaneous sources. Boiler blowdown is from one auxiliary steam boiler, released to reduce impurities in the water that can cause corrosion and boiler tube failure. Service water is demineralized and regeneration of the demineralizer resin beds produces an acidic and caustic wastewater that is treated at the neutralization basins along with boiler blowdown. The floor drain system captures condensate and water from production and maintenance areas that may contain oil or grease, which is then transported to the oily waste treatment system where the oil is separated from the water. The first flush of storm water from some production and storage areas is also treated in the oily waste system. Other non-process storm water flow is directed through designated storm water outfalls.

**Treated Domestic Wastewater (Outfalls 401 and 601)**  
 Domestic wastewater is treated onsite in two package treatment systems consisting of aeration, clarification, and disinfection. Car wash water, air conditioning condensate, HVAC cooling tower blowdown, and storm water are commingled with the domestic wastewater prior to treatment.

**Metal Cleaning Waste (Outfalls 501)**  
 Metal cleaning waste has not been discharged since 1992. Cleaning of metal using chemical or non-chemical liquids produces a waste that would be discharged through Outfall 501 to the neutralization basins (Outfall 101). Storm water may also be discharged through Outfall 501.

d. Provide a list of raw materials, major intermediates, and products handled at your facility.

Raw Materials	Intermediate Products	Final Products
nuclear fuel (7440-61-1)	steam	electricity

e. Indicate by a check mark that an attached facility map with the following information was provided with the application:

Production areas, maintenance areas, materials handling areas, and waste disposal areas.

The location of each unit of the wastewater treatment plant including the location of wastewater collection sumps and impoundments.

**See South Texas Project (aerial photo), USGS maps (4), Plot Plan, Integrated Spill Attachment: Contingency Plan Site Map**

f. Is this a new permit application for an existing facility? \_\_\_\_\_ Yes  No

If yes, provide background discussion below.

n/a

g. Is the treatment facility/disposal site located above the 100-year frequency flood level?  
 Yes \_\_\_\_\_ No

List source(s) used to determine 100-year frequency flood plain:

**FIRM 485489037C, March 18, 1985.**

If **no**, provide the elevation of the 100-year frequency flood plain and describe what protective measures are in use or planned to be used to prevent flooding of the treatment facility/disposal area.

n/a

h. For **new or amendment** permit applications, will there be discharge of fill material into a water in the state for construction of the proposed outfall structure? \_\_\_\_\_ Yes \_\_\_\_\_ No **n/a**

If **no**, proceed to Item No. 2. If **yes**, has the applicant applied for a U.S. Corps of Engineers 404 Dredge and Fill permit? \_\_\_\_\_ Yes \_\_\_\_\_ No

If **yes**, provide the permit number: n/a

If **no**, provide the approximate date you anticipate submitting your application to the Corps. n/a

2. TREATMENT SYSTEM (Instructions, page 25)

- a. List any physical, chemical, and/or biological treatment process that you use for the treatment of wastewater at your facility. Include a description of each treatment process starting with initial treatment and finishing with the discharge point.

See table on page 3a.

- b.  Indicate by a check mark that an attached flow schematic with a water balance was provided with the application showing each treatment unit and all sources of wastewater flow into the treatment plant and to each outfall/point of disposal. Attachment: See flow diagrams in Worksheet 1.

3. IMPOUNDMENTS (Instructions, pages 25-27)

Do you use or plan to use any wastewater lagoons, ponds, or impoundments?  Yes  No  
If **yes**, complete item 3(a) for **existing** impoundments and items 3(a)-3(f) for **new or proposed** impoundments. If **no**, proceed to Item No. 4.

- a. Provide the following information in the table provided:

**Designation:** Indicate the appropriate use designation for each pond [Treatment (T), Disposal (D), Containment (C), or Evaporation (E)]

**Discharge Point:** If a discharge occurs from the impoundments, designate the outfall associated with the impoundment.

**Liner Information:** If the impoundments are lined to comply with specifications outlined for 1) a compacted clay liner (C), 2) an in-situ clay liner (I), or 3) a synthetic/plastic/rubber liner (S), indicate the liner type with the appropriate letter designation (see instructions for further detail on liner specifications). If not, provide a reference to the attachment that provides a description of the alternate liner and any additional technical information necessary for an evaluation.

**Dimensions:** Provide the dimensions(s), freeboard, surface area, and storage volume capacity of the impoundments. For impoundments with irregular shapes, submit surface area (instead of length and width), the average depth, and the maximum depth below natural ground level.

### Wastewater Treatment System

Treatment System	Outfall	Unit Dimensions	Treatment Processes
Main Cooling Reservoir	001	7,000 acre pond (irregular)	Heat Dissipation Reuse/Recycle
Low Volume Waste Metal Cleaning Wastes** Neutralization Basin	101	2-Neutralization Basins (300,000 gallons each) 68' x 42' x 16'	Neutralization* Mixing* Sedimentation
Low Volume Waste Oily Waste Treatment System	201	Gross Oil Separator (API) 13,000 gallons 24' x 8' x 7'	Equalization Flotation Skimming* Sedimentation
		Tricellerator (DAF) 3,800 gallons 9' dia x 8'	Dissolved air flotation Coagulation*
		Effluent Tank 850 gallons 5' dia x 6'	Multi-media Filtration
West Sanitary Waste Treatment System***	401	2-Aeration Basins 63" x 12" x 11'6"	Screening Activated Sludge
		2 Clarifiers 16' dia x 11'6"	Sedimentation
		Primary Chlorine Contact Chamber 6" x 12' x 11'6"	Disinfection****
		Secondary Chlorine Contact Chamber 4' dia x 4'3"	Disinfection****
Metal Cleaning Waste**	501	Organic Basin Approx. 1,000,000 gallons 100' x 80' x 17'6"	Equalization Mixing* Aeration*
		Inorganic Basin Approx. 50,000 gallons 25' x 25' x 13'3"	Coagulation* Chemical Precipitation* Sedimentation
		Treatment Tanks (possible future use)	Not determined at this time.
Training Sanitary Waste Treatment System***	601	2-Aeration Basins 54'6" x 12' x 13'3"	Screening Activated Sludge
		1-Clarifier 20' dia x 13'3"	Sedimentation
		Chlorine Contact Chamber	Disinfection****

Note: Chlorine may be used intermittently to control algae growth in treatment units.

\* Treatment process may be used based on influent characteristics.

\*\* Outfall 501 is routed to Outfall 101. There have been no discharges from Outfall 501 since December 1992.

\*\*\* The West Plant is currently rated at 110,000 gallons per day (gpd) and the Training Plant at 66,000 gpd. Sanitary wastewater will increase beginning with the construction of two new electric generating units (3 and 4) and an increase in construction personnel. The physical locations of the treatment systems and Outfalls 401 and 601 may change; however, the outfall descriptions in the permit would remain the same (i.e., monitoring at the discharge from the sewage treatment plant).

\*\*\*\* Disinfection may include sodium hypochlorite or calcium hypochlorite.

**Impoundment Information Table**

	Pond # <u>1</u>	Pond # <u>2</u>	Pond # <u>3</u>	Pond # <u>4</u>	Pond # <u>5</u>
<b>Designation</b>	Organic Basin	Inorganic Basin	Neutralization Basins (2)	Main Cooling Reservoir	Evaporation Pond
(T) (D) (C) or (E)	T	T	T	T	C
<b>Discharge Point</b>					
Outfall Number	501	501	101	001	none
<b>Liner Information</b>					
Liner Type (C) (I) or (S)	reinforced concrete	reinforced concrete	reinforced concrete	soil and concrete	none
Alt. Liner Attachment Reference	n/a	n/a	n/a	n/a	n/a
<b>Dimensions</b>					
Length (feet)	<u>100</u> ft	<u>25</u> ft	<u>136</u> ft	<u>n/a</u> ft	<u>150</u> ft
Width (feet)	<u>80</u> ft	<u>25</u> ft	<u>42</u> ft	<u>n/a</u> ft	<u>70</u> ft
Depth from Water Surface	<u>17.5</u> ft	<u>13.3</u> ft	<u>16</u> ft	<u>25</u> ft	<u>4</u> ft
Depth from Nat. Ground Level	<u>0</u> avg <u>0</u> max	<u>0</u> avg <u>0</u> max	<u>0</u> avg <u>0</u> max	<u>0</u> avg <u>0</u> max	<u>0</u> avg <u>0</u> max
Freeboard (feet)	<u>&gt;2</u> ft	<u>&gt;2</u> ft	<u>&gt;2</u> ft	<u>&gt;2.5</u> ft	<u>&gt;2</u> ft
Surface Area (acres)	<u>0.18</u> acres	<u>0.01</u> acres	<u>0.13</u> acres	<u>7,000</u> acres	<u>0.24</u> acres
Storage Capacity (gallons)	<u>1,000,000</u> gal.	<u>50,000</u> gal.	<u>600,000</u> gal.	<u>6.6e10</u> gal.	<u>314,160</u> gal.

	Pond # <u>6</u>	Pond # <u>    </u>	Pond # <u>    </u>	Pond # <u>    </u>	Pond # <u>    </u>
<b>Designation</b>	Essential Cooling Pond				
(T) (D) (C) or (E)	C				
<b>Discharge Point</b>					
Outfall Number	None				
<b>Liner Information</b>					
Liner Type (C) (I) or (S)	soil and concrete				
Alt. Liner Attachment Reference	n/a				
<b>Dimensions</b>					
Length (feet)	<u>2,000</u> ft	<u>    </u> ft	<u>    </u> ft	<u>    </u> ft	<u>    </u> ft
Width (feet)	<u>1,000</u> ft	<u>    </u> ft	<u>    </u> ft	<u>    </u> ft	<u>    </u> ft
Depth from Water Surface	<u>8</u> ft	<u>    </u> ft	<u>    </u> ft	<u>    </u> ft	<u>    </u> ft
Depth from Nat. Ground Level	<u>0</u> avg <u>0</u> max	<u>    </u> avg <u>    </u> max	<u>    </u> avg <u>    </u> max	<u>    </u> avg <u>    </u> max	<u>    </u> avg <u>    </u> max
Freeboard (feet)	<u>&gt;2</u> ft	<u>    </u> ft	<u>    </u> ft	<u>    </u> ft	<u>    </u> ft
Surface Area (acres)	<u>47</u> acres	<u>    </u> acres	<u>    </u> acres	<u>    </u> acres	<u>    </u> acres
Storage Capacity (gallons)	<u>1.3e8</u> gal.	<u>    </u> gal.	<u>    </u> gal.	<u>    </u> gal.	<u>    </u> gal.

n/a

**THE FOLLOWING ITEMS ARE REQUIRED ONLY FOR NEW OR PROPOSED IMPOUNDMENTS.**

b. Indicate by a check mark if any of the following data was provided with the application:

- (1) \_\_\_\_\_ Synthetic/plastic/rubber liner data
- (2) \_\_\_\_\_ In-situ clay liner data

**Attachment:** \_\_\_\_\_

c. Are there any leak detection systems or ground water monitoring wells in place or planned? \_\_\_\_ Yes \_\_\_\_ No

\_\_\_\_\_ If **yes**, indicate by a check mark that a separate attachment was provided with the leak detection system information for each pond and/or ground water monitoring well data.

**Attachment:** \_\_\_\_\_

d. Is the bottom of the pond above the seasonal high water table in the most shallow water bearing zone?

\_\_\_\_\_ Yes \_\_\_\_\_ No

\_\_\_\_\_ If **no**, indicate by a check mark that additional information was provided describing the depth of the seasonal high water table in the most shallow water bearing zone in relation to the depth of the bottom of the new or proposed impoundment and how this may or may not impact groundwater.

e. Indicate by a check mark that the following information was provided:

\_\_\_\_\_ A USGS quadrangle map or a color copy of original quality and scale which accurately locates and identifies water supply wells and/or monitor wells within 1/2 mile radius of the impoundments.

\_\_\_\_\_ Copies of State Water Well Reports (driller's logs, completion data), and data on depths to ground water for water supply wells including a description of how the depths to ground water were obtained.

**For TLAP permit applications:** \_\_\_\_\_ Indicate by a check mark that the new or proposed impoundment(s) and the land application disposal area are located in the same general area and the information for this item is provided in Worksheet 3.0 (item 8).

f. \_\_\_\_\_ Indicate by a check mark if any data was provided with the application pertaining to the ground water, soils, geology, etc. used to assess the potential for migration of wastes from the impoundments and/or the potential for contamination of ground water or surface water.

**4. OUTFALL/DISPOSAL METHOD INFORMATION (Instructions, pages 27-28)**

Complete the following tables to describe the location and wastewater discharge or disposal operations for each outfall for discharge operations and for each point of disposal for TLAP operations.

**For TLAP permit applications:** Indicate the disposal method and each individual **irrigation area (I)**, **evaporation pond (E)**, or **subsurface drainage system (S)** by providing the appropriate letter designation for the disposal method followed by a numerical designation for each disposal area (e.g. evaporation pond, application area) in the space provided for "Outfall" designation (e.g. "E1" for evaporation pond 1, "I2" for irrigation area No. 2, etc.).



OUTFALL: 001

Latitude *			Longitude *			Location Description
28	44	58	96	01	05	At a point in the blowdown line prior to entering the Colorado River
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max	Dly Avg	Dly Max	Discharge Duration		
144	200	144	200	**	**	**
<input type="checkbox"/> Pumped <input checked="" type="checkbox"/> Gravity		Measurement Device: <u>estimate</u>			<input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Seasonal <input type="checkbox"/> Continuous	
Contributing Wastestreams:				Volume (MGD)	% of Total Flow	
recirculated cooling water				n/a**	n/a**	
cooling reservoir blowdown						
previously monitored effluents						
storm water						
makeup water from Colorado River						
uncontaminated groundwater						
*At spillway. At blowdown at the river: N28°44'46", W96°00'02".						
**There has been no discharge from the outfall since March 4, 1997.						

OUTFALL: 101

Latitude *			Longitude *			Location Description
28	47	35	96	02	51	Where low volume waste sources commingled with previously monitored effluents (PME) are discharged from the neutralization basins prior to mixing with any other waste stream
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max	Dly Avg	Dly Max	Discharge Duration		
n/a	n/a	n/a	n/a	n/a	n/a	n/a
<input checked="" type="checkbox"/> Pumped <input type="checkbox"/> Gravity		Measurement Device: <u>totalizer</u>			<input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Seasonal <input type="checkbox"/> Continuous	
Contributing Wastestreams:				Volume (MGD)	% of Total Flow	
low volume waste sources commingled with				0.31**	100%	
previously monitored effluent (PME) from the						
metal cleaning waste system discharge						
storm water						
*At discharge into the MCR						
**Total outfall flow, average Jul 05 - Feb 09						

OUTFALL: 201

Latitude *			Longitude*			Location Description
28	47	35	96	03	07	Where low volume waste sources are discharged from the oily waste treatment system prior to mixing with any other waste stream
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max	Dly Avg	Dly Max	Discharge Duration		
n/a	n/a	n/a	n/a	n/a	(hrs./day)	n/a (days/mo.) n/a (mo./year)
<input checked="" type="checkbox"/> Pumped <input type="checkbox"/> Gravity			Measurement Device: <u>totalizer</u>			<input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Seasonal <input type="checkbox"/> Continuous
Contributing Wastestreams:				Volume (MGD)	% of Total Flow	
low volume waste sources from the oily waste treatment system				0.030**	100%	
storm water						
*At discharge into the MCR						
**Total outfall flow, average Jul 05 - Feb 09						

OUTFALL: 401

Latitude *			Longitude*			Location Description
28	47	35	96	03	17	At discharge from the sewage treatment plant (West Sanitary Waste Treatment System) prior to mixing with any other waste stream.
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max	Dly Avg	Dly Max	Discharge Duration		
n/a	n/a	n/a	n/a	n/a	(hrs./day)	n/a (days/mo.) n/a (mo./year)
<input checked="" type="checkbox"/> Pumped <input type="checkbox"/> Gravity			Measurement Device: <u>ultrasonic</u>			<input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Seasonal <input type="checkbox"/> Continuous
Contributing Wastestreams:				Volume (MGD)	% of Total Flow	
treated sanitary sewage commingled with car wash water and air conditioning condensate				0.028**	100%	
storm water						
*At the discharge into the MCR						
**Total outfall flow, average Jul 05 - Feb 09						

OUTFALL: 501

Latitude*			Longitude*			Location Description
28	47	39	96	02	52	Where metal cleaning wastes are discharged prior to mixing with any other waste stream
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max	Dly Avg	Dly Max	Discharge Duration		
n/a	n/a	n/a	n/a	n/a	(hrs./day)	n/a (days/mo.) n/a (mo./year)
<input checked="" type="checkbox"/> Pumped <input type="checkbox"/> Gravity		Measurement Device: <u>estimate</u>			<input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Seasonal <input type="checkbox"/> Continuous	
Contributing Wastestreams:				Volume (MGD)	% of Total Flow	
metal cleaning waste				n/a**	n/a**	
storm water						
*Prior to mixing with Outfall 101						
**There has been no discharge from this outfall since December 1992.						

OUTFALL: 601

Latitude*			Longitude*			Location Description
28	47	15	96	02	10	At discharge from the sewage treatment plant (Training Sanitary Waste Treatment Facility) prior to mixing with any other waste stream
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max	Dly Avg	Dly Max	Discharge Duration		
n/a	n/a	n/a	n/a	n/a	(hrs./day)	n/a (days/mo.) n/a (mo./year)
<input checked="" type="checkbox"/> Pumped <input type="checkbox"/> Gravity		Measurement Device: <u>ultrasonic</u>			<input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Seasonal <input type="checkbox"/> Continuous	
Contributing Wastestreams:				Volume (MGD)	% of Total Flow	
treated sanitary sewage commingled with				0.026**	100%	
air conditioning condensate and						
HVAC cooling tower blowdown						
storm water						
*At discharge into the MCR						
**Total outfall flow, average Jul 05 - Feb 09						

5. BLOWDOWN AND ONCE-THROUGH COOLING WATER DISCHARGES (Instructions, page 28)

a. Does your facility use any cooling towers or boilers that discharge blowdown or other wastestreams to the outfall(s)?  Yes  No

b. Does your facility discharge once-through cooling water to the outfall(s)?  Yes  No

c. If yes to either item a or b, indicate with a check mark that the appropriate MSDS with the following information for each chemical additive was submitted with the application. **Note: Not all of the items below are included in the MSDSs.**

- Manufacturers Product Identification Number.
- Product use. (e.g., biocide, fungicide, corrosion inhibitor, etc.)
- Chemical Composition including Chemical Abstracts System (CAS) number for each ingredient.
- Classify product as non-persistent, persistent, or bioaccumulative.
- Product or active ingredient half-life.
- Frequency of product use (e.g., 2 hr/day once every two weeks).
- Product toxicity data specific to fish and aquatic invertebrate organisms.
- Concentration of whole product in wastestream (if above item is for whole product)
- Concentration of active ingredient in wastestream (if above item is for active ingredient)

Please provide a summary of this information in addition to the submittal of the MSDS for each specific wastestream and the associated chemical additives and specify which outfalls are affected.

Attachment: See "Treatment Chemicals and MSDSs."

d. Cooling Towers and Boilers

	Number of Units	Daily Avg. Blowdown	Daily Max Blowdown
Cooling Towers	<u>1</u> cooling towers	Daily Avg: <u>7,200</u> gallons/day	Daily Max: <u>17,280</u> gallons/day
Boilers	<u>1</u> boilers	Daily Avg: * <u>          </u> gallons/day	Daily Max: * <u>          </u> gallons/day

\*4022 gpd for approximately 5 days per year.

6. STORM WATER MANAGEMENT (Instructions, pages 28-29)

Are there any existing or proposed outfalls which discharge storm water runoff commingled with other wastestreams?  Yes  No. If yes, provide the following information. If no, proceed to Item No. 7.

a. Provide a brief narrative description of the industrial processes and activities that occur outdoors or in some manner that may result in exposure of the materials to precipitation or runoff in areas where runoff is generated.

**Some storm water drainage from production and non-production areas is discharged through permitted outfalls. Some storm water drainage from production and non-production areas is discharged under a TPDES Storm Water General Permit. For production areas, at least the first flush of storm water runoff from SPCC sources and production equipment areas is collected and treated by the Oily Waste Treatment Systems (Outfall 201). Oil storage procedures are detailed in the facility's Integrated Spill Contingency Plan. Large storage tanks are located within secondary containment. Chemical storage tanks are located within secondary containment or curbed areas for spill control. Outdoor storage of equipment is limited to items that will not significantly affect storm water quality. Potential storm water contamination sources and best management practices for storm water runoff are addressed in the facility's Industrial Storm Water Pollution Prevention Plan.**

**7. DOMESTIC SEWAGE, SEWAGE SLUDGE, AND/OR SEPTAGE MANAGEMENT AND DISPOSAL**  
(Instructions, page 29)

- a. Please check the appropriate method(s) of domestic sewage and domestic sewage sludge treatment/disposal and complete Attachment F if directed.

Domestic sewage is not generated on-site. **PROCEED TO ITEM NO. 8.**

Both domestic and industrial treatment sludge **ARE commingled** prior to use or disposal. **PROCEED TO ITEM NO. 8.**

Industrial wastewater and domestic sewage are treated separately and the respective sludge **IS NOT commingled** prior to sludge use or disposal. **COMPLETE WORKSHEET 5.0 OF THIS APPLICATION.**

If your facility is a POTW, **COMPLETE WORKSHEET 5.0 OF THIS APPLICATION.**

Facility is connected to a wastewater treatment plant permitted to receive domestic sewage, or the domestic sewage is transported off-site to a permitted facility for treatment and/or disposal. **COMPLETE ITEM NO. 7.B.**

Domestic sewage is disposed of by an on-site septic tank. **COMPLETE ITEM 7.B.**

Other. Please provide a detailed description below.

n/a
-----

- b. Provide the name and TCEQ, NPDES, and/or TPDES Permit No. of the waste disposal facility which receives the domestic sewage/septage. If hauled by motorized vehicle, provide the name and TCEQ Registration No. of the hauler.

Plant/Hauler Name	Permit/Registration No.
n/a	

**8. IMPROVEMENTS OR COMPLIANCE/ENFORCEMENT REQUIREMENTS** (Instructions, page 29)

Is the permittee currently required to meet any implementation schedule for compliance or enforcement?  
 Yes  No

If yes, provide a brief summary of the requirements and a status update.

n/a
-----

**9. TOXICITY TESTING** (Instructions, page 30)

Have any biological tests for acute or chronic toxicity been made on any of your discharges or on a receiving water in relation to your discharge within the last three (3) years?

Yes  No

If yes, identify the tests and describe their purposes below. Please attach a copy of all tests performed that have not been previously sent to the TCEQ and/or EPA.

**The current TPDES permit contains routine biomonitoring requirements for discharges from Outfall 001. However, because there have been no discharges from Outfall 001 since 1997, biomonitoring has not been required.**

**10. OFF-SITE/THIRD PARTY WASTES** (Instructions, page 30)

Do you receive wastes from off-site sources for treatment in your facility, disposal on-site via land application, and/or discharge via a permitted outfall?  Yes  No

If no, proceed to Item No. 11. If yes, proceed as directed.

a. Indicate with a check mark that a detailed attachment with the following information was provided with the application: **Attachment: n/a**

- |   |  |
|---|--|
| <input type="checkbox"/> List of wastes received                    | <input type="checkbox"/> Identified sources of wastes received   |
| <input type="checkbox"/> Characterization of wastes received        | <input type="checkbox"/> Name and addresses of generators  |
| <input type="checkbox"/> Volumes of each waste received             | <input type="checkbox"/> Description of the relationship of waste source(s) with your facility's activities. |
| <input type="checkbox"/> Info. on compatibility with on-site wastes |  |

b. Is wastewater from a TCEQ, NPDES, and/or TPDES permitted facility commingled with your wastewater after your final treatment and prior to discharge via your final outfall/point of disposal?  Yes  No

If yes, provide the name, address, and TCEQ, NPDES, and/or TPDES permit number of the contributing facility and a copy of any agreements and/or contracts relating to this activity.

c. Is your facility a Publicly Owned Treatment Works (POTW) that accepts process wastewater from any Significant Industrial User (SIU) and has or is required to have an approved pretreatment program under the NPDES/TPDES program?  Yes  No If yes, complete **Worksheet 6.0** of this application.

**11. RADIOACTIVE MATERIALS** (Instructions, page 30)

Are radioactive materials mined, used, stored, or processed at this facility?  Yes  No

If yes, Provide a list of the materials and the results of one analysis of your effluent in picocuries per liter (pCi/L) for all radioactive parameters which may be present.

Radioactive Materials	Conc. (pCi/L)
nuclear fuel (CAS no. 7440-61-1)	13,200 (tritium)

**THE FOLLOWING ITEMS ARE ONLY REQUIRED FOR EXISTING PERMITTED FACILITIES.**

**12. MAJOR AMENDMENT REQUESTS** (Instructions, pages 30-31)

Are you requesting a major amendment of an existing permit?  Yes  No

If yes, list each specific request and provide discussion on the scope of any requested permit changes.

n/a

If necessary, provide supplemental information or additional data that will support the request.

**13. MINOR MODIFICATION REQUESTS** (Instructions, page 31)

Are you requesting any minor modifications to the permit?  Yes  No **Note:** see the instructions for an exclusive list of changes considered as minor modifications.

If yes, list and discuss the requested changes.

n/a

**14. MINOR AMENDMENT REQUESTS** (Instructions, page 31)

Are you requesting any minor amendments to the permit?  Yes  No

If yes, list and discuss the requested changes.

1) Remove Item 14 from the Other Requirements of the permit because it refers to regulations for cooling water intake structures that do not apply to the closed-cycle recirculating system at the facility.  
2) Remove Item 15 from the Other Requirements of the permit because wastewater characterization data are provided with this application.  
3) Add storm water to Outfalls 101, 401, 501, and 601. Storm water was listed in the 2004 TPDES renewal application for Outfalls 101, 401, and 601, but was not specifically described in permit. Storm water is a very small component of water that may discharge through Outfall 501 (there have been no discharges since December 1992). Storm water is already listed in the final Outfall 001.  
4) Add uncontaminated groundwater to Outfall 001. Groundwater from excavation during construction of new electric generating Units 3 and 4 will be routed to the Main Cooling Reservoir.  
5) Allow analysis of total residual chlorine by DPD spectrophotometric method (EPA Method 330.5) in Item 5 in the Other Requirements of the permit.

**WORKSHEETS  
TO THE INDUSTRIAL WASTEWATER PERMIT APPLICATION TECHNICAL REPORT**

Please review the worksheet requirements in the instructions and indicate by checking either yes or no which worksheets are required, completed, and submitted with the technical report. Worksheets that are not applicable do not need to be submitted with the technical report.

WORKSHEET	COMPLETED AND SUBMITTED WITH THE TECHNICAL REPORT:	
	YES	NO
1.0: EPA EFFLUENT CATEGORICAL GUIDELINES	✓	
2.0: POLLUTANT ANALYSES REQUIREMENTS	✓	
3.0: LAND DISPOSAL OF EFFLUENT		✓
3.1: SURFACE LAND DISPOSAL OF EFFLUENT		✓
3.2: SUBSURFACE LAND DISPOSAL OF EFFLUENT		✓
3.3: SUBSURFACE AREA DRIP DISPERSAL SYSTEM LAND DISPOSAL OF EFFLUENT		✓
4.0: RECEIVING WATERS	✓	
4.1: STREAM PHYSICAL CHARACTERISTICS WORKSHEET		✓
5.0: SEWAGE SLUDGE MANAGEMENT AND DISPOSAL	✓	
6.0: INDUSTRIAL WASTE CONTRIBUTION		✓
7.0: STORM WATER RUNOFF		✓
8.0: AQUACULTURE		✓
9.0: CLASS V INJECTION WELL		✓
10.0: QUARRIES IN THE JOHN GRAVES SCENIC RIVERWAY		✓

**Note: Worksheet 11.0 Cooling Water Intake Structures is also included.**



**WORKSHEET 1.0 - EPA EFFLUENT CATEGORICAL GUIDELINES**

**REQUIRED FOR ALL APPLICATIONS FOR TPDES PERMITS FOR DISCHARGES OF WASTEWATERS SUBJECT TO EPA EFFLUENT LIMITATION GUIDELINES.**

**1. CATEGORICAL INDUSTRIES** (Instructions, pages 34-35)

Is your facility subject to any of the 40 CFR effluent guidelines outlined in Table 1?  Yes  No

If **yes**, provide the appropriate information in the table below. If **no**, this worksheet is not required.

Industry	CFR
Steam Electric Power Generating	423

**2. PRODUCTION/PROCESS DATA** (Instructions, page 35)

a. **Production data:** Provide the appropriate data for effluent guidelines with production based effluent limitations.

Subcategory	Actual Quantity/Day	Design Quantity/Day	Units
n/a			

b. **Organic Chemicals, Plastics, and Synthetic Fibers Manufacturing Data (40 CFR Part 414):** Provide each appropriate subpart and the percent of total production. Also provide the appropriate data for metal bearing wastestreams as required in 40 CFR Part 414, Appendices A and B.

Subcategory	% of total production	Appendix A and B	
		Metal	Process
n/a			

c. **Refineries (40 CFR Part 419):** Provide the applicable subcategory and a brief justification for each.

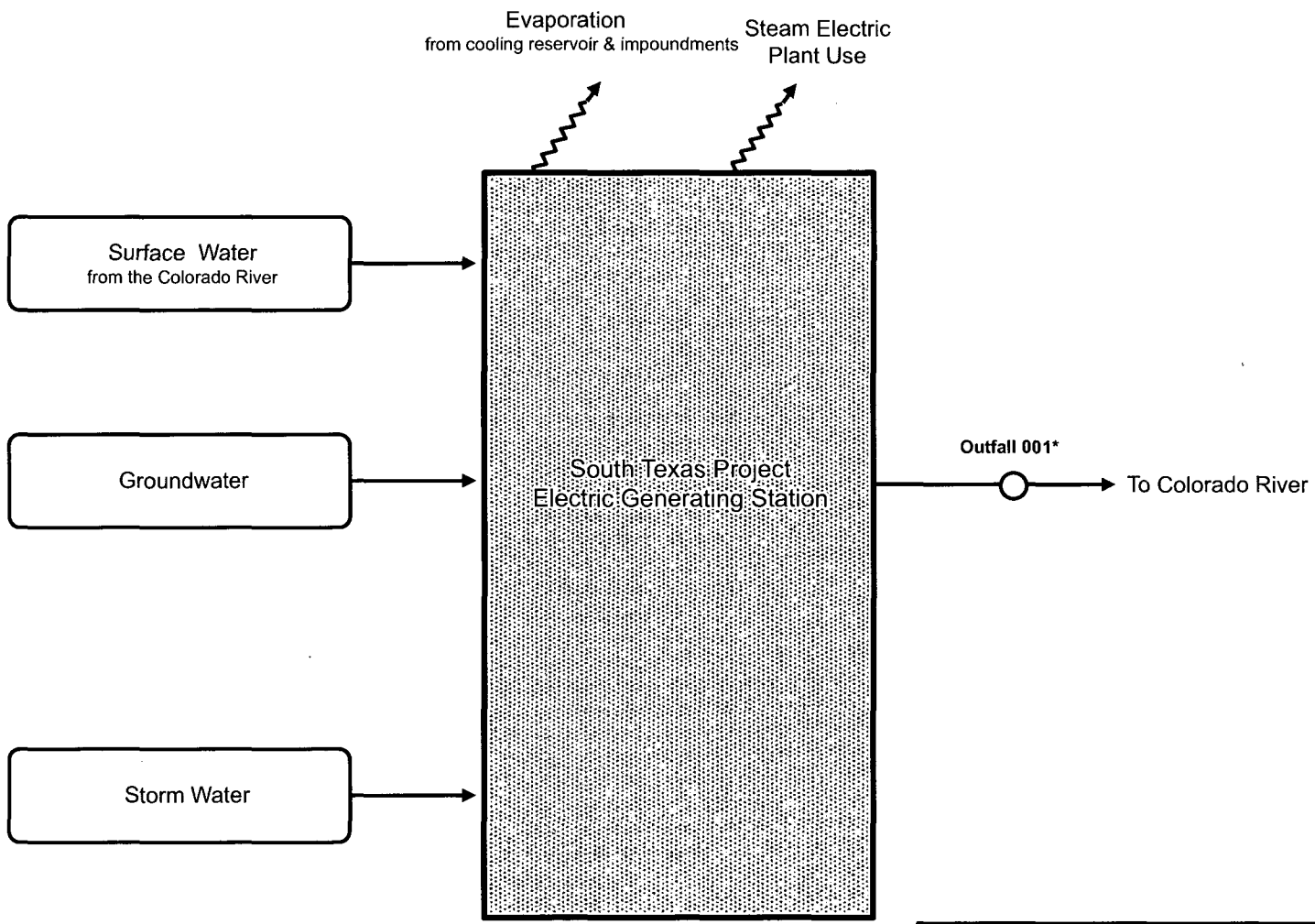
n/a

3. **PROCESS/NON-PROCESS WASTEWATER FLOWS:** Provide a breakdown of process wastewater flow(s) and non-process wastewater flow(s) as directed. (Instructions, page 35)

See flow diagrams (7) following Worksheet 1:  
 1) Overall Flow Diagram  
 2) Flow Diagram - Outfall 001  
 3) Flow Diagram - Outfall 101  
 4) Flow Diagram - Outfall 201  
 5) Flow Diagram - Outfall 401  
 6) Flow Diagram - Outfall 501  
 7) Flow Diagram - Outfall 601  
 With respect to effluent guidelines at 40 CFR 423, the facility does not generate the following types of wastewater: coal pile runoff, fly/bottom ash transport water, and once-through cooling water.

4. **NEW SOURCE DETERMINATION:** Provide a list of wastewater generating processes subject to effluent guidelines and the appropriate information. (Instructions, page 35)

Process	EPA Guideline		Date Process/Construction Commenced
	Part	Subpart	
Steam electric power generation	423	n/a	
Units 1, 2			1975
Units 3, 4			2009 or 2010 (projected date)
			NRC Combined License –
			– 2012 (projected)



Notes:  
 \* No discharge from this outfall since March 4, 1997

Recirculated  
Main Condenser Cooling Water

Previously Monitored Effluent  
from  
Outfalls 101, 201, 401, 501\*\*, and 601

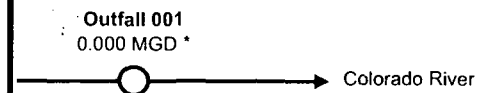
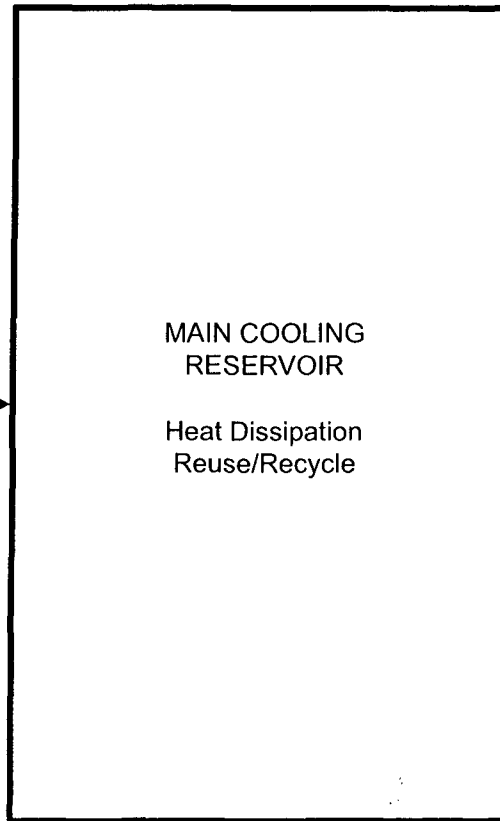
NRC Regulated Flows

Blowdown from  
Essential Cooling Pond

Storm Water

Make-up Water from the  
Colorado River

Uncontaminated Groundwater



Notes:

- \* Outfall has not discharged since March 4, 1997.
- \*\* Outfall has not discharged since December 1992.

Flow Diagram - Outfall 001

**Low Volume Wastewater**  
 including wastewater from the following operations and sources:

- demineralizer regenerant wastewater;
- condenser polishing regenerant wastewater;
- boiler blowdown;
- boiler drainage;
- laboratory, instrument, and sampling sources;
- well water filter backwash;
- water softener regenerate;
- floor drains in chemical storage containment areas;
- rinse water from triple rinsing empty chemical drums;
- fuel handling building HVAC blowdown; and
- miscellaneous low volume wastewater.

Metal Cleaning Waste Effluent  
 (Outfall 501\*\*)

Storm Water

**NEUTRALIZATION BASINS**

Neutralization\*  
 Mixing\*  
 Sedimentation

recirculation line

sludge to landfill

Outfall 101  
 0.31 MGD (Jul 05 – Feb 09 average)

to Main Cooling Reservoir

Notes:  
 \* Treatment may be used based on influent quality  
 \*\* Outfall 501 has not discharged since December 1992.

Flow Diagram - Outfall 101

South Texas Project Electric Generating Station  
 TPDES Permit No. 01908

May 2009

Low Volume Wastewater  
Including wastewater from the following operations or sources:

- wash down water;
- pump seal water;
- equipment leaks; and
- miscellaneous low volume wastewater

Storm Water

**SURGE TANK**  
Equalization

**GROSS OIL SEPARATOR**  
Flotation  
Skimming\*\*\*  
Sedimentation

**TRICELLERATOR**  
Dissolved Air Flotation  
Coagulation\*\*\*

**FILTERS**  
Multimedia Filtration

Vacuum Filtration or  
Dewatering\*\*\*

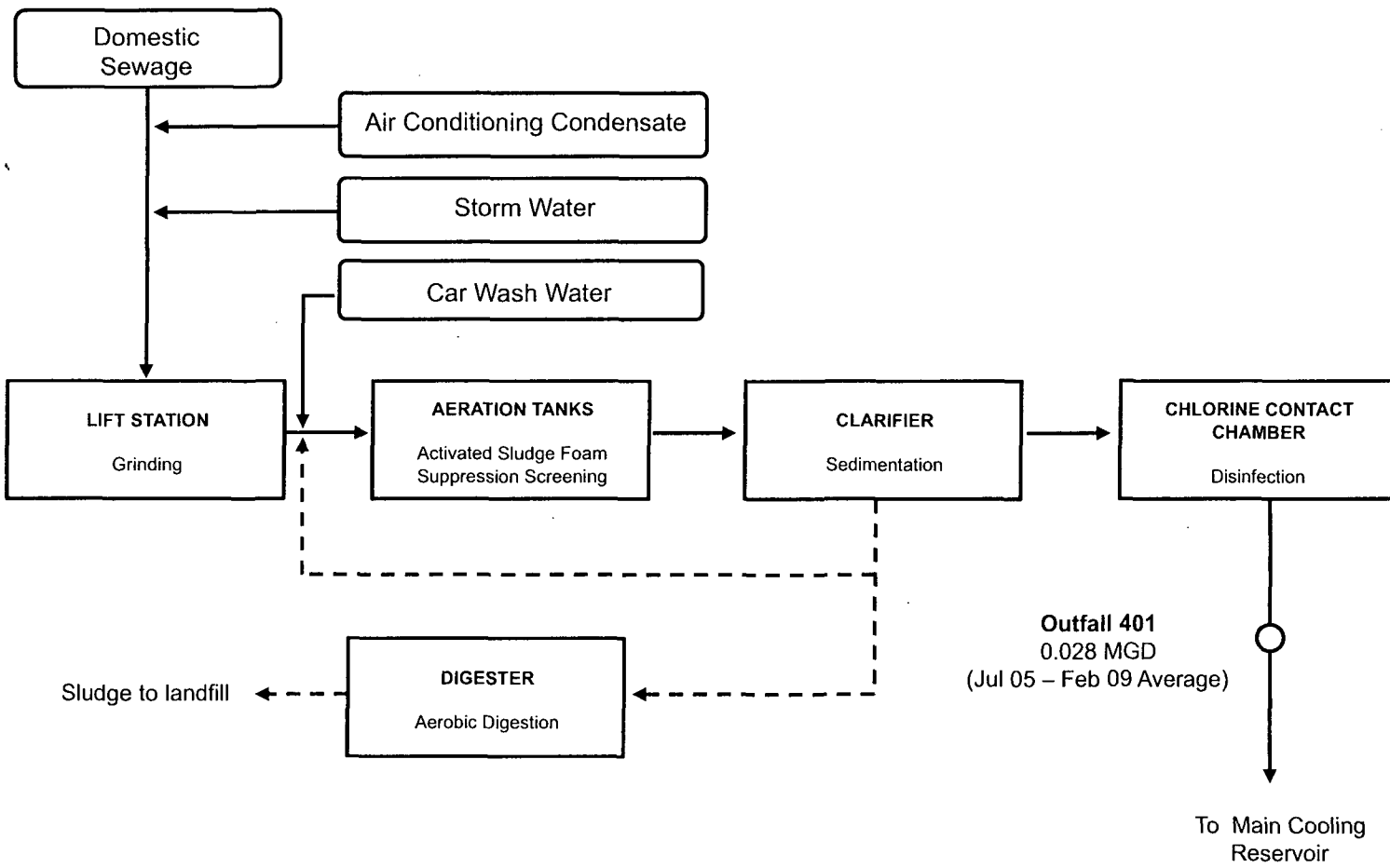
sludge to incineration and/or landfill

Outfall 201  
0.030 MGD (Jul 05 – Feb 09 average)  
To Main Cooling Reservoir

filter media to landfill

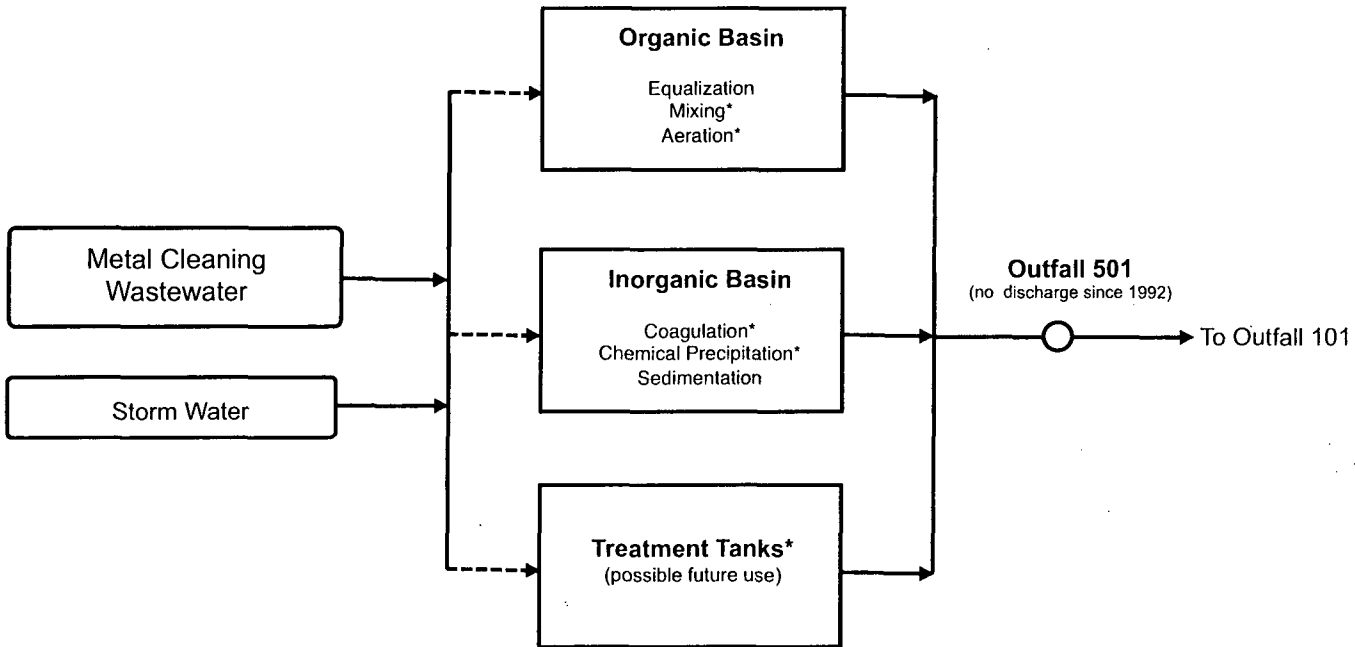
Notes:  
\*\*\* Treatment process may be used based on influent characteristics

Flow Diagram - Outfall 201  
  
South Texas Project Electric Generating Station  
TPDES Permit No. 01908  
May 2009



Outfall 401  
0.028 MGD  
(Jul 05 – Feb 09 Average)

Flow Diagram - Outfall 401

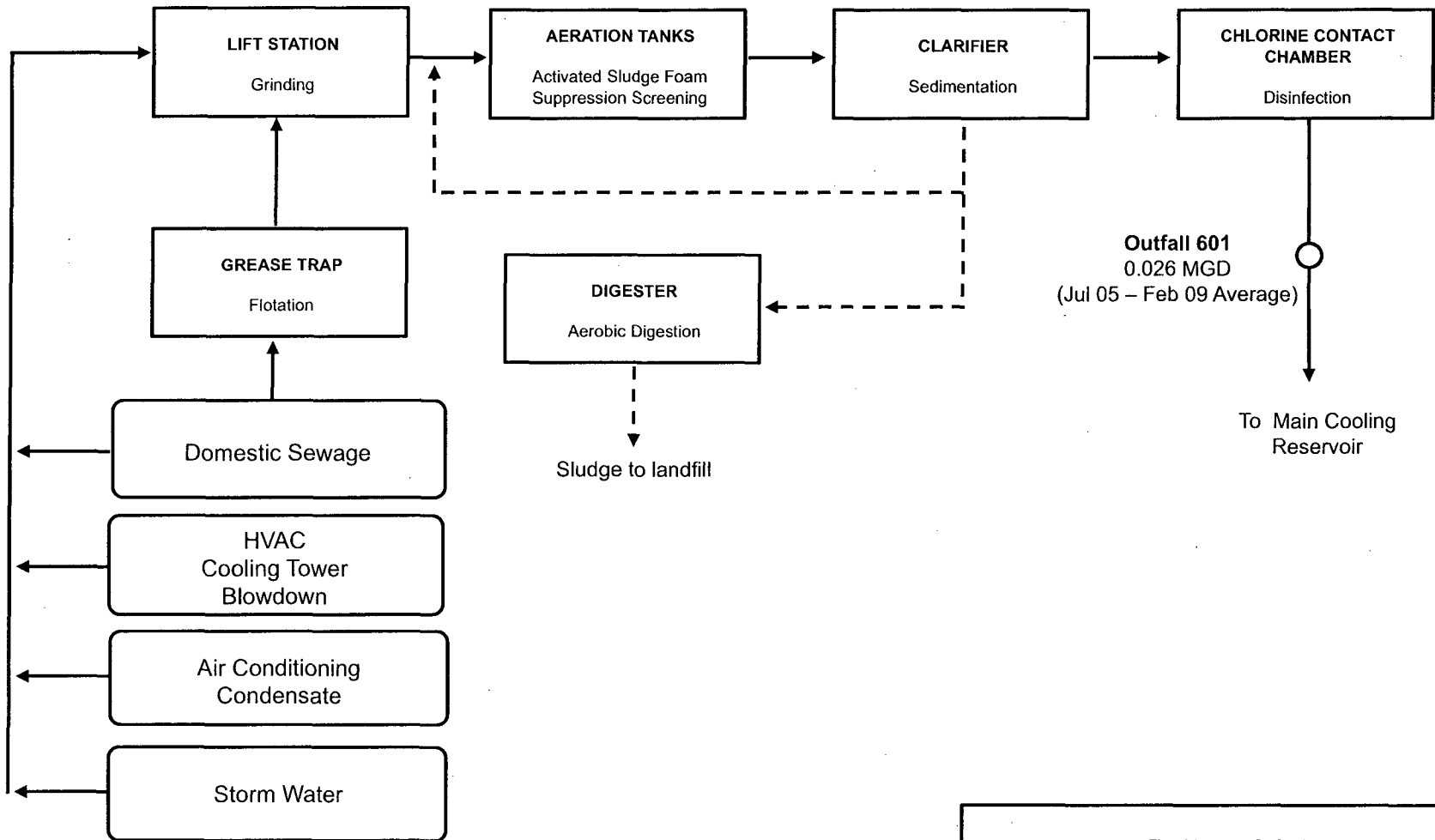


Notes:

- \* Treatment process may be used based on influent characteristics

Flow Diagram - Outfall 501





Flow Diagram - Outfall 601

**WORKSHEET 2.0 - POLLUTANT ANALYSES REQUIREMENTS**

**REQUIRED FOR APPLICATIONS SUBMITTED FOR A TPDES PERMIT. NOT REQUIRED FOR APPLICATIONS FOR A PERMIT TO DISPOSE OF ALL WASTEWATER BY LAND DISPOSAL OR FOR DISCHARGES SOLELY OF STORM WATER RUNOFF.** (General Requirements: Instructions, Pages 36-37)

**1. TABLE 1:** Complete table required for all external outfalls. (Instructions, Page 37)

Outfall No.: 001*	<input type="checkbox"/> C <input checked="" type="checkbox"/> G	Effluent Concentration (mg/l)					
		Samp. 1	Samp. 2	Samp. 3	Samp. 4	Average	
Pollutants							
BOD (5-day)		<2	<2	<2	<2	<2	
CBOD (5-day)		<2	<2	<2	<2	<2	
Chemical Oxygen Demand		44.4	43	49.4	41.5	44.6	
Total Organic Carbon		12.2	13.6	16.2	15.4	14.4	
Dissolved Oxygen		--	--	--	--	--	
Ammonia Nitrogen		<1	<1	<1	<1	<1	
Total Suspended Solids		12.4	11.2	30.8	18	18.1	
Nitrate Nitrogen		<0.5	6.93	6.96	<0.5	3.6	
Total Organic Nitrogen		0.75	0.210	4.76	3.5	2.3	
Total Phosphorus		<0.05	<0.05	0.0745	<0.05	0.037	
Oil and Grease		<5	<5	<5	<5	<5	
Total Residual Chlorine		0.00	0.00	0.00	0.00	0.00	
Total Dissolved Solids		2140	2270	2440	2430	2320	
Sulfate		179	180	181	199	185	
Chloride		971	960	1020	1040	998	
Fluoride		0.990	0.991	0.953	1.02	0.988	
Fecal Coliform		<1	5	<1	<1	<1 (geomean)	
Temperature(°F)		65.7	65.5	65.5	64.0	65.2	
pH (Standard Units; min/max)		8.66	8.77	8.75	8.80	8.74	
		Effluent Concentration (µg/l)					MAL (µg/l)
Total Aluminum		220	159	431	240	262	30
Total Antimony		<5	<5	5.98	<5	3.37	60
Total Arsenic		11.1	10.1	15.3	10.6	11.8	10
Total Barium		392	440	442	418	423	10
Total Beryllium		<4	<4	<4	<4	<4	5
Total Cadmium		<5	<5	<5	<5	<5	1
Total Chromium		5.66	<5	<5	<5	<5	10
Trivalent Chromium		<10	<5	<5	<5	<5	N/A
Hexavalent Chromium		<10	<10	<10	<10	<10	10
Total Copper		<5	<5	<5	<5	<5	10
Cyanide (total)		<5	<5	<5	<5	<5	20
Total Lead		<5	<5	<5	<5	<5	5
Total Mercury		<0.2	<0.2	<0.2	<0.2	<0.2	0.2
Total Nickel		8.64	<5	<5	<5	4.04	10
Total Selenium		13.4	5.28	7.76	12.6	9.76	10
Total Silver		<5	<5	<5	<5	<5	2.0
Total Thallium		<5	<5	<5	<5	<5	10
Total Zinc		<10	<10	<10	<10	<10	5

\*Because there have been no discharges from Outfall 001 since 1997, samples were taken from the Main Cooling Reservoir for effluent characterization, as allowed per the application instructions (pg. 37).  
Worksheet 2.0, TCEQ-10055 (Revised 9/2006)

2. **TABLE 2:** Complete table required for all external outfalls which discharge process wastewater. Partial table required for all external outfalls with nonprocess wastewater discharges. Storm water runoff discharges commingled with other wastestreams shall complete the table as instructed (Instructions, Page 37).

Outfall No.: 001*	<input type="checkbox"/> C <input checked="" type="checkbox"/> G	Effluent Concentration (µg/l) (*1)					
Pollutants		Samp. 1	Samp. 2	Samp. 3	Samp. 4	Average	MAL (µg/l)
Benzene		<5	<5	<5	<5	<5	10
Benzidine		<20	<20	<20	<20	<20	50
Benzo(a)anthracene		<5	<5	<5	<5	<5	10
Benzo(a)pyrene		<5	<5	<5	<5	<5	10
Carbon Tetrachloride		<5	<5	<5	<5	<5	10
Chlorobenzene		<5	<5	<5	<5	<5	10
Chloroform		<5	<5	<5	<5	<5	10
Chrysene		<5	<5	<5	<5	<5	10
Cresols		<5	<5	<5	<5	<5	(*2)
Dibromochloromethane		<5	<5	<5	<5	<5	10
1,2-Dibromoethane		<2	<2	<2	<2	<2	2
1,4-Dichlorobenzene		<5	<5	<5	<5	<5	10
1,2-Dichloroethane		<5	<5	<5	<5	<5	10
1,1-Dichloroethylene		<5	<5	<5	<5	<5	10
Fluoride (mg/L)		0.990	0.991	0.953	1.02	0.988	500
Hexachlorobenzene		<5	<5	<5	<5	<5	10
Hexachlorobutadiene		<5	<5	<5	<5	<5	10
Hexachloroethane		<5	<5	<5	<5	<5	20
Methyl Ethyl Ketone		<20	<20	<20	<20	<20	50
Nitrobenzene		<5	<5	<5	<5	<5	10
n-Nitrosodiethylamine		<5	<5	<5	<5	<5	20
n-Nitroso-di-n-Butylamine		<5	<5	<5	<5	<5	20
PCB's, Total (*3)		<1	<1	<1	<1	<1	1
Pentachlorobenzene		<5	<5	<5	<5	<5	20
Pentachlorophenol		<25	<25	<25	<25	<25	50
Phenanthrene		<5	<5	<5	<5	<5	10
Pyridine		<5	<5	<5	<5	<5	20
1,2,4,5-Tetrachlorobenzene		<10	<10	<10	<10	<10	20
Tetrachloroethylene		<5	<5	<5	<5	<5	10
Trichloroethylene		<5	<5	<5	<5	<5	10
1,1,1-Trichloroethane		<5	<5	<5	<5	<5	10
2,4,5-Trichlorophenol		<10	<10	<10	<10	<10	50
TTHM (Total Trihalomethanes)		<5	<5	<5	<5	<5	10
Vinyl Chloride		<10	<10	<10	<10	<10	10

(\*1) Indicate units if different from µg/l.

(\*2) MAL's for Cresols: p-Chloro-m-Cresol 10 µg/l; 4,6-Dinitro-o-Cresol 50 µg/l; p-Cresol 10 µg/l

(\*3) Total of PCB-1242, PCB-1254, PCB-1221, PCB-1232, PCB-1248, PCB-1260, PCB-1016.

3. **TABLE 3:** Partial table (only those pollutants which are required by the conditions specified) required for each external outfall. Not required for internal outfalls. (Instructions, Page 38)

a. **TRIBUTYLTIN:**

Is your facility or will your proposed facility be an industrial/commercial facilities which directly disposes of wastewater from the types of operations listed below or a domestic facilities which receive wastewater from the types of industrial/commercial operations listed below? \_\_\_\_\_ Yes  No

If yes, indicate with a check mark all of the following criteria which apply and provide the appropriate testing results in the table below.

- \_\_\_\_\_ Manufacturers and formulators of tributyltin or related compounds.
- \_\_\_\_\_ Painting of ships, boats and marine structures.
- \_\_\_\_\_ Ship and boat building and repairing.
- \_\_\_\_\_ Ship and boat cleaning, salvage, wrecking and scaling.
- \_\_\_\_\_ Operation and maintenance of marine cargo handling facilities and marinas
- \_\_\_\_\_ Facilities engaged in wood preserving
- \_\_\_\_\_ Any other industrial/commercial facility for which tributyltin is known to be present, or for which there is any reason to believe that tributyltin may be present in the effluent.

b. **ENTEROCOCCI**

Does your facility or will your proposed facility discharge directly into saltwater receiving waters?  
 Yes \_\_\_\_\_ No

If yes, provide the appropriate testing results in the table below.

**TABLE 3**

Outfall No.:	<input type="checkbox"/> C <input type="checkbox"/> G	Effluent Concentration (µg/l)					MAL (µg/l)
		Samp. 1	Samp. 2	Samp. 3	Samp. 4	Average	
Pollutants							
Tributyltin		n/a	n/a	n/a	n/a	n/a	0.010
Enterococci		*	*	*	*	*	N/A

\*Outfall 001 discharges to Segment No. 1401 Colorado River Tidal. For bacteriologic analyses, fecal coliform was analyzed (see Table 1) to be consistent with TPDES permit requirements (Other Requirements, Item 15).

4. **TABLE 4:** Complete table required for all external outfalls which discharge process wastewater and other wastewaters, which may contain pesticides or herbicides, from a facility which manufactures or formulates pesticides or herbicides. Not required for internal outfalls. (Instructions, Page 38)

Does your facility manufacture or formulate pesticides or herbicides? \_\_\_\_\_ Yes  No  
 If yes, provide the appropriate testing results.

**TABLE 4**

Outfall No.:	<input type="checkbox"/> C <input type="checkbox"/> G	Effluent Concentration (µg/l) (*1)					MAL (µg/l)
		Samp. 1	Samp. 2	Samp. 3	Samp. 4	Avg.	
Pollutants							
Beta-hexachlorocyclohexane							0.05
Carbaryl							5
Chlordane							0.15
Chlorpyrifos							0.05
2,4-D							10
Danitol							----
4,4'-DDD							0.1
4,4'-DDE							0.1
4,4'-DDT							0.1
Demeton							0.2
Diazinon							0.5
Dicofol							20
Dieldrin							0.1
Diuron							0.09
Endosulfan I (alpha)							0.1
Endosulfan II (beta)							0.1
Endosulfan Sulfate							0.1
Endrin							0.1
Gamma - Hexachlorocyclohexane (Lindane)							0.05
Guthion							0.10
Heptachlor							0.05
Heptachlor Epoxide							1.0
Hexachlorophene							10
Malathion							0.10
Methoxychlor							2.0
Mirex							0.2
Parathion							0.1
Toxaphene							5
2,4,5-TP (Silvex)							2

\* Indicate units if different from mg/L.

5. **TABLE 5:** Complete table required for all external outfalls. Not required for internal outfalls. (Instructions, Page 38)

**TABLE 5**

Outfall No.: 001*	<input type="checkbox"/> C <input checked="" type="checkbox"/> G	Believed Present	Believed Absent	Effluent Concentration (mg/l)		No. of Samples
				Average	Maximum	
Bromide		x		7.03	7.11	4
Color(PCU)		x		102	151	4
Nitrate-Nitrite(as N)		x		<0.5	<0.5	4
Sulfide(as S)		x		0.034	0.0601	4
Sulfite(as SO <sub>3</sub> ) ***			x	***	***	***
Surfactants		x		0.122	0.158	4
Total Antimony		x		0.00337	0.00598	4
Total Beryllium			x	<0.004	<0.004	4
Total Boron		x		1.26	1.36	4
Total Cobalt			x	<0.005	<0.005	4
Total Iron		x		0.130	0.223	4
Total Magnesium		x		83.0	87.6	4
Total Molybdenum		x		0.0360	0.117	4
Total Manganese		x		0.0235	0.0304	4
Total Thallium			x	<0.005	<0.005	4
Total Tin			x	<0.05	<0.05	4
Total Titanium **			x	<0.02	<0.02	4

\*Because there have been no discharges from Outfall 001 since 1997, samples were taken from the Main Cooling Reservoir for effluent characterization, as allowed per the application instructions (pg. 37).

\*\*EPA 200.7 used for titanium analysis.

\*\*\*Initial test results for sulfites ranged from 24-52 mg/L, but are believed to be false positives due to matrix interference. These samples were collected from the Main Cooling Reservoir. It is an open air impoundment where oxygen in the water would readily oxidize sulfite to sulfate. Dissolved oxygen was measured in the recirculating loop from the reservoir following the sulfite analyses and found to be over 5 mg/L, indicating that no sulfite could be present.

6. **TABLE 6:** Indicate with a check mark any of the industrial categories applicable to your facility. If testing is required, indicate with a check mark in the box provided that the testing results for the appropriate parameters in Table B-7 are provided with the application. (Instructions, Page 39)

N/A	GC/MS Testing Required			
	Volatile	Acid	Base/Neutral	Pesticides
___ Adhesives and Sealants	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Aluminum Forming	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Auto and Other Laundries	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
___ Battery Manufacturing	Yes <input type="checkbox"/>	No	Yes <input type="checkbox"/>	No
___ Coal Mining	No	No	No	No
___ Coil Coating	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Copper Forming	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Electric and Electronic Components	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
___ Electroplating	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Explosives Manufacturing	No	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Foundries	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Gum and Wood Chemicals				
___ Subparts A,B,C,E	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No	No
___ Subparts D,F	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Inorganic Chemicals	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Iron and Steel Manufacturing	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Leather Tanning/Finishing	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Mechanical Products Manufacturing	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Nonferrous Metals Mfg.	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
___ Ore Mining(Subpart B)	No	Yes <input type="checkbox"/>	No	No
___ Organic Chemicals, Plastics, and Synthetic Fibers	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
___ Paint and Ink Formulation	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Pesticides	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
___ Petroleum Refining	Yes <input type="checkbox"/>	No	No	No
___ Pharmaceutical Preparations	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Photographic Equipment and Supplies	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Plastic and Synthetic Materials Manufacturing	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
___ Plastic Processing	Yes <input type="checkbox"/>	No	No	No
___ Porcelain Enameling	No	No	No	No
___ Printing and Publishing	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>
___ Pulp and Paperboard Mills				
___ Subparts A	* <input type="checkbox"/>	Yes <input type="checkbox"/>	* <input type="checkbox"/>	Yes <input type="checkbox"/>
___ Subparts B,C,D,R	* <input type="checkbox"/>	Yes <input type="checkbox"/>	* <input type="checkbox"/>	* <input type="checkbox"/>
___ Subparts F,G,H,I,K,L,M,N,O,P	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	* <input type="checkbox"/>	* <input type="checkbox"/>
___ Subparts E,Q,S,T	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	* <input type="checkbox"/>	Yes <input type="checkbox"/>
___ Subparts J,U	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	* <input type="checkbox"/>
___ Rubber Processing	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Soap and Detergent Manufacturing	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
✓ Steam Electric Power Plants	Yes <input checked="" type="checkbox"/>	Yes <input checked="" type="checkbox"/>	No	No
___ Textile Mills (Not Subpart C)	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	No
___ Timber Products Processing	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>

\* Test if "believed present"

7. **TABLE 7:** Please complete as directed and only for those parameters specified in Table 6. Required for all external outfalls which contain process wastewater. Not required for internal outfalls. Testing may be required for types of industry not specified in Table 6 for specific parameters if believed present (Instructions, Page 39).

TABLE 7

Outfall No.: 001*	<input type="checkbox"/> C <input checked="" type="checkbox"/> G	Effluent Concentration (µg/l) *		No. of Samples	MAL (µg/l)
Pollutants		Average	Maximum		
<b>VOLATILE COMPOUNDS</b>					
Acrolein		<50	<50	4	50
Acrylonitrile		<10	<10	4	50
Benzene		<5	<5	4	10
Bromoform		<5	<5	4	10
Carbon Tetrachloride		<5	<5	4	10
Chlorobenzene		<5	<5	4	10
Chlorodibromomethane		<5	<5	4	10
Chloroethane		<10	<10	4	50
2-Chloroethylvinyl Ether		<10	<10	4	10
Chloroform		<5	<5	4	10
Dichlorobromomethane		<5	<5	4	10
1,1-Dichloroethane		<5	<5	4	10
1,2-Dichloroethane		<5	<5	4	10
1,1-Dichloroethylene		<5	<5	4	10
1,2-Dichloropropane		<5	<5	4	10
1,3-Dichloropropylene		<5	<5	4	10
Ethylbenzene		<5	<5	4	10
Methyl Bromide		<10	<10	4	50
Methyl Chloride		<10	<10	4	50
Methylene Chloride		<5	<5	4	20
1,1,2,2-Tetrachloroethane		<5	<5	4	10
Tetrachloroethylene		<5	<5	4	10
Toluene		<5	<5	4	10
1,2-Trans-Dichloroethylene		<5	<5	4	10
1,1,1-Trichloroethane		<5	<5	4	10
1,1,2-Trichloroethane		<5	<5	4	10
Trichloroethylene		<5	<5	4	10
Vinyl Chloride		<10	<10	4	10

\*Because there have been no discharges from Outfall 001 since 1997, samples were taken from the Main Cooling Reservoir for effluent characterization, as allowed per the application instructions (pg. 37).



Pollutants	Effluent Concentration (µg/l) *		No. of Samples	MAL (µg/l)
	Average	Maximum		
<b>ACID COMPOUNDS</b>				
2-Chlorophenol	<5	<5	4	10
2,4-Dichlorophenol	<5	<5	4	10
2,4-Dimethylphenol	<5	<5	4	10
4,6-Dinitro-o-Cresol	<25	<25	4	50
2,4-Dinitrophenol	<25	<25	4	50
2-Nitrophenol	<5	<5	4	20
4-Nitrophenol	<25	<25	4	50
P-Chloro-m-Cresol	<5	<5	4	10
Pentachlorophenol	<25	<25	4	50
Phenol	<5	<5	4	10
2,4,6-Trichlorophenol	<5	<5	4	10
<b>BASE/NEUTRAL COMPOUNDS</b>				
Acenaphthene	<5	<5	4	10
Acenaphthylene	<5	<5	4	10
Anthracene	<5	<5	4	10
Benzidine	<20	<20	4	50
Benzo(a)Anthracene	<5	<5	4	10
Benzo(a)Pyrene	<5	<5	4	10
3,4-Benzofluoranthene	<5	<5	4	10
Benzo(ghi)Perylene	<5	<5	4	20
Benzo(k)Fluoranthene	<5	<5	4	10
Bis(2-Chloroethoxy)Methane	<5	<5	4	10
Bis(2-Chloroethyl)Ether	<5	<5	4	10
Bis(2-Chloroisopropyl)Ether	<5	<5	4	10
Bis(2-Ethylhexyl)Phthalate	<5	<5	4	10
4-Bromophenyl Phenyl Ether	<5	<5	4	10
Butylbenzyl Phthalate	<5	<5	4	10
2-chloronaphthalene	<5	<5	4	10
4-chlorophenyl phenyl ether	<5	<5	4	10
Chrysene	<5	<5	4	10
Dibenzo(a,h)Anthracene	<5	<5	4	20
1,2-Dichlorobenzene	<5	<5	4	10
1,3-Dichlorobenzene	<5	<5	4	10
1,4-Dichlorobenzene	<5	<5	4	10
3,3-Dichlorobenzidine	<10	<10	4	50
Diethyl Phthalate	<5	<5	4	10
Dimethyl Phthalate	<5	<5	4	10
Di-n-Butyl Phthalate	<5	<5	4	10
2,4-Dinitrotoluene	<5	<5	4	10

Pollutants	Effluent Concentration (µg/l) *		No. of Samples	MAL (µg/l)
	Average	Maximum		
<b>BASE/NEUTRAL COMPOUNDS (cont.)</b>				
2,6-Dinitrotoluene	<5	<5	4	10
Di-n-Octyl Phthalate	<5	<5	4	10
1,2-Diphenyl Hydrazine (as Azobenzene)	<5	<5	4	20
Fluoranthene	<5	<5	4	10
Fluorene	<5	<5	4	10
Hexachlorobenzene	<5	<5	4	10
Hexachlorobutadiene	<5	<5	4	10
Hexachlorocyclopentadiene	<5	<5	4	10
Hexachloroethane	<5	<5	4	20
Indeno(1,2,3-cd)pyrene	<5	<5	4	20
Isophorone	<5	<5	4	10
Naphthalene	<5	<5	4	10
Nitrobenzene	<5	<5	4	10
N-Nitrosodimethylamine	<5	<5	4	50
N-Nitrosodi-n-Propylamine	<5	<5	4	20
N-Nitrosodiphenylamine	<5	<5	4	20
Phenanthrene	<5	<5	4	10
Pyrene	<5	<5	4	10
1,2,4-Trichlorobenzene	<5	<5	4	10
<b>PESTICIDES</b>				
Aldrin			n/a	0.05
alpha-BHC			n/a	0.05
beta-BHC			n/a	0.05
gamma-BHC			n/a	0.05
delta-BHC			n/a	0.05
Chlordane			n/a	0.15
4,4,-DDT			n/a	0.1
4,4,-DDE			n/a	0.1
4,4,-DDE			n/a	0.1
Dieldrin			n/a	0.1
alpha-Endosulfan			n/a	0.1
beta-Endosulfan			n/a	0.1
Endosulfan Sulfate			n/a	0.1
Endrin			n/a	0.1
Endrin Aldehyde			n/a	0.1
Heptachlor			n/a	0.05

Pollutants	Effluent Concentration (µg/l)		No. of Samples	MAL (µg/l)
	Average	Maximum		
<b>PESTICIDES (cont.)</b>				
Heptachlor Epoxide			n/a	
PCB-1254	<1	<1	4	1.0
PCB-1221	<1	<1	4	1.0
PCB-1242	<1	<1	4	
PCB-1232	<1	<1	4	1.0
PCB-1248	<1	<1	4	1.0
PCB-1260	<1	<1	4	1.0
PCB-1016	<1	<1	4	1.0
Toxaphene			n/a	5.0

\* Indicate units if different from µg/l

8. **TABLE 8 (DIOXINS/FURAN COMPOUNDS):** Please complete as directed. Not required for internal outfalls. (Instructions, Pages 39-40)

a. Are any of the following compounds manufactured and/or used in a process at the facility? \_\_\_ Yes  No

If yes, indicate with a check mark the compound(s) which apply and provide a brief description of the conditions of its/their presence at the facility.

- \_\_\_ 2,4,5-trichlorophenoxy acetic acid (2,4,5-T) CAS #93-76-5
- \_\_\_ 2-(2,4,5-trichlorophenoxy) propanoic acid (Silvex, 2,4,5-TP) CAS #93-72-1
- \_\_\_ 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon) CAS #136-25-4
- \_\_\_ 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate (Ronnel) CAS #299-84-3
- \_\_\_ 2,4,5-trichlorophenol (TCP) CAS #95-95-4
- \_\_\_ Hexachlorophene (HCP) CAS #70-30-4

n/a

b. Do you know or have any reason to believe that 2,3,7,8 Tetrachlorodibenzo-P-Dioxin (TCDD) or any congeners of TCDD may be present in your effluent? \_\_\_ Yes  No

If yes, provide a brief description of the conditions for its presence.

n/a

c. If your responded yes to either item a or b, complete **Table 8** as instructed.

**TABLE 8**

Outfall _____	<input type="checkbox"/> C <input type="checkbox"/> G	Wastewater		Sludge		
Compound	Equivalent Factors	Concentration (ppq)	Equivalents (ppq)	Concentration (ppt)	Equivalents (ppt)	MAL (ppq)
2,3,7,8-TCDD	1					10.0
1,2,3,7,8-PeCDD	0.5					50.0
2,3,7,8-HxCDDs	0.1					50.0
2,3,7,8-TCDF	0.1					10.0
1,2,3,7,8-PeCDF	0.05					50.0
2,3,4,7,8-PeCDF	0.5					50.0
2,3,7,8-HxCDFs	0.1					50.0
Total						



**Laboratories Providing Analyses**

Parameters	Laboratory
Field analyses (temperature, pH, total residual chlorine)	STP Nuclear Operating Company (permittee)
All others	SPL Inc. 8880 Interchange Drive Houston, TX 77054 (713) 660-0901

WORKSHEET 4.0 - RECEIVING WATERS

THE FOLLOWING IS REQUIRED FOR ALL TPDES PERMIT APPLICATIONS

1. DOMESTIC DRINKING WATER SUPPLY (Instructions, Page 54)

Is there a surface water intake for domestic drinking water supply located within 5 (five) miles downstream from the point/proposed point of discharge? \_\_\_ Yes  No

If yes, identify owner of the drinking water supply, the distance and direction to the intake, and locate and identify the intake on the USGS map. Indicate by a check mark that the requested information is provided: \_\_\_

2. DISCHARGE INTO TIDALLY INFLUENCED WATERS (Instructions, Page 54)

a. Width of the receiving water at the outfall? ~300 feet

b. Are there oyster reefs in the vicinity of the discharge? \_\_\_ Yes  No

If yes, indicate approximate distance and direction from outfall(s): n/a

c. Are there any sea grasses within the vicinity of the point of discharge? \_\_\_ Yes  No

If yes, provide the distance and direction to the grasses: n/a

3. CLASSIFIED SEGMENT (Instructions, Page 54)

Is the discharge directly into (or within 300 feet of) a classified segment?  Yes \_\_\_ No (See note\* below.)

\*From Outfall 001, the discharge flows through a pipe ~1 mile directly to the Colorado River. If yes, stop here. It is not necessary to complete items 4 and 5 and it is not necessary to complete Worksheet 2.1. If no, complete items 4 and 5.

4. DESCRIPTION OF IMMEDIATE RECEIVING WATERS (Instructions, Page 55)

Name of the immediate receiving waters: n/a

a. Check the appropriate description of the receiving waters

- \_\_\_ Man-made Channel or Ditch
\_\_\_ Stream or creek
\_\_\_ Lake or Pond
\_\_\_ Surface area \_\_\_ acres. Average depth of the entire water body \_\_\_ feet
Average depth of water body within a 500-foot radius or the discharge point \_\_\_ feet
\_\_\_ Freshwater Swamp or Marsh
\_\_\_ Tidal Stream, Bayou, or Marsh
\_\_\_ Open Bay
\_\_\_ Other: \_\_\_

If a man-made channel, ditch or stream was checked above, provide the following:

b. Check one of the following that best characterizes the area upstream of the discharge. For new discharges, characterize the area downstream of the discharge (check one).

- \_\_\_ Intermittent (dry for at least one week during most years)
\_\_\_ Intermittent with Perennial Pools (enduring pools containing sufficient habitat to maintain significant aquatic life uses)
\_\_\_ Perennial (normally flowing)

Check the method used to characterize the area upstream (or downstream for new dischargers):  USGS flow records,  personal observation,  historical observation by adjacent landowner(s),  others, specify:

c. List the name(s) of all perennial streams that join the receiving water within three miles downstream of the discharge point:

n/a

d. Do the receiving water characteristics change within three miles downstream of the discharge? (e.g., natural or man-made dams, ponds, reservoirs, etc.)  Yes  No

If yes, discuss how:

n/a

e. Provide general observations of the water body during normal dry weather conditions:

n/a

Date and time of observation: n/a

Was water body influenced by storm water runoff during observations?  Yes  No

#### 5. GENERAL CHARACTERISTICS OF WATER BODY (Instructions, Page 55)

a. Is the receiving water upstream of the discharges or proposed discharge site influenced by (check as appropriate):

<input type="checkbox"/> oil field activities	<input type="checkbox"/> urban runoff
<input type="checkbox"/> agricultural runoff	<input type="checkbox"/> septic tanks
<input type="checkbox"/> upstream discharges	<input type="checkbox"/> others, specify below

n/a

b. Uses of water body, observed or evidences of (check as appropriate):

<input type="checkbox"/> livestock watering	<input type="checkbox"/> contact recreation	<input type="checkbox"/> irrigation withdrawal
<input type="checkbox"/> non contact recreation	<input type="checkbox"/> fishing	<input type="checkbox"/> navigation
<input type="checkbox"/> domestic water supply	<input type="checkbox"/> industrial water supply	<input type="checkbox"/> picnic park activities
<input type="checkbox"/> others, specify below		

n/a

c. Check one of the following to best describe the aesthetics of the receiving water and the surrounding area:

Wilderness: outstanding natural beauty; usually wooded or unpastured area; water clarity exceptional

Natural Area: trees and/or native vegetation common; some development evident (from fields, pastures, dwellings); water clarity discolored

Common Setting: not offensive, developed but uncluttered; water may be colored or turbid

Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored



WORKSHEET 5.0 - SEWAGE SLUDGE MANAGEMENT AND DISPOSAL

THE FOLLOWING IS REQUIRED FOR ALL TPDES PERMIT APPLICATIONS THAT MEET THE CONDITIONS AS OUTLINED IN TECHNICAL REPORT 1.0, ITEM NO. 7.

1. SEWAGE SLUDGE SOLIDS MANAGEMENT PLAN (Instructions, Page 58)

- a. Is this a new permit application or an amendment permit application? Yes No
b. Does the facility discharge in the Lake Houston watershed? Yes No

If yes to either item a or b, indicate by a check mark that a solids management plan was provided with the application.

2. SEWAGE SLUDGE MANAGEMENT AND DISPOSAL (Instructions, Pages 58-59)

- a. Please check the current sludge disposal method(s). More than one method can be checked.

- Permitted landfill
Registered land application site
Surface disposal site (sludge monofill)
Transported to another WWTP (written statement or contractual agreement required)
Beneficial land application as authorized in the existing permit
Marketing and distribution by the permittee
Composted by the permittee

- b. Disposal site name, TCEQ Permit/Registration Number and County where disposal site is located: Blue Ridge Landfill, Fort Bend County, permit no. 1505

- c. Method of Transportation (truck, train, pipe, other) and hauler Registration Number: truck, Aqua Zyme Services, registration no. 21480

Transported in: liquid semi-liquid semi-solid solid state
Land application for: Reclamation Soil Conditioning

- d. If the existing permit contains authorization for sludge land application, composting, marketing and distribution of sludge, and/or sludge lagoons and authorization to renew the activity is being sought in the application, the appropriate sections of the Sludge Technical Report must be provided.

3. PERMIT AUTHORIZATION FOR SEWAGE SLUDGE DISPOSAL (Instructions, Page 59)

Are you requesting new authorization to beneficially land apply sewage sludge at this site or a site under your direct control? Yes No

Are you requesting new authorization to market and distribute sewage sludge at this facility or a facility under your direct control? Yes No

Are you requesting new authorization to compost sewage sludge? Yes No

Are you requesting new authorization to surface dispose sewage sludge at this site or site under your direct control? Yes No

Are you requesting new authorization to incinerate sewage sludge at this site or site under your direct control? Yes No

If yes to any of the above items, provide the information required in the SLUDGE TECHNICAL REPORT.

New authorization for beneficial land application, incineration, and sludge lagoons in the TPDES or TLAP permits requires a major amendment to the permit. New authorization for composting may require a major amendment to the permit. See the instructions for an explanation whether a major amendment is required or if authorization for composting can be added through the renewal process.

**WORKSHEET 11.0 – COOLING WATER INTAKE STRUCTURES**

**REQUIRED FOR ALL INDIVIDUAL TPDES PERMIT APPLICATIONS FOR:**

- **MANUFACTURING FACILITIES CONSTRUCTED ON OR AFTER JANUARY 17, 2002**
- **ALL POWER GENERATING FACILITIES**

40 CFR Part 125, Subparts I and J regulate the cooling water intake structure(s) certain at power generation and manufacturing facilities. **40 CFR Part 125, Subparts I and J should be thoroughly reviewed prior to completing any portion of this worksheet.**

**1. Phase I Facilities**

**a. Applicability**

Please answer the following:

	<b>Facility</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
i.	Is this facility defined as a new facility? *		✓	
ii.	Is this a point source that uses/proposes to use a cooling water intake structure to withdraw cooling water from waters of the United States?	✓		
iii.	Does the facility have at least one cooling water intake structure that uses $\geq 25\%$ of the water it withdraws for cooling purposes (average monthly basis)?	✓		
iv.	Does the facility have a <i>design</i> intake flow $\geq 2$ MGD?	✓		

If **yes to all** of the questions, 316(b) Phase I is applicable to this facility and you will need to **continue to Item 1.b.** If **no or N/A to any** of the questions, **stop here.**

**b. Compliance Alternative**

Please indicate the compliance alternative selected for this facility.

	<b>Compliance Alternative</b>	<b>Selected</b>
i.	Track I, facilities withdrawing $\geq 10$ MGD	
ii.	Track I, facilities withdrawing $\geq 2$ MGD and $< 10$ MGD	
iii.	Track II	

**c. Application Requirements**

The 316(b) Phase I Compliance Report has been submitted with this permit application as Attachment:

n/a

Please complete the table provided, indicating with an "x" that the information has been submitted.

\*New facility means any building, structure, facility, or installation that meets the definition of a "new source" or "new discharger" in 40 CFR 122.2 and 122.29(b)(1), (2), and (4) and is a greenfield or stand-alone facility; commences construction after January 17, 2002; and uses either a newly constructed cooling water intake structure, or an existing cooling water intake structure whose design capacity is increased to accommodate the intake of additional cooling water. New facilities include only "greenfield" and "stand-alone" facilities. A greenfield facility is a facility that is constructed at a site at which no other source is located, or that totally replaces the process or production equipment at an existing facility (see 40 CFR 122.29(b)(1)(i) and (ii)). A stand-alone facility is a new, separate facility that is constructed on property where an existing facility is located and whose processes are substantially independent of the existing facility at the same site ( see 40 CFR 122.29(b)(1)(iii)). New facility does not include new units that are added to a facility for purposes of the same general industrial operation (for example, a new peaking unit at an electrical generating station).

**316(b) Phase I Compliance Demonstration Requirements**

Compliance Alternative	40 CFR §122.21(r)			Flow reduction information	Velocity information	Source water body flow information	Design & Construction Technology Plan <sup>1</sup>	Track II Comprehensive Demonstration Study		
	Source water physical data	Cooling water intake structure data	Source Water Baseline Biological Characterization					Source Water Biological Study	Evaluation of potential cooling water intake structure effects	Verification Monitoring Plan
Track I (≥ 2 and ≤ 10 MGD)										
Track I (≥ 10 MGD)										
Track II										

<sup>1</sup> The Design and Construction Technology Plan is required ONLY where:

there are threatened and endangered or otherwise protected federal, state, or tribal species, or critical habitat for these species, within the hydraulic zone of influence of the cooling water intake structure;

OR

based on information submitted by any fishery management agency(ies) or relevant information, there are migratory and/or sport or commercial species of impingement concern that pass through the hydraulic zone of influence of the cooling water intake structure;

OR

it is determined, based on information submitted by any fishery management agency(ies) or other relevant information, that the proposed facility, after meeting the technology-based performance requirements in 40 CFR §125.84(b)(1), (2), and (3) would still contribute unacceptable stress to the protected species, critical habitat of those species, or these species of concern.

2. Phase II Facilities

a. Applicability

Please answer the following:

		Yes	No	N/A
i.	Does this facility, as its primary activity, generate/transmit or generate/sell for transmission electric power?	✓		
ii.	Was the facility constructed <i>prior to</i> January 17, 2002?	✓		
iii.	Is this a point source that uses/proposes to use a cooling water intake structure to withdraw cooling water from waters of the United States?	✓		
iv.	Does the facility have at least one cooling water intake structure that uses $\geq 25\%$ of water withdrawn used exclusively for cooling purposes (monthly average basis)?	✓		
v.	Does the facility have a <i>design</i> intake flow of $\geq 50$ MGD?	✓		

If **yes to all** of the questions, 316(b) Phase II is applicable to this facility and you will need to **continue to Item 1.b.** If **no or N/A to any** of the questions, **stop here.**

b. Compliance Alternative

Please indicate the compliance alternative selected for this facility.

	Compliance Alternative		Selected
(1)	(i)	Flow reduced commensurate with a closed-cycle recirculating system.	✓
	(ii)	Maximum through-screen design intake velocity reduced to $\leq 0.5$ ft/sec.	
(2)	<i>Existing</i> design/construction technologies, operational measures, and/or restoration measures meet the performance standards specified at 40 CFR §125.94(b) and/or the restoration requirements in 40 CFR §125.94(c).		
(3)	<i>New in combination with existing</i> design/construction technologies, operational measures, and/or restoration measures meet the performance standards specified at 40 CFR §125.94(b) and/or the restoration requirements in 40 CFR §125.94(c).		
(4)	Approved design and construction technology in accordance with 40 CFR §125.99(a) or (b).		
(5)	Site-Specific Determination of Best Technology Available		
	(i)	Costs significantly greater than those considered by EPA (cost/cost)	
	(ii)	Cost significantly greater than benefits (cost/benefit)	

c. Application Requirements

The 316(b) Phase II Compliance Report has been submitted with this permit application as Attachment:

See the attached letters following this page:

- 1) Letter from STP Nuclear Operating Company to Mr. Kelly Holligan, Texas Commission on Environmental Quality (TCEQ), May 24, 2007.
- 2) Letter from Mr. Kelly Holligan, TCEQ to STP Nuclear Operating Company, June 27, 2007.

Please complete the table provided, indicating with an "x" that the information has been submitted.

**316(b) Phase II Compliance Demonstration Requirements**

Compliance Option		40 CFR §122.21(r)			Comprehensive Demonstration Study (CDS)								
		Source water physical data	Cooling water intake structure data	Cooling water system data	Proposal for Information Collection (PIC) <sup>2</sup>	Source water body flow information	Impingement Mortality and/or Entrainment Characterization Study	Technology & compliance assessment information		Restoration Plan <sup>3</sup>	Information to support site-specific determination of best technology available for minimizing adverse environmental impact		
							Design and Construction Technology Plan	Technology Installation and Operation Plan	Comprehensive Cost Evaluation Study		Benefits Valuation Study	Site-Specific Technology Plan	
1	(i)												
	(ii) <sup>1</sup>												
2													
3													
4													
5	(i)												
	(ii)												

<sup>1</sup>This compliance alternative demonstrates compliance with impingement performance standards only. Where entrainment performance standards are applicable, please also select a separate compliance alternative for entrainment and submit all applicable data.

<sup>2</sup>The PIC is submitted ONLY where a FINAL PIC has not been previously submitted to the TCEQ.

<sup>3</sup>The Restoration Plan is submitted ONLY where the facility proposes restoration measures.

<sup>4</sup>The Verification Monitoring Plan is submitted ONLY where the facility proposes design and construction technologies and/or operational measures.



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

May 24, 2007  
NOC-TX-07016176  
PFN: W02  
STI No. 32165797

Mr. Kelly Holligan  
Team Leader, Industrial Wastewater Permits  
Texas Commission on Environmental Quality  
P.O. Box 13087  
Austin, TX 78711-3087

**Re: Cooling Water Intake Structures Phase II Rules  
South Texas Project Electric Generating Station  
TPDES Permit No. 01908**

Dear Mr. Holligan:

Thank you for meeting with my staff on May 15, 2007 to discuss the South Texas Project Electric Generating Station (STPEGS) cooling reservoir and other wastewater discharge permit issues. Based on our discussion, STP Nuclear Operating Company (STPNOC) is submitting the following information regarding the Main Cooling Reservoir (MCR) and the applicability of the regulations for cooling water intake structures. We are confident that the South Texas Project Station (STP) complies with the regulation by employing a closed-cycle recirculating cooling system as defined in 40 CFR §125.93. Pursuant to 40 CFR §125.94(a)(1)(i), cooling water flow for this facility is commensurate with a closed-cycle recirculating cooling system, as demonstrated below. Additional technical information is included in letters dated March 7, 2005 and August 18, 2005 previously submitted to the Texas Commission on Environmental Quality (TCEQ).

STP is located on 12,220-acres in Matagorda County, approximately 15 miles southwest of Bay City along the west bank of the Colorado River. The facility consists of two electric-generating units, which share a closed-cycle recirculating cooling reservoir. Water from the MCR is passed through the cooling loops of both units then returned to the MCR for heat dissipation before cycling back through the cooling systems.

The MCR is a perched, off-channel, on-site industrial cooling impoundment of approximately 7,000 acres, impounding over 202,600 acre-feet of cooling water at its maximum operating level. Dikes are installed in the MCR that channel the water flow to maximize circulation time for heat dissipation before the water is recirculated back to the generating units. Blowdown from the MCR to the Colorado River has not occurred since March 1997. Should blowdown be required it would occur through an underground pipe that discharges back into the Colorado River. This point is designated as Outfall 001 in the TPDES Permit No. 01908. The MCR is also equipped with a gated spillway for emergency use. The MCR is not a "water of the U.S." as defined at 40 CFR § 122.2. The MCR is not considered a "water of the State" based on internal and external outfall designations in the permit. The MCR is on private property and exists solely for

Mr. Kelly Holligan

May 24, 2007

Page 2

industrial cooling. It is not a publicly managed water body and has no recreational uses. The general public has never had access to the MCR nor is any planned in the foreseeable future.

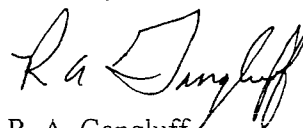
The only sources of new water to the MCR are direct rainfall and make-up water diverted periodically from the Colorado River, primarily at high river flows. Water from the Colorado River is pumped approximately 1 mile via a 108 inch pipe to the MCR. To protect inflows during low river flow conditions, the water right for STP includes a special provision to limit diversion from the Colorado River to 55% of the flow over 300 cubic feet per second, to protect inflows during low river flow conditions. Currently, the intake consists of trash racks, rotating screens with 3/8 inch mesh and 4 pumps. In addition, the reservoir makeup pumping facility has the following design:

- The traveling water screens are flush with the river shoreline;
- The maximum approach velocity to the traveling water screens is 0.5 feet per second;
- Fish passageways were constructed in the wing walls between the traveling screens to facilitate fish migration parallel to the screen surfaces; and
- A sluice and discharge line was installed for the purpose of returning all impinged organisms directly to the river, downstream of the intake structure, immediately after being backwashed from the screens.

The pumps are operated intermittently based on reservoir level, river flow, and the operability of the makeup pumping facility. A cooling reservoir evaporates less water per unit of heat dissipated than a cooling tower, thus dissolved solids build up more slowly over time. This is complemented by the designed seepage from the MCR, which maintains the structural integrity of the reservoir embankment. Rainfall further dilutes the dissolved solids in the MCR. These factors minimize the blowdown and make-up required to maintain MCR water quality. As a result, intake water flow for cooling purposes at STP reflects best technology available (closed-cycle recirculating systems) for minimizing adverse environmental impact.

As was discussed in the May 15, 2007 meeting, several provisions of the Phase II rule are in the process of being suspended by the U.S. Environmental Protection Agency and the Regional Administrators have been authorized to review the applicability of the rule on a case by case basis using Best Professional Judgment. Based on that authorization and the information provided, STPNOC is requesting that TCEQ designate the MCR as a closed-cycle recirculating system. We are also requesting concurrence that the MCR does not meet the definition of a "water of the State". If you have any questions or require additional information, please contact Ms. S. L. Dannhardt at (361) 972-8328.

Sincerely,



R. A. Gangluff  
Manager, Chemistry  
Environmental and Health Physics

Mr. Kelly Holligan  
May 24, 2007  
Page 3

cc: Mr. Earl Lott  
Special Assistant, Office of Permitting, Remediation & Registration  
Texas Commission on Environmental Quality  
P.O. Box 13087  
Austin, TX 78711-3087

Ms. Susan Jablonski  
Special Assistant/Radioactive Waste Specialist  
Office of Permitting, Remediation & Registration  
Texas Commission on Environmental Quality  
P.O. Box 13087  
Austin, TX 78711-3087



Kathleen Hartnett White, *Chairman*  
Larry R. Soward, *Commissioner*  
H. S. Buddy Garcia, *Commissioner*  
Glenn Shankle, *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

June 27, 2007

Mr. R.A. Gangluff, Manager, Chemistry  
Environmental and Health Physics  
STP Nuclear Operating Company  
P.O. Box 289  
Wadsworth, Texas 77483

Re: Cooling Water Intake Structures Phase II Rules; South Texas Project Electric Generating Station;  
TPDES Permit No. WQ0001908000.

Dear Mr. Gangluff:

I received your letter dated May 24, 2007, requesting that the Main Cooling Reservoir (MCR) be designated as a closed-cycle recirculating system and as not water in the state.

The Texas Commission on Environmental Quality (TCEQ) does not have an official method of "designating" a facility's operation as a closed-cycle recirculating system. However, we have reviewed the information you submitted and based on our best professional judgement, we consider your facility to be a closed-cycle recirculating system. As mentioned in your letter, the federal rule governing the 316(b) Phase II cooling water intakes is currently in the process of being suspended. For the time being, implementation of the 316(b) requirements will be based on best professional judgement (BPJ) and subject to EPA Region VI review.

We also concur that the Main Cooling Reservoir (MCR) at your facility does not meet the definition of water in the state.

If you have any questions, please contact me at (512) 239-2369.

Sincerely,

A handwritten signature in cursive script that reads "Kelly Holligan".

Kelly Holligan, Leader  
Industrial Team  
Water Quality Division

KH/jp



★ Site	🌳 Park	🟡 County
● Well	🏫 School	🟠 State
⊙ Cluster	⚰ Cemetary	🏘 Urban Area
🛣 Limited Access Hwy	🏠 Building	🟢 Open Space
🛣 Primary Highway	🚂 Railroad	🟠 Educational/Religious
🛣 Secondary Highway	⛪ Church	🟡 Water Bodies
🛣 Roads	🛤 Trail	🏠 Multihousehold
🏥 Hospital	🌉 Bridge	🟠 Military
✈ Airport	🗼 Tower	🟠 Custodial Facility

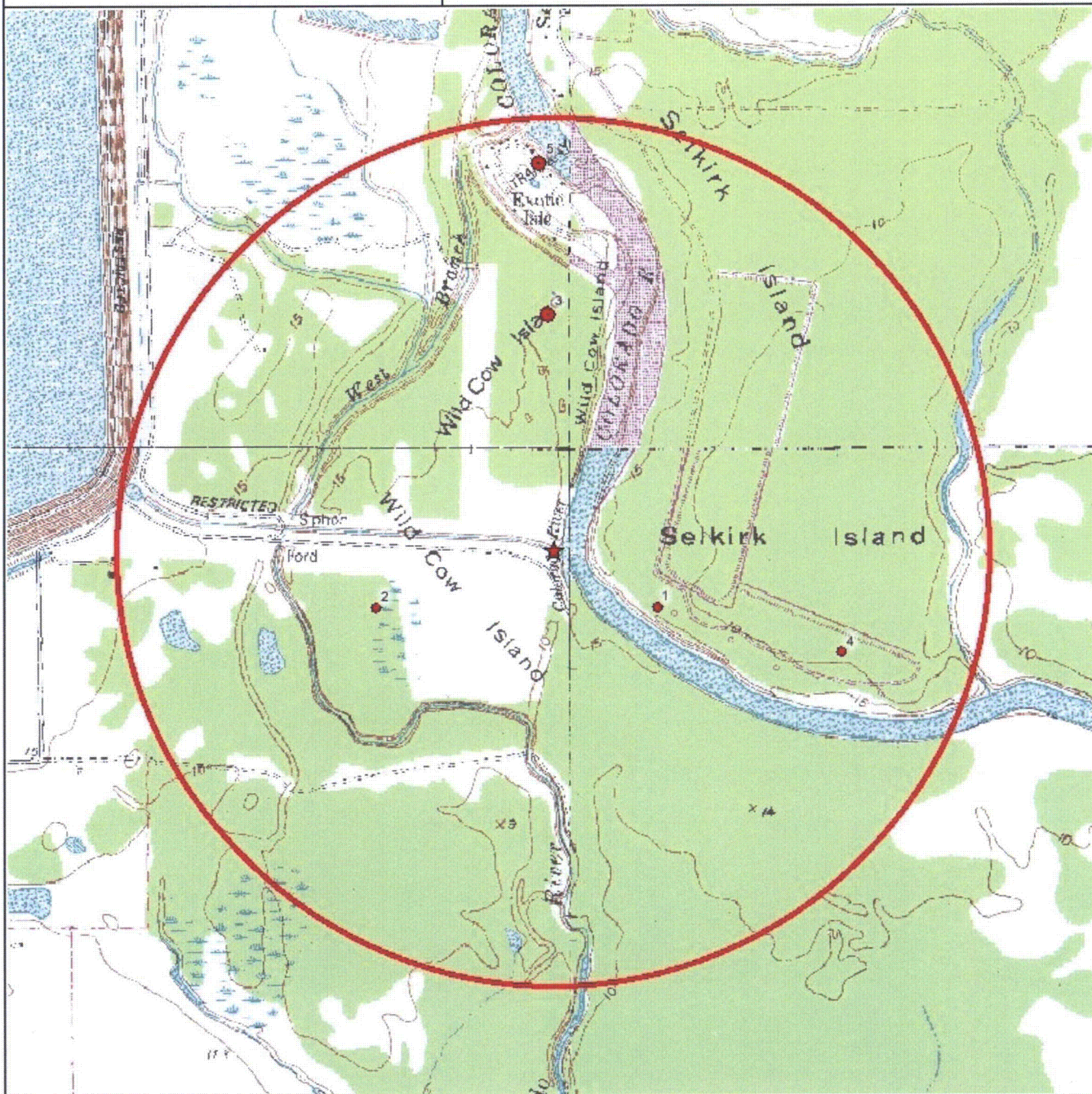
One inch = 0.39 miles

### One-Mile Radius Around Outfall 001 Blowdown at Riv

Banks Environmental Data  
 1601 Rio Grande Suite 500 Austin, Texas 78701  
 PH 512-478-0059 FAX 512-478-1433



**Map of Wells within 1 Mile(s)**



- ★ Subject Site
- Site
- Cluster
- Existing Road
- State Line
- County Line
- Unimproved Road

One inch = 0.39 miles

**One-Mile Radius Around Outfall  
 001 Blowdown at Riv**

Banks Environmental Data  
 1601 Rio Grande Suite 500 Austin, Texas 78701





**BANKS**  
ENVIRONMENTAL DATA  
A DIVISION OF THE BANKS GROUP

# Water Well Report <sup>TM</sup>

## DETAILS

Map #	State ID	Owner of Well	Type of Well	Depth Drilled	Completion Date	Longitude	Latitude	Driller's Log
1	101055	Gene Miller	Domestic	720	8/7/2006	-95.99694	28.74499	
2	80-24-302	Southern Minerals Corp	blank	0		-96.0075	28.74499	<a href="#">View</a>
3	80-16-9	Two River Cattle Co.	Domestic	130	11/21/2001	-96.00105	28.7547	<a href="#">View</a>
3	80-16-9	Two River Cattle Co.	Domestic	130	11/21/2001	-96.00101	28.75478	<a href="#">View</a>
3	80-16-9	Two River Cattle Co.	Domestic	130	11/21/2001	-96.00113	28.75478	<a href="#">View</a>
4	81-17-1	Jane Cox	Domestic	140	8/15/1999	-95.99007	28.74351	<a href="#">View</a>
5	G1610019A	EXOTIC ISLE SUBDIV WATER SYSTEM	Public Supply	548		-96.00111	28.75916	
5	80-16-903	Exotic Isle Subd.	PUBLIC SUPPLY	548		-96.00138	28.75944	
5	8950	Exotic Isle Home Owners Association	Public Supply	330	3/20/2002	-96.00138	28.75972	

1601 Rio Grande Suite 500 Austin, Texas 78701  
PH 512.478.0059 FAX 512.478.1433 E-mail [banks@banksinfo.com](mailto:banks@banksinfo.com)

# CROSS REFERENCE SHEET

Name or Subject	CR-GWTD MATAGORDA	Located Well Data TA 80-24-302	Date
Regarding	Electric Log		

## SEE

Name or Subject	GW-SC ELECTRIC LOG FILE	Q-665
-----------------	----------------------------	-------

B-152(62-1)

3

ATTENTION OWNER: Confidentiality Privilege Notice on an reverse side of Well Owner's copy (pink)		<b>State of Texas WELL REPORT</b>		Texas Water Well Drillers Advisory Council MC 177 P.O. Box 13087 Austin, TX 78711-3087 512-239-0530	
1) OWNER <u>TWO RIVER CATTLE CO</u> (Name)		ADDRESS <u>1301 MCKINNY HOUSTON TX 77010</u> (Street or RFD) (City) (State) (Zip)			
2) ADDRESS OF WELL: County <u>MATAGORDA</u>				GRID # <u>80-10-9</u>	
3) TYPE OF WORK (Check): <input checked="" type="checkbox"/> New Well <input type="checkbox"/> Deepening <input type="checkbox"/> Reconditioning <input type="checkbox"/> Plugging		4) PROPOSED USE (Check): <input type="checkbox"/> Monitor <input type="checkbox"/> Environmental Soil Boring <input type="checkbox"/> Industrial <input type="checkbox"/> Irrigation <input type="checkbox"/> Injection <input type="checkbox"/> Public Supply <input type="checkbox"/> De-watering <input type="checkbox"/> Testwell If Public Supply well, were plans submitted to the TNRCC? <input type="checkbox"/> Yes <input type="checkbox"/> No		5)	
6) WELL LOG: Date Drilling: _____ Started <u>4-18</u> 19 <u>01</u> Completed <u>11-27</u> 19 <u>01</u>		DIAMETER OF HOLE Dia. (in.) From (ft.) To (ft.) <u>73/4</u> Surface <u>130</u>		7) DRILLING METHOD (Check): <input type="checkbox"/> Driven <input type="checkbox"/> Air Rotary <input checked="" type="checkbox"/> Mud Rotary <input type="checkbox"/> Bored <input type="checkbox"/> Air Hammer <input type="checkbox"/> Cable Tool <input type="checkbox"/> Jolted <input type="checkbox"/> Other _____	
From (ft.) To (ft.) Description and color of formation material <u>0-90 CLAY</u> <u>90-130 SAND</u>		8) Borehole Completion (Check): <input type="checkbox"/> Open Hole <input type="checkbox"/> Straight Wall <input type="checkbox"/> Underreamed <input type="checkbox"/> Gravel Packed <input type="checkbox"/> Other _____ If Gravel Packed give interval ... from _____ ft. to _____ ft.			
CASING, BLANK PIPE, AND WELL SCREEN DATA:					
		Dia. (in.) New or Used		Setting (ft.)	
		Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial		From To	
		<u>4 N PVC SCREEN</u>		<u>0 90</u>	
		<u>4 N</u>		<u>90 130</u>	
9) CEMENTING DATA [Rule 338.44(1)] Cemented from <u>0</u> ft. to <u>10</u> ft. No. of sacks used <u>11</u> ft. to _____ ft. No. of sacks used _____ Method used <u>MANUEL</u> Cemented by <u>PRIDLER</u> Distance to septic system field lines or other concentrated contamination _____ ft. Method of verification of above distance <u>RECEIVED TOLR MAIL ROOM</u>					
(Use reverse side of Well Owner's copy, if necessary)					
13) TYPE PUMP: <input type="checkbox"/> Turbine <input checked="" type="checkbox"/> Jet <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Cylinder <input type="checkbox"/> Other _____ Depth to pump bowls, cylinder, jet, etc., _____ ft.		10) SURFACE COMPLETION <input type="checkbox"/> Specified Surface Slab Installed [Rule 338.44(2)(A)] <input type="checkbox"/> Specified Steel Sleeve Installed [Rule 338.44(3)(A)] <input type="checkbox"/> Pillbox Adapter Used [Rule 338.44(4)(D)] <input checked="" type="checkbox"/> Approved Alternative Procedure Used [Rule 338.71] AMOUNT _____			
14) WELL TESTS: Type test: <input type="checkbox"/> Pump <input type="checkbox"/> Bailor <input checked="" type="checkbox"/> Jetted <input type="checkbox"/> Estimated Yield: _____ gpm with _____ ft. drawdown after _____ hrs.		11) WATER LEVEL: Static level <u>5</u> ft. below land surface Date _____ Artesian flow _____ gpm. Date _____			
15) WATER QUALITY: Did you knowingly penetrate any strata which contained undesirable constituents? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, submit "REPORT OF UNDESIRABLE WATER" Type of water? _____ Depth of strata _____ Was a chemical analysis made? <input type="checkbox"/> Yes <input type="checkbox"/> No		12) PACKERS: Type _____ Depth _____			
I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.					
COMPANY NAME <u>FORJASON WATER WELL</u> (Type or print)		WELL DRILLER'S LICENSE NO. <u>1804</u>			
ADDRESS <u>Box 1007 EDNA TX 77957</u> (Street or RFD) (City) (State) (Zip)					
(Signed) <u>Parrell Ferguson</u> (Licensed Well Driller)		(Signed) _____ (Registered Driller Trainee)			
Please attach electric log, chemical analysis, and other pertinent information, if available.					

4

ATTENTION OWNER: Confidentiality  
Privilege Notice on an reverse side  
of Well Owner's copy (pink)

State of Texas  
WELL REPORT

Texas Water Well Drillers Advisory Council  
MC 177  
P.O. Box 13087  
Austin, TX 78711-3087  
512-239-0530

1) OWNER TWO RIVER CATTLE CO ADDRESS 1301 MCKINNY Houston TX 77010  
(Name) (Street or RFD) (City) (State) (Zip)

2) ADDRESS OF WELL: County WHAVEROON GRID # 80-16-9  
(Street, RFD or other) (City) (State) (Zip)

3) TYPE OF WORK (Check):  New Well  Deepening  Reconditioning  Plugging  
4) PROPOSED USE (Check):  Monitor  Environmental Soil Boring  Domestic  Industrial  Irrigation  Injection  Public Supply  De-watering  Testwell  
If Public Supply well, were plans submitted to the TNRCC?  Yes  No

6) WELL LOG: Date Drilling: 9-21-01 Started 9-21-01 Completed 11-21-01  
DIAMETER OF HOLE: Dia. (in.) From (ft.) To (ft.)  
9 3/4 Surface 130  
7) DRILLING METHOD (Check):  Driven  Air Rotary  Mud Rotary  Bored  Air Hammer  Cable Tool  Jetted  Other

8) Borehole Completion (Check):  Open Hole  Straight Wall  Underreamed  Gravel Packed  Other  
If Gravel Packed give interval ... from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

From (ft.) To (ft.) Description and color of formation material

0-90		CLAY
90-130		SAND

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dia. (in.)	New or Used	Steel, Plastic, etc. Perf. Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gaps Casing Screen
			From	To	
4	N	PC	0	110	
4	N	SCREEN	110	130	

9) CEMENTING DATA. [Rule 338.44(7)]  
Cemented from 0 ft. to 10 ft. No. of sacks used 10  
Method used MANGEL  
Cemented by D. Miller  
Distance to septic system field lines or other concentrated contamination \_\_\_\_\_ ft.  
Method of verification of above distance \_\_\_\_\_

13) TYPE PUMP:  Turbine  Jet  Submersible  Cylinder  Other  
Depth to pump bowls, cylinder, jet, etc., \_\_\_\_\_ ft.

10) SURFACE COMPLETION  
 Specified Surface Slab Installed [Rule 338.44(2)(A)]  
 Specified Steel Sleeve Installed [Rule 338.44(3)(A)]  
 Pileless Adapter Used [Rule 338.44(3)(b)]  
 Approved Alternative Procedure Used [Rule 338.71]

14) WELL TESTS: Type test:  Pump  Bailor  Jetted  Estimated  
Yield: \_\_\_\_\_ gpm with \_\_\_\_\_ ft. drawdown after \_\_\_\_\_ hrs.

11) WATER LEVEL: Static level 72 ft. below land surface Date \_\_\_\_\_  
Artesian flow \_\_\_\_\_ gpm. Date \_\_\_\_\_

15) WATER QUALITY: Did you knowingly penetrate any strata which contained undesirable constituents?  
 Yes  No If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? \_\_\_\_\_ Depth of strata \_\_\_\_\_  
Was a chemical analysis made?  Yes  No

12) PACKERS: Type \_\_\_\_\_ Depth \_\_\_\_\_

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME FERGUSON WATER WELL WELL DRILLER'S LICENSE NO. 1804  
(Type or print)  
ADDRESS BOX 1007 EDNA TX 77951  
(Street or RFD) (City) (State) (Zip)  
(Signed) Danell Ferguson (Signed) \_\_\_\_\_ (Registered Driller Trainee)  
(Licensed Well Driller)

Please attach electric log, chemical analysis, and other pertinent information, if available.

2

ATTENTION OWNER: Confidentiality Privilege Notice on on reverse side of Well Owner's copy (pink)		<b>State of Texas WELL REPORT</b>		Texas Water Well Drillers Advisory Council MC 177 P.O. Box 13087 Austin, TX 78711-3087 512-239-0530	
1) OWNER <u>TWO RIVERS CATTLE CO.</u> (Name)		ADDRESS <u>1301 MCKINNY HOUSTON TX 77010</u> (Street or RFD) (City) (State) (Zip)			
2) ADDRESS OF WELL: County <u>MATAGORDA</u> (Street, RFD or other) (City) (State) (Zip)		GRID # <u>80-16-4</u>			
3) TYPE OF WORK (Check): <input checked="" type="checkbox"/> New Well <input type="checkbox"/> Deepening <input type="checkbox"/> Reconditioning <input type="checkbox"/> Plugging		4) PROPOSED USE (Check): <input type="checkbox"/> Monitor <input type="checkbox"/> Environmental Soil Boring <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Industrial <input type="checkbox"/> Irrigation <input type="checkbox"/> Injection <input type="checkbox"/> Public Supply <input type="checkbox"/> De-watering <input type="checkbox"/> Testwell If Public Supply well, were plans submitted to the TNRC? <input type="checkbox"/> Yes <input type="checkbox"/> No		5)	
6) WELL LOG: Date Drilling: _____ Started <u>9-17</u> 19 <u>01</u> Completed <u>11-21</u> 19 <u>01</u>		DIAMETER OF HOLE Dia. (in.) From (ft.) To (ft.) <u>9 3/4</u> Surface <u>130</u>		7) DRILLING METHOD (Check): <input type="checkbox"/> Driven <input type="checkbox"/> Air Rotary <input checked="" type="checkbox"/> Mud Rotary <input type="checkbox"/> Bored <input type="checkbox"/> Air Hammer <input type="checkbox"/> Cable Tool <input type="checkbox"/> Jelled <input type="checkbox"/> Other _____	
From (ft.) To (ft.) Description and color of formation material <u>0 - 90 CLAY</u> <u>90 - 130 SAND</u>		8) Borehole Completion (Check): <input type="checkbox"/> Open Hole <input type="checkbox"/> Straight Wall <input type="checkbox"/> Underreamed <input type="checkbox"/> Gravel Packed <input type="checkbox"/> Other _____ If Gravel Packed give interval ... from _____ ft. to _____ ft.			
CASING, BLANK PIPE, AND WELL SCREEN DATA:					
		Dia. (in.) New or Used Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial		Setting (ft.) From To Gage Casting Screen	
		<u>4 N</u>		<u>0 90</u>	
		<u>4 N SCREEN</u>		<u>90 130</u>	
9) CEMENTING DATA [Rule 338.44(1)] Cemented from <u>0</u> ft. to <u>10</u> ft. No. of sacks used <u>10</u> Method used <u>MANUEL DRILLER</u> Cemented by <u>DRILLER</u> Distance to septic system field lines or other concentrated contamination _____ Method of verification of above distance <u>RECEIVED</u>					
10) SURFACE COMPLETION <input type="checkbox"/> Specified Surface Slab Installed [Rule 338.44(2)(A)] <input type="checkbox"/> Specified Steel Sleeve Installed [Rule 338.44(3)(A)] <input type="checkbox"/> Pileless Adapter Used [Rule 338.44(2)(B)] <input checked="" type="checkbox"/> Approved Alternative Procedure Used [Rule 338.71] AMOUNT _____					
11) WATER LEVEL: Static level <u>5</u> ft. below land surface Date _____ Artesian flow _____ gpm. Date _____					
12) PACKERS: Type Depth					
13) TYPE PUMP: <input type="checkbox"/> Turbine <input type="checkbox"/> Jet <input checked="" type="checkbox"/> Submersible <input type="checkbox"/> Cylinder <input type="checkbox"/> Other _____ Depth to pump bowls, cylinder, jet, etc., _____ ft.					
14) WELL TESTS: Type test: <input type="checkbox"/> Pump <input type="checkbox"/> Bailor <input checked="" type="checkbox"/> Jelled <input type="checkbox"/> Estimated Yield: _____ gpm with _____ ft. drawdown after _____ hrs.					
15) WATER QUALITY: Did you knowingly penetrate any strata which contained undesirable constituents? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, submit "REPORT OF UNDESIRABLE WATER" Type of water? _____ Depth of strata _____ Was a chemical analysis made? <input type="checkbox"/> Yes <input type="checkbox"/> No					
I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief. I understand that failure to complete items 1 thru 15 will result in the log(s) being returned for completion and resubmittal.					
COMPANY NAME <u>FERGUSON WATER WELL</u> (Type or print)		WELL DRILLER'S LICENSE NO. <u>1804</u>			
ADDRESS <u>Box 1007</u> (Street or RFD)		<u>EDNA</u> (City)		<u>TX 77957</u> (State) (Zip)	
(Signed) <u>Danell Ferguson</u> (Licensed Well Driller)		(Signed) _____ (Registered Driller Trainee)			
Please attach electric log, chemical analysis, and other pertinent information, if available.					



Texas Department of Licensing & Regulation  
 P.O. Box 12157  
 Austin, TX 78711  
 512-463-7280

# State of Texas WELL REPORT

ATTENTION OWNER: Confidentiality  
 Privilege Notice on reverse side  
 of Well Owner's copy (pink)

1) OWNER Jane Cox ADDRESS Madagorda TX  
(Name) (Street or RFD) (City) (State) (Zip)

2) ADDRESS OF WELL'S LOCATION:  
 County Madagorda Long. \_\_\_\_\_ Lat. \_\_\_\_\_  
(Street, RFD or other) (City) (State) (Zip) Grid # 81-17-1

3) TYPE OF WORK (Check):  
 New Well  Deepening  
 Reconditioning  Plugging

4) PROPOSED USE (Check):  Monitor  Environmental Soil Boring  Domestic  
 Industrial  Irrigation  Injection  Public Supply  De-watering  Testwell  
 If Public Supply well, were plans submitted to the TNRCC?  Yes  No

6) WELL LOG:  
 Date Drilling: \_\_\_\_\_  
 Started 9-11 1999  
 Completed 8-15 1999

DIAMETER OF HOLE		
Dia. (in.)	From (ft.)	To (ft.)
5	Surface	140

7) DRILLING METHOD (Check):  Driven  
 Air Rotary  Mud Rotary  Bored  
 Air Hammer  Cable Tool  Jetted  
 Other \_\_\_\_\_

From (ft.)	To (ft.)	Description and color of formation material
0	5	sand
5	30	clay
30	45	sand
45	47.5	clay
47.5	47.5	sand
47.5	130	sandy clay
130	140	sand

8) Borehole Completion (Check):  Open Hole  Straight Wall  
 Underreamed  Gravel Packed  Other \_\_\_\_\_  
 If Gravel Packed give interval from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

CASING, BLANK PIPE, AND WELL SCREEN DATA:

Dis. (in.)	New or Used	Steel, Plastic, etc. Perf., Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
			From	To	
2	N	PVC W/OUT CASING	18	130	PVC
2	I	PVC SIB HOE	130	140	PVC

9) CEMENTING DATA  
 Cemented from 0 ft. to 10' ft. No. of sacks used 5  
 \_\_\_\_\_ ft. to \_\_\_\_\_ ft. No. of sacks used \_\_\_\_\_

Method used \_\_\_\_\_  
 Cemented by \_\_\_\_\_  
 Distance to septic system field lines or other concentrated contamination \_\_\_\_\_ ft.  
 Method of verification of above distance \_\_\_\_\_

13)  Well plugged within 48 hours

Casing left in well:		Cement/bentonite placed in well:		Sacks used:
From (ft)	To (ft)	From (ft)	To (ft)	

14) TYPE PUMP:  
 Turbine  Jet  Submersible  Cylinder  
 Other \_\_\_\_\_  
 Depth to pump bowls, cylinder, jet, etc.: 140 ft.

10) SURFACE COMPLETION  
 Specified Surface Slab Installed  
 Specified Steel Sleeve Installed  
 Pileless Adapter Used  
 Approved Alternative Procedure Used

15) WELL TESTS:  
 Type test:  Pump  Bailor  Jetted  Estimated  
 Yield: 20 gpm with \_\_\_\_\_ ft. drawdown after \_\_\_\_\_ hrs.

11) WATER LEVEL:  
 Static level -10 ft. below land surface Date 8-15  
 Artesian flow \_\_\_\_\_ gpm. Date \_\_\_\_\_

16) WATER QUALITY:  
 Did you knowingly penetrate any strata which contained undesirable constituents?  
 Yes  No If yes, submit "REPORT OF UNDESIRABLE WATER"  
 Type of water? Fresh Depth of strata \_\_\_\_\_  
 Was a chemical analysis made?  Yes  No

12) PACKERS:  

	Type	Depth
1	Rubber	125

I certify that I drilled this well (or the well was drilled under my direct supervision) and that each and all of the statements herein are true and correct. I understand that failure to complete items 1 thru 16 will result in the log(s) being returned for completion and resubmittal.

COMPANY NAME FINCH WATER WELL WELL DRILLER'S LICENSE NO. 598  
(Type or print)

ADDRESS P.O. Box 508 Surfena Tex 77680  
(Street or RFD) (City) (State) (Zip)

(Signed) B J Smith (Licensed Well Driller) (Signed) \_\_\_\_\_ (Registered Driller Trainee)

Please attach electric log, chemical analysis, and other pertinent information, if available.



One inch = 0.39 miles

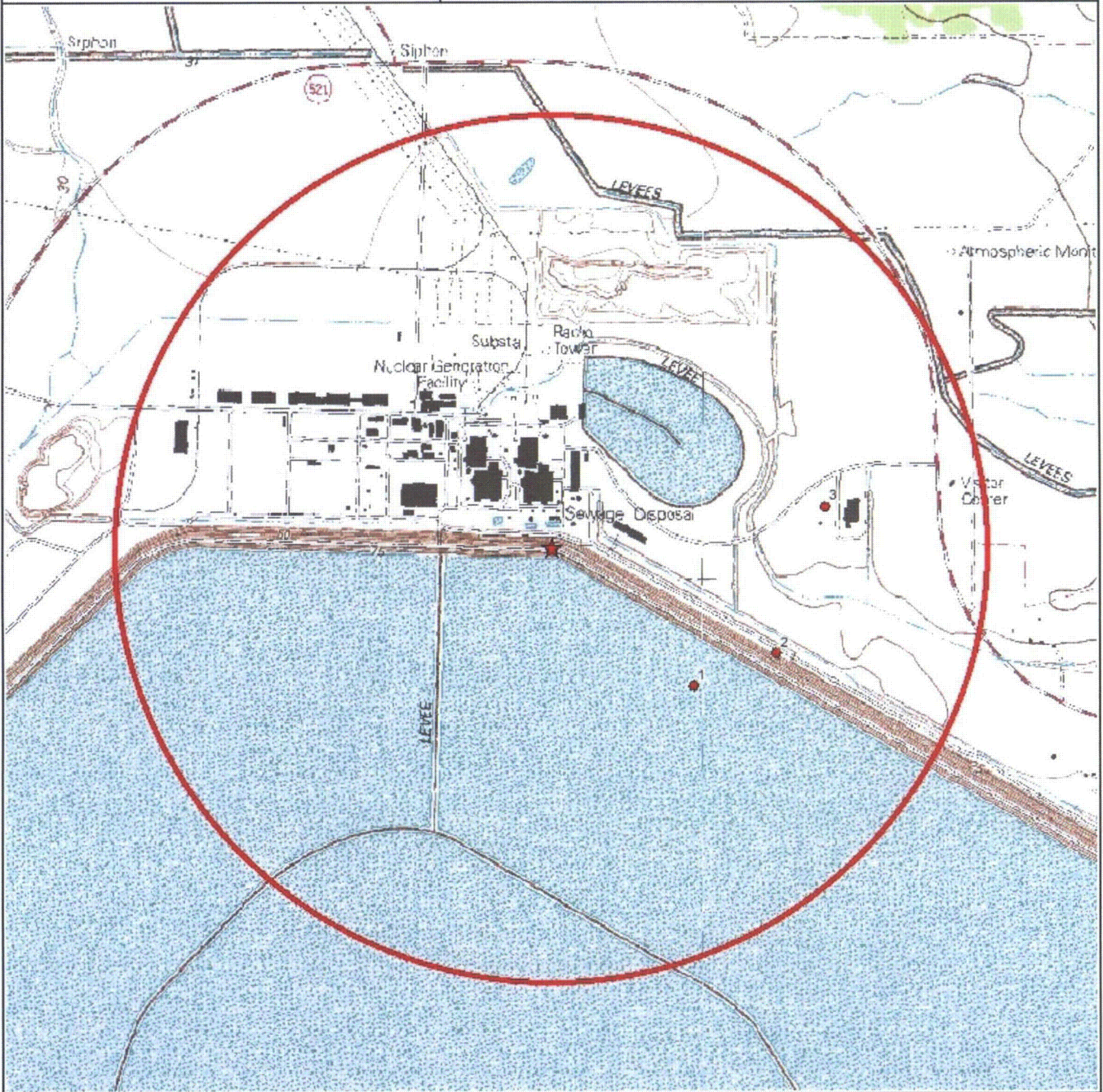
- |                      |            |                         |
|----------------------|------------|-------------------------|
| ★ Site               | 🌳 Park     | 🟩 County                |
| ● Well               | 🏫 School   | 🟨 State                 |
| ⊙ Cluster            | ⚰ Cemetary | 🏘 Urban Area            |
| 🛣 Limited Access Hwy | 🏠 Building | 🟩 Open Space            |
| 🛣 Primary Highway    | 🚂 Railroad | 🟠 Educational/Religious |
| 🛣 Secondary Highway  | ⛪ Church   | 🟦 Water Bodies          |
| 🛣 Roads              | 🛤 Trail    | 🏠 Multihousehold        |
| 🏥 Hospital           | 🌉 Bridge   | 🟡 Military              |
| ✈ Airport            | 🗼 Tower    | 🟤 Custodial Facility    |

**One-Mile Radius Centered Around Internal Outfalls**

Banks Environmental Data  
 1601 Rio Grande Suite 500 Austin, Texas 78701  
 PH 512-478-0059 FAX 512-478-1433



**Map of Wells within 1 Mile(s)**



- ★ Subject Site
- Site
- Cluster
- Existing Road
- State Line
- County Line
- Unimproved Road

One inch = 0.39 miles

**One-Mile Radius Centered Around  
 Internal Outfalls**



Banks Environmental Data  
 1601 Rio Grande Suite 500 Austin, Texas 78701



**BANKS**  
ENVIRONMENTAL DATA  
A DIVISION OF THE BANKS GROUP

# Water Well Report <sup>TM</sup>

## DETAILS

Map #	State ID	Owner of Well	Type of Well	Depth Drilled	Completion Date	Longitude	Latitude	Driller's Log
1	80-16-801	H. A. Norris	STOCK	130		-96.04222	28.78833	<a href="#">View</a>
2	G1610103B	NSC NTF POTABLE WATER SYSTEM	Public Supply	0		-96.03888	28.78916	
3	80-16-6B	Spaw Glass	Domestic	660	2/21/1985	-96.03729	28.79428	<a href="#">View</a>

1601 Rio Grande Suite 500 Austin, Texas 78701  
PH 512.478.0059 FAX 512.478.1433 E-mail [banks@banksinfo.com](mailto:banks@banksinfo.com)

1964 WATER DEVELOPMENT BOARD  
WELL SCHEDULE

Address B. CUMMONT

Field No. 8-16-8A

State Well No. 80-16-801

Owner's Well No. \_\_\_\_\_

County MATAGORDA

1. Location: \_\_\_\_\_ 1/4, \_\_\_\_\_ 1/4 Sec. \_\_\_\_\_ Block \_\_\_\_\_ Survey \_\_\_\_\_

2. Owner: HARRY NORRIS Address: BAY CITY

Tenant: \_\_\_\_\_ Address: \_\_\_\_\_

Driller: NORMAN FROELICH Address: BAY CITY

3. Elevation of LSP 27 ft. above sea level, determined by Topo sheet

4. Drilled: 4-15 1962; Dug, Cable Tool, Rotary

5. Depth: Rept. 130 ft. Meas. \_\_\_\_\_ ft.

6. Completion: Open Hole Straight Well Underreamed, Gravel Packed

7. Pump: Mfg. ACROMATOR Type CYLINDER

No. Stages \_\_\_\_\_, Bowl Dia. \_\_\_\_\_ in., Setting \_\_\_\_\_ ft.

Column Dia. \_\_\_\_\_ in., Length Tailpipe \_\_\_\_\_ ft.

8. Motor: Fuel WINDMILL Make & Model \_\_\_\_\_ HP

9. Yield: Flow \_\_\_\_\_ gpm, Pump 6 gpm, Meas., Rept. 12-8-66

10. Performance Test: Date \_\_\_\_\_ Length of Test \_\_\_\_\_ Made by \_\_\_\_\_

Static Level \_\_\_\_\_ ft. Pumping Level \_\_\_\_\_ ft. Drawdown \_\_\_\_\_ ft.

Production \_\_\_\_\_ gpm Specific Capacity \_\_\_\_\_ gpm/ft.

11. Water Level: 15 ft. VTM 8 Dec 1966 1962 above which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. VTM 8 Dec 1966 below which is \_\_\_\_\_ ft. below surface.  
 \_\_\_\_\_ ft. VTM 8 Dec 1966 above which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. VTM 8 Dec 1966 below which is \_\_\_\_\_ ft. below surface.  
 \_\_\_\_\_ ft. VTM 8 Dec 1966 above which is \_\_\_\_\_ ft. above surface.  
 \_\_\_\_\_ ft. VTM 8 Dec 1966 below which is \_\_\_\_\_ ft. below surface.

12. Usage: Stock Public Supply, Ind., Irr., Waterflooding, Observation, Not Used

13. Quality: (Remarks on taste, odor, color, etc.) M2S, PDR

Temp. 75 °F, Date sampled for analysis TSOH Laboratory TSOH

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

Temp. \_\_\_\_\_ °F, Date sampled for analysis \_\_\_\_\_ Laboratory \_\_\_\_\_

14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log,

Formation Samples, Pumping Test,

15. Record by: W. W. HAMMOND Date 19 DEC 1966

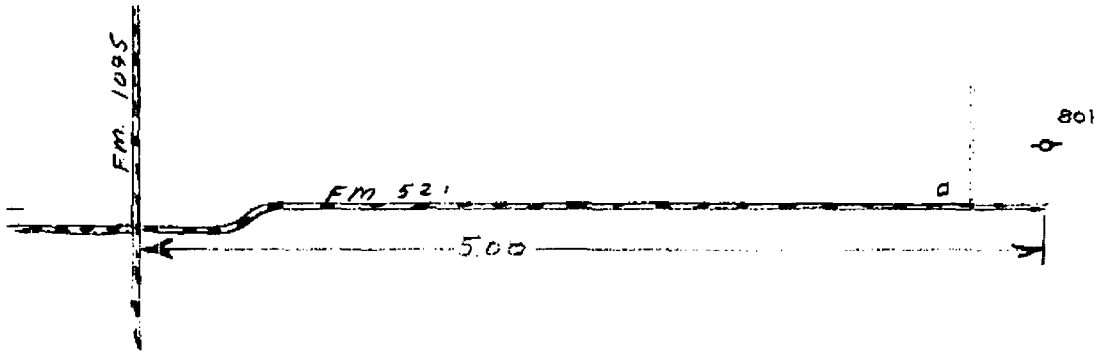
Source of Data ASCS, DBS

16. Remarks: \_\_\_\_\_


CASING & BLANK PIPE			
Cemented From _____ ft. to _____ ft.		Setting, ft.	
Diam. (in.)	Type	From	To
<u>2</u>		<u>0</u>	<u>129</u>

WELL SCREEN			
Screen Openings			
Diam. (in.)	Type	Setting, ft.	
		From	To
<u>2</u>	<u>PLASTIC</u>	<u>129</u>	<u>130</u>

(Sketch)



CHEMICAL WATER ANALYSIS REPORT

Typewrite (Black ribbon) or Print Plainly  
(soft pencil or black ink)  
Do not use ball point pen

Texas State Department of Health Laboratories  
1100 West 49th Street  
Austin 5, Texas

Send report to:

Ground Water Division  
Texas Water Development Board  
P. O. Box 12386  
Austin, Texas 78711

Control District

Texas Water Development Board

County MATAGORPA

State Well No. 80 - 16 - 801

Well No. \_\_\_\_\_

Date Collected 8 Dec, 1966

By W. W. HAMMOND

Location 5.04 MI EAST OF INT OF FM 521: 1095, TRENCE 100 YARDS N.

Source (type of well) CYLINDER WIND Owner HARRY NORRIS

Date Drilled 9-15-1962 Depth 130 ft. WHP BERUMONT

Producing intervals 129-130 Water Level DTM 8 DEC, 1966 ft.

Sampled after pumping 2 hrs. Yield 6 GPM <sup>meas.</sup> <sub>EST</sub> Temperature 75° °F

Point of collection DISCHARGE LINE Appearance CLEAR  
clear - turbid - colored

Use STOCK Remarks \_\_\_\_\_

FOR LABORATORY USE ONLY

CHEMICAL ANALYSIS

KEY PUNCHED

Laboratory No. 83387W Date Received \_\_\_\_\_ Date Reported 12-30-66

	PPM	EPM		PPM	EPM
Silica	<u>22</u>		Carbonate		<u>0</u>
Calcium	<u>73</u>	<u>3.65</u>	Bicarbonate	<u>453</u>	<u>7.42</u>
Magnesium	<u>42</u>	<u>3.45</u>	Sulfate	<u>52</u>	<u>1.08</u>
Sodium	<u>245</u>	<u>10.64</u>	Chloride	<u>341</u>	<u>9.60</u>
	Total	<u>17.74</u>	Fluoride	<u>0.7</u>	
			Nitrate	<u>&lt;0.4</u>	

Potassium \_\_\_\_\_

Manganese \_\_\_\_\_ %Na \_\_\_\_\_

Boron \_\_\_\_\_ SAR \_\_\_\_\_

Total Iron \_\_\_\_\_ RSC \_\_\_\_\_

(other) \_\_\_\_\_

Specific Conductance (micromhos/cm<sup>3</sup>) 1760

Diluted Conductance (micromhos/cm<sup>3</sup>) 11 x 130

"□" items will be analyzed if checked. 1780

Total Iron requires separate sample.

pH 7.5 Total 18.10

1/ Dissolved Solids (sum) 1000

Phenolphthalein Alkalinity as CaCO<sub>3</sub> 0

Total Alkalinity as CaCO<sub>3</sub> (7.42) 371

Total Hardness as CaCO<sub>3</sub> (7.10) 355

Analyst \_\_\_\_\_

Checked by \_\_\_\_\_

1/ The bicarbonate reported in this analysis is converted by computation (multiplying by 0.4917) to an equivalent amount of carbonate, and the carbonate figure is used in the computation of this sum.

WL# 124

Original copy by  
Filed in the  
Texas Department of Water Resources  
P. O. Box 13087  
Austin, Texas 78711

State of Texas  
WATER WELL REPORT

For TDWR use only  
Well No. 80-16-68  
Located on map YES  
Received: C. P. S.

ATTENTION OWNER: Confidentiality Privilege Notice on Reverse Side

1) OWNER Spaw Glass Address PO Box 25025 Houston TX 77265  
2) LOCATION OF WELL Nuclear Training Facility  
County Matagorda direction from \_\_\_\_\_ miles in \_\_\_\_\_ (Town)

Driller must complete the legal description to the right with distance and direction from two intersecting section or survey lines, or he must locate and identify the well on an official Quarter- or Half-Scale Texas County General Highway Map and attach the map to this form.  
 Legal description: Section No. \_\_\_\_\_ Block No. \_\_\_\_\_ Township \_\_\_\_\_  
Abstract No. \_\_\_\_\_ Survey Name \_\_\_\_\_  
Distance and direction from two intersecting section or survey lines \_\_\_\_\_  
 See attached map.

3) TYPE OF WORK (Check):  
 New Well  Deepening  Reconditioning  Plugging  
4) PROPOSED USE (Check):  
 Domestic  Industrial  Public Supply  Irrigation  Test Well  Other \_\_\_\_\_  
5) DRILLING METHOD (Check):  
 Mud Rotary  Air Hammer  Driven  Bored  
 Air Rotary  Cable Tool  Jetted  Other \_\_\_\_\_

6) WELL LOG:  
DIAMETER OF HOLE  
Dis. (in.) From (ft.) To (ft.)  
Date drilled 2-21-85  

12 1/4	Surface	660
--------	---------	-----

7) BOREHOLE COMPLETION:  
 Open Hole  Straight Wall  Underreamed  
 Gravel Packed  Other \_\_\_\_\_  
If Gravel Packed give interval ... from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

8) CASING, BLANK PIPE, AND WELL SCREEN DATA:

From (ft.)	To (ft.)	Description and color of formation material	Dia. (in.)	New or Used	Steel, Plastic, etc. Part, Slotted, etc. Screen Mfg., if commercial	Setting (ft.)		Gage Casing Screen
						From	To	
0	27	CLAY						
27	75	SANDY CLAY						
75	104	SAND	8	N	BLACK WELD END	0	620	
104	290	CLAY	5	N	GAULY	601	622	
290	301	SAND	5	N	S.S. ROD BASED	622	657	0.22
301	330	CLAY						
330	334	SAND						
334	337	CLAY						
337	346	Very Sandy CLAY						
346	369	CLAY						
369	382	SAND						
382	457	CLAY						
457	468	SAND						
468	540	CLAY						
540	548	SAND						
548	621	CLAY						
621	657	SAND						
657	660	CLAY						

CEMENTING DATA  
Cemented from 0 ft. to 620 ft.  
Method used Haliburton  
Cemented by Bussett & Son Inc.  
(Company or Individual)

9) WATER LEVEL:  
Static level 68 ft. below land surface Date \_\_\_\_\_  
Artesian flow \_\_\_\_\_ gpm. Date \_\_\_\_\_

10) PACKERS: Type \_\_\_\_\_ Depth \_\_\_\_\_

RECEIVED  
AUG 23 1985

DEPT OF  
WATER RESOURCES

13) WATER QUALITY:  
Did you knowingly penetrate any strata which contained undesirable water?  Yes  No  
If yes, submit "REPORT OF UNDESIRABLE WATER"  
Type of water? \_\_\_\_\_ Depth of strata \_\_\_\_\_  
Was a chemical analysis made?  Yes  No

11) TYPE PUMP:  
 Turbine  Jet  Submersible  Cylinder  
 Other \_\_\_\_\_  
Depth to pump bowls, cylinder, jet, etc., \_\_\_\_\_ ft.

12) WELL TESTS:  
 Type Test  Pump  Bailor  Jetted  Estimated  
Yield: \_\_\_\_\_ gpm with \_\_\_\_\_ ft. drawdown after \_\_\_\_\_ hrs.

I hereby certify that this well was drilled by me (or under my supervision) and that each and all of the statements herein are true to the best of my knowledge and belief.

NAME Craig O. Bussett Water Well Drillers Registration No. 2035  
ADDRESS P.O. Box 874 Tomball TX 77375  
(Signed) Craig O. Bussett Bussett & Son Inc.  
(Water Well Driller) (Company Name)

Please attach electric log, chemical analysis, and other pertinent information, if available.





# Water Well Report™

## DISCLAIMER

### Water Well Report Research Mapping™

The Banks Environmental Data Water Well Report™ is prepared from existing state water well databases and additional file data/records research conducted at Texas' regulatory authorities. Submission of driller's log records upon completion of a drilled water well became mandatory in 1985. The state of Texas has processed these records into several different filing systems within two state regulatory authorities. The water well files, records and map locations are maintained by the Texas Commission on Environmental Quality (TCEQ) and the Texas Water Development Board (TWDB). Actual water well site locations of this report are geocoded and geoplotted directly from the drilling records, drilling schedules, and driller's logs and maps submitted by the water well driller and maintained at these two primary water well regulatory authorities. Below is a description of the filing systems utilized for well drilling records.

### Texas Water Development Board (TWDB)

The Texas Water Development Board maintains two datasets of located water well records:

**TWDB Groundwater Data**-These well files are water well site locations that have been verified with a field inventory inspection by TWDB personnel. The wells are assigned a State Identification Number unique to that well (ex. 65-03-401) and plotted on county base maps, U.S.G.S. 7.5 minute topographical quadrangle maps, as well as in-house and on line geographic information systems. Records may also include analytical data attached with each drilling record.

**TWDB Submitted Drillers Reports**- A Database created from the online Texas Well Report Submission and Retrieval System (A cooperative TDLR, TWDB system) that registered water-well drillers use to submit their required reports. Reports that drillers submit by mail are geoplotted/geocoded by a TWDB staff member. These wells are assigned a unique tracking number by the Texas Well Report Submission and Retrieval System. This system was introduced in February 2001 as an option for drillers to use, and will be mandatory in the future.

### Texas Commission on Environmental Quality

The Texas Commission on Environmental Quality (TCEQ) maintains two datasets of water well records.

**Water Utility Database (WUD)** – This database contains a collection of data from Texas Water Districts, Public Drinking Water Systems and Water and Sewer Utilities who submit information to the TCEQ. These wells are assigned unique numbers with correlate to the Public Water System they act as a source for (example- S2200199A, G2200322A). The WUD does not contain Drillers Reports or analytical data. This data was provided to Banks in digital format.

**TCEQ Central Records**-Several different types of Driller's Reports are filed with TCEQ Central Records according to the State Grid Number.

Plotted water well files are water well site locations that have been determined from map information submitted on water well logs and subsequently plotted on TWDB county highway base maps. The accuracy and location of these wells is relative to the information provided on the drillers report. TWDB assigned letters to the correlating grid number to identify these wells (example – 65-59-1A). In some instances, a single well number can represent more than one well location. This type of mapping and filing procedure ceased in June 1986.

**Partially numbered water wells** -Well Reports that were provided a State Identification Number by the TWDB which establishes the well location somewhere within a 2.5 minute quadrant of a 7.5 minute quadrangle map. This method was the standard procedure from 1986 through 1991. From 1991 to the 2001, Texas Well Reports contain a grid location box, where drillers are provided a place to mark an X where within the 2.5 minute quadrant is located. These locations have not been verified by the state.

**Unnumbered water well files** are water well site locations that have been processed since June 1990. These well records are filed solely on their county location and are not provided a State Identification Number nor are they mapped.

### Disclaimer

Banks Environmental Data has performed a thorough and diligent search of all wells recorded with the Texas Water Development Board and the Texas Commission on Environmental Quality. All mapped locations are based on information obtained from the TWDB and the TCEQ. Although Banks performs quality assurance and quality control on all research projects, we recognize that any inaccuracies of the records and mapped well locations could possibly be traced to the appropriate regulatory authority or the water well driller. Many water well schedules may have never been submitted to the regulatory authority by the water well driller and, thus, may explain the possible unaccountability of private drilled wells. It is uncertain if the above listing provides 100% of the existing well locations within the area of review. Therefore, Banks Environmental Data cannot guarantee the accuracy of the data or well location(s) of those maps and records maintained by Texas' regulatory authorities.

1601 Rio Grande Suite 500 Austin, Texas 78701  
PH 512.478.0059 FAX 512.478.1433 E-mail [banks@banksinfo.com](mailto:banks@banksinfo.com)

Treatment Chemicals

Product Name	Manufacturer	Use	Components Listed in MSDS	CAS	Frequency of Use	Toxicity Data in MSDS	Product Concentration
Aquachlor	Altivia	biocide	sodium hydroxide	1310-73-2	3 times per day for 20 minutes to unit's cooling water	no	0.15 – 0.6 ppm total residual chlorine
1359 Plus	Nalco	corrosion inhibitor	sodium nitrite	7632-00-0	as needed to maintain concentration	no	0.25 oz per gallon of closed cooling system water
			sodium metaborate	7775-19-1			
			sodium hydroxide	8012-01-9			
19H	Nalco	oxygen scavenger	hydrazine	302-01-2	continuous	yes	0.5 ppm to feedwater
9226	Nalco	corrosion inhibitor	monoethanolamine	141-43-5	continuous	no	1 ppm as product to feedwater
9353	Nalco	scale inhibitor/dispersant	n/a	n/a	continuous	yes	0.25 ppm feedrate as product
ACTI-BROM 1318	Nalco	biocide	sodium bromide	7647-15-6	3 times per day for 20 minutes to unit's cooling water	yes	0.15 – 0.6 ppm total residual chlorine
H-130M	Nalco	biocide (molluscicide)	didecyl-dimethyl ammonium chloride	7173-51-5	2/yr	yes	4 ppm as product (2.5 ppm as active) to auxiliary cooling system for 8 hours twice per year
			ethanol	64-17-5			
B-2206	Varichem	biocide	bromochloro-5,5-dimethylhydantoin	n/a	continuous	no	1 – 1.5 ppm
B-2207	Varichem	biocide	gluteraldehyde	111-30-8	batch treat as needed	no	20 ppm
SC-2312	Varichem	scale and corrosion inhibitor	none listed	n/a	continuous	no	80 – 120 ppm
SC-2316	Varichem	scale and corrosion inhibitor	none listed	n/a	as needed to maintain concentration	no	100 ppm



ALTIVIA

# MATERIAL SAFETY DATA SHEET

## Sodium Hypochlorite Solution 10-15%

ALTIVIA 24 Hour Emergency Phone Number: 713-636-3189  
 Transportation Emergencies CHEMTREC: 800-424-9300

### SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Sodium Hypochlorite Solution 10-15%

**CHEMICAL NAME/ FAMILY:** Sodium Hypochlorite

**TRADE NAMES/ SYNONYMS:** Bleach; hypochlorous acid, sodium salt; soda bleach; sodium oxychloride

**PRODUCT USE:** Bleaching agent, chemical intermediate, disinfectant.

**MOLECULAR FORMULA:** NaOCl

**MANUFACTURER:** ALTIVIA, 1100 Louisiana, Suite 3160, Houston, TX 77002

### SECTION 2: COMPOSITION/ INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS NUMBER	% RANGE
Sodium Hypochlorite	7681-52-9	9.5 – 16.5
Sodium Hydroxide	1310-73-2	0-1%
Water	7732-18-5	Balance

\* Denotes chemical subject to reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and 40 CFR Part 372.

### SECTION 3: HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

**Danger!** Corrosive. May cause skin and eye irritation or chemical burns to broken skin. Causes eye damage. Harmful if swallowed. Strong oxidizer. Does not burn. Decomposes when heated, during a fire or upon contact with acids releasing corrosive chlorine gas. During a fire corrosive hydrogen chloride gas may be generated.

#### POTENTIAL HEALTH EFFECTS

##### EYE

Liquid or mist contact can produce severe eye irritation and burns. Prolonged exposures may cause eye damage and blindness.

##### SKIN

Can cause irritation and burns. Liquid contact can cause blistering and eczema. Prolonged exposure may cause dermatitis.

**MATERIAL SAFETY DATA SHEET – Sodium Hypochlorite 10-15%****INGESTION**

Oral or gastrointestinal irritation. Corrosion of mucous membranes, perforation of esophagus and stomach may follow.

**INHALATION**

Irritation of the respiratory system. Mist or fumes may cause bronchial irritation, coughing, difficult breathing, nausea and pulmonary edema.

**SIGNS AND SYMPTOMS OF EXPOSURE**

Irritation or burns to the eyes and skin. Inhalation may cause coughing, choking, irritation and pulmonary edema. Sodium hypochlorite solutions are corrosive following ingestion and may cause irritation, burns and vomiting.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

None known.

**EFFECTS FOLLOWING REPEATED EXPOSURE**

Prolonged contact with sodium hypochlorite may cause dermatitis, permanent eye damage including blindness.

**SECTION 4: FIRST AID MEASURES****EYES**

Hold eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention for irritation or any other symptom.

**SKIN**

Take off contaminated clothing and shoes. Rinse skin immediately with plenty of water for 15-20 minutes. Get medical attention for irritation or burns. Wash clothing and thoroughly clean shoes before reuse.

**INGESTION**

Get immediate medical attention. Have person drink a glass of water immediately if able to swallow. **Do not induce vomiting** unless directed to do so by medical personnel. Do not give anything by mouth to an unconscious person.

**INHALATION**

Remove person from exposure to fresh air. If person is not breathing, call 911 or an ambulance, and then give artificial respiration (CPR). If individual is breathing, but with difficulty, get immediate medical attention.

**NOTES TO PHYSICIAN**

The absence of visible signs or symptoms of burns does not reliably exclude the presence of actual tissue damage.

See Section 11 for Toxicological Information.

**SECTION 5: FIRE FIGHTING MEASURES****FLAMMABLE PROPERTIES****FLASH POINT**

Not combustible (does not burn)

**AUTO IGNITION TEMPERATURE**

Not Established

**FLAMMABLE LIMITS IN AIR (% BY VOLUME)**

Not Established

**EXTINGUISHING MEDIA**

Water, water mist, foam, carbon dioxide, dry powder.



## MATERIAL SAFETY DATA SHEET – Sodium Hypochlorite 10-15%

### HAZARDOUS COMBUSTION PRODUCTS

Thermal decomposition may release toxic gases such as chlorine and hydrogen chloride gas.

### FIRE FIGHTING INSTRUCTIONS

Use extinguishing agents suitable for the surrounding fire and not contraindicated for use with sodium hypochlorite. Sodium Hypochlorite releases oxygen when heated, which may increase the severity of an existing fire. Use water spray to cool fire exposed surfaces and to protect personnel. Avoid inhalation of material or combustion by-products. Firefighters should wear full protective clothing and NIOSH approved positive pressure self-contained breathing apparatus.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### WATER SPILL

Prevent additional discharge of material, if possible to do so without hazard.

### LAND SPILL

Prevent additional discharge of material, if possible to do so without hazard. For small spills implement cleanup procedures; for large spills implement cleanup procedures and, if in public area, advise authorities.

### GENERAL PROCEDURES

**No smoking in spill areas.** Isolate spill area and deny entry to unnecessary or unprotected personnel. Remove all sources of ignition, such as flames, hot glowing surfaces or electric arcs. Stop source of spill as soon as possible and notify appropriate personnel. Cleanup personnel must wear proper protective equipment (refer to Section 8). Decontaminate all clothing. Notify all downstream water users of possible contamination.

Create a dike or trench to contain all liquid material. Liquid material may be removed with a vacuum truck. Spill materials may also be absorbed using clay, soil or nonflammable commercial absorbents.

Do not place spill materials back in their original container. Containerize and label all spill materials properly.

### RELEASE NOTES

Notify the National Response Center (800/424/8802) of uncontained releases to the environment in excess of the Reportable Quantity (RQ). See Section 15, Regulatory Information. Recycle or dispose of recovered material in accordance with all federal, state, and local, regulations.

For all transportation accidents, call CHEMTREC at 800/424-9300.

## SECTION 7: HANDLING AND STORAGE

### HANDLING

Do not get in eyes, or on skin, or clothing. Do not taste or swallow. Avoid breathing mists or fumes. Do not handle with bare hands.

Carefully monitor handling, use and storage to avoid spills and leaks. Follow protective controls set forth in Section 8 when handling this product. Do not eat, drink, or smoke in work area. Wash hands prior to eating, drinking, or using restroom.

### STORAGE

#### STORAGE CONDITIONS

Store in closed, properly labeled tanks or containers. Keep away from heat, direct sunlight and sources of ignition. Do not remove or deface labels or tags. Store in a cool, well ventilated place away from incompatible materials. Do



## MATERIAL SAFETY DATA SHEET – Sodium Hypochlorite 10-15%

not pressurize, cut, heat, or weld containers. Do not drop, roll or skid drums. Keep drums upright. Do not reuse empty containers without commercial cleaning or reconditioning.

### STORAGE TEMPERATURE

Do not store above 35°C (95°F).

### INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT

Acids, ammonia compounds, oxidizing materials, peroxides, reducing agents and most metals.

## SECTION 8: EXPOSURE CONTROLS PERSONAL PROTECTION

### ENGINEERING CONTROLS

#### VENTILATION

Use closed systems when possible. Local exhaust ventilation is recommended if vapors, mists or aerosols are generated.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

#### EYE AND FACE PROTECTION

Wear chemical goggles. A face shield should be worn in addition to goggles where splashing or spraying is possible.

#### SKIN PROTECTION

Wear chemical resistant clothing. Neoprene gloves, boots and apron or slicker suit.

#### RESPIRATORY PROTECTION

A NIOSH approved respirator with N95 (dust, fume, mist) filters may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure.

When decomposition products exist, acid gas cartridges are also required.

A half face piece air-purifying respirator may be used in concentrations up to 10X the acceptable exposure level and a full face piece air-purifying respirator may be used in concentrations up to 50X the acceptable exposure level.

Supplied air should be used when the level is expected to be above 50X the acceptable level, or when there is a potential for uncontrolled release.

A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

### GENERAL

Safety shower and eye wash station must be provided in the immediate work area. Protective equipment and clothing should be selected, used, and maintained according to applicable standards and regulations. For further information, contact the clothing or equipment manufacturer.

### EXPOSURE GUIDELINES

Component Data:	Sodium Hypochlorite AIHA (STEL 15 minutes) - 2mg/m <sup>3</sup>
Component Data:	Sodium Hydroxide OSHA (TWA) - 2mg/m <sup>3</sup>
	Sodium Hydroxide ACGIH Ceiling - 2mg/m <sup>3</sup>



# MATERIAL SAFETY DATA SHEET – Sodium Hypochlorite 10-15%

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

CHEMICAL FORMULA	NaOCl
MOLECULAR WEIGHT	74.4
APPEARANCE	Clear colorless to pale yellow liquid
ODOR	Characteristic bleach odor
pH @ 25°C	11.5-13.5
VAPOR PRESSURE	Not Established
VOLATILES, % BY VOLUME	Not Established
BOILING POINT	110°C (230°F)
FREEZING POINT	< -12°C (10°F)
SOLUBILITY IN WATER	Complete
EVAPORATION RATE	Not Established
SPECIFIC GRAVITY	1.13-1.27 @ 21°C (70°F)
DENSITY	9.42-10.58 @ 21°C (70°F)
VISCOSITY	Not Established

## SECTION 10: STABILITY AND REACTIVITY

### CHEMICAL STABILITY

Stable under normal use conditions. May decompose upon heating and exposure to sunlight.

### CONDITIONS TO AVOID

Avoid heat, flames, sparks and other sources of ignition. Avoid direct sunlight, acidic conditions, the presence of metals and other impurities.

### INCOMPATIBILITY WITH OTHER MATERIALS

Acids, ammonia compounds, oxidizing materials, peroxides, reducing agents and most metals.

### HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition may release toxic gases such as chlorine and hydrogen chloride gas.

### HAZARDOUS POLYMERIZATION

Will not occur.

## SECTION 11: TOXICOLOGICAL INFORMATION

### ANIMAL TOXICOLOGY

The toxicity and corrosivity of this material is a function of concentration and pH. This material is irritating and may be corrosive to all tissue.

### EYES

Very dilute solutions have caused no irritation. More concentrated solutions have caused corrosive injury, which did not heal within 21 days.

### SKIN

LD<sub>50</sub> (Dermal, Rabbit): > 10,000 mg/m<sup>3</sup> (undiluted)

### ACUTE ORAL EFFECTS

LC<sub>50</sub> (Oral, Female Mouse): ~ 7,540 mg/kg; cited as 5.8 ml/kg (50% solution)

**MATERIAL SAFETY DATA SHEET – Sodium Hypochlorite 10-15%**

LC<sub>50</sub> (Oral, Rat): 8,910 mg/kg (undiluted)

**ACUTE INHALATION EFFECTS**

No available data.

**EFFECTS FOLLOWING PROLONGED OR REPEATED EXPOSURE**

Dermatitis.

**CARCINOGENICITY**

This product (or any component at a concentration of 0.1% or greater) is not listed by NTP, IARC, OSHA EPA, or any other authority as a carcinogen.

**MUTAGENICITY**

No available data.

**REPRODUCTIVE/DEVELOPMENTAL TOXICITY**

No available data.

**SECTION 12: ECOLOGICAL INFORMATION****GENERAL COMMENT**

This material is believed to be a moderate order of toxicity based on analogous material.

**ENVIRONMENTAL FATE**

This material is inorganic and not subject to biodegradation. This material is believed not to persist in the environment. This material may be harmful to aquatic organisms in low concentrations.

**SECTION 13: DISPOSAL CONSIDERATIONS****SPILL RESIDUES**

Processing, use or contamination of this product may change the waste management options. All disposals of this material must be done in accordance with Federal, state and local regulations. Waste characterization and compliance with disposal regulations are the responsibilities of the waste generator. If this product becomes a waste it may be subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D002.

**SECTION 14: TRANSPORT INFORMATION**

THIS MATERIAL IS A HAZARDOUS AS DEFINED BY 49 CFR 172.01 BY THE U.S DEPARTMENT OF TRANSPORTATION.

DOT IDENTIFICATION NO.: UN 1791

DOT SHIPPING DESCRIPTION (49 CFR 172.101): Hypochlorite solutions, Corrosive, 8

PACKAGING GROUP: III

PLACARD REQUIRED: Corrosive 8, UN 1791

LABEL REQUIRED: Corrosive 8. Label as required by EPA and by OSHA Hazard Communication Standard, and any applicable state and local regulations.

EMERGENCY RESPONSE GUIDE NUMBER: 154





# MATERIAL SAFETY DATA SHEET – Sodium Hypochlorite 10-15%

## SECTION 15: REGULATORY INFORMATION

### U S FEDERAL REGULATIONS

#### CERCLA REPORTABLE QUANTITY (RQ)

Ingredient	CAS NO.	RQ
Sodium Hypochlorite	7681-52-9	100 lbs
Sodium Hydroxide	1310-73-2	1000 lbs

#### TSCA (TOXIC SUBSTANCES CONTROL ACT)

All components of this product are listed on the TSCA Inventory or are exempt from TSCA Inventory requirements.

#### SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) TITLE III

##### SARA SECTION 302 (EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 302.4):

Not Applicable

##### SARA SECTION 311/312 HAZARD CATEGORIES (40 CFR 370.2):

Fire Hazard	Yes
Reactivity Hazard	No
Release of Pressure	No
Acute Health Hazard	Yes
Chronic Health Hazard	No

##### SARA SECTION 313 (40 CFR 372.65):

Components identified with an asterisk (\*) in Section 2 are subject to the reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and 40 CFR Part 372.

##### OSHA PROCESS SAFETY (29 CFR 1910.119):

Not regulated.

### OTHER U.S. REGULATIONS

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA): Registered pesticide (40 CFR 152.10)

### INTERNATIONAL REGULATIONS

#### CANADA

##### CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

DSL/ NDSL: This product, or its components, are listed on or are exempt from the Canadian Domestic Substance List (DSL).

## SECTION 16: OTHER INFORMATION

NFPA RATINGS	
HEALTH	3
FLAMMABILITY	0
INSTABILITY	1

HMIS CODES	
HEALTH	3
FLAMMABILITY	0
REACTIVITY	1
PROTECTION	C

#### RATING NOTES

Hazardous Materials Identification: 4 = Severe, 3 = Serious, 2 = Moderate, 1 = Slight; 0 = Minimal.



# MATERIAL SAFETY DATA SHEET – Sodium Hypochlorite 10-15%

**Emergency Information:**

Call toll free 24 hours a day: 713-636-3189

**For Any Other Information Contact:**

ALTIVIA, Technical Marketing, 1100 Louisiana, Suite 3160, Houston, TX 77002.

Phone: 713-658-9000

8 AM – 5 PM CST, Monday through Friday

**Revisions**

12/28/2005: Revised to conform to ANSI Standard Z400.1-1998, replaces MSDS A2002-05/04.

**Disclaimer of Warranty:**

The information provided in this Material Safety Data Sheet has been obtained from sources believed to be reliable. ALTIVIA provides no warranties, either expressed or implied and assumes no responsibility for the accuracy or completeness of the data contained herein. This information is offered for your information, consideration, and investigation. You should satisfy yourself that you have all current data relevant to your particular use. ALTIVIA knows of no medical condition, other than those noted on this material safety data sheet, which are generally recognized as being aggravated by exposure to this product.

**MATERIAL SAFETY DATA SHEET**

PRODUCT

**NALCO 1359 PLUS**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**PRODUCT NAME : **NALCO 1359 PLUS**

APPLICATION : CORROSION INHIBITOR

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 : 3 / 3 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. Consult Section 15 for the nature of the hazard(s).

Hazardous Substance(s)	CAS NO	% (w/w)
Sodium Nitrite	7632-00-0	10.0 - 30.0
Sodium Metaborate	7775-19-1	5.0 - 10.0

**3. HAZARDS IDENTIFICATION****\*\*EMERGENCY OVERVIEW\*\*****DANGER**

Toxic if swallowed. Irritating to eyes and skin. Contains sodium nitrite. Substances in the product can lead to the formation of methemoglobin. Unborn children are particularly sensitive to methemoglobinemia.

Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. 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 water.

Wear suitable protective clothing.

Not flammable or combustible. May evolve oxides of nitrogen (NOx) under fire conditions. If product is allowed to dry, the sodium nitrite is an oxidizing agent and can initiate the combustion of other materials.

PRIMARY ROUTES OF EXPOSURE :

Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :

Irritating, and may injure eye tissue if not removed promptly.



## MATERIAL SAFETY DATA SHEET

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(800) 424-9300 (24 Hours) CHEMTREC

### SKIN CONTACT :

Can cause mild irritation.

### INGESTION :

Not a likely route of exposure. Large exposures may be fatal. Ingestion of sodium nitrite can cause methemoglobinemia which can lead to cyanosis and possible death. Pregnant women and their fetuses are particularly sensitive to the effects of methemoglobinemia.

### INHALATION :

Not a likely route of exposure. Aerosols or product mist may irritate the upper 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 :

Sodium Nitrite. Pregnant women are particularly sensitive to methemoglobinemia.

### HUMAN HEALTH HAZARDS - CHRONIC :

Repeated ingestion of small amounts of sodium nitrite causes drops in blood pressure, rapid pulse, headaches and visual disturbances. It may also react with organic amines in the body to form carcinogenic nitrosamines.

## 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 medical attention.

### SKIN CONTACT :

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

### INGESTION :

Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. Get immediate 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. Measures against circulatory shock, respiratory depression and convulsions may be needed.

## 5. FIRE FIGHTING MEASURES

FLASH POINT :

None



## MATERIAL SAFETY DATA SHEET

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### EXTINGUISHING MEDIA :

Not expected to burn. Use extinguishing media appropriate for surrounding fire.

### FIRE AND EXPLOSION HAZARD :

Not flammable or combustible. May evolve oxides of nitrogen (NO<sub>x</sub>) under fire conditions. If product is allowed to dry, the sodium nitrite is an oxidizing agent and can initiate the combustion of other materials.

### 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. Stop or reduce any leaks if it is safe to do so. 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. Wash site of spillage thoroughly with water. 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 contaminate surface water.

## 7. HANDLING AND STORAGE

### HANDLING :

Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Do not breathe vapors/gases/dust. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labeled.

### STORAGE CONDITIONS :

Store the containers tightly closed. Store in suitable labeled containers. Store separately from acids. Store separately from reducing agents.

## 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.



## MATERIAL SAFETY DATA SHEET

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### RESPIRATORY PROTECTION :

Respiratory protection is not normally needed.

### 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, but we have positive experience under light handling conditions using gloves made from, Neoprene, PVC or nitrile, Gloves should be replaced immediately if signs of degradation are observed., Breakthrough time not determined as preparation, consult PPE manufacturers.

### 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 :

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                Light yellow

ODOR

SPECIFIC GRAVITY            1.305 @ 72 °F / 22.2 °C

DENSITY                     10.84 lb/gal

SOLUBILITY IN WATER        Complete

pH (100 %)                    >= 11.4

VISCOSITY                     Max 7 cps @ 73 °F / 22.8 °C

FREEZING POINT              < -50 °F / -45.5 °C

VAPOR PRESSURE              Same as water

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

## 10. STABILITY AND REACTIVITY

STABILITY :

Stable under normal conditions.



**MATERIAL SAFETY DATA SHEET**

**PRODUCT**

**NALCO 1359 PLUS**

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**HAZARDOUS POLYMERIZATION :**

Hazardous polymerization will not occur.

**CONDITIONS TO AVOID :**

Freezing temperatures. Do not allow product to evaporate to dryness. Dried product residue can act as an oxidizer.

**MATERIALS TO AVOID :**

Contact with reducing agents (e.g. hydrazine, sulfites, sulfide, aluminum or magnesium dust) may generate heat, fires, explosions and toxic vapors. Do not mix with amines. Sodium nitrite can react with certain amines to produce N-nitrosamines, many of which are cancer-causing agents to laboratory animals. Contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors.

**HAZARDOUS DECOMPOSITION PRODUCTS :**

Under fire conditions: Oxides of nitrogen

**11. TOXICOLOGICAL INFORMATION**

No toxicity studies have been conducted on this 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: High

**12. ECOLOGICAL INFORMATION**

**ECOTOXICOLOGICAL EFFECTS :**

No toxicity studies have been conducted on this product.

**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%



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

## ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: Moderate

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 could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste.

Hazardous Waste: D002

Hazardous wastes must be transported by a licensed hazardous waste transporter and disposed of or treated in a properly licensed hazardous waste treatment, storage, disposal or recycling facility. Consult local, state, and federal regulations for specific requirements.

## 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 :	CORROSIVE LIQUID, TOXIC, N.O.S
Technical Name(s) :	SODIUM NITRITE
UN/ID No :	UN 2922
Hazard Class - Primary :	8
Hazard Class - Secondary :	6.1
Packing Group :	III

Flash Point :	None
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DOT Reportable Quantity (per package) :	430 lbs
DOT RQ Component :	SODIUM NITRITE

### AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	CORROSIVE LIQUID, TOXIC, N.O.S
Technical Name(s) :	SODIUM NITRITE
UN/ID No :	UN 2922
Hazard Class - Primary :	8
Hazard Class - Secondary :	6.1





# MATERIAL SAFETY DATA SHEET

PRODUCT

**NALCO 1359 PLUS**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

Packing Group : III  
IATA Cargo Packing Instructions : 820  
IATA Cargo Aircraft Limit : 60 L (Max net quantity per package)

## MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : CORROSIVE LIQUID, TOXIC, N.O.S  
Technical Name(s) : SODIUM NITRITE  
UN/ID No : UN 2922  
Hazard Class - Primary : 8  
Hazard Class - Secondary : 6.1  
Packing Group : III

## 15. REGULATORY 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 Nitrite : Target Organ Effect - Kidney, Target Organ Effect - Nervous system, Target Organ Effect - Blood  
Sodium Metaborate : Irritant

CERCLA/SUPERFUND, 40 CFR 117, 302 :

This product contains the following Reportable Quantity (RQ) Substance. Also listed is the RQ for the product.

<u>RQ Substance</u>	<u>RQ</u>
Sodium Nitrite	430 lbs

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
X	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.

**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCO 1359 PLUS****EMERGENCY TELEPHONE NUMBER(S)**  
**(800) 424-9300 (24 Hours) CHEMTREC****SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :**

This product contains the following substance(s), (with CAS # and % range) which appear(s) on the List of Toxic Chemicals

<u>Hazardous Substance(s)</u>	<u>CAS NO</u>	<u>% (w/w)</u>
Sodium Nitrite	7632-00-0	10.0 - 30.0

**TOXIC SUBSTANCES CONTROL ACT (TSCA) :**

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

**FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR 116.4 / formerly Sec. 311 :**

This product contains the following substances listed in the regulation:

Substance(s)	Citations
<ul style="list-style-type: none"><li>Sodium Nitrite</li><li>Sodium Hydroxide</li></ul>	Sec. 311

**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 :**

The following substances are disclosed for compliance with State Right to Know Laws:

Sodium Nitrite	7632-00-0
----------------	-----------

**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 :**

D2A - Materials Causing Other Toxic Effects - Very Toxic Material, D2B - Materials Causing Other Toxic Effects - Toxic Material

**CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :**

The substances in this preparation are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.



## MATERIAL SAFETY DATA SHEET

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### AUSTRALIA

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

### 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 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)

### PHILIPPINES

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippine 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: 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.



## MATERIAL SAFETY DATA SHEET

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(800) 424-9300 (24 Hours) CHEMTREC

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 : 03/12/2008  
Version Number : 2.0

**MATERIAL SAFETY DATA SHEET**

PRODUCT

**NALCO 19H**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**PRODUCT NAME : **NALCO 19H**

APPLICATION : OXYGEN SCAVENGER

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 : 1 / 1 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. Consult Section 15 for the nature of the hazard(s).

Hazardous Substance(s)	CAS NO	% (w/w)
Hydrazine	302-01-2	30.0 - 60.0

**3. HAZARDS IDENTIFICATION****\*\*EMERGENCY OVERVIEW\*\*****DANGER**

This product contains hydrazine which is a suspect carcinogen. Extreme health hazard. May be absorbed through the skin. Risk of serious damage to eyes. Irritating to skin. May cause skin sensitization reaction in certain individuals. Harmful by inhalation, in contact with skin and if swallowed. This material or some of its substance(s) has been shown to cause cancer in laboratory animals. Toxic to aquatic organisms.

Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Keep container tightly closed and in a well-ventilated place. 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 water.

Wear a face shield. Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots.

May evolve oxides of nitrogen (NOx) under fire conditions. May evolve toxic gases or fumes under fire conditions.

PRIMARY ROUTES OF EXPOSURE :

Eye, Skin, Inhalation

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :

Severely irritating. If not removed promptly, will injure eye tissue and may result in permanent eye damage.



## MATERIAL SAFETY DATA SHEET

PRODUCT

**NALCO 19H**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

### SKIN CONTACT :

Can cause moderate to severe irritation. May cause sensitization by skin contact. Can be absorbed through the skin.

### INGESTION :

Not a likely route of exposure. There may be irritation to the gastro-intestinal tract with nausea and vomiting.

### INHALATION :

Vapors extremely irritating to eyes and respiratory tract. Can cause pulmonary edema. May cause liver and kidney disorder and/or damage.

### 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 :

Skin contact may aggravate an existing dermatitis condition.

### HUMAN HEALTH HAZARDS - CHRONIC :

Oral administration of hydrazine has produced lung and liver tumors in mice and rats and mammary tumors in mice. Inhalation of hydrazine has produced nasal tumors in rats.

## 4. FIRST AID MEASURES

### EYE CONTACT :

Immediately flush eye with water for at least 15 minutes while holding eyelids open. Get immediate medical attention.

### SKIN CONTACT :

Remove contaminated clothing. Wash off affected area immediately with plenty of water. Get immediate medical attention. Contaminated clothing, shoes, and leather goods must be discarded or cleaned before re-use.

### INGESTION :

Induce vomiting if the patient is fully conscious. If conscious, washout mouth and give water to drink. Get immediate medical attention.

### INHALATION :

Remove to fresh air, treat symptomatically. 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.



## MATERIAL SAFETY DATA SHEET

PRODUCT

**NALCO 19H**

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(800) 424-9300 (24 Hours) CHEMTREC

### 5. FIRE FIGHTING MEASURES

FLASH POINT : > 230 °F / > 110 °C ( PMCC )

EXTINGUISHING MEDIA :

Not expected to burn. Use extinguishing media appropriate for surrounding fire.

FIRE AND EXPLOSION HAZARD :

May evolve oxides of nitrogen (NO<sub>x</sub>) under fire conditions. May evolve toxic gases or fumes 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. Stop or reduce any leaks if it is safe to do so. 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: LARGE SPILLS: Dike to prevent further movement. Reclaim into recovery or salvage drums. Wash site of spillage thoroughly with water. 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 contaminate surface water.

### 7. HANDLING AND STORAGE

HANDLING :

Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Avoid generating aerosols and mists. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available.

STORAGE CONDITIONS :

Store the containers tightly closed. Store separately from oxidizers. Store in suitable labeled containers.

SUITABLE CONSTRUCTION MATERIAL :

Polypropylene, Polyethylene, Stainless Steel 304, Stainless Steel 316L, Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

UNSUITABLE CONSTRUCTION MATERIAL :

Copper, Brass, Aluminum



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### 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.

#### ACGIH/TLV :

Substance(s)

Hydrazine

TWA: 0.01 ppm , 0.013 mg/m<sup>3</sup> (Skin)

#### OSHA/PEL :

Substance(s)

Hydrazine

TWA: 0.1 ppm , 0.1 mg/m<sup>3</sup> (Skin)

#### ENGINEERING MEASURES :

General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

#### 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: Ammonia / amine 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 :

Impervious gloves

#### SKIN PROTECTION :

Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots. A full slicker suit is recommended if gross exposure is possible.

#### EYE PROTECTION :

Wear a face shield with chemical splash goggles.

#### HYGIENE RECOMMENDATIONS :

Eye wash station and safety shower are necessary. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Colorless
ODOR	Ammoniacal





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SPECIFIC GRAVITY	1.03 @ 60 °F / 15.6 °C
DENSITY	8.56 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	12.5
pH (1 %)	10.1 - 10.7
VISCOSITY	2.0 cps @ 60 °F / 15.6 °C
FREEZING POINT	-85 °F / -65 °C
BOILING POINT	228 °F / 108.9 °C
VAPOR PRESSURE	22 mm Hg @ 77 °F / 25 °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

### 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.

### HAZARDOUS DECOMPOSITION PRODUCTS :

Under fire conditions: Oxides of nitrogen

## 11. TOXICOLOGICAL INFORMATION

The following results are for the product.

### ACUTE ORAL TOXICITY :

Species	LD50	Test Descriptor
Rat	185 mg/kg	Product

### ACUTE DERMAL TOXICITY :

Species	LD50	Test Descriptor
Rabbit	420 mg/kg	Product

### ACUTE INHALATION TOXICITY :

Species	LC50	Test Descriptor
Rat	2.1 mg/l (4 hrs)	Product



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## SENSITIZATION :

May cause sensitization by skin contact. Repeated or prolonged contact may cause sensitization in some individuals.

## CARCINOGENICITY :

This product contains hydrazine. The International Agency for Research on Cancer(IARC) has evaluated hydrazine, and found it to be a possible human carcinogen (Group 2B) based on sufficient animal data and inadequate human data.

## MUTAGENICITY :

An ingredient in this product has shown positive results in a screening test for mutagenicity.

## HUMAN HAZARD CHARACTERIZATION :

Based on our hazard characterization, the potential human hazard is: High

## 12. ECOLOGICAL INFORMATION

### ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

### ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Bluegill Sunfish	96 hrs	4.2 mg/l	Product
Rainbow Trout	96 hrs	4.3 mg/l	Product
Gold Orfe	96 hrs	0.75 mg/l	Product

### ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	0.46 mg/l		Product
Daphnia magna	48 hrs	0.81 mg/l		Product

### 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.



# MATERIAL SAFETY DATA SHEET

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## ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: High

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

## 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste.

Hazardous Waste: D002, U133

Hazardous wastes must be transported by a licensed hazardous waste transporter and disposed of or treated in a properly licensed hazardous waste treatment, storage, disposal or recycling facility. Consult local, state, and federal regulations for specific requirements.

## 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 :	HYDRAZINE, AQUEOUS SOLUTION
Technical Name(s) :	
UN/ID No :	UN 3293
Hazard Class - Primary :	6.1
Packing Group :	III
Flash Point :	> 110 °C / > 230 °F
DOT Reportable Quantity (per package) :	2 lbs
DOT RQ Component :	HYDRAZINE

### AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	HYDRAZINE, AQUEOUS SOLUTION
Technical Name(s) :	
UN/ID No :	UN 3293
Hazard Class - Primary :	6.1
Packing Group :	III
IATA Cargo Packing Instructions :	618
IATA Cargo Aircraft Limit :	220 L (Max net quantity per package)

### MARINE TRANSPORT (IMDG/IMO) :



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**NALCO 19H**

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

Proper Shipping Name : HYDRAZINE, AQUEOUS SOLUTION  
Technical Name(s) : Hydrazine  
UN/ID No : UN 3293  
Hazard Class - Primary : 6.1  
Packing Group : III

**15. REGULATORY 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.

Hydrazine : Cancer suspect agent (refer to Section 3), Corrosive, Dermal Sensitizer

CERCLA/SUPERFUND, 40 CFR 117, 302 :

This product contains the following Reportable Quantity (RQ) Substance. Also listed is the RQ for the product.

<u>RQ Substance</u>	<u>RQ</u>
Hydrazine	2 lbs

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 contains the following substance(s) which is listed in Appendix A and B as an Extremely Hazardous Substance. Listed below are the statutory Threshold Planning Quantity (TPQ) for the substance(s) and the Reportable Quantity (RQ) of the product. If a reportable quantity of product is released, it requires notification to your State Emergency Response Commission. You may also be required to notify the National Response Center - See CERCLA/SUPERFUND, above.

<u>Extremely Hazardous Substance</u>	<u>TPQ</u>	<u>RQ</u>
Hydrazine	1,000 lbs	2 lbs

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
- X 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.



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**SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372) :**

This product contains the following substance(s), (with CAS # and % range) which appear(s) on the List of Toxic Chemicals

<u>Hazardous Substance(s)</u>	<u>CAS NO</u>	<u>% (w/w)</u>
Hydrazine	302-01-2	30.0 - 60.0

**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 : 21 CFR 173.310 Boiler Water Additives

The following limitations apply:

<u>Maximum dosage</u>	<u>Limitation</u>
ZERO PPM	as product in the steam

**NSF NON-FOOD COMPOUNDS REGISTRATION PROGRAM (former USDA List of Proprietary Substances & Non-Food Compounds) :**

NSF Registration number for this product is : 062465

This product is acceptable for use in meat, poultry, and other food processing areas as a Boiler Treatment Product (G6), for treating boiler and steam lines where the steam produced may contact edible products. Acceptable usage shall be in accordance with the dosage limitations specified 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) :**

This product contains the following substances listed in the regulation:

<u>Substance(s)</u>	<u>Citations</u>
• Hydrazine	Sec. 112

**CALIFORNIA PROPOSITION 65 :**

This product contains the following substances which require warning under California Proposition 65.

<u>Substance(s)</u>	<u>Concentration</u>	<u>EFFECTS</u>
• Hydrazine	<= 60 %	Causes Cancer

**MICHIGAN CRITICAL MATERIALS :**

This product contains the following substances listed in the regulation:

Hydrazine



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### STATE RIGHT TO KNOW LAWS :

The following substances are disclosed for compliance with State Right to Know Laws:

Hydrazine

302-01-2

### 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 :

D2B - Materials Causing Other Toxic Effects - Toxic Material

#### CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :

The substances in this preparation are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

### INTERNATIONAL CHEMICAL CONTROL LAWS

#### AUSTRALIA

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

#### 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 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)

#### THE PHILIPPINES

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

## 16. OTHER INFORMATION

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

**MATERIAL SAFETY DATA SHEET**

PRODUCT

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(800) 424-9300 (24 Hours) CHEMTREC

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 : 10/03/2006  
Version Number : 1.12

**MATERIAL SAFETY DATA SHEET**

PRODUCT

**NALCO 9226**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**PRODUCT NAME : **NALCO 9226**

APPLICATION : CORROSION INHIBITOR

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 : 3 / 3 FLAMMABILITY : 1 / 1 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. Consult Section 15 for the nature of the hazard(s).

Hazardous Substance(s)	CAS NO	% (w/w)
Monoethanolamine	141-43-5	60.0 - 100.0

**3. HAZARDS IDENTIFICATION****\*\*EMERGENCY OVERVIEW\*\*****DANGER**

Corrosive. May cause tissue damage. Harmful if absorbed through skin. Large quantities may cause kidney and liver damage. Vapors may have a strong offensive odor which may cause sensory response including headache, nausea and vomiting.

Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Keep container tightly closed and in a well-ventilated place. 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 water.

Wear a face shield. Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots.

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :

Eye, Skin, Inhalation





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### HUMAN HEALTH HAZARDS - ACUTE :

#### EYE CONTACT :

Corrosive. Will cause eye burns and permanent tissue damage. Exposure to low vapor concentrations can result in foggy or blurred vision, objects appearing bluish and appearance of a halo around lights. These symptoms are temporary.

#### SKIN CONTACT :

May cause severe irritation or tissue damage depending on the length of exposure and the type of first aid administered. Harmful if absorbed through skin.

#### INGESTION :

Not a likely route of exposure. Corrosive; causes chemical burns to the mouth, throat and stomach.

#### INHALATION :

Irritating, in high concentrations, to the eyes, nose, throat and lungs. Vapors may have a strong offensive odor which may cause sensory response including headache, nausea and vomiting.

#### 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.

## 4. FIRST AID MEASURES

#### EYE CONTACT :

PROMPT ACTION IS ESSENTIAL IN CASE OF CONTACT. Immediately flush eye with water for at least 15 minutes while holding eyelids open. Get immediate medical attention.

#### SKIN CONTACT :

Immediately flush with plenty of water for at least 15 minutes. For a large splash, flood body under a shower. Remove contaminated clothing. Wash off affected area immediately with plenty of water. Get immediate medical attention. Contaminated clothing, shoes, and leather goods must be discarded or cleaned before re-use.

#### INGESTION :

DO NOT INDUCE VOMITING. If conscious, washout mouth and give water to drink. Get immediate medical attention.

#### INHALATION :

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

#### NOTE TO PHYSICIAN :

Probable mucosal damage may contraindicate the use of gastric lavage. Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.



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### 5. FIRE FIGHTING MEASURES

FLASH POINT : 208 °F / 97.8 °C

**EXTINGUISHING MEDIA :**

This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use extinguishing media appropriate for surrounding fire. Keep containers cool by spraying with water.

**FIRE AND EXPLOSION HAZARD :**

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) 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. Stop or reduce any leaks if it is safe to do so. 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. Wash site of spillage thoroughly with water. 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 contaminate surface water.

### 7. HANDLING AND STORAGE

**HANDLING :**

Do not get in eyes, on skin, on clothing. Do not take internally. Do not breathe vapors/gases/dust. Use with adequate ventilation. Avoid generating aerosols and mists. Keep away from acids and oxidizing agents. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available.

**STORAGE CONDITIONS :**

Store the containers tightly closed. Store separately from acids. Store separately from oxidizers. Amine and sulphite products should not be stored within close proximity or resulting vapors may form visible airborne particles.

### 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.

**MATERIAL SAFETY DATA SHEET****PRODUCT****NALCO 9226****EMERGENCY TELEPHONE NUMBER(S)****(800) 424-9300 (24 Hours) CHEMTREC****ACGIH/TLV :**

Substance(s)

Monoethanolamine

TWA: 3 ppm , 7.5 mg/m<sup>3</sup>STEL: 6 ppm , 15 mg/m<sup>3</sup>**OSHA/PEL :**

Substance(s)

Monoethanolamine

TWA: 3 ppm , 8 mg/m<sup>3</sup>STEL: 6 ppm , 15 mg/m<sup>3</sup>**ENGINEERING MEASURES :**

General ventilation is recommended. Use local exhaust ventilation if necessary to control airborne mist and vapor.

**RESPIRATORY PROTECTION :**

If significant mists, vapors or aerosols are generated an approved respirator is recommended. An organic vapor cartridge with dust/mist prefilter or supplied air may be used. 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 :**

Butyl gloves, Most glove materials are of low chemical resistance. Replace gloves regularly.

**SKIN PROTECTION :**

Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots. A full slicker suit is recommended if gross exposure is possible.

**EYE PROTECTION :**

Wear a face shield with chemical splash goggles.

**HYGIENE RECOMMENDATIONS :**

Eye wash station and safety shower are necessary. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

**HUMAN EXPOSURE CHARACTERIZATION :**

Based on our recommended product application and personal protective equipment, the potential human exposure is: Low

**9. PHYSICAL AND CHEMICAL PROPERTIES**

PHYSICAL STATE	Liquid
APPEARANCE	Colorless
ODOR	Amine
SPECIFIC GRAVITY	1 @ 77 °F / 25 °C



## MATERIAL SAFETY DATA SHEET

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EMERGENCY TELEPHONE NUMBER(S)

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DENSITY	8.31 lb/gal
SOLUBILITY IN WATER	Complete
pH ( )	13.8
VISCOSITY	42 SUS @ 100 °F / 37.8 °C
POUR POINT	-30 °F / -34.3 °C
BOILING POINT	266 °F / 130 °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 :**

None known

**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. Avoid contact with SO<sub>2</sub> or acidic bisulfite products, which may react to form visible airborne amine salt particles. Certain amines in contact with nitrous acid, organic or inorganic nitrites or atmospheres with high nitrous oxide concentrations may produce N-nitrosamines, many of which are cancer-causing agents to laboratory animals.

**HAZARDOUS DECOMPOSITION PRODUCTS :**

Under fire conditions: Oxides of carbon, Oxides of nitrogen

### 11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this 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: High



**MATERIAL SAFETY DATA SHEET**

**PRODUCT**

**NALCO 9226**

**EMERGENCY TELEPHONE NUMBER(S)**

**(800) 424-9300 (24 Hours) CHEMTREC**

**12. ECOLOGICAL INFORMATION**

ECOTOXICOLOGICAL EFFECTS :

No toxicity studies have been conducted on this product.

**ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION**

Based on our hazard characterization, the potential environmental hazard is: Moderate

Based on our recommended product application and the product's characteristics, the potential environmental exposure is: Low

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

**13. DISPOSAL CONSIDERATIONS**

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste.

Hazardous Waste: D002

Hazardous wastes must be transported by a licensed hazardous waste transporter and disposed of or treated in a properly licensed hazardous waste treatment, storage, disposal or recycling facility. Consult local, state, and federal regulations for specific requirements.

**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 :	ETHANOLAMINE SOLUTION
Technical Name(s) :	
UN/ID No :	UN 2491
Hazard Class - Primary :	8
Packing Group :	III
Flash Point :	97.8 °C / 208 °F

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	ETHANOLAMINE SOLUTION
Technical Name(s) :	
UN/ID No :	UN 2491
Hazard Class - Primary :	8
Packing Group :	III



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IATA Cargo Packing Instructions : 820  
IATA Cargo Aircraft Limit : 60 L (Max net quantity per package)

## MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name : ETHANOLAMINE SOLUTION  
Technical Name(s) :  
UN/ID No : UN 2491  
Hazard Class - Primary : 8  
Packing Group : III

## 15. REGULATORY 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.

Monoethanolamine : Corrosive, Combustible.

#### 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)

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This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.

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. 111 (40 CFR 60, Volatile Organic Compounds), Sec. 112 (40 CFR 61, Hazardous Air Pollutants), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :

This product contains the following substances listed in the regulation:

Substance(s)	Citations
• Monoethanolamine	Sec. 111

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 :

The following substances are disclosed for compliance with State Right to Know Laws:

Monoethanolamine 141-43-5

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 :

E - Corrosive Material

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :

The substances in this preparation are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

INTERNATIONAL CHEMICAL CONTROL LAWS

AUSTRALIA

All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS) and are listed on the Australian Inventory of Chemical Substances (AICS).

EUROPE

The substances in this preparation have been reviewed for compliance with the EINECS or ELINCS inventories.



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PRODUCT

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### 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)

### THE PHILIPPINES

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippine 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: 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.



**MATERIAL SAFETY DATA SHEET**

PRODUCT

**NALCO 9226**

EMERGENCY TELEPHONE NUMBER(S)

**(800) 424-9300 (24 Hours) CHEMTREC**

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 : 02/22/2004  
Version Number : 1.4



# MATERIAL SAFETY DATA SHEET

PRODUCT

**NALCO 9353**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO 9353**

APPLICATION : SCALE INHIBITOR/DISPERSANT

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 : 0 / 1    FLAMMABILITY : 1 / 1    INSTABILITY : 0 / 0    OTHER :  
0 = Insignificant    1 = Slight    2 = Moderate    3 = High    4 = Extreme

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Based on our hazard evaluation, none of the substances in this product are hazardous.

## 3. HAZARDS IDENTIFICATION

### \*\*EMERGENCY OVERVIEW\*\*

#### CAUTION

May cause irritation with prolonged contact.  
Do not get in eyes, on skin, on clothing. Do not take internally. Wear suitable protective clothing. Keep container tightly closed. Flush affected area with water. Protect product from freezing.  
May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :  
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :  
May cause irritation with prolonged contact.

SKIN CONTACT :  
May cause irritation with prolonged contact.

INGESTION :  
Not a likely route of exposure. No adverse effects expected.

INHALATION :  
Not a likely route of exposure. No adverse effects expected.



## MATERIAL SAFETY DATA SHEET

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### 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 :

Flush affected area with water. If symptoms develop, seek medical advice.

### SKIN CONTACT :

Flush affected area with water. If symptoms develop, seek medical advice.

### INGESTION :

Do not induce vomiting without medical advice. If conscious, washout mouth and give water to drink. If symptoms develop, seek medical advice.

### 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 : > 212 °F / > 100 °C ( PMCC )

### EXTINGUISHING MEDIA :

This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use extinguishing media appropriate for surrounding fire.

### FIRE AND EXPLOSION HAZARD :

May evolve oxides of carbon (COx) under fire conditions. May evolve oxides of nitrogen (NOx) and sulfur (SOx) 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.



## MATERIAL SAFETY DATA SHEET

PRODUCT

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### 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 contaminate surface water.

### 7. HANDLING AND STORAGE

#### HANDLING :

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

#### STORAGE CONDITIONS :

Protect product from freezing. Store in suitable labelled containers. Store the containers tightly closed.

#### SUITABLE CONSTRUCTION MATERIAL :

Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

### 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. Respiratory protection is not normally needed.

#### HAND PROTECTION :

Neoprene gloves, Nitrile gloves, Butyl gloves, PVC gloves

#### SKIN PROTECTION :

Wear standard protective clothing.



## MATERIAL SAFETY DATA SHEET

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EMERGENCY TELEPHONE NUMBER(S)

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### EYE PROTECTION :

Wear chemical splash goggles. When handling this product, the use of splash chemical goggles is recommended. The applicable European standard can be found in EN 166.

### 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.

### 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 Opaque
ODOR	None
SPECIFIC GRAVITY	1.23 - 1.29 @ 77 °F / 25 °C
DENSITY	10.5 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	3
VISCOSITY	275 cps
VOC CONTENT	0.0 % Calculated

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 oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. 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, Oxides of nitrogen, Oxides of sulfur



# MATERIAL SAFETY DATA SHEET

PRODUCT

**NALCO 9353**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

## 11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this 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: Low

## 12. ECOLOGICAL INFORMATION

### ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

### ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Fathead Minnow	96 hrs	700 mg/l	Product

### ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Ceriodaphnia dubia	48 hrs	375 mg/l		Product

### 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%	10 - 30%	70 - 90%

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

### BIOACCUMULATION POTENTIAL

This preparation or material is not expected to bioaccumulate.



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## 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 :

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

### NATIONAL REGULATIONS, USA :

#### OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200 :

Based on our hazard evaluation, none of the substances in this product are hazardous.

#### CERCLA/SUPERFUND, 40 CFR 117, 302 :

Notification of spills of this product is not required.



## MATERIAL SAFETY DATA SHEET

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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 that this product is not hazardous under 29 CFR 1910.1200.

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)

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. 111 (40 CFR 60, Volatile Organic Compounds), 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 :

None of the substances are specifically listed in the regulation.

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 :

Not considered a WHMIS controlled product.





## MATERIAL SAFETY DATA SHEET

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**NALCO 9353**

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(800) 424-9300 (24 Hours) CHEMTREC

### CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :

The substances in this preparation are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

### INTERNATIONAL CHEMICAL CONTROL LAWS

#### 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 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 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)

#### THE PHILIPPINES

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippine 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: 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.



## MATERIAL SAFETY DATA SHEET

PRODUCT

**NALCO 9353**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

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 : 11/03/2005

Version Number : 1.6

**MATERIAL SAFETY DATA SHEET**

PRODUCT

**ACTI-BROM® 1318**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**PRODUCT NAME : **ACTI-BROM® 1318**APPLICATION : **BIOCIDE**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. Consult Section 15 for the nature of the hazard(s).

Hazardous Substance(s)	CAS NO	% (w/w)
Sodium Bromide	7647-15-6	30.0 - 60.0

**3. HAZARDS IDENTIFICATION****\*\*EMERGENCY OVERVIEW\*\*****CAUTION**

Causes moderate eye irritation.

Avoid contact with eyes, skin and clothing. Wash with soap and water after handling. Remove contaminated clothing and wash before reuse.

May evolve hydrogen bromide and bromine under fire conditions.

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. No adverse effects expected.



## MATERIAL SAFETY DATA SHEET

PRODUCT

**ACTI-BROM® 1318**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

### INHALATION :

Not a likely route of exposure. Aerosols or product mist may irritate the upper 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

**IF ON SKIN OR CLOTHING:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**IF IN EYES:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

**IF SWALLOWED:** Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

**IF INHALED:** Remove victim to fresh air. If not breathing, give artificial respiration, preferably, mouth-to-mouth. Get medical attention.<sup>^</sup>

## 5. FIRE FIGHTING MEASURES

**FLASH POINT :** None

### EXTINGUISHING MEDIA :

Not expected to burn. Keep containers cool by spraying with water. Use extinguishing media appropriate for surrounding fire.

### FIRE AND EXPLOSION HAZARD :

May evolve hydrogen bromide and bromine 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.



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### 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. Stop or reduce any leaks if it is safe to do so. 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. Wash site of spillage thoroughly with water. 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 :

This pesticide is toxic to fish and aquatic organisms. 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. Do not get in eyes, on skin, on clothing. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Ensure all containers are labelled. Keep the containers closed when not in use. Use with adequate ventilation.

#### STORAGE CONDITIONS :

Store the containers tightly closed. Store in suitable labelled containers.

### 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



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### SKIN PROTECTION :

Wear standard protective clothing.

### EYE PROTECTION :

Wear chemical splash goggles.

### HYGIENE RECOMMENDATIONS :

If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse. Keep an eye wash fountain available. Keep a safety shower available.

### 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	1.45 @ 77 °F / 25 °C
DENSITY	12.1 lb/gal
SOLUBILITY IN WATER	Complete
pH (100 %)	7.9
VISCOSITY	5 cps
FREEZING POINT	7 °F / -14 °C
BOILING POINT	218 °F / 103.5 °C
VAPOR PRESSURE	5.6 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 oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.



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### HAZARDOUS DECOMPOSITION PRODUCTS :

Under fire conditions: None known

## 11. TOXICOLOGICAL INFORMATION

### 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
0.0 / 8.0	Similar Product
Rating :	Essentially non-irritating

### PRIMARY EYE IRRITATION :

Draize Score	Test Descriptor
16.0 / 110.0	Similar Product
Rating :	Mildly 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 and a similar product. The following results are for the active components. The following results are for the hypobromous acid (as Br<sub>2</sub>) generated from sodium bromide and hypochlorite.

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## ACUTE FISH RESULTS :

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

## ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	7,900 mg/l		Active Substance ( Sodium Bromide )
Ceriodaphnia dubia	48 hrs	> 5,000 mg/l		Product
Daphnia magna	48 hrs	0.038 mg/l		HOBr (Generated from NaBr)
American Oyster	96 hrs	0.54 mg/l		HOBr (Generated from NaBr)
Mysid Shrimp (Mysidopsis bahia)	96 hrs	0.17 mg/l		HOBr (Generated from NaBr)

## ADDITIONAL ECOLOGICAL DATA:

AOX information: Product contains no organic halogens.

## PERSISTENCY AND DEGRADATION :

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.





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## 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: 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.

DO NOT REUSE EMPTY CONTAINER. Triple rinse the container (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incinerate. Burn only if allowed by state and local authorities. 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

### 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.



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Sodium Bromide : Eye irritant

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) :  
This product is exempted under TSCA and regulated under FIFRA. The inerts are on the Inventory List.

FOOD AND DRUG ADMINISTRATION (FDA) Federal Food, Drug and Cosmetic Act :  
When use situations necessitate compliance with FDA regulations, this product is acceptable under : 21 CFR 176.170 Components of paper and paperboard in contact with aqueous and fatty foods and 21 CFR 176.180 Components of paper and paperboard in contact with dry foods., 21 CFR 176.300 Slimeicides, The following limitations apply:

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. 5185-467-1706  
In all cases follow instructions on the product label.

This product has been certified as KOSHER/PAREVE for year-round use INCLUDING THE PASSOVER SEASON by the CHICAGO RABBINICAL COUNCIL.



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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 substances in this preparation are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

INTERNATIONAL CHEMICAL CONTROL LAWS

AUSTRALIA

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

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 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)



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### THE PHILIPPINES

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippine 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: 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.



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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.

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Prepared By : Product Safety Department  
Date issued : 05/08/2006  
Version Number : 1.17

**SAFETY DATA SHEET**

PRODUCT

**H-130M**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT NAME : H-130M  
APPLICATION : BIOCIDES  
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 : 3 / 3 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)
Didecyl-Dimethyl-Ammonium chloride	7173-51-5	30.0 - 60.0
Ethanol	64-17-5	5.0 - 10.0

**3. HAZARDS IDENTIFICATION****\*\*EMERGENCY OVERVIEW\*\*****DANGER**

Combustible. CORROSIVE. Causes severe eye and skin damage. Harmful or fatal if swallowed. Do not get in eyes, on skin, or on clothing. Wears goggles or face shield and rubber gloves when handling. Avoid contamination of food. Remove contaminated clothing and wash before reuse.  
Keep away from heat. Keep away from sources of ignition - No smoking. Use with adequate ventilation. Keep container tightly closed and in a well-ventilated place.  
Wear chemical resistant apron, chemical splash goggles, impervious gloves and boots.  
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 (CO<sub>x</sub>) under fire conditions. May evolve oxides of nitrogen (NO<sub>x</sub>) under fire conditions. May evolve HCl under fire conditions. May evolve ammonia under fire conditions.

PRIMARY ROUTES OF EXPOSURE :  
Eye, Skin



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### HUMAN HEALTH HAZARDS - ACUTE :

#### EYE CONTACT :

Corrosive. Will cause eye burns and permanent tissue damage.

#### SKIN CONTACT :

May cause severe irritation or tissue damage depending on the length of exposure and the type of first aid administered. Harmful if absorbed through skin.

#### INGESTION :

Corrosive, causes burns to gastro-intestinal tract. Nausea, vomiting and stomach pain may occur. In severe cases blood may be vomited. May be fatal if swallowed.

#### INHALATION :

Irritating, in high concentrations, to the eyes, nose, throat and lungs. Inhalation of vapors may cause headache, nausea, and vomiting. Can cause central nervous system depression. Large exposures may be fatal.

#### 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 :

Skin contact may aggravate an existing dermatitis condition.

## 4. FIRST AID MEASURES

**IF IN EYES:** Hold eyelids open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call poison control center or doctor for treatment advice.

**IF ON SKIN:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**IF SWALLOWED:** Call a Poison Control center or doctor for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

**IF INHALED:** Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferable mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice., Take container, label or product name and Pest Control Product registration number with you when seeking medical attention.

#### NOTE TO PHYSICIAN :

Probable mucosal damage may contraindicate the use of gastric lavage. Based on the individual reactions of the patient, the physician's judgement should be used to control symptoms and clinical condition.



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### 5. FIRE FIGHTING MEASURES

FLASH POINT : 109 °F / 43 °C ( SETAFLASH )

**EXTINGUISHING MEDIA :**

Foam, Carbon dioxide, 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.

**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. May evolve oxides of nitrogen (NOx) under fire conditions. May evolve HCl under fire conditions. May evolve ammonia 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. Use personal protective equipment recommended in Section 8 (Exposure Controls/Personal Protection). Stop or reduce any leaks if it is safe to do so. Ventilate spill area if possible. Do not touch spilled material. Ensure clean-up is conducted by trained personnel only. Notify appropriate government, occupational health and safety and environmental authorities. Have emergency equipment (for fires, spills, leaks, etc.) readily available. Remove sources of ignition.

**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. Wash site of spillage thoroughly with water. 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 :**

This product is toxic to fish and other water organisms. Do not discharge directly into lakes, ponds, streams, waterways or public water supplies.

### 7. HANDLING AND STORAGE

**HANDLING :**

Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Avoid release of vapors or mists into workplace air. 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. Have emergency equipment (for fires, spills, leaks, etc.) readily available.





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### STORAGE CONDITIONS :

Store away from heat and sources of ignition. Connections must be grounded to avoid electrical charges. Store the containers tightly closed. Store separately from oxidizers. Store in suitable labeled containers.

## 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.

#### ACGIH/TLV :

Substance(s)

Ethanol

TWA: 1,000 ppm , 1,880 mg/m<sup>3</sup>

#### OSHA/PEL :

Substance(s)

Ethanol

TWA: 1,000 ppm , 1,900 mg/m<sup>3</sup>

### ENGINEERING MEASURES :

Use general ventilation with local exhaust ventilation.

### RESPIRATORY PROTECTION :

If significant mists, vapors or aerosols are generated an approved respirator is recommended. A suitable filter material depends on the amount and type of chemicals being handled. Consider the use of filter type: Organic vapor 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 :

Wear impervious apron and boots. A full slicker suit is recommended if gross exposure is possible.

### EYE PROTECTION :

Wear chemical splash goggles.

### HYGIENE RECOMMENDATIONS :

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.



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### 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	Liquid
APPEARANCE	Light yellow
ODOR	Alcoholic
SPECIFIC GRAVITY	0.93 @ 77 °F / 25 °C
DENSITY	7.7 lb/gal
SOLUBILITY IN WATER	Complete
pH (1 %)	7.0 - 8.0
VISCOSITY	< 100 cps @ 77 °F / 25 °C
FREEZING POINT	12 °F / -11.11 °C
VOC CONTENT	10 %

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

**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. Contact with reducing agents (e.g. hydrazine, sulfites, sulfide, aluminum or magnesium dust) may generate heat, fires, explosions and toxic vapors.

**HAZARDOUS DECOMPOSITION PRODUCTS :**

Under fire conditions: Oxides of carbon, Oxides of nitrogen, HCl, ammonia

### 11. TOXICOLOGICAL INFORMATION

The following results are for the product.

**ACUTE DERMAL TOXICITY :**

Species	LD50	Test Descriptor
Rabbit	> 4 g/kg	Product

**SENSITIZATION :**

This product is not expected to be a sensitizer.



## SAFETY DATA SHEET

PRODUCT

**H-130M**

EMERGENCY TELEPHONE NUMBER(S)

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### 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: High

## 12. ECOLOGICAL INFORMATION

### ECOTOXICOLOGICAL EFFECTS :

The following results are for the product.

### ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Rainbow Trout	96 hrs	2.2 mg/l	
Bluegill Sunfish	96 hrs	0.92 mg/l	

### ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	0.19 mg/l		
Mysid Shrimp (Mysidopsis bahia)	96 hrs	0.14 mg/l		

### ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION

Based on our hazard characterization, the potential environmental hazard is: High

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

## 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste.

Hazardous Waste: D001

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.



## SAFETY DATA SHEET

PRODUCT

**H-130M**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

### 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 :	CORROSIVE LIQUID, FLAMMABLE, N.O.S.
Technical Name(s) :	DIDECYLDIMETHYLAMMONIUM CHLORIDE, ETHANOL
UN/ID No :	UN 2920
Hazard Class - Primary :	8
Hazard Class - Secondary :	3
Packing Group :	II
Flash Point :	43 °C / 109 °F

#### AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	CORROSIVE LIQUID, FLAMMABLE, N.O.S.
Technical Name(s) :	DIDECYLDIMETHYLAMMONIUM CHLORIDE, ETHANOL
UN/ID No :	UN 2920
Hazard Class - Primary :	8
Hazard Class - Secondary :	3
Packing Group :	II
IATA Cargo Packing Instructions :	812
IATA Cargo Aircraft Limit :	30 L (Max net quantity per package)

#### MARINE TRANSPORT (IMDG/IMO) :

Proper Shipping Name :	CORROSIVE LIQUID, FLAMMABLE, N.O.S.
Technical Name(s) :	DIDECYLDIMETHYLAMMONIUM CHLORIDE, ETHANOL
UN/ID No :	UN 2920
Hazard Class - Primary :	8
Hazard Class - Secondary :	3
Packing Group :	II

### 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.



## SAFETY DATA SHEET

PRODUCT

**H-130M**

EMERGENCY TELEPHONE NUMBER(S)

**(800) 424-9300 (24 Hours) CHEMTREC**

Didecyl-Dimethyl-Ammonium chloride : Corrosive  
Ethanol : Flammable

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
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) :  
This product is exempted under TSCA and regulated under FIFRA. The inerts are on the Inventory List.

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA) :  
EPA Reg. No. 6836-203-1706

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 :

Substances listed under this regulation are not intentionally added or expected to be present in this product.

CLEAN AIR ACT, Sec. 112 (40 CFR 61, Hazardous Air Pollutants), Sec. 602 (40 CFR 82, Class I and II Ozone Depleting Substances) :

Substances listed under this regulation are not intentionally added or expected to be present in this product.

CALIFORNIA PROPOSITION 65 :  
Substances listed under California Proposition 65 are not intentionally added or expected to be present in this product.



## SAFETY DATA SHEET

PRODUCT

**H-130M**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

### MICHIGAN CRITICAL MATERIALS :

Substances listed under this regulation are not intentionally added or expected to be present in this product.

### 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) :

Substances regulated under the Pest Control Products Act are exempt from CEPA New Substance Notification requirements.

#### 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 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 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)

#### 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

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



## SAFETY DATA SHEET

PRODUCT

**H-130M**

EMERGENCY TELEPHONE NUMBER(S)

(800) 424-9300 (24 Hours) CHEMTREC

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 : 04/20/2009  
Version Number : 1.6

Material Safety Data Sheet  
 May be used to comply with  
 OSHA'S Hazard Communication Standard  
 29 sCFR 1910, 1200. Standard Must be  
 consulted for specific requirements.

U.S. Department of Labor  
 Occupational Safety and Health Administration  
 (Non-Mandatory Form)  
 Form Approved  
 OMB No. 1218-0072

IDENTITY (As used on Label and List)

B-2206 Bromide Tablets

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

**Section I**

Manufacture's Name VariChem International, Inc.	Emergency Telephone Number 1-800-424-9300
Address (Number, Street, City, State, and Zip Code) P.O. Box 528 / Hwy 35 West Van Vleck, TX 77482	Telephone Number for Information 1-979-245-7278 Date Updated May 6, 2009 Signature of Preparer (optional)

**Section II -- Hazardous Ingredients / Identity Information**

Hazardous Components (Specific Chemical Identity: Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (Optional)
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Bromochloro-5,5-dimethylhydantoin

A biocide used to control bacteria, algae, yeast and fungi in industrial water systems.

D.O.T. = Oxidizing Solid, N.O.S., 5.1, UN1479, PGII (Contains Halogen)

**Section III -- Physical / Chemical Characteristics**

Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	1.8-2.0
Vapor Pressure (mm Hg.)	25°C	Melting Point	N/A
Vapor Density (Air=1)	N/A	Evaporation Rate (Butyl Acetate = 1)	
Solubility In Water	25°C: Benzene: 2.5 g/100g		
Appearance and Odor	White to Off White, Tablet, Faint halogen odor.		

**Section IV -- Fire and Explosion Hazard Data**

Flash Point (Method Used): NONE	Flammable Limits: NO	LEL: N/A	UEL: N/A
Extinguishing Media: DRY POWDER, CARBON DIOXIDE, OR WATER SPRAY.			
Special Fire Fighting Procedures: USE WATER SPRAY TO COOL CONTAINERS EXPOSED TO FIRE. DO NOT BREATHE FUMES.			

**Contain Run Off.**

Unusual Fire and Explosion Hazards: OXIDIZING MATERIALS, WHEN HEATED TO DECOMPOSITION, MAY RELEASE POISONOUS AND

Corrosive fumes of hydrogen bromide, nitrogen oxides, and hydrogen chloride. Strong oxidizing agent.

Forms explosive mixtures with combustible, organic or other easily oxidizable materials.

(Reproduce Locally)

OSHA 174, Sept. 1985



**Section V -- Reactivity Data**

Stability	Unstable		Conditions to Avoid	TEMPERATURES ABOVE 160°C/320°F
	Stable	X	Stable under normal conditions of storage, shipment and/or use.	

Incompatibility (Materials to Avoid) OXIDIZING AGENTS, COMBUSTIBLE ORGANIC MATERIALS, BASES

Hazardous Decomposition or Byproducts HYDROGEN BROMIDE, BROMINE GAS, AND HYDROGEN CHLORIDE

Hazardous	May Occur		Conditions to Avoid	
	Will Not Occur	X		

**Section VI -- Health Hazard Data**

Route(s) of Entry:	Eyes?	X	Inhalation?	X	Skin?	X	Ingestion?	
Health Hazards (Acute and Chronic) INHALATION LC50 - 0.53MG/1.4 HOUR(RAT) ORAL LD50-1500 MG/KG (RAT) DERMAL LD50								
Carcinogenicity: NO NTP? NO IARC Monographs NO OSHA Regulated? YES								

Not known to be carcinogenic. Not included in NTP 8th Annual Report on Carcinogens. Not classified by LARC

Signs and Symptoms of Exposure SEVERE EYE IRRITATION. SKIN CONTACT CAUSES BURNS. SEVERE IRRITANT TO UPPER RESPIRATORY

Tract, nose, throat and lungs. Can cause shortness of breath, headache and nausea.

Emergency and First Aid Procedures : Eyes: HOLD THE EYELIDS APART, FLUSH IMMEDIATELY WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. SKIN: REMOVE CONTAMINATED CLOTHING & WASH AFFECTED SKIN WITH MILD SOAP & WATER AT LEAST 15 MINUTES.

If swallowed, wash mouth thoroughly with water and drink 2 glasses of water. (Never give an unconscious person anything to drink) Dust Inhalation or Breathing Fumes: Remove person to fresh air, keep quiet and warm.

**IN ALL CASES SEEK MEDICAL ATTENTION IMMEDIATELY!**

**Section VII -- Precautions for Safe Handling and Use**

Steps to Be Taken in Case Material is Released or Spilled EVACUATE THE SPILL AREA. KEEP DUST TO A MINIMUM. TRANSFER SPILLED

Material to suitable containers for recovery of disposal. Ventilate area and wash spill sites after material

pickup is complete CAUTION: Keep spills and cleaning runoff out of municipal sewers & open body of waters.

Waste Disposal Method DISPOSE OF IN APPROVED LANDFILL SITE OR AN APPROVED INCINERATOR. CRUSH AND BURY EMPTY CON-

tainers. Avoid access to streams, lakes or ponds. Observe all federal, state and local environmental regulations.

Precautions to Be Taken in Handling and Storing MATERIAL IS POSSIBLE SKIN SENSITIZER. AVOID SKIN CONTACT. PVC GLOVES SHOULD BE

Worn when using this substance. They should be replaced immediately if there is any chemical on them.

Other Precautions UPON REMOVAL OF GLOVES, CLOTHING OR SHOES, WASH THOROUGHLY WITH SOAP AND WATER.

**Section VIII -- Control Measures**

**Respiratory Protection (Specify Type) WEAR MSHA/NIOSH APPROVED FULL-FACEPIECE AIR PURIFYING RESPIRATOR.**

EQUIP WITH CHEMICAL CARTRIDGE FOR PROTECTION AGAINST HALOGEN GASES AND DUST/MIST.

Ventilation	Local Exhaust: USE (ESPECIALLY UNDER DUST CONDITIONS)	Special
	Mechanical (General)	Other

Protective Gloves WEAR CHEMICALLY RESISTANT GLOVES Eye Protection: USE SAFETY GLASSES (ANSI Z87.1 OR APPROVED

EQUIVALENT) WEAR CHEMICAL SAFETY GOGGLES IF AIRBORNE PARTICLES ARE PRESENT.

Other Protective Clothing Equipment USE CHEMICAL RESISTANT BODY COVERING CLOTHES TO AVOID PROLONGED SKIN CONTACT

Work/Hygienic Practices SAFETY SHOWER AND EYE BATH SHOULD BE PROVIDED.

**DO NOT EAT, DRINK OR SMOKE UNTIL SHOWERING AND CHANGING CLOTHES**

Material Safety Data Sheet  
 May be used to comply with  
 OSHA'S Hazard Communication Standard  
 29 CFR 1910.1200. Standard Must be  
 consulted for specific requirements.

U.S. Department of Labor  
 Occupational Safety and Health Administration  
 (Non-Mandatory Form)  
 Form Approved  
 OMB No. 1218-0072

IDENTITY (As used on Label and List)  
 B-2207 Microbiocide

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

**Section I**

Manufacturer's Name VariChem International, Inc.	Emergency Telephone Number 1-800-424-9300
Address (Number, Street, City, State, and Zip Code) 7833 SH 35 North Van Vleck, TX 77482	Telephone Number for information 1-979-245-7278
	Date Prepared January 1, 2007
	Signature of Preparer (optional)

**Section II -- Hazardous Ingredients / Identity Information**

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (Optional)
Gluteraldehyde (CAS# 111-30-8)				25%

DOT: Corrosive Liquid, N.O.S.; 8; UN 3265; PGII; (Contains Gluteraldehyde)

HMIS: H-2, F-2, R-0

**Section III -- Physical / Chemical Characteristics**

Boiling Point	-213°F	Specific Gravity (H <sub>2</sub> O = 1)	1.129
Vapor Pressure (mm Hg.)	0.2	Melting Point	Liquid
Vapor Density (Air=1)	1.1	Evaporation Rate (Butyl Acetate = 1)	1
Solubility in Water	100%		

Appearance and Odor: Transparent Colorless, Odor is sharp-medicinal.

**Section IV -- Fire and Explosion Hazard Data**

Flash Point (Method Used)	None	Flammable Limits	N/A	LEL	N/A	UEL	N/A
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Extinguishing Media: Dry Chemical, Carbon Dioxide, or Alcohol type Foam.

Special Fire Fighting Procedures: Not Available

Unusual Fire and Explosion Hazards: None Known

**Section V -- Reactivity Data**

Stability	Unstable		Conditions to Avoid
	Stable	X	

Incompatibility (Materials to Avoid) **Strong Alkalies and evaporation of water, strong acids.**

Hazardous Decomposition or Byproducts

Hazardous:	May Occur		Conditions to Avoid
	Polymerization: Will Not Occur	X	Temperatures above 100°C

**Section VI -- Health Hazard Data**

Route(s) of Entry:	Inhalation?	Yes	Skin?	Yes	Ingestion?	Yes
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Health Hazards (Acute and Chronic) **DANGER: Corrosive, causes irreversible eye damage, Causes skin burns: Harmful**

**if inhaled, may be fatal if swallowed, Aspiration may cause lung damage.**

Carcinogenicity:	NTP?	None	IARC Monographs	None	OSHA Regulated?	Unknown
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Signs and Symptoms of Exposure **May cause skin sensitization. May cause asthma. Repeated skin contact may**

**cause a cumulative dermatitis.**

Medical Conditions

Aggravated by Exposure **Skin allergies and pre-existing asthmatic conditions:**

Emergency and First Aid Procedures

**Inhalation: Remove to fresh air, obtain medical attention. Eyes: Immediately flush**

**eyes with water and obtain medical attention of ophthalmologist. Skin: Wash with soap and water. Swallowing:**

**DO NOT induce vomiting. Do Not give anything to drink. Obtain medical attention without delay.**

**Section VII -- Precautions for Safe Handling and Use**

Steps to Be Taken in Case Material is Released or Spilled **Very low levels can be biodegraded in a waste water system (5ppm).**

**Flush small spills can be flushed with large quantities of water. Collect large spills on absorbent and dispose of according to Federal, State, and Local regulations.**

Waste Disposal Method **Atomize into hot incinerator fire or mix with suitable solvent and incinerate. Dispose in**

**accordance with appropriate Federal, State, and Local regulations.**

Precautions to Be Taken in Handling and Storing

**Wear protective clothing (Nitrile NBR) monogoggles and Butyl gloves.**

**Work in well ventilated area.**

Other Precautions

**Wash all equipment and protective clothing if contacted.**

**Section VIII -- Control Measures**

Respiratory Protection (Specify Type) **Self contained breathing apparatus MSHA/NIOSH air purifying respirator.**

Ventilation	Local Exhaust	Special:
	Mechanical (General) <b>Room Ventilation OK</b>	Other

Protective Gloves: **Butyl** Eye Protection: **Monogoggles**

Other Protective Clothing Equipment: **Nitrile (NBR) Chemical Apron, Eye bath, Safety Shower, Rubber Boots.**

Work/Hygienic Practices: **Good housekeeping acceptable industrial engineering practices.**

Material Safety Data Sheet  
 May be used to comply with  
 OSHA'S Hazard Communication Standard  
 29 CFR 1910, 1200. Standard Must be  
 consulted for specific requirements.

U.S. Department of Labor  
 Occupational Safety and Health Administration  
 (Non-Mandatory Form)  
 Form Approved  
 OMB No. 1218-0072

IDENTITY (As used on Label and List)  
 SC-2312 Scale & Corrosion Inhibitor

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

**Section I**

Manufacturer's Name VariChem International, Inc.	Emergency Telephone Number 1-800-424-9300
Address (Number, Street, City, State, and Zip Code) P.O. Box 528 / Hwy 35 West Van Vleet, TX 77482	Telephone Number for information 1-979-245-7278
	Date Prepared January 1, 2006
	Signature of Preparer (optional)

**Section II -- Hazardous Ingredients / Identity Information**

Hazardous Components (Specific Chemical Identity: Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (Optional)
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None

This product contains no hazardous components under current OSHA definitions.

DOT: Not Regulated

\*\* This product does not contain any SARA Section 313 listed Chemicals \*\*

**Section III -- Physical / Chemical Characteristics**

Boiling Point	212°F	Specific Gravity (H2O = 1)	1.032
Vapor Pressure (mm Hg)	16.6	Melting Point	N/A
Vapor Density (Air=1)	0.6	Evaporation Rate (Butyl Acetate = 1)	N/A
Solubility in Water	Complete		
Appearance and Odor	Dark brown liquid with no distinct odor.		

**Section IV -- Fire and Explosion Hazard Data**

Flash Point (Method Used)	Above 200°F (PMCC)	Flammable Limits: %	LEL: N/DA	UEL: N/DA
Extinguishing Media	Water spray			
Special Fire Fighting Procedures	Do not enter any enclosed fire space without proper protective equipment.			
Unusual Fire and Explosion Hazards	None			

**Section V -- Reactivity Data**

Stability	Unstable		Conditions to Avoid
	Stable	X	None
Incompatibility (Materials to Avoid) <b>Strong acids, strong oxidizing agents.</b>			
Hazardous Decomposition or Byproducts <b>Incomplete combustion may result in oxides of Phosphorus, Sulfur, &amp; Nitrogen.</b>			
Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	None

**Section VI -- Health Hazard Data**

Route(s) of Entry:	Inhalation?	Yes	Skin?	Yes	Ingestion?	Yes
Health Hazards (Acute and Chronic) <b>This material may cause minor irritation upon contact with the eyes.</b>						
Carcinogenicity:	NTP?	No	IARC Monographs	No	OSHA Regulated?	No

Signs and Symptoms of Exposure **This material may cause minor irritation upon contact with the eyes. This material is not expected to present a skin contact hazard.**

Medical Conditions Aggravated by Exposure **None**

Emergency and First Aid Procedures **Eyes: Flush with water for 15 min. Seek medical attention if irritation persist.**  
**Skin: Wash with soap & water. Ingestion: Seek medical attention.**

**Section VII -- Precautions for Safe Handling and Use**

Steps to Be Taken in Case Material is Released or Spilled **Eliminate all open flames in the vicinity of the spill or released vapor. Contain by diking with a Non-Combustible absorbent and dispose of in a DOT approved container.**

Waste Disposal Method **Flush with water. Absorb large spills with an absorbent, and dispose of in a DOT approved container.**

Precautions to Be Taken in Handling and Storing **Keep out of reach of Children. Avoid splashing in your eyes:**

Other Precautions  
**None**

**Section VIII -- Control Measures**

Respiratory Protection (Specify Type) **Not normally required.**

Ventilation	Local Exhaust	Sufficient	Special	None
	Mechanical (General)	None	Other	None

Protective Gloves **Rubber Gloves** Eye Protection **Goggles, Safety Glasses**

Other Protective Clothing Equipment **Not normally required.**

Work/Hygienic Practices **Eyewash should be available and ready for use.**

Material Safety Data Sheet  
 May be used to comply with  
 OSHA'S Hazard Communication Standard  
 29 sCFR 1910, 1200. Standard Must be  
 consulted for specific requirements.

U.S. Department of Labor  
 Occupational Safety and Health Administration  
 (Non-Mandatory Form)  
 Form Approved  
 OMB No. 1218-0072

IDENTITY (As used on Label and List) SC-2316 Scale & Corrosion Inhibitor	Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.
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**Section I**

Manufacturer's Name VariChem International, Inc.	Emergency Telephone Number 1-800-424-9300
Address (Number, Street, City, State, and Zip Code) P.O. Box 528 / Hwy 35 West Van Vleck, TX 77482	Telephone Number for information 1-979-245-7278
	Date Prepared January 1, 2006
	Signature of Preparer (optional)

**Section II -- Hazardous Ingredients / Identity Information**

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (Optional)
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None

This product contains no hazardous components under current OSHA definitions.

DOT: Not Regulated

HMIS: H-1, F-0, R-0

\*\* This product does not contain any SARA Section 313 listed Chemicals \*\*

**Section III -- Physical / Chemical Characteristics**

Boiling Point	212°F	Specific Gravity (H2O = 1)	1.01
Vapor Pressure (mm. Hg.)	16.6	Melting Point	N/A
Vapor Density (Air=1)	0.6	Evaporation Rate (Butyl Acetate = 1)	N/A

Solubility In Water Complete

Appearance and Odor Light to Dark brown liquid with no distinct odor.

**Section IV -- Fire and Explosion Hazard Data**

Flash Point (Method Used)	Above 200°F (PMCC)	Flammable Limits	%	LEL	N/DA	UEL	N/DA
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Extinguishing Media Water spray

Special Fire Fighting Procedures Do not enter any enclosed fire space without proper protective equipment.

Unusual Fire and Explosion Hazards None

**Section V -- Reactivity Data**

Stability	Unstable		Conditions to Avoid
	Stable	X	None
Incompatibility (Materials to Avoid) Strong acids, strong oxidizing agents.			
Hazardous Decomposition or Byproducts Incomplete combustion may result in oxides of Phosphorus, Sulfur, & Nitrogen.			
Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	None

**Section VI -- Health Hazard Data**

Route(s) of Entry:	Inhalation?	Yes	Skin?	Yes	Ingestion?	Yes
Health Hazards (Acute and Chronic) This material may cause minor irritation upon contact with the eyes.						
Carcinogenicity:	NTP?	No	IARC Monographs	No	OSHA Regulated?	No
Signs and Symptoms of Exposure This material may cause minor irritation upon contact with the eyes. This material is not expected to present a skin contact hazard.						
Medical Conditions Aggravated by Exposure None						

Emergency and First Aid Procedures Eyes: Flush with water for 15 min. Seek medical attention if irritation persist.

Skin: Wash with soap & water. Ingestion: Seek medical attention.

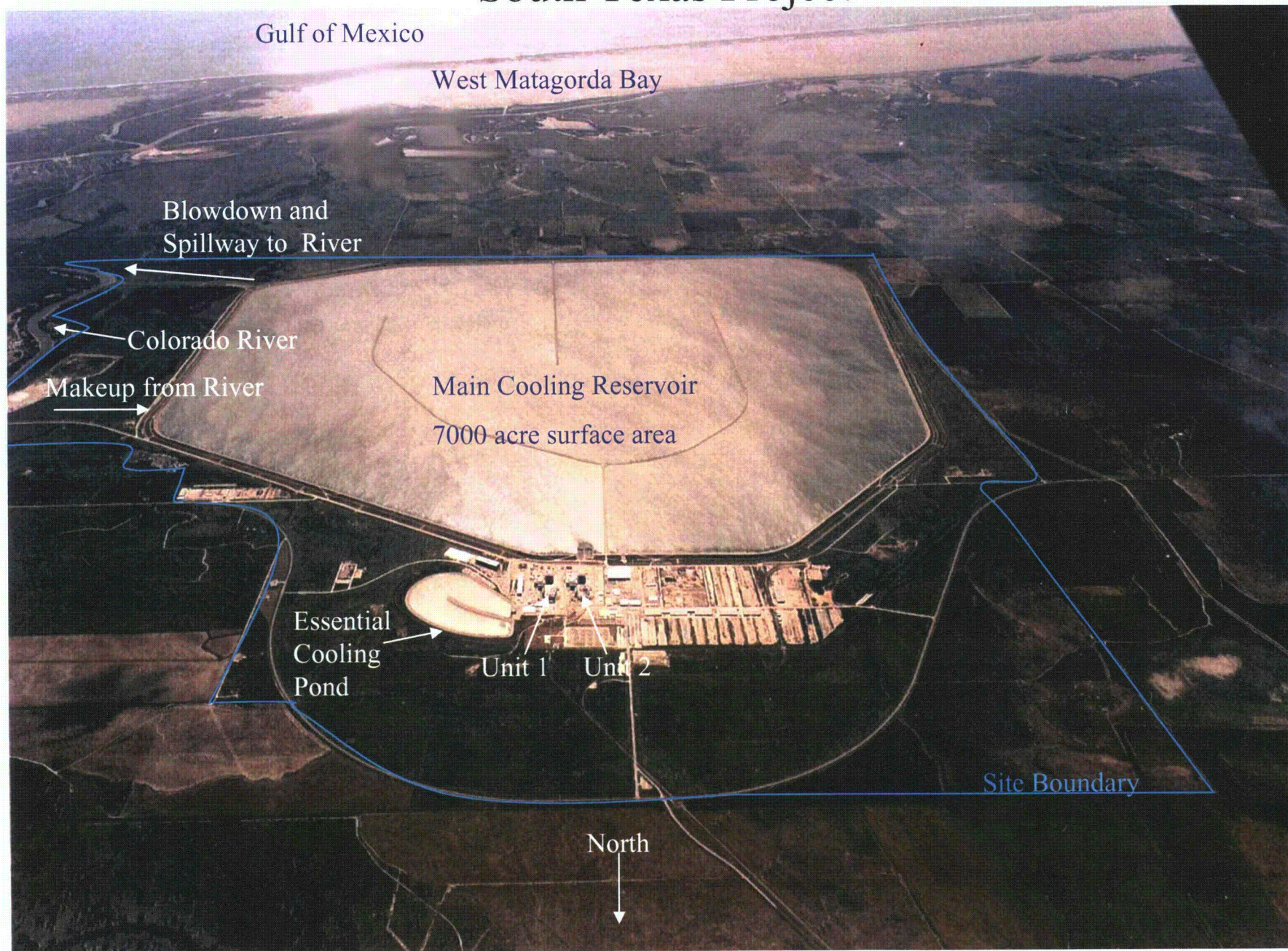
**Section VII -- Precautions for Safe Handling and Use**

Steps to Be Taken in Case Material is Released or Spilled	Eliminate all open flames in the vicinity of the spill or released vapor. Contain by diking with a Non-Combustible absorbent and dispose of in a DOT approved container.
Waste Disposal Method	Flush with water. Absorb large spills with an absorbent, and dispose of in a DOT approved container.
Precautions to Be Taken in Handling and Storing	Keep out of reach of Children. Avoid splashing in your eyes. Keep container closed when not in use.
Other Precautions	None

**Section VIII -- Control Measures**

Respiratory Protection (Specify Type)	Not normally required.		
Ventilation	Local Exhaust	Sufficient	
	Mechanical (General)	None	
	Special	None	
	Other	None	
Protective Gloves	Rubber Gloves	Eye Protection	Goggles, Safety Glasses
Other Protective Clothing Equipment	Not normally required.		
Work/Hygienic Practices	Wash hands after use. An eyewash should be available and ready for use.		

# South Texas Project





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