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

July 19, 2005
NOC-AE-05001911
STI: 31905006

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

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. Due to misinterpretation of Appendix B, this requirement was not fulfilled in a timely manner and is being tracked in the Corrective Action Program. The requirement to submit the wastewater discharge permit application is being evaluated for deletion from Appendix B.

There are no commitments in this letter.

If you should have any questions on this matter, please contact S. L. Dannhardt at (361) 972-8328 or myself at (361) 972-7879.

R. A. Gangluff
Manager, Chemistry

MKK

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

C001

cc:
(paper copy)

Bruce S. Mallett
Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011-8064

Richard A. Ratliff
Bureau of Radiation Control
Texas Department of State Health Services
1100 West 49th Street
Austin, TX 78756-3189

Jeffrey Cruz
U. S. Nuclear Regulatory Commission
P. O. Box 289, Mail Code: MN116
Wadsworth, TX 77483

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

David H. Jaffe
U. S. Nuclear Regulatory Commission

Jack A. Fusco
Michael A. Reed
Texas Genco, LP

C. Kirksey
City of Austin

Jon C. Wood
Cox Smith Matthews

J. J. Nesrsta
R. K. Temple
E. Alarcon
City Public Service

Above copies distributed without attachment.

SOUTH TEXAS PROJECT
ELECTRIC GENERATING STATION

TPDES PERMIT RENEWAL APPLICATION

TPDES PERMIT NO. 01908

MAY, 2004

Nuclear Operating Company

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

Certified Mail

May 26, 2004
NOC-TX-04010127
PFN: W02
STI No. 31751533

Water Quality Applications Team (MC161)
Texas Commission on Environmental Quality
12100 Park 35 Circle
Austin, Texas 78753

Re: TPDES Permit Renewal Application
South Texas Project Electric Generating Station
TPDES Permit No. 01908

Dear Sir/Madam:

STP Nuclear Operating Company (STPNOC) submits the enclosed TPDES permit renewal application (one original and three copies) for the South Texas Project Electric Generating Station (STPEGS). STPNOC is the authorized agent for the owners of the facility. The Texas Commission on Environmental Quality (TCEQ) transferred the permit to the STPNOC on September 18, 2003. Attached is the order transferring the permit to the STPNOC and a copy of the check for the permit renewal fee that has been sent to the Revenues Section of the TCEQ.

Although the STPEGS is a major power generating facility, it is not subject to the recently promulgated CWA §316(b) regulations. The facility employs recycle cooling water technology rather than the once through cooling systems affected by the Phase II regulations.

If you have any questions regarding this letter, or the enclosed application or attachments, please contact Doug Welch at (713) 945-7892 or by e-mail at dbwelch@txgenco.com.

Sincerely,

R. A. Gangluff
Manager, Chemistry

RAG/sld

Enclosures/Attachment

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

TRANSFER OF

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PERMIT NO. 01908

EPA I.D. No. TX0064947

FROM Reliant Energy, Incorporated, City of San Antonio, Central Power and Light Company, and City of Austin

TO STP Nuclear Operating Company

Ownership of the facilities covered by the above-referenced permit issued November 2, 2000, has changed. That part of the signature page pertaining to the name and mailing address of the permit holder is hereby changed so that the same shall hereinafter be and read as follows:

"STP Nuclear Operating Company
P.O. Box 289
Wadsworth, Texas 77483-0289"

The transferee is financially responsible for the proper maintenance and operation of the facility so as to comply with the terms and conditions of the permit. The failure to operate the facility in accordance with the terms and conditions of the permit may be good cause for revocation of the permit.

This transfer is in accordance with 30 Texas Administrative Code Section 305.64.

This order is part of the permit and should be attached there to.

Margaret Hoffman

Issued Date: September 18, 2003

For The Commission

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
DISCHARGE MONITORING REPORT (DMR)
ADDRESS AND SIGNATORY AUTHORITY UPDATE FORM

EPA ID NUMBER: TX 0064947

TPDES PERMIT NUMBER (if applicable): 01908

PERMITTEE AND/OR FACILITY NAME: South Texas Project Electric Generating Station

DMR MAILING ADDRESS:
(If different from your primary mailing address stated on the permit)

P. O. Box 289
(Street Address)
Wadsworth, Texas 77483
(City, State and Zip Code)

Note: If your primary mailing address has changed, please submit the revised address in writing to the Water Quality Applications Team (MC 161). Please call (512) 239-5160 to request the form for this purpose.

INDIVIDUAL(S) AUTHORIZED TO SIGN DISCHARGE MONITORING REPORTS (DMRs):
(Other than Principal Executive Officer)

E. D. Halpin (Name) / Plant Manager (Title)
R. A. Gangluff (Name) / Chemistry Manager (Title)

PERSON TO CONTACT BY PHONE: S. L. Dannhardt (Name) / Environmental Supervisor (Title)

361-972-8328
(Phone Number)

PRINTED NAME OF PRINCIPAL EXECUTIVE OFFICER: G. L. Parkey

TITLE: Vice President, Generation PHONE NO.: 361-972-7800

SIGNATURE: G L Parkey DATE: 6/25/02

PLEASE RETURN COMPLETED FORMS TO:

TNRCC / WQCM Team (MC 224)
Enforcement Division
Attn: Rosie Garza
P.O. Box 13087
Austin, Texas 78711-3087

FOR QUESTIONS OR ASSISTANCE, PLEASE CALL THE COMPLIANCE MONITORING COORDINATOR ASSIGNED TO YOUR FACILITY.

Texas Genco
P.O. Box 2846
Houston, TX 77252-2846

~~OVERNIGHT~~ MAIL
CERTIFIED

May 21, 2004

Revenues Section (MC214)
Texas Commission on Environmental Quality
P.O. Box 13088
Austin, TX 78711-3088

Re: TPDES Permit Renewal Fee - Major Facility
South Texas Project Electric Generating Station
TPDES Permit No. 01908

Dear Sir/Madam:

On behalf of South Texas Project Nuclear Operating Company, Texas Genco submits the enclosed check in the amount of $2015.00, which is payment of the Industrial Wastewater Application Fee applicable to a major facility subject to categorical standards promulgated by the EPA. This fee is for the South Texas Project Electric Generating Station (TPDES Permit No. 01908).

If you have any questions regarding this letter, please contact Doug Welch at (713) 945-7892.

Sincerely,

Ted W. Long
Supervising Engineer
Texas Genco, LP

Enclosure

DBW/J:\ENV\WWPERMIT\STP\TPDES 2004\STP Fee Letter.doc

COMPANY WATERMARK APPEARS IN A CLEAR WINDOW BELOW.

Reliant Energy.

RELIANT ENERGY WHOLESALE SERVICE COMPANY
HOUSTON, TEXAS

60-160
433

Vendor Number: 0000125347 Date: 04/07/2004 Check Number: 1005895

PAY *Two thousand fifteen and 00/100 Dollars*

Pay Exactly
******$2,015.00

TO THE
ORDER OF

TEXAS COMMISSION ON EVIRONMENTAL
QUALITY
PO Box 13088
AUSTIN TX 78711

MELLON BANK ,N.A.
PITTSBURGH, PA. 15262

SECURITY FEATURES INCLUDED DETAILS ON BACK.

AUTHORIZED SIGNATURE
VOID WITHOUT SIGNATURE
VOID AFTER NINETY DAYS.

THE BACK OF THIS DOCUMENT CONTAINS AN ARTIFICIAL WATERMARK. ABSENCE OF THIS FEATURE MAY INDICATE ALTERATION AND SHOULD BE VOID.

⑈1005895⑈ ⑆043301601⑆ 119⑈0512⑈

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

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.

WORKSHEET	Y	N	WORKSHEET	Y	N
ADMINISTRATIVE REPORT 1.0	✓		WORKSHEET 6.0		✓
ADMINISTRATIVE REPORT 1.1		✓	WORKSHEET 7.0		✓
SPIF	✓		WORKSHEET 9.0		✓
TECHNICAL REPORT 1.0	✓		USGS MAP	✓	
WORKSHEET 1.0	✓		AFFECTED LANDOWNER MAP		✓
WORKSHEET 2.0	✓		FLOW DIAGRAM	✓	
WORKSHEET 3.0		✓	SITE DRAWING	✓	
WORKSHEET 4.0	✓		ORIGINAL PHOTOGRAPHS		✓
WORKSHEET 4.1		✓	SOLIDS MANAGEMENT PLAN		✓
WORKSHEET 5.0	✓		WATER BALANCE	✓	

Please indicate by a check mark the amount submitted for the application fee:

EPA Classification	New	Major Amend.	Renewal	Minor Amend./Mod.
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

For Commission Use Only:

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	___	New TLAP
___	Major amendment to existing permit	___	Minor modification to permit
✓	Renewal of existing permit	___	Minor amendment to permit
___	Storm water only discharges		

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

N/A

1. APPLICANT INFORMATION (Instructions, Page 13)

a. Facility owner*: STP Nuclear Operating Company

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)972-7879

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

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

* Owner of the facility must apply for the permit

Check one: ✓ The TNRCC 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 (TNRCC-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

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: _____

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

Check one: ___ The TNRCC has issued this Customer Reference Number to the co-permittee. CN: _____

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

2. CONTACT INFORMATION (Instructions, Pages 14)

Name: Doug Welch Company: Texas Genco, LP

Telephone number: 713-945-7892 Fax number: 713-945-8069 E-Mail: dbwelch@txgenco.com

Street No. 12301 Street name: Kurland Street type: Dr.

P.O. Box _____ City: Houston State: TX Zip code: 77034

Check one or more: ✓ Administrative contact ✓ Technical contact

Name: Ted Long Company: Texas Genco, LP

Telephone number: 713-945-7178 Fax number: 713-945-8069 E-Mail: tlong@txgenco.com

Street No. 12301 Street name: Kurland Street type: Dr.

P.O. Box _____ City: Houston State: TX Zip code: 77034

Check one or more: ✓ Administrative contact ✓ Technical contact

3. NOTICE INFORMATION (Instructions, Page 14)

a. Individual publishing the notices

Name: Doug Welch Telephone number: 713-945-7892

Company: Texas Genco, LP Fax number: 713-945-8069

Street No. 12301 Street name: Kurland Street type: Dr.

P.O. Box _____ City: Houston State: TX Zip code: 77034

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: dbwelch@txgenco.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:_____

c. Contact in the notice

Name: Doug Welch Telephone number: 713-945-7892

Company: Texas Genco, LP Fax number_____

Street No. 12301 Street name: Kurland Street type: Dr.

P.O. Box _____ City: Houston State: TX Zip code: 77034

d. Public place information

Location of public building: _____

Public building name: Bay City Public Library - & - Matagorda Branch Library (two locations)

Name:_____ Telephone number: 979-245-6931 / 979-863-7925

Street No. 1100 / 800 Street name: 7th Street / Fisher Street Street type:_____

City: Bay City / Matagorda County: Matagorda State: TX Zip code: 77414 / 77457

4. **FACILITY INFORMATION** (Instructions, Pages 14-15)

a. State/TPDES Permit No. 01908 Expiration date: Dec. 1, 2004

NPDES Permit No. n/a Expiration date: n/a

Check one: ✓ The TNRCC 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 (TNRCC-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

c. Owner of the facility: STP Nuclear Operating Company

d. Owner of land where the facility 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: _____ Street type:_____

City:_____ State: _____ Zip code:_____

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

only required 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 16-17)

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

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 ___ N/A
If no, or a new permit application, please give an accurate description:

n/a

g. Provide a USGS Map with all required information. Indicate by a check mark that the information is provided.

✓ Applicant's property boundary	✓ Treatment plant boundaries
✓ Point of discharge and highlighted discharge route	✓ Effluent disposal site boundaries
✓ All ponds	✓ Sewage sludge disposal site
✓ 1 mile radius and 1 mile downstream information	✓ New and future construction

See Appendix AR-5g

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.

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

6. MISCELLANEOUS INFORMATION (Instructions, Page 17-18)

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

Name: G. L. Parkey Telephone number: 361-972-7800
Company: STP Nuclear Operating Company Fax number: 361-972-8577
Street No. ___ Street name: PO Box 289 Street type: ___
City: Wadsworth State: TX Zip code: 77483

Name: T. J. Jordon Telephone number: 361-972-7902
Company: STP Nuclear Operating Company Fax number: 361-972-8577
Street No. ___ Street name: PO Box 289 Street type: ___
City: Wadsworth State: TX Zip code: 77483

b. List each person formerly employed by the TNRCC 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: Chemistry Division

Name: R. A. Gangluff

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: Chemistry Division

Name: R. A. Gangluff

Street No. _____ Street Name: _____ Street Type: _____

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

7. **SIGNATURE PAGE** (Instructions, Page 18)

I, R. A. Gangluff — Manager, Chemistry Division

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.

Signature: R A Gangluff Date: 5/26/04

Subscribed and Sworn to before me by the said R. A. Gangluff on this

26th day of May ,20 04

My commission expires on the 9th day of October ,20 05

Linda Rittenberry *[SEAL]*

Notary Public

LINDA RITTENBERRY
Notary Public, State of Texas
My Commission Expires
OCTOBER 9, 2005

Matagorda

County, Texas

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

TNRCC 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 18)

This form applies to TPDES permit applications only. The SPIF must be completed as a separate document. The TNRCC will mail a copy of the SPIF to each agency as required by the TNRCC 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.) **n/a**

3. Address of the project (location description that includes street/highway, city/vicinity, county:

8 miles west of Wadsworth, TX on FM 521

4. Provide the name, address, telephone and fax number of an individual who can be contacted to answer specific questions about the property:

Name: **Doug Welch** Telephone number: **713-945-7892**

Company: **Texas Genco, LP** Fax number: **713-945-8069**

Street No. **12301** Street name: **Kurland** Street type: **Dr.**

City: **Houston** State: **TX** Zip code: **77034**

5. List the county in which the facility is located: **Matagorda**

6. If the property is publicly owned and the owner is different than the permittee/applicant, please identify the owner of the property: **n/a**

TNRCC 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 18)

This form applies to TPDES permit applications only. The SPIF must be completed as a separate document. The TNRCC will mail a copy of the SPIF to each agency as required by the TNRCC 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.) **n/a**

3. Address of the project (location description that includes street/highway, city/vicinity, county:

8 miles west of Wadsworth, TX on FM 521

4. Provide the name, address, telephone and fax number of an individual who can be contacted to answer specific questions about the property:

Name: **Doug Welch** Telephone number: **713-945-7892**

Company: **Texas Genco, LP** Fax number: **713-945-8069**

Street No. **12301** Street name: **Kurland** Street type: **Dr.**

City: **Houston** State: **TX** Zip code: **77034**

5. List the county in which the facility is located: **Matagorda**

6. If the property is publicly owned and the owner is different than the permittee/applicant, please identify the own

of the property: **n/a**

TECHNICAL REPORT 1.0 - INDUSTRIAL

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

1. **FACILITY/SITE INFORMATION** (Instructions, page 22)

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

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

b. SIC Code(s) 4911 , _____ , _____ , _____

c. Describe the wastewater generating processes.

See Appendix TR-1c.

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

Raw Materials	Intermediate Products	Final Products
Nuclear Fuel (CAS No. 7440-61-1)	Steam	Electricity
See Appendix TR-5c for the following:		
Nalco 9226, 19-H, 9353, 7334,		
1359 plus, and H-130M.		
Varichem SC 2312		
Sulfuric Acid (CAS 7664-93-9)		
Sodium Hypochlorite (CAS 7681-52-9)		
Sodium Hydroxide (CAS 1310-73-2)		

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.

Attachment: TR-1e

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 4854890375C 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 n/a

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 23)

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 Appendix TR-2a.

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:** TR-2b Figures 1 - 6

3. **IMPOUNDMENTS** (Instructions, page 23)

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.

Impoundment Information Table

	Pond # 1	Pond # 2	Pond # 3	Pond # 4	Pond # 5
Designation					
(T) (D) (C) or (E)	T	T	T	T	C
Discharge Point					
Outfall Number	501	501	101	001	None
Liner Information					
Liner Type (C) (I) or (S)	**	**	**	***	None
Alt. Liner Attachment Reference	n/a	n/a	n/a	n/a	n/a
Dimensions					
Length (feet)	100 ft	25 ft	136 ft	* ft	150 ft
Width (feet)	80 ft	25 ft	42 ft	* ft	70 ft
Depth from Water Surface	17.5 ft	13.3 ft	16 ft	25 ft	4 ft
Depth from Nat. Ground Level	0 avg 0 max	0 avg 0 max	0 avg 0 max	0 avg 0 max	0 avg 0 max
Freeboard (feet)	>2 ft	>2 ft	>2 ft	>2.5 ft	>2 ft
Surface Area (acres)	0.18 acres	0.01 acres	0.13 acres	*7,000 acres	0.24 acres
Storage Capacity (gallons)	1,000,000 gal.	50,000 gal.	600,000 gal.	202,600 ac-ft.	314,160 gal.

** Reinforced concrete *** Soil and Concrete

	Pond # 6	Pond # ____	Pond # ____	Pond # ____	Pond # ____
Designation					
(T) (D) (C) or (E)	C				
Discharge Point					
Outfall Number	None				
Liner Information					
Liner Type (C) (I) or (S)	***				
Alt. Liner Attachment Reference	n/a				
Dimensions					
Length (feet)	2,000 ft	____ ft	____ ft	____ ft	____ ft
Width (feet)	1,000 ft	____ ft	____ ft	____ ft	____ ft
Depth from Water Surface	8 ft	____ ft	____ ft	____ ft	____ ft
Depth from Nat. Ground Level	0 avg 0 max	___ avg ___ max	___ avg ___ max	___ avg ___ max	___ avg ___ max
Freeboard (feet)	>2 ft	____ ft	____ ft	____ ft	____ ft
Surface Area (acres)	47 acres	____ acres	____ acres	____ acres	____ acres
Storage Capacity (gallons)	388 ac-ft	____ gal.	____ gal.	____ gal.	____ gal.

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:
n/a

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

Attachment: n/a

c. Are there any leak detection systems or ground water monitoring wells in place or planned? ____Yes ____No
n/a

_____ 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: n/a

d. Is the bottom of the pond above the seasonal high water table in the most shallow water bearing zone?
_____ Yes _____ No n/a

_____ 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: n/a

_____ 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 ½ 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.
n/a

4. OUTFALL/DISPOSAL METHOD INFORMATION (Instructions, page 25)

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	74	96	00	04	Discharge point at Colorado River
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
144	200		same	same		* (hrs./day) * (days/mo.) * (mo./year)
___ Pumped ✓ Gravity			Measurement Device Estimate			✓ Intermittent ___ Seasonal ___ Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
Recirculated cooling water	*n/a	*n/a
Previously monitored effluent from Outfalls 101, 201, 401,	*n/a	*n/a
501 and 601.		
* No discharge from this outfall has occurred since March 4, 1997	(See Appendix TR-1c)	

OUTFALL: 101

Latitude			Longitude			Location Description
28	47	60	96	02	87	Approximate location of point where effluent enters main cooling reservoir.
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
report	report		same	same		* (hrs./day) * (days/mo.) * (mo./year)
✓ Pumped ___ Gravity			Measurement Device: totalizer			✓ Intermittent ___ Seasonal ___ Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
Low volume wastewater	**0.280	> 99
Previously monitored effluent from Outfall 501	no discharge	no discharge
Stormwater	Variable	< 1
* Variable flow from this outfall		
** Two year average of daily average flow (Jan '02 - Dec '03)		

OUTFALL: 201

Latitude			Longitude			Location Description
28	47	60	96	02	87	Approximate location of point where effluent enters main cooling reservoir.
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
report	report		same	same		* (hrs./day) * (days/mo.) * (mo./year)
✓ Pumped ___ Gravity			Measurement Device: Totalizer			✓ Intermittent Seasonal Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
Low volume wastewater.	0.025**	> 95
Stormwater	Variable	< 5
* Variable flow from this outfall		
** Two year average of Daily Average flow (Jan '02 - Dec '03)		

OUTFALL: 401

Latitude			Longitude			Location Description
28	47	60	96	03	29	Approximate location of point where effluent enters main cooling reservoir.
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
report	report		same	same		* (hrs./day) * (days/mo.) * (mo./year)
✓ Pumped ___ Gravity			Measurement Device: ultrasonic			✓ Intermittent ___ Seasonal ___ Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
Treated Domestic Wastewater	0.022**	> 99
Low Volume Wastewater (air conditioning condensate,	Variable	< 1
car wash water)		
Stormwater	Variable	< 1
* Variable flow from this outfall		
** Two year average of Daily Average flow. (Jan '02 - Dec '03)		

OUTFALL: 501

Latitude			Longitude			Location Description
28	47	37	96	02	51	Approximate location of point where effluent enters Outfall 101 wastestream prior to neutralization basins.
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
report	report		same	same		0 (hrs./day) 0 (days/mo.) 0 (mo./year)
✓ Pumped ___ Gravity			Measurement Device: Estimate			✓ Intermittent Seasonal Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
Metal cleaning waste	*no discharge	*no discharge
* Outfall has not discharge since December 1992.		

OUTFALL: 601

Latitude			Longitude			Location Description
28	47	33	96	02	30	Approximate location of point where effluent enters main cooling reservoir.
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
report	report		same	same		* (hrs./day) * (days/mo.) * (mo./year)
✓ Pumped ___ Gravity			Measurement Device: ultrasonic			✓ Intermittent ___ Seasonal ___ Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
Treated Domestic Wastewater	0.04**	> 99
Low Volume Wastewater (HVAC cooling tower blowdown,	Variable	< 1
air conditioning condensate)		
Stormwater	Variable	< 1
* Variable flow from this outfall		
** Two year average of Daily Average flow.		

5. **BLOWDOWN AND ONCE-THROUGH COOLING WATER DISCHARGES** (Instructions, page 26)

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.

- ✓ 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: TR-5c

d. **Cooling Towers and Boilers**

	Number of Units	Daily Avg. Blowdown	Daily Max Blowdown
Cooling Towers	1 cooling towers	Daily Avg: 7200 gallons/day	Daily Max: 17,280 gallons/day
Boilers	1 boilers	Daily Avg: * gallons/day	Daily Max: * gallons/day

* 4022 gal/day for approximately 5 days/year. (See Appendix TR-1c for more detail)

6. **STORM WATER MANAGEMENT** (Instructions, page 26)

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 Contingency Plan. Large storage tanks are located within secondary containment. Tanks of acid and caustic 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 27)

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 TNRCC, 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 TNRCC Registration No. of the hauler.

Plant/Hauler Name	Permit/Registration No.
STP Nuclear Operating Company Beneficial Land Use Site	TCEQ Permit No. 04523
Sewage sludge does not leave STP Nuclear Operating Co. property.	

8. **IMPROVEMENTS OR COMPLIANCE/ENFORCEMENT REQUIREMENTS** (Instructions, page 27)

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 27)

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 *See Appendix TR-1c*

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 TNRCC and/or EPA.

n/a

10. OFF-SITE/THIRD PARTY WASTES (Instructions, page 28)

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

____ List of wastes received
____ Characterization of wastes received
____ Volumes of each waste received
____ Info. on compatibility with on-site wastes
____ Identified sources of wastes received
____ Name and addresses of generators
____ Description of the relationship of waste source(s) with your facility's activities.

b. Is wastewater from a TNRCC, 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 TNRCC, 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 28)

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)	11,000 pCi/L of tritium

THE FOLLOWING ITEMS ARE ONLY REQUIRED FOR EXISTING PERMITTED FACILITIES.

12. MAJOR AMENDMENT REQUESTS (Instructions, page 28)

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 29)

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 29)

Are you requesting any minor amendments to the permit? ____Yes ✓ No

If yes, list and discuss the requested changes.

n/a

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		✓
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 (Reserved)	N/A	N/A
9.0: CLASS V INJECTION WELL		✓

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, page 31)

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 32)

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 32)

See Appendix WS 1.0-3

4. **NEW SOURCE DETERMINATION:** Provide a list of wastewater generating processes subject to effluent guidelines and the appropriate information. (Instructions, page 32)

Process	EPA Guideline		Date Process/Construction Commenced
	Part	Subpart	
Metal Cleaning Waste Treatment	423	13 e	08/24/1988
Low Volume Waste Sources	423	15 c	08/24/1988

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, Page 33)

<< No Data – See Appendix TR-1c) >>

1. TABLE 1: Complete table required for all external outfalls. (Instructions, Page 34)

Outfall No.: 001 ☐C ☐G	Effluent Concentration (mg/l)					
Pollutants	**Samp. 1**	**Samp. 2**	**Samp. 3**	**Samp. 4**	**Average**	
BOD (5-day)						
CBOD (5-day)						
Chemical Oxygen Demand						
Total Organic Carbon						
Ammonia Nitrogen						
Total Suspended Solids						
Nitrate Nitrogen						
Total Organic Nitrogen						
Total Phosphorus						
Oil and Grease						
Total Residual Chlorine						
Total Dissolved Solids						
Sulfate						
Chloride						
Fluoride						
Fecal Coliform						
Temperature(°F)						
pH (Standard Units; min/max)						
	Effluent Concentration (µg/l)					MAL (µg/l)
Total Aluminum						30
Total Antimony						30
Total Arsenic						10
Total Barium						10
Total Beryllium						5
Total Cadmium						1
Total Chromium						10
Trivalent Chromium						N/A
Hexavalent Chromium						10
Total Copper						10
Cyanide						20
Total Lead						5
Total Mercury						0.2
Total Nickel						10
Total Selenium						10
Total Silver						2.0
Total Thallium						10
Total Zinc						5

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 34).

NOT REQUIRED

Outfall No.: ☐C ☐G	Effluent Concentration (µg/l) (*1)					
Pollutants	Samp. 1	Samp. 2	Samp. 3	Samp. 4	Average	MAL (µg/l)
Benzene						10
Benzidine						50
Benzo(a)anthracene						10
Benzo(a)pyrene						10
Carbon Tetrachloride						10
Chlorobenzene						10
Chloroform						10
Chrysene						10
Cresols						(*2)
Dibromochloromethane						10
1,2-Dibromoethane						2
1,4-Dichlorobenzene						10
1,2-Dichloroethane						10
1,1-Dichloroethylene						10
Fluoride						500
Hexachlorobenzene						10
Hexachlorobutadiene						10
Hexachloroethane						20
Methyl Ethyl Ketone						50
Nitrobenzene						10
n-Nitrosodiethylamine						20
n-Nitroso-di-n-Butylamine						20
PCB's, Total (*3)						1
Pentachlorobenzene						20
Pentachlorophenol						50
Phenanthrene						10
Pyridine						20
1,2,4,5-Tetrachlorobenzene						20
Tetrachloroethylene						10
Trichloroethylene						10
1,1,1-Trichloroethane						10
2,4,5-Trichlorophenol						50
TTHM (Total Trihalomethanes)						10
Vinyl Chloride						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 34)

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. *n/a*

____ 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.: 001 ☐C ☐G	Effluent Concentration (µg/l)					
Pollutants	Samp. 1	Samp. 2	Samp. 3	Samp. 4	Average	MAL (µg/l)
Tributyltin						0.010
Enterococci See Appendix TR-1c						N/A

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 35)

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

NOT REQUIRED

TABLE 4

Outfall No.: ☐C ☐G	Effluent Concentration (µg/l) (*1)					MAL (µg/l)
Pollutants	**Samp. 1**	**Samp. 2**	**Samp. 3**	**Samp. 4**	**Avg.**	
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						---
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 35)

<< No Data – See Appendix TR-1c >>

TABLE 5

Outfall No.: ☐C ☐G	Believed Present	Believed Absent	Effluent Concentration (mg/l)		
Pollutants			**Average**	**Maximum**	**No. of Samples**
Bromide	X				*0
Color(PCU)	X				*0
Nitrate-Nitrite(as N)		X			
Sulfide(as S)		X			
Sulfite(as SO_3)		X			
Surfactants		X			
Total Antimony		X			
Total Beryllium		X			
Total Boron	X				*0
Total Cobalt		X			
Total Iron	X				*0
Total Magnesium	X				*0
Total Molybdenum		X			
Total Manganese	X				*0
Total Thallium		X			
Total Tin		X			
Total Titanium		X			

* *Constituent previous identified through sampling.*

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 35)

____N/A	GC/MS Testing Required			
	Volatile	**Acid**	**Base/Neutral**	**Pesticides**
____ Adhesives and Sealants	Yes ☐	Yes ☐	Yes ☐	No
____ Aluminum Forming	Yes ☐	Yes ☐	Yes ☐	No
____ Auto and Other Laundries	Yes ☐	Yes ☐	Yes ☐	Yes ☐
____ Battery Manufacturing	Yes ☐	No	Yes ☐	No
____ Coal Mining	No	No	No	No
____ Coil Coating	Yes ☐	Yes ☐	Yes ☐	No
____ Copper Forming	Yes ☐	Yes ☐	Yes ☐	No
____ Electric and Electronic Components	Yes ☐	Yes ☐	Yes ☐	Yes ☐
____ Electroplating	Yes ☐	Yes ☐	Yes ☐	No
____ Explosives Manufacturing	No ☐	Yes ☐	Yes ☐	No
____ Foundries	Yes ☐	Yes ☐	Yes ☐	No
____ Gum and Wood Chemicals				
____Subparts A,B,C,E	Yes ☐	Yes ☐	No	No
____Subparts D,F	Yes ☐	Yes ☐	Yes ☐	No
____ Inorganic Chemicals	Yes ☐	Yes ☐	Yes ☐	No
____ Iron and Steel Manufacturing	Yes ☐	Yes ☐	Yes ☐	No
____ Leather Tanning/Finishing	Yes ☐	Yes ☐	Yes ☐	No
____ Mechanical Products Manufacturing	Yes ☐	Yes ☐	Yes ☐	No
____ Nonferrous Metals Mfg.	Yes ☐	Yes ☐	Yes ☐	Yes ☐
____ Ore Mining(Subpart B)	No	Yes ☐	No	No
____ Organic Chemicals, Plastics, and Synthetic Fibers	Yes ☐	Yes ☐	Yes ☐	Yes ☐
____ Paint and Ink Formulation	Yes ☐	Yes ☐	Yes ☐	No
____ Pesticides	Yes ☐	Yes ☐	Yes ☐	Yes ☐
____ Petroleum Refining	Yes ☐	No	No	No
____ Pharmaceutical Preparations	Yes ☐	Yes ☐	Yes ☐	No
____ Photographic Equipment and Supplies	Yes ☐	Yes ☐	Yes ☐	No
____ Plastic and Synthetic Materials Manufacturing	Yes ☐	Yes ☐	Yes ☐	Yes ☐
____ Plastic Processing	Yes ☐	No	No	No
____ Porcelain Enameling	No	No	No	No
____ Printing and Publishing	Yes ☐	Yes ☐	Yes ☐	Yes ☐
____ Pulp and Paperboard Mills				
____Subparts A	* ☐	Yes ☐	* ☐	Yes ☐
____Subparts B,C,D,R	* ☐	Yes ☐	* ☐	* ☐
____Subparts F,G,H,I,K,L,M,N,O,P	Yes ☐	Yes ☐	* ☐	* ☐
____Subparts E,Q,S,T	Yes ☐	Yes ☐	* ☐	Yes ☐
____Subparts J,U	Yes ☐	Yes ☐	Yes ☐	* ☐
____Rubber Processing	Yes ☐	Yes ☐	Yes ☐	No
____Soap and Detergent Manufacturing	Yes ☐	Yes ☐	Yes ☐	No
✓ Steam Electric Power Plants *See Appendix TR-1c*	Yes ☐	Yes ☐	No	No
____Textile Mills (Not Subpart C)	Yes ☐	Yes ☐	Yes ☐	No
____Timber Products Processing	Yes ☐	Yes ☐	Yes ☐	Yes ☐

* 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 36).

<< No Data – See Appendix TR-1c >>

TABLE 7

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

	Effluent Concentration (µg/l) *			
Pollutants	**Average**	**Maximum**	**No. of Samples**	**MAL (µg/l)**
ACID COMPOUNDS				
2-Chlorophenol				10
2,4-Dichlorophenol				10
2,4-Dimethylphenol				10
4,6-Dinitro-o-Cresol				50
2,4-Dinitrophenol				50
2-Nitrophenol				20
4-Nitrophenol				50
P-Chloro-m-Cresol				10
Pentachlorophenol				50
Phenol				10
2,4,6-Trichlorophenol				10
BASE/NEUTRAL COMPOUNDS Not Required				
Acenaphthene				10
Acenaphthylene				10
Anthracene				10
Benzidine				50
Benzo(a)Anthracene				10
Benzo(a)Pyrene				10
3,4-Benzofluoranthene				10
Benzo(ghi)Perylene				20
Benzo(k)Fluoranthene				10
Bis(2-Chloroethoxy)Methane				10
Bis(2-Chloroethyl)Ether				10
Bis(2-Chloroisopropyl)Ether				10
Bis(2-Ethylhexyl)Phthalate				10
4-Bromophenyl Phenyl Ether				10
Chrysene				10
Dibenzo(a,h)Anthracene				20
1,2-Dichlorobenzene				10
1,3-Dichlorobenzene				10
1,4-Dichlorobenzene				10
3,3-Dichlorobenzidine				50
Diethyl Phthalate				10
Dimethyl Phthalate				10
Di-n-Butyl Phthalate				10
2,4-Dinitrotoluene				10

Pollutants Not Required	Effluent Concentration (µg/l) * Average	Maximum	No. of Samples	MAL (µg/l)
BASE/NEUTRAL COMPOUNDS (cont.)				
2,6-Dinitrotoluene				10
Di-n-Octyl Phthalate				10
1,2-Diphenyl Hydrazine (as Azobenzene)				20
Fluoranthene				10
Fluorene				10
Hexachlorobenzene				10
Hexachlorobutadiene				10
Hexachlorocyclopentadiene				10
Hexachloroethane				20
Indeno(1,2,3-cd)pyrene				20
Isophorone				10
Naphthalene				10
Nitrobenzene				10
N-Nitrosodimethylamine				50
N-Nitrosodi-n-Propylamine				20
N-Nitrosodiphenylamine				20
Phenanthrene				10
Pyrene				10
1,2,4-Trichlorobenzene				10
PESTICIDES Not Required				
Aldrin				0.05
alpha-BHC				0.05
beta-BHC				0.05
gamma-BHC				0.05
delta-BHC				0.05
Chlordane				0.15
4,4,-DDT				0.1
4,4,-DDE				0.1
4,4,-DDE				0.1
Dieldrin				0.1
alpha-Endosulfan				0.1
beta-Endosulfan				0.1
Endosulfan Sulfate				0.1
Endrin				0.1
Endrin Aldehyde				0.1
Heptachlor				0.05

Pollutants Not Required	Effluent Concentration (µg/l) Average	Maximum	No. of Samples	MAL (µg/l)
PESTICIDES (cont.)				
PCB-1254				1.0
PCB-1221				1.0
PCB-1232				1.0
PCB-1248				1.0
PCB-1260				1.0
PCB-1016				1.0
Toxaphene				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, Page 36)

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. n/a

TABLE 8

Outfall _____	☐C ☐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						

9. **TABLE 9 (HAZARDOUS SUBSTANCES):** Proceed complete as directed. Not required for internal outfalls. (Instructions, Page 37)

a. Are there any pollutants listed in the instructions (page 37) believed present in the discharge?
_____ Yes ✓ No

b. Are there pollutants listed in Item No. 1.d. on Page No. 1 of this technical report which are believed present in the discharge and have not been analytically quantified elsewhere in this application? _____ Yes ✓ No

If your responded yes to either item, complete **Table 9** as instructed.

TABLE 9

Pollutant & CAS Number	Average (μg/l)	Maximum (μg/l)	No. of Samples	Analytical Method
n/a				

WORKSHEET 4.0 - RECEIVING WATERS

THE FOLLOWING IS REQUIRED FOR ALL TPDES PERMIT APPLICATIONS

1. DOMESTIC DRINKING WATER SUPPLY (Instructions, Page 46)

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 46)

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 46)

Is the discharge directly into (or within 300 feet of) a classified segment? ✓ Yes _____ No

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, Pages 46)

Name of the immediate receiving waters: n/a

a. Check the appropriate description of the receiving waters

_____ Open Bay
_____ Tidal Stream, Bayou, or Marsh
_____ 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
_____ Other: _____
_____ Man-made Channel or Ditch
_____ Stream

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** or 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:

---

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

5. GENERAL CHARACTERISTICS OF WATER BODY (Instructions, Page 47)

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

_____ oil field activities
_____ agricultural runoff
_____ upstream discharges
_____ urban runoff
_____ septic tanks
_____ others, specify below

n/a

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

_____ livestock watering
_____ non contact recreation
_____ domestic water supply
_____ others, specify below
_____ contact recreation
_ fishing
_____ industrial water supply
_____ irrigation withdrawal
_____ navigation
_____ picnic park activities

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 50)

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** (Instruction, Page 50)

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, TNRCC Permit/Registration Number and County where disposal site is located:
STP Nuclear Operating Company Beneficial Land Use Site, No. 04523, Matagorda

c. Method of Transportation (truck, train, pipe, other) and hauler Registration Number:
Vacuum truck. Sewage sludge does not leave the STP Nuclear Operating Company property.

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 51)

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.

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

APPENDIX AR-5g
FIGURE 1 0F 6
"USGS TOPOGRAPHIC MAP"

WITHIN THIS PACKAGE

D-01

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APPENDIX AR-5g
FIGURE 2 0F 6
"USGS TOPOGRAPHIC MAP"

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D-02

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APPENDIX AR-5g
FIGURE 3 0F 6
"USGS TOPOGRAPHIC MAP"

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APPENDIX AR-5g
FIGURE 4 0F 6
"USGS TOPOGRAPHIC MAP"

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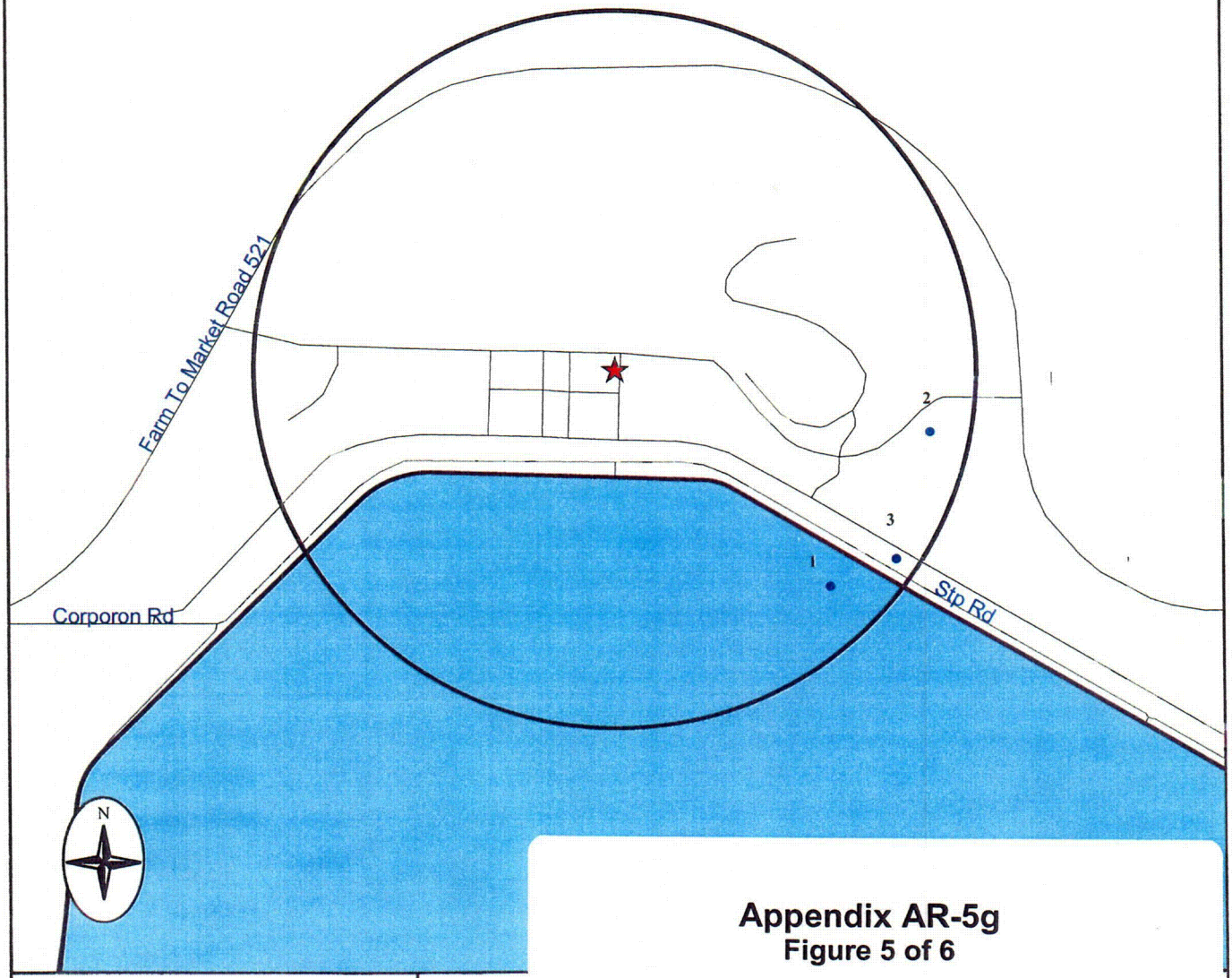
D-04

Banks Information Solutions, Inc.

Water Well Report™

Map of Wells within One Mile



Subject Site
Ground Water Wells (Cluster)
Ground Water Well
Airport
Hospital
Highway
Primary road
Secondary and connecting road
Local road
Access road
Water body
Park
State

Appendix AR-5g
Figure 5 of 6

Water Well Map

South Texas Project Electric Generating Station
TPDES Permit No. 01908

512-478-

C-01

Banks Information Solutions, Inc.

Water Well Report™

DETAILS

State ID	80-16-801
Banks ID	4832100373
Owner Of Well	H. A. Norris
Type Of Well	Stock
Depth Drilled	130 '
Completion Date	1/1/1962
Longitude	-96.04194
Latitude	28.78806

MAP ID: 1

State ID	80-16-6B
Banks ID	4832101141
Owner Of Well	Spaw Glass
Type Of Well	Domestic
Depth Drilled	660 '
Completion Date	2/21/1985
Longitude	-96.03729
Latitude	28.79428

MAP ID: 2

State ID	G1610103B
Banks ID	4832100721
Owner Of Well	H L & P-SOUTH TEXAS PROJECT - NTF
Type Of Well	Inactive
Depth Drilled	N/A '
Completion Date	3/22/1991
Longitude	-96.03889
Latitude	28.78917

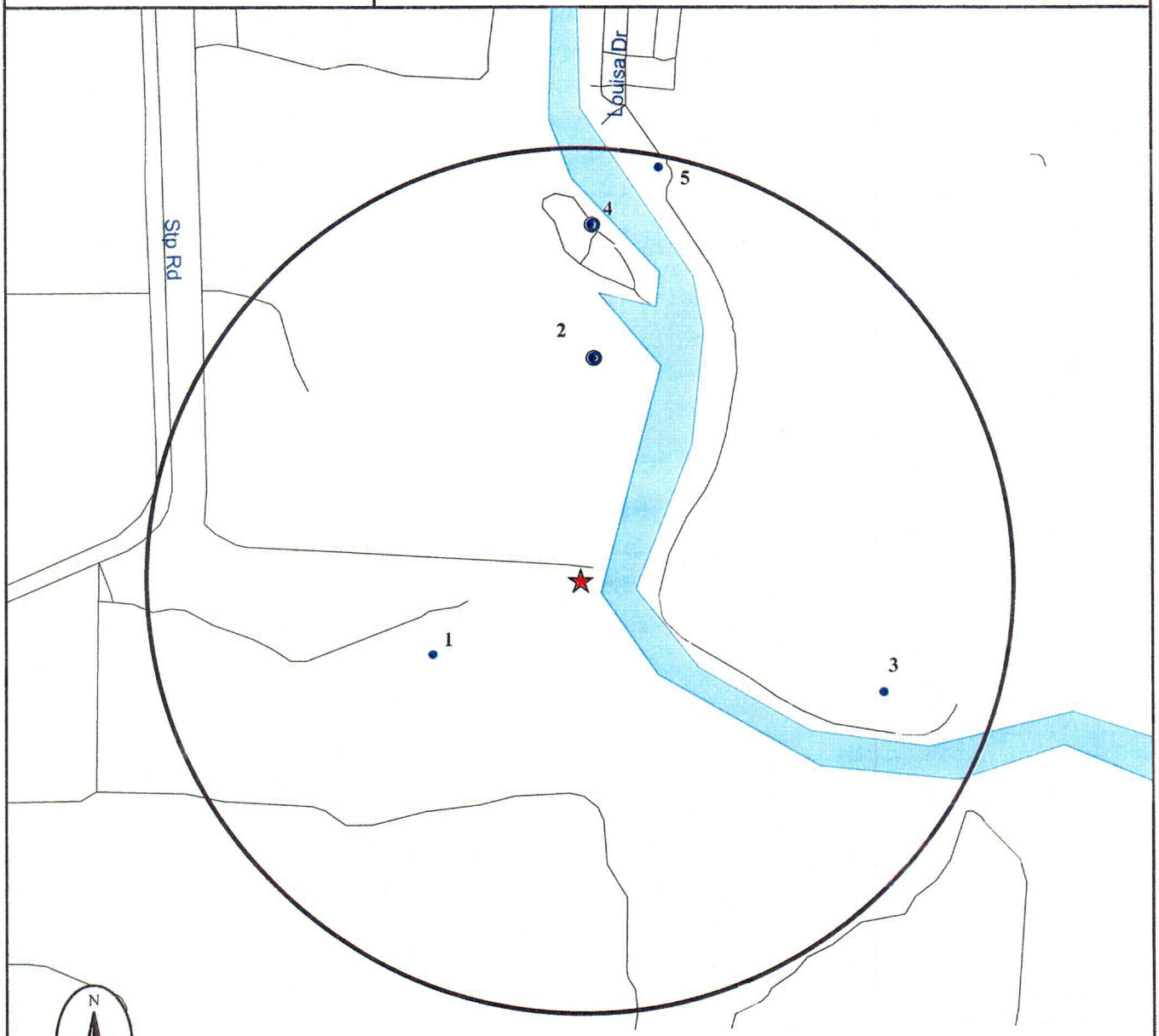
MAP ID: 3

P.O. Box 12851, Capitol Station, Austin, TX 78711
700 N. Lamar, Suite 200 Austin, TX 78703
512.478.0059 FAX 512.478.1433 e-mail banks@banksinfo.com

Banks Information Solutions, Inc.

Water Well Report™

Map of Wells within One Mile



Subject Site
Ground Water Wells (Cluster)
Ground Water Well
Airport
Hospital
Highway
Primary road
Secondary and connecting road
Local road
Access road
Water body
Park
State

Appendix AR-5g
Figure 6 of 6

Water Well Map

South Texas Project Electric Generating Station
TPDES Permit No. 01908

512-478-

C-02

Banks Information Solutions, Inc.

Water Well Report™

DETAILS

State ID	80-24-302
Banks ID	4832100424
Owner Of Well	Southern Minerals Corp
Type Of Well	Other
Depth Drilled	N/A '
Completion Date	1/1/1962
Longitude	-96.00722
Latitude	28.74472

MAP ID: 1

State ID	80-16-9
Banks ID	4832101152
Owner Of Well	Two River Cattle Co.
Type Of Well	Domestic
Depth Drilled	130 '
Completion Date	11/21/2001
Longitude	-96.00105
Latitude	28.7547

MAP ID: 2

State ID	80-16-9
Banks ID	4832101153
Owner Of Well	Two River Cattle Co.
Type Of Well	Domestic
Depth Drilled	130 '
Completion Date	11/21/2001
Longitude	-96.00101
Latitude	28.75478

MAP ID: 2

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Water Well Report™

DETAILS

State ID	80-16-9
Banks ID	4832101154
Owner Of Well	Two River Cattle Co.
Type Of Well	Domestic
Depth Drilled	130 '
Completion Date	11/21/2001
Longitude	-96.00113
Latitude	28.75478

MAP ID: 2

State ID	81-17-1
Banks ID	4832101171
Owner Of Well	Jane Cox
Type Of Well	Domestic
Depth Drilled	140 '
Completion Date	8/15/1999
Longitude	-95.99007
Latitude	28.74351

MAP ID: 3

State ID	80-16-903
Banks ID	4832100621
Owner Of Well	Exotic Isle Subd.
Type Of Well	Public Supply
Depth Drilled	548 '
Completion Date	9/5/1984
Longitude	-96.00111
Latitude	28.75917

MAP ID: 4

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Water Well Report™

DETAILS

State ID	8950
Banks ID	4832101176
Owner Of Well	Exotic Isle Home Owners Association
Type Of Well	Public Supply
Depth Drilled	430 '
Completion Date	3/20/2002
Longitude	-96.0014
Latitude	28.75982

MAP ID: 4

State ID	G1610027B
Banks ID	4832100669
Owner Of Well	SELKIRK WATER
Type Of Well	Public Supply
Depth Drilled	800 '
Completion Date	1/1/1971
Longitude	-95.99861
Latitude	28.76111

MAP ID: 5

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Banks Information Solutions, Inc.

Water Well Report™

SUMMARY

Water Well Report ™Research Mapping Protocol

The Banks Information Solutions, Inc. 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 four filing systems utilized for well drilling records.

Texas Water Development Board (TWDB)

Texas Water Development Board maintains a file system of located water well locations. 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 and plotted on county base maps, U.S.G.S. 7.5 minute topographical quadrangle maps, and in-house geographic information system. Records will also include analytical data attached with each drilling record. This is the current protocol for maintaining water well records within the TWDB.

Texas Commission on Environmental Quality (TCEQ)

The Texas Commission on Environmental Quality maintains a file system of plotted, partially numbered, and un-numbered water well locations. 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. This type of mapping and filing procedure ceased in June 1986. Partially numbered water well files are water well site locations processed from 1986 through 1990. These wells are provided a State Identification Number which establishes the well location somewhere within a 2.5 minute quadrant of a 7.5 minute quadrangle map, but the site location has never been precisely mapped or verified by a State of Texas staff member. Un-numbered 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 Identifiation Number nor are they mapped. This is the current protocol for maintaining water well records within the TCEQ.

Disclaimer

Banks Information Solutions, Inc. 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 Information Solutions, Inc. cannot gaurantee the accuracy of the data or well location(s) of those maps and records maintained by Texas' regulatory authorities.

P.O. Box 12851, Capitol Station, Austin, TX 78711
700 N. Lamar, Suite 200 Austin, TX 78703
512.478.0059 FAX 512.478.1433 e-mail banks@banksinfo.com

APPENDIX TR-1c

Cross Reference -- Technical Report, Page 1, Part 1.c.

1.c. Describe the wastewater generating process.

Wastewater is produced at the South Texas Project Electric Generating Station through several processes necessary for electricity generation.

Main Cooling Reservoir (Outfall 001)
Outfall 001 has not discharged since March 1997 other than minor permitted leakage through the closed spillway gates. Blowdown from the 7,000-acre main cooling reservoir would make up the largest percentage of wastewater if a reservoir discharge were to occur. This reservoir is part of the main recirculating cooling water loop used to remove heat from the two steam-electric generating units. Water from the reservoir would be discharged through Outfall 001 to Colorado River Tidal – Stream Segment 1401. Again, Outfall 001 has not discharged since March 1997. Because no discharge has occurred since then, no sampling data was provided with this application. Reference Appendix TR-2b Figure 1 of 6 for a simplified flow diagram.

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. These internal outfalls discharge from the various systems described below and within this permit application. Reference Appendix TR-2b Figures 1 through 6.

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 water from the one-auxiliary steam boiler that is released to reduce concentrations of impurities in the water that would cause corrosion and boiler tube failure. Demineralizer regeneration wastewater results from demineralizing service water to purify and treat it before being used in plant systems. 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 have the potential to have oil or grease contamination. The water is then transported to the oily waste treatment system where the oil is separated from the water. The first flush of stormwater from some production and storage areas is also treated in the oily waste system with other non-process stormwater flow directed through the designated stormwater outfalls. Reference Appendix TR-2b Figures 2 and 3 of 6.

Treated Domestic Wastewater (Outfalls 401 and 601)
Domestic wastewater is treated on-site in two package treatment systems consisting of aeration, clarification, and disinfection. Car wash water, air conditioning condensate, and HVAC cooling tower blowdown are commingled with the domestic wastewater prior to treatment. Reference Appendix TR-2b Figures 4 and 5 of 6.

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). Reference Appendix TR-2b Figure 2 of 6.

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THAT CAN BE VIEWED AT THE RECORD TITLED:

APPENDIX SPIF-8.8
FIGURE 1 0F 3
"USGS TOPOGRAPHIC MAP"

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D-05

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APPENDIX SPIF-8.8
FIGURE 2 0F 3
"USGS TOPOGRAPHIC MAP"

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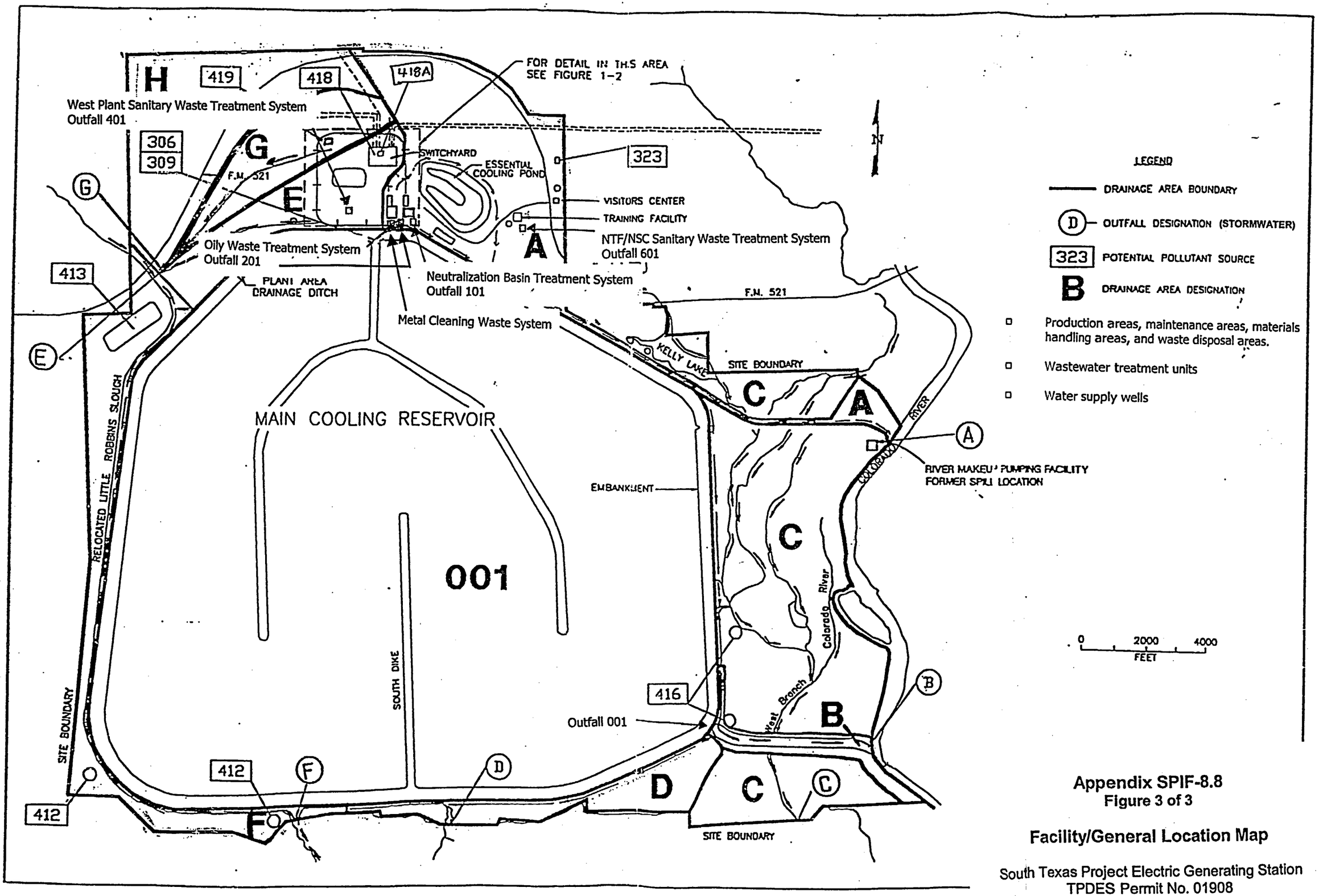
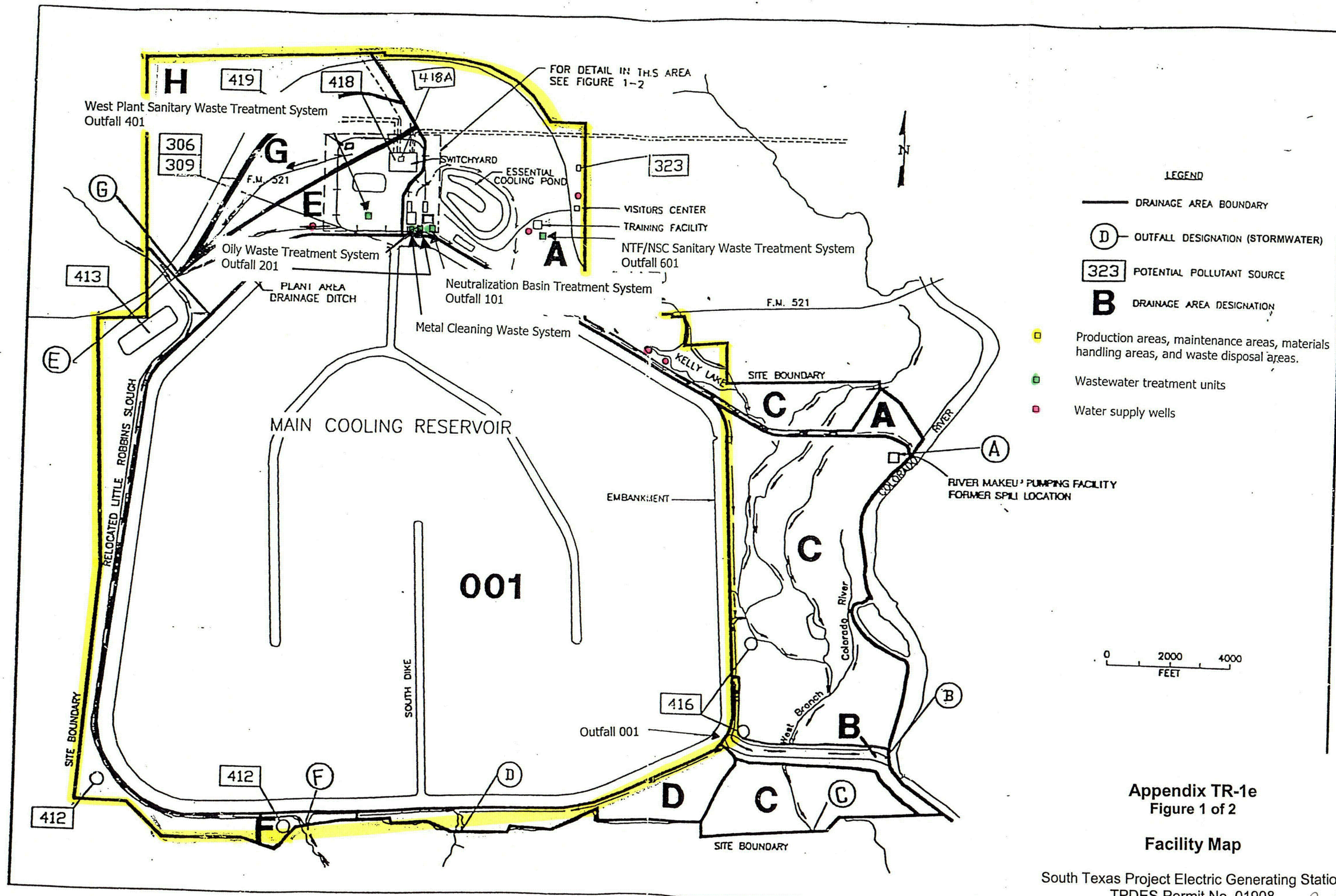


Appendix SPIF-8.8
Figure 3 of 3

Facility/General Location Map

South Texas Project Electric Generating Station
TPDES Permit No. 01908



Appendix TR-1e
Figure 1 of 2

Facility Map

South Texas Project Electric Generating Station
TPDES Permit No. 01908

C-03

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APPENDIX TR-1e
FIGURE 2 0F 2
"FACILITY MAP"

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APPENDIX TR-2a

Cross Reference Technical Report – Page 3, Part 2.a.

2.a. List any physical, chemical, and/or biological treatment processes 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.

System and Outfall	Unit Dimensions	Processes
Main Cooling Reservoir Outfall 001	7,000 acre pond (irregular)	Heat Dissipation Reuse/Recycle
Low Volume Waste Neutralization Basin Outfall 101	2-Neutralization Basins (300,000 gallons each) 68' x 42' x 16'	Neutralization* Mixing* Sedimentation
Metal Cleaning Waste Routed to Outfall 101	Organic Basin Approx. 1,000,000 gallons 100' x 80' x 17'6"	Equalization Mixing* Aeration*
	Inorganic Basin Approx. 40,000 gallons 25' x 25' x 13'3"	Coagulation* Chemical Precipitation* Sedimentation
Low Volume Waste Oily Waste Treatment System Outfall 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
Sanitary Waste Treatment System** Outfall 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

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

* Treatment process may be used based on influent characteristics.

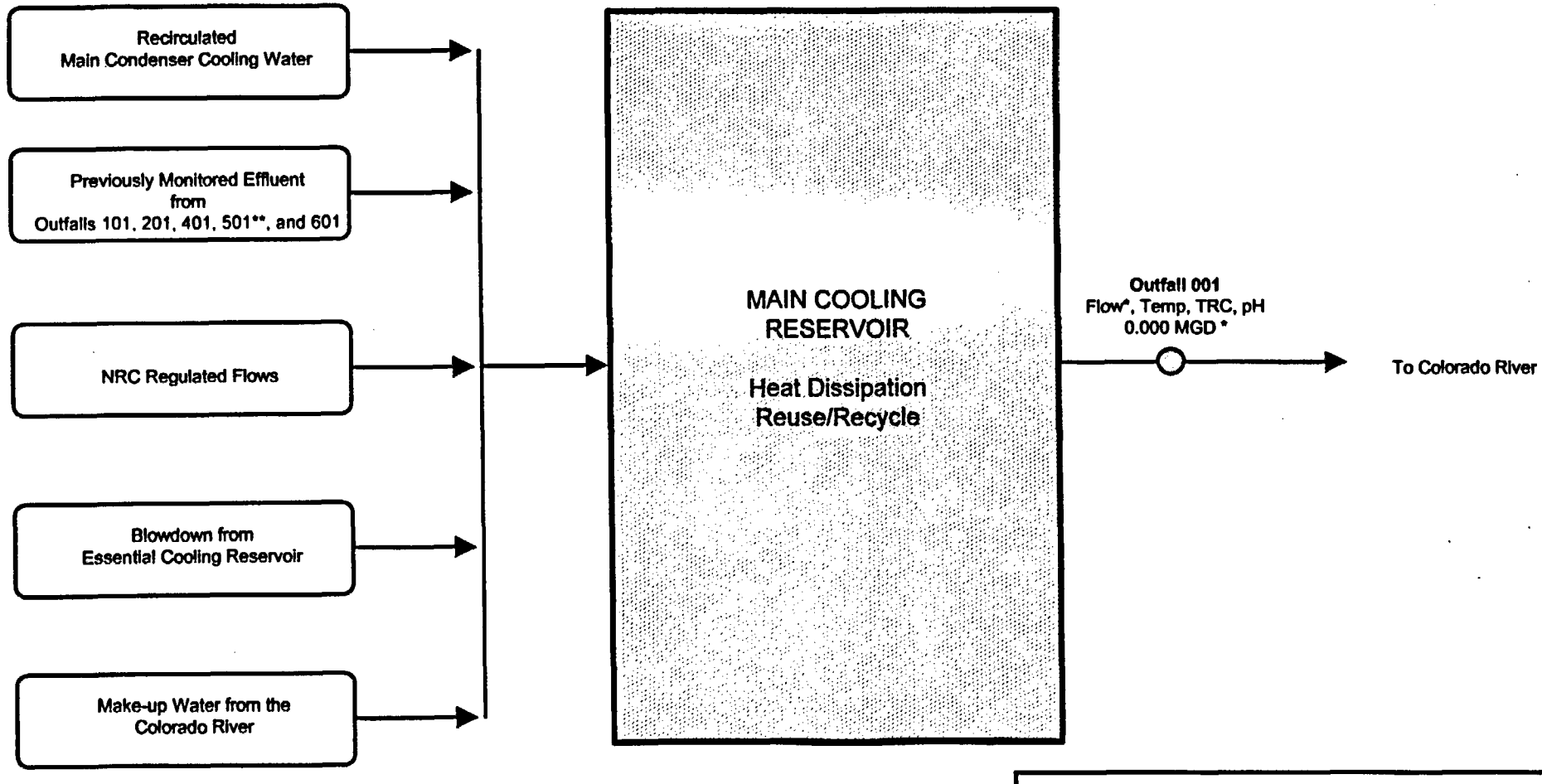
** Chlorine is used to treat domestic sewage prior to discharge.

System and Outfall	Unit Dimensions	Processes
Metal Cleaning Waste Outfall 501	Organic Basin Approx. 1,000,000 gallons 100' x 80' x 17'6"	Equalization Mixing* Aeration*
	Inorganic Basin Approx. 40,000 gallons 25' x 25' x 13'3"	Coagulation* Chemical Precipitation* Sedimentation
Sanitary Waste Treatment System** Outfall 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.

** Chlorine is used to treat domestic sewage prior to discharge.



Notes:
* Outfall has not discharged since March 4, 1997.
** Outfall has not discharged since December 1992.

APPENDIX TR – 2b

Figure 1 of 6

Simplified Process Flow Diagram .
Outfall 001
Previously Monitored Effluents and Stormwater

South Texas Project Electric Generating Station
TCEQ Permit No. 01908

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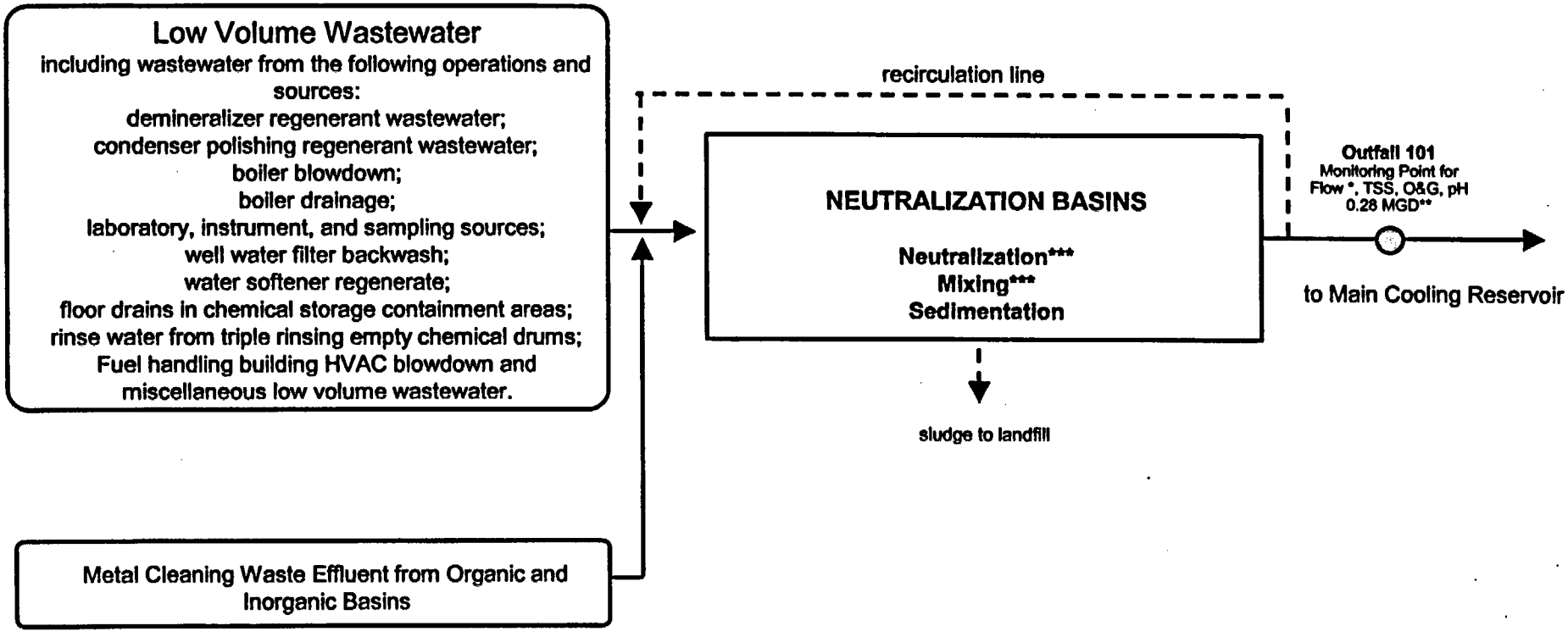
May 2004



Notes:

* Intermittent discharge

** Two Year Average of the Daily Average Flows (1/1/02 to 12/31/03)

*** Treatment may be used based on influent quality

APPENDIX TR - 3

Figure Figure 2 of 6

Simplified Process Flow Diagram
Outfall 101
Low Volume Wastewater
Neutralization Basin Treatment System

South Texas Project Electric Generating Station
TCEQ Permit No. 01908

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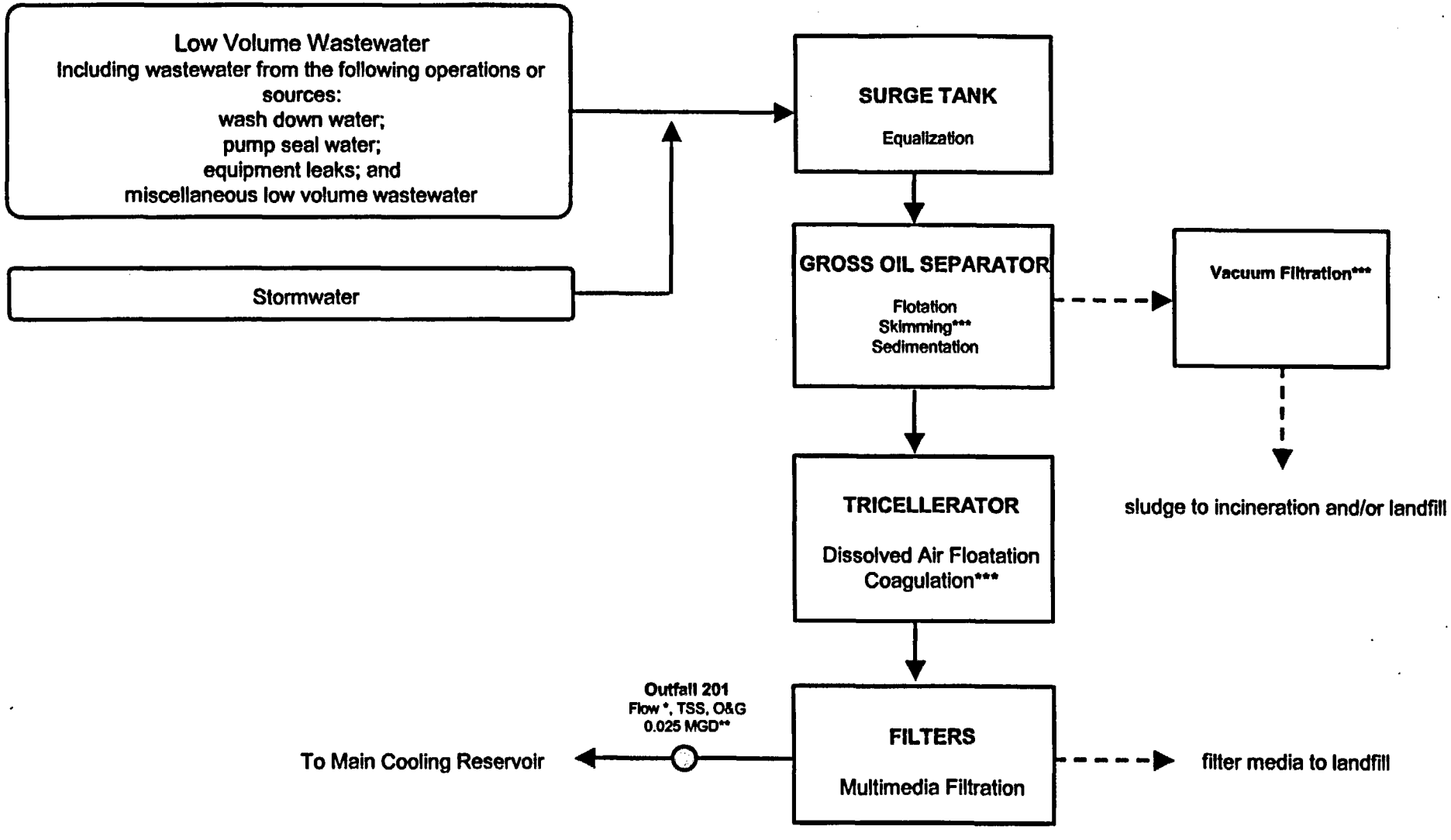

Notes:

* Intermittent Flow

** Two Year Average of the Daily Average Flows (1/1/02 to 12/31/03)

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

APPENDIX TR - 3

Figure 3 of 6

Simplified Process Flow Diagram
Outfall 201
Low Volume Wastewater
Oily Waste Treatment System

South Texas Electric Generating Station
TCEQ Permit No. 01908

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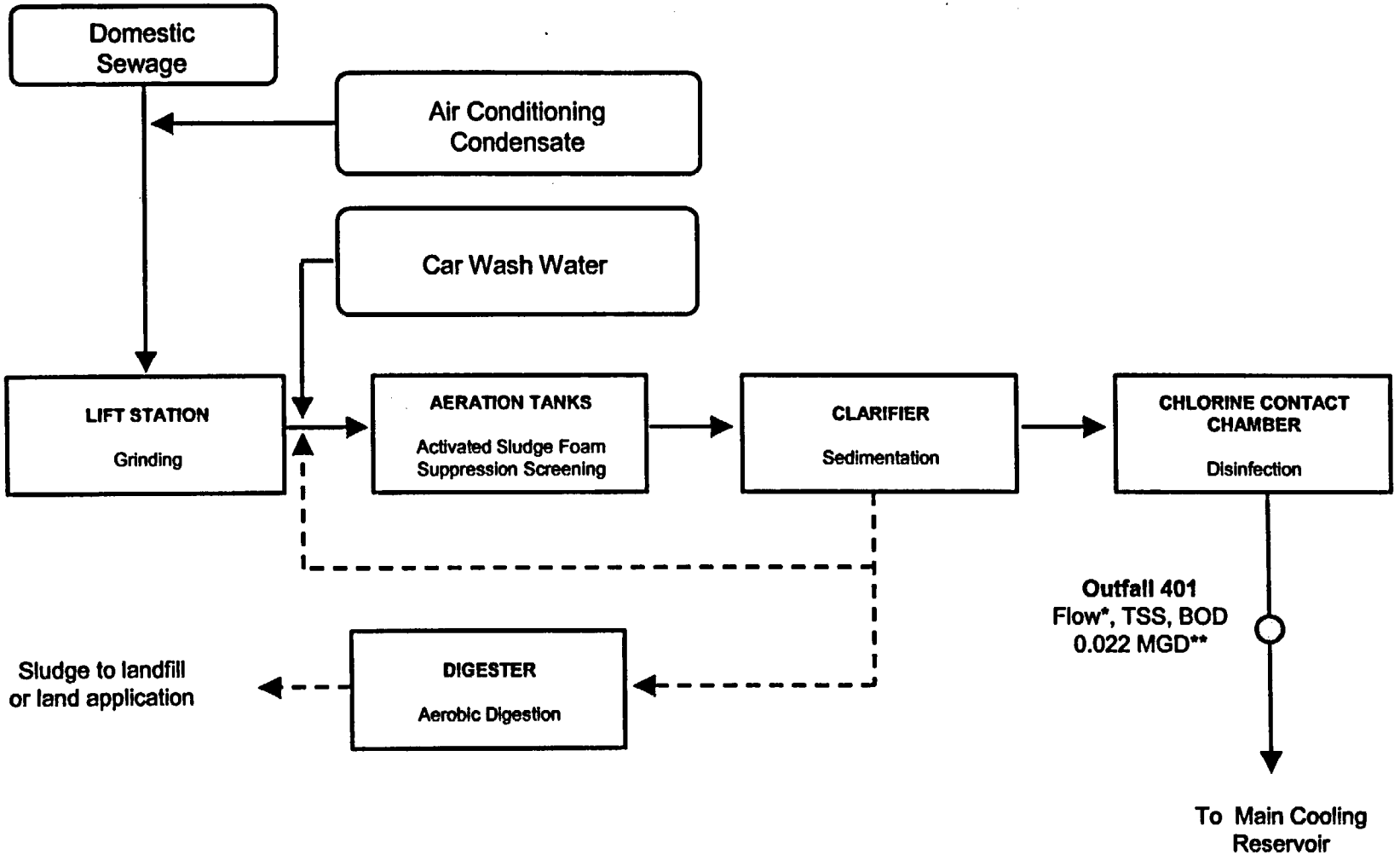
May 2004



Notes:

* Intermittent Discharge

** Two Year Average of the Daily Average Flows (1/1/02 to 12/31/03)

APPENDIX TR - 3 Figure 4 of 6

Simplified Process Flow Diagram
Outfall 401
Sanitary Wastes
West Plant Sanitary Waste Treatment System

South Texas Electric Generating Station
TCEQ Permit No. 01908

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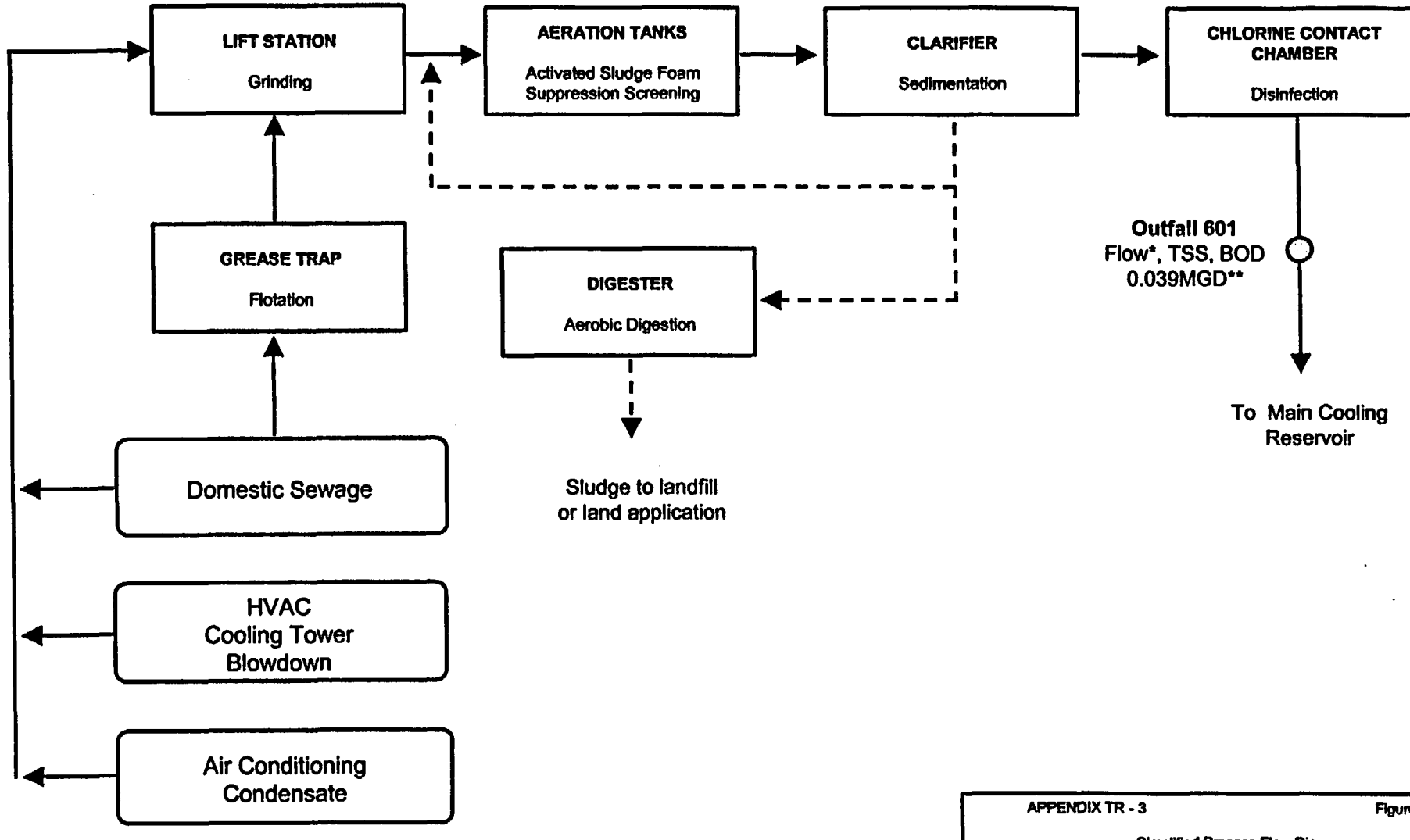

Notes:

* Intermittent Discharge

** Two Year Average of the Daily Average Flows (1/1/02 to 12/31/03)

APPENDIX TR - 3 Figure 5 of 6

Simplified Process Flow Diagram
Outfall 601
Low Volume Wastewater
NTF/NSC Sanitary Waste Treatment System

South Texas Electric Generating Station
TCEQ Permit No. 01908

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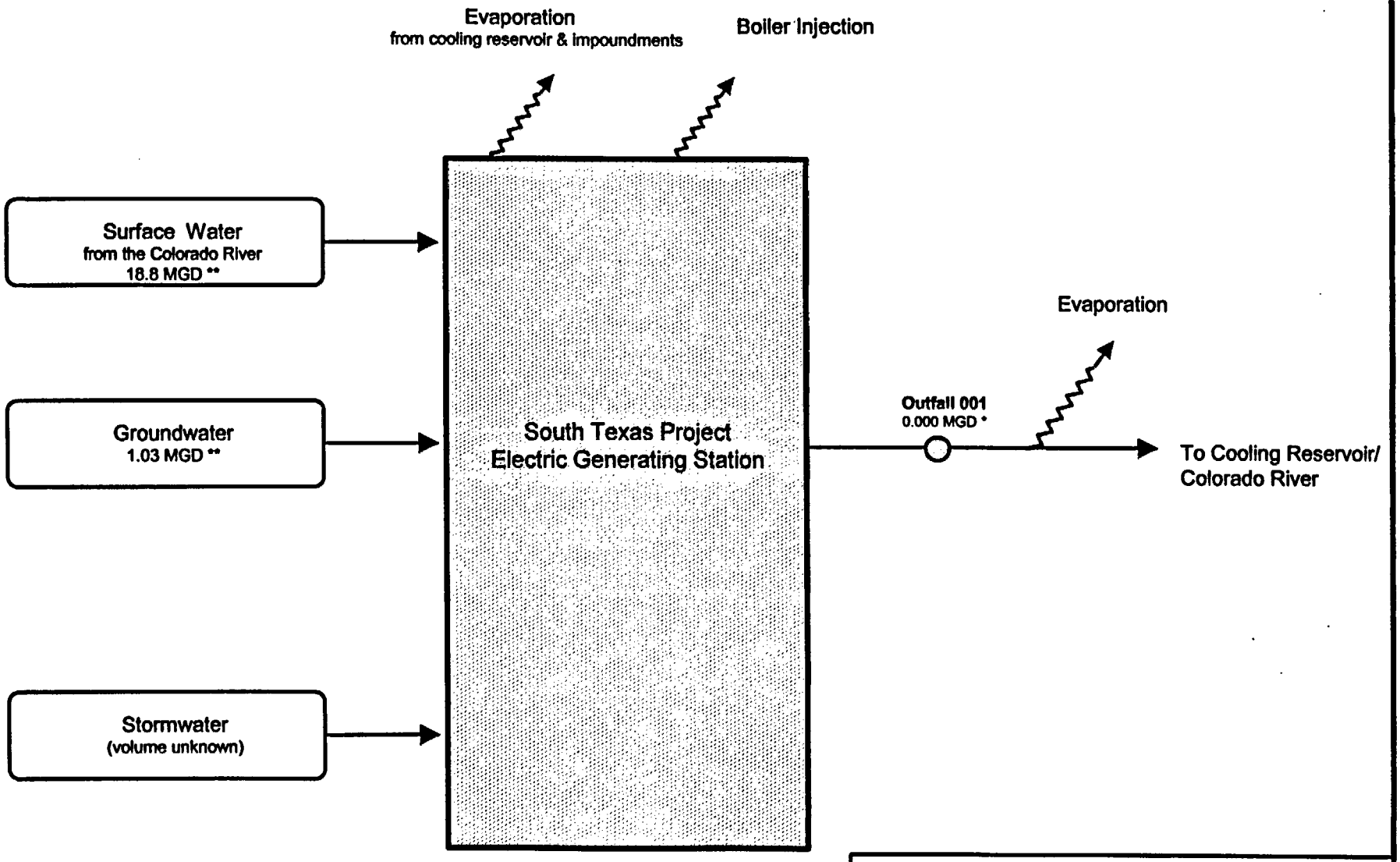

APPENDIX TR - 3

Figure 6 of 6

Simplified Water Balance

Notes:

* No discharge from this outfall since March 4, 1997

** Two year average

Appendix TR-5c
Cross Reference Technical Report, Part 5.c., Page 8

Boiler Chemicals Additives

These are products used as of May 2004 and are typical of the products anticipated to be used in the future. Products may be changed based on availability, cost, and effectiveness.

TR-5c Questions	Product Code # 9226
Manufacture Product Number	Nalco Chemical, Inc
Product Use	Condensate corrosion inhibitor
Chemical Composition w/ CAS #	**Ethanolamine**
Product Classification	
Product Half-life	
Frequency of Product Use	Continuous to operating unit's condensate
Toxicity Data	
Product Concentration	1 ppm as product to the Feedwater

TR-5c Questions	Product Code # 19-H
Manufacture Product Number	Nalco Chemical
Product Use	Oxygen scavenger
Chemical Composition w/ CAS #	**hydrazine**
Product Classification	
Product Half-life	
Frequency of Product Use	Continuous to operating unit's Feedwater
Toxicity Data	
Product Concentration	0.5 ppm to Feedwater

Appendix TR-5c
Cross Reference Technical Report, Part 5.c., Page 8

Cooling Tower Chemical Additives

These are products used as of May 2004 and are typical of the products anticipated to be used in the future. Products may be changed based on availability, cost, and effectiveness.

TR-5c Questions	Product Code # 9353
Manufacture Product Number	Nalco Chemical
Product Use	Scale Inhibitor
Chemical Composition w/ CAS #	Polyacrylate
Product Classification	
Product Half-life	
Frequency of Product Use	Continuous to cooling water while unit in operation
Toxicity Data	
Product Concentration	Feedrate is .25 ppm as product

TR-5c Questions	Product Code #7334
Manufacture Product Number	Nalco Chemical
Product Use	Biocide
Chemical Composition w/ CAS #	Sodium Bromide
Product Classification	
Product Half-life	
Frequency of Product Use	Three times per day for 20 minutes to unit's cooling water
Toxicity Data	
Product Concentration	42 % solution added to sodium hypochlorite injection stream

TR-5c Questions	Product Code # 1359 plus
Manufacture Product Number	Nalco Chemical
Product Use	Closed cooling system corrosion inhibitor
Chemical Composition w/ CAS #	Nitrite, borate, TT
Product Classification	
Product Half-life	
Frequency of Product Use	
Toxicity Data	
Product Concentration	0.25 oz. per gallon of closed cooling system water

Appendix TR-5c
Cross Reference Technical Report, Part 5.c., Page 8

Cooling Tower Chemical Additives (cont.)

TR-5c Questions	Product Code # H-130M
Manufacture Product Number	Nalco Chemical
Product Use	molluscicide
Chemical Composition w/ CAS #	Quaternary amine
Product Classification	
Product Half-life	
Frequency of Product Use	
Toxicity Data	
Product Concentration	4 ppm as product (2.5 ppm as active) to auxiliary cooling system for 8 hours twice per year

TR-5c Questions	
Manufacture Product Number	Altivia
Product Use	Biocide
Chemical Composition w/CAS#	Sodium Hypochlorite (7681-52-9), Sodium Hydroxide (1310-73-2)
Product Classification	
Product Half-life	
Frequency of Product Use	Three times per day for 20 minutes to unit's cooling water
Toxicity Data	
Product Concentration	10-12%

TR-5c Questions	
Manufacture Product Number	Varichem SC 2312
Product Use	Scale and corrosion inhibitor
Chemical Composition w/ CAS #	Phosphonate/acrylate polymers
Product Classification	
Product Half-life	
Frequency of Product Use	Continuous to office building cooling tower
Toxicity Data	
Product Concentration	80-120 ppm

TR-5c Questions	
Manufacture Product Number	Varichem
Product Use	pH adjustment
Chemical Composition w/ CAS #	Sulfuric acid (7664-93-9)
Product Classification	
Product Half-life	
Frequency of Product Use	Continuous to office building cooling tower
Toxicity Data	
Product Concentration	Add to maintain pH at approximately 8.5

ONDEO Nalco

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 : Ondeo Nalco Company
Ondeo Nalco Center
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

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.

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.

ACGIH/TLV :
Substance(s)

Monoethanolamine	TWA: 3 ppm , 7.5 mg/m3 STEL: 6 ppm , 15 mg/m3

OSHA/PEL :
Substance(s)

Monoethanolamine	TWA: 3 ppm , 8 mg/m3 STEL: 6 ppm , 15 mg/m3

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

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 SO2 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

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

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)

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 / 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.

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.

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 : 09/25/2001

NALCO

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 : Ondeo Nalco Energy Services, L.P.
P.O. Box 87
Sugar Land, Texas
77487-0087

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.

SKIN CONTACT :
Can cause moderate to severe irritation. May cause sensitization by skin contact.

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 :
A review of available data does not identify any worsening of existing conditions.

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.

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 (NOx) 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 labelled 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

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 known below.

ACGIH/TLV :
Substance(s)
Hydrazine TWA: 0.01 ppm , 0.013 mg/m3 (Skin)

OSHA/PEL :
Substance(s)
Hydrazine TWA: 0.1 ppm , 0.1 mg/m3 (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 (Green) with a Particulate pre-filter (Purple). 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
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

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.

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

Rating : Toxic

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

Rating : Very toxic

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

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

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

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

ENVIRONMENTAL HAZARD AND EXPOSURE CHARACTERIZATION
Based on our hazard characterization, the potential environmental hazard is: Moderate

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) :

Proper Shipping Name :	HYDRAZINE, AQUEOUS SOLUTION
Technical Name(s) :	
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.

RQ Substance	RQ
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.

Extremely Hazardous Substance	TPQ	RQ
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.

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

Hazardous Substance(s)	CAS NO	% (w/w)
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:

Maximum dosage	Limitation
0	in the steam.

Limitations: no more than required to produce intended technical effect.

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. 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
• Hydrazine	Sec. 112

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

Substance(s)	Concentration	EFFECTS
• Hydrazine	60 %	Causes Cancer

MICHIGAN CRITICAL MATERIALS :
This product contains the following substances listed in the regulation:

Hydrazine

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) 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.

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

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 : 05/27/2003
Replaces : 05/16/2002

ONDEO Nalco

MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 9353

EMERGENCY TELEPHONE NUMBER

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO 9353**

APPLICATION : SCALE INHIBITOR/DISPERSANT

CHEMICAL DESCRIPTION : Water, Acrylate polymer(s)

COMPANY IDENTIFICATION : ONDEO Nalco Company
ONDEO Nalco Center
Naperville, Illinois
60563-1198

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

NFPA 704M/HMIS RATING
HEALTH : 0 / 1 FLAMMABILITY : 1 / 1 REACTIVITY : 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.
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.

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 :
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.

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 :
Store the containers tightly closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

ENGINEERING MEASURES :
General ventilation is recommended.

RESPIRATORY PROTECTION :
Respiratory protection is not normally needed.

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

SKIN PROTECTION :
Wear standard protective clothing.

EYE PROTECTION :
Wear chemical splash goggles.

HYGIENE RECOMMENDATIONS :
Keep an eye wash fountain available. Keep a safety shower available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

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	1.23 - 1.29 @ 77 °F / 25 °C
SOLUBILITY IN WATER	Complete
pH (100 %)	3
VISCOSITY	275 cps
FREEZING POINT	-50 °F / -45 °C

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

11. TOXICOLOGICAL INFORMATION

No toxicity studies have been conducted on this product.

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 :

No toxicity studies have been conducted on this product.

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:

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.

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 chemical substances in this product are on 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 / 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.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) :
All substances in this product are listed on the Domestic Substances List (DSL), are exempt, or have been reported in accordance with the New Substances Notification Regulations.

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.

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 : 08/23/2001

ONDEO Nalco

MATERIAL SAFETY DATA SHEET

PRODUCT

ACTI-BROM® 7334

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

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **ACTI-BROM® 7334**

APPLICATION : BIOCIDE

COMPANY IDENTIFICATION : Ondeo Nalco Company
Ondeo Nalco Center
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.

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.

4. FIRST AID MEASURES

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 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 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 INHALED: Remove victim to fresh air. If not breathing, give artificial respiration, preferably, mouth-to-mouth. Get medical attention.^

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.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Ensure clean-up is conducted by ained 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

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
FREEZING POINT	7 °F / -14 °C
BOILING POINT	218 °F / 103.5 °C
/APOR 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.

HAZARDOUS DECOMPOSITION PRODUCTS :
Under fire conditions: None known

11. TOXICOLOGICAL INFORMATION

The following results are for the product.

ACUTE ORAL TOXICITY :

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

Rating : Non-Hazardous

ACUTE DERMAL TOXICITY :

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

Rating : Non-Hazardous

PRIMARY SKIN IRRITATION :

Draize Score	Test Descriptor
0.4 / 8.0	Product

Rating : Essentially non-irritating

PRIMARY EYE IRRITATION :

Draize Score	Test Descriptor
10.8 / 110.0	Product

Rating : Moderately 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. The following results are for the hypobromous acid (as Br2) generated from sodium bromide and hypochlorite.

ACUTE FISH RESULTS :

Species	Exposure	LC50	Test Descriptor
Fathead Minnow	96 hrs	> 9,999 mg/l	Active Substance (Sodium Bromide)
Guppy	96 hrs	225 mg/l	Active Substance (Sodium Bromide)
Bluegill Sunfish	96 hrs	0.52 mg/l	HOBr (Generated from NaBr) (Sodium Bromide)
Rainbow Trout	96 hrs	0.23 mg/l	HOBr (Generated from NaBr)
Sheepshead Minnow	96 hrs	0.19 mg/l	HOBr (Generated from NaBr)

Rating : Essentially non-toxic

ACUTE INVERTEBRATE RESULTS :

Species	Exposure	LC50	EC50	Test Descriptor
Daphnia magna	48 hrs	7,900 mg/l		Active Substance
Daphnia magna	48 hrs	0.71 mg/l		HOBr (Generated from NaBr) (Sodium Bromide)
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)

Rating : Essentially non-toxic

PERSISTENCY AND DEGRADATION :

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

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.

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal 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.

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 : the following use conditions.

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

FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA) :
EPA Reg. No. 5185-467-1706
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 :
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 :
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) 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.

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.

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 : 11/07/2001
Replaces : 01/19/2001

ONDEO Nalco

MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 1359 PLUS

EMERGENCY TELEPHONE NUMBER

(800) 424-9300 (24 Hours) CHEMTREC

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : **NALCO 1359 PLUS**

APPLICATION : CORROSION INHIBITOR

COMPANY IDENTIFICATION : ONDEO Nalco Company
ONDEO Nalco Center
Naperville, Illinois
60563-1198

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

NFPA 704M/HMIS RATING
HEALTH : 1 / 2 FLAMMABILITY : 1 / 1 REACTIVITY : 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****

WARNING
Contains sodium nitrite. May be harmful or fatal if swallowed. Substances in the product can lead to the formation of methemoglobin. Unborn children are particularly sensitive to methemoglobinemia. May cause skin and eye irritation.
Do not get in eyes, on skin, on clothing. Do not take internally. Keep container tightly closed. 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. If swallowed, seek medical advice immediately and show this container or label. Wear suitable protective clothing, gloves and eye/face protection.
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. May evolve oxides of carbon (COx) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
Can cause mild to moderate irritation.

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 immediate medical attention.

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

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. Measures against circulatory shock, respiratory depression and convulsions may be needed.

5. FIRE FIGHTING MEASURES

FLASH POINT : None

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 (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. May evolve oxides of carbon (COx) under fire conditions.

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

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Restrict access to area as appropriate until clean-up operations are complete. Ensure clean-up is conducted by trained personnel only. Ventilate spill area if possible. Do not touch spilled material. 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 :
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

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	Light yellow
ODOR	
SPECIFIC GRAVITY	1.305 @ 72 °F / 22.2 °C
DENSITY	10.84 lb/gal
SOLUBILITY IN WATER	Complete
pH ()	11.1 - 12.2
VISCOSITY	Max 7 cps @ 73 °F / 22.8 °C
FREEZING POINT	< -50 °F / -45.5 °C
VAPOR PRESSURE	Same as water

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 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.

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.

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 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.

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:

LAND TRANSPORT :

Proper Shipping Name :	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name(s) :	SODIUM NITRITE
UN/ID No :	UN 3082
Hazard Class - Primary :	9
Packing Group :	III
Flash Point :	None
DOT Reportable Quantity (per package) :	430 lbs
DOT RQ Component :	SODIUM NITRITE

AIR TRANSPORT (ICAO/IATA) :

Proper Shipping Name :	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Technical Name(s) :	SODIUM NITRITE
UN/ID No :	UN 3082
Hazard Class - Primary :	9
Packing Group :	III
IATA Cargo Packing Instructions :	914
IATA Cargo Aircraft Limit :	NO LIMIT (Max net quantity per package)

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.

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.

RQ Substance	RQ
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 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.

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 chemical substances in this product are on the TSCA 8(b) Inventory (40 CFR 710) or are sold commercially under the polymer exemption (40 CFR 723.250).

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15 / formerly Sec. 307, 40 CFR / formerly Sec. 311 :
This product contains the following substances listed in the regulation:

Substance(s)	Citations
Sodium Nitrite :	Sec. 311

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 :
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) :
All substances in this product 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
All substances in this product comply with the notification requirements of the European Commission Directive 67/548/EEC and amendments and are listed on the European Inventory of Existing Commercial Substances (EINECS).

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: 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.

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

ONDEO Nalco

MATERIAL SAFETY DATA SHEET

PRODUCT

NALCO 1359 PLUS

EMERGENCY TELEPHONE NUMBER

(800) 424-9300 (24 Hours) CHEMTREC

Prepared By : Product Safety Department
Date issued : 10/25/2001
Replaces : 09/25/1995

NALCO

MATERIAL 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 : 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 : 3 / 3 FLAMMABILITY : 2 / 2 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)
Didecyl-Dimethyl-Ammonium chloride	7173-51-5	50.0
Ethanol	64-17-5	5 - 10

3. HAZARDS IDENTIFICATION

****EMERGENCY OVERVIEW****

DANGER
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.
Do not get in eyes, on skin, on clothing. Do not take internally. 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. 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 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 (COx) under fire conditions. May evolve oxides of nitrogen (NOx) under fire conditions. May evolve HCl under fire conditions. May evolve ammonia (NH4) under fire conditions.

PRIMARY ROUTES OF EXPOSURE :
Eye, Skin

HUMAN HEALTH HAZARDS - ACUTE :

EYE CONTACT :
May cause severe irritation or tissue damage depending on the length of exposure and the type of first aid administered.

SKIN CONTACT :
May cause severe irritation or tissue damage depending on the length of exposure and the type of first aid administered.

INGESTION :
May cause burns to mouth and gastro-intestinal tract.

INHALATION :
Repeated or prolonged exposure may irritate the respiratory tract. Can cause central nervous system depression.

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

For Eyes and Skin: Flush with plenty of water for at least 15 minutes. (Eyelids must be held open). Call a physician immediately. Remove contaminated clothing and wash before reuse.

If swallowed: Immediately give 3-4 glasses of milk; if unavailable, give water. Do not induce vomiting. Call a physician.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

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 : 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 (NH4) 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 :
Notify appropriate government, occupational health and safety and environmental authorities. 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. Eliminate ignition sources. Stop or reduce any leaks if it is safe to do so. 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. 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.

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 labelled 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/m3

OSHA/PEL :
Substance(s)
Ethanol TWA: 1,000 ppm , 1,900 mg/m3

ENGINEERING MEASURES :
Use general ventilation with local exhaust ventilation.

RESPIRATORY PROTECTION :
If significant mists, vapors or aerosols are generated an approved respirator is recommended. An organic vapor cartridge with dust/mist prefilter 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 :
Neoprene gloves, Viton# gloves

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 :
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. Use good work and personal hygiene practices to avoid exposure.

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 /
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.

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

11. TOXICOLOGICAL INFORMATION

The following results are for the product.

ACUTE DERMAL TOXICITY :

Species	LD50	Test Descriptor
Rabbit	> 4 g/kg	Product

Rating : Non-Hazardous

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).

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	

Rating : Very toxic

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		

Rating : Very toxic

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.

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 :	

IATA Cargo Aircraft Limit : (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

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.

Didecyl-Dimethyl-Ammonium chloride : Corrosive
Ethanol : Flammable

CERCLA/SUPERFUND, 40 CFR 117, 302 :
This product contains the following Reportable Quantity (RQ) Substance. Also listed is the RQ for the product. If a reportable quantity of product is released, it requires notification to the NATIONAL RESPONSE CENTER, WASHINGTON, D.C. (1-800-424-8802).

RQ Substance	RQ
Ethanol	1,000 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
-	Delayed (Chronic) Health Hazard
X	Fire Hazard
-	Sudden Release of Pressure Hazard
-	Reactive Hazard

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

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

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

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 :
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
• Ethanol	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 :
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.

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

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

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

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

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

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

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

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

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

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

Prepared By : Product Safety Department
Date issued : 03/04/2004
Version Number : 1.5

Material Safety Data Sheet

AQUACHLOR™
Sodium Hypochlorite Solution

Revised: 03/17/2003
ALTIVIA Corporation
1100 Louisiana, Suite 3160
Houston, Texas 77002-5217

Emergency(Chemtrec): (800) 424-9300
Product Information: (713) 658-9000

HAZARDOUS INGREDIENTS/IDENTIFY INFORMATION

Hazardous Components	OSHA PEL	ACGIH TLV	CAS#	Other limits
Sodium Hypochlorite	N/E	N/E	7681-52-9	None listed
Sodium Hydroxide	2 mg/m^3	2 mg/m^3	1310-73-2	None listed

PHYSICAL / CHEMICAL CHARACTERISTICS

Specific Gravity @ 80°F	1.13-1.27	Evaporation rate:	N/A
Boiling Point	Decomposes above 40°C (104°F)	Vapor Pressure (mmHg):	17.5 @ 20°C
Melting Point	7.5°F (-13.6°C)	Vapor Density (Air = 1):	N/A
Solubility in Water:	Complete	pH	11.5 – 13.5
Appearance/Color:	Clear, pale yellow or slightly green		

FIRE AND EXPLOSION HAZARDS

Flash Point:	Non-Flammable	LEL:	N/A
Flammable Limits:	N/A	UEL:	N/A
Special Fire Fighting Procedure/Precaution:	Use extinguishing media that is appropriate for the surrounding fire. Use water spray to cool fire exposed containers. Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing if involved in a fire. Protection is needed against corrosive fumes if liquid is released.		
Unusual Fire/Explosion Hazards:	Sodium hypochlorite is an oxidizing agent. Keep away from oxidizable materials in a fire situation. Decomposition can be caused by heat. If possible, remove containers from fire area to prevent over pressurization and rupture.		

REACTIVITY DATA

Reactivity:	Reaction with acids, ammoniacal compounds, oxidizable materials, and metals.
Stability:	Stable under proper storage conditions.
Incompatibility:	Any acid metal, ammonia, urea, oxidizable materials, and metals (nickel, copper, tin, aluminum, and iron).
Hazardous Decomposition/Byproducts:	Chlorine gas (Cl_2) rate of decomposition increases with the concentration and with temperatures above 85F.
Hazardous Polymerization:	Will not occur
Condition to Avoid:	Keep away from high heat, and sunlight or ultra-violet light. Do not store above 85F.

HEALTH HAZARDS & MEDICAL PROCEDURES

The common recognized injury from sodium hypochlorite is tissue irritation.

ROUTES OF ENTRY

Inhalation:	Irritation of the respiratory system. Mist or fumes may cause bronchial irritation, coughing, difficult breathing, nausea and pulmonary edema.
Ingestion:	Oral or gastrointestinal irritation. Corrosion of mucous membranes, perforation of esophagus and stomach may follow.
Skin-Eye Contact:	Liquid or mist contact can produce severe eye irritation. Liquid contact can cause blistering and eczema.

MEDICAL PROCEDURES

Inhalation:	Remove victim from contaminated atmosphere. If breathing has stopped, give artificial respiration. Weak breathing may be supplemented with a bag-mask respirator or a manually operated air supply that delivers at least 1 Liter/sec.
Ingestion:	CALL PHYSICIAN IMMEDIATELY. Rinse mouth with water. Immediately dilute swallowed material by orally administering large amounts of water or milk. DO NOT INDUCE VOMITING. Do not use acidic antidotes or sodium bicarbonate.
Skin-Eye Contact:	CALL PHYSICIAN IMMEDIATELY. For eyes, immediately flush victim's eyes with running water for at least 15 minutes. For skin, immediately remove contaminated clothing under a safety shower. Flush skin with running water for at least 15 minutes. Contact a physician for burns. Launder clothing before reuse.
Carcinogenicy:	Sodium Hypochlorite is not listed as a carcinogen by NTP, IARC, ACGIH, or OSHA
Toxicity:	The acute oral LD50 (rat) is 12 g/kg.

CONTROL MEASURES

PERSONAL SAFETY EQUIPMENT

Respiratory:	Cartridges must be NIOSH/MSHA approved against chlorine. In case of fire, use SCBA for rescue.
Hands-Body:	Rubber gloves (PVC), aprons, or slicker suit.
Face-Eyes:	Clear goggles

HANDLING AND STORAGE

Storage:	Stainless steel or fiberglass tanks are recommended. Keep product away from heat sources and direct sunlight. Do not reuse storage containers unless properly reconditioned.
Spill or Leak:	Prevent liquid from entering sewers or waterways. Sodium hypochlorite can be neutralized with weak reducing agents. Adequate ventilation is required when containing spills/leaks.
Disposal:	Contact state or federal agencies for disposal procedures that are in accordance with environmental regulations for a large or uncontained spill. Wear appropriate protective gear.

OTHER INFORMATION

TRANSPORTATION INFORMATION

DOT Shipping Name: Hypochlorite Solution, Corrosive

Class: 8	UN#: 1791	Packing Group: PG III	RQ: 100 lbs. (Sodium Hypochlorite)

REGULATORY INFORMATION

TSCA (TOXIC SUBSTANCE CONTROL ACT):
All components of this mixture are listed on the TSCA Chemical Inventory.

SARA TITLE III, SECTION 302:
Not listed as an Extremely Hazardous Substance.

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT):
Subject to reporting requirements under CERCLA (40 CFR 302).

CERCLA REPORTABLE QUANTITY:
Releases of Sodium Hypochlorite in quantities equal to or greater than the reportable quantity (RQ) of 100 pounds are subject to reporting to the National Response Center under CERCLA, Section 304 SARA Title III.

SARA TITLE III - HAZARD CLASSES:
Acute Health Hazard: Yes
Chronic Health Hazard: No
Fire Hazard: No
Sudden Release of Pressure Hazard: No
Reactivity Hazard: No

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:
This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To Know Act (EPCRA) of 1986 and of 40 CFR 372:

CAS NUMBER	INGREDIENT NAME	PERCENT BY VOLUME
No	No	No

This Information must be included on all MSDS's that are copied and distributed for this material.

OTHER INFORMATION
HAZARD CODES

NFPA		HMIS	
Health:	2	Health:	2
Flammability:	0	Flammability:	0
Reactivity:	2	Reactivity:	2
OXIDIZER			

Rating System
0= No Hazard
1= Slight Hazard
2= Moderate Hazard
3= Serious Hazard
4= Severe Hazard

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
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-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

Manufacture's Name: VariChem International, Inc.	Emergency Telephone Number: 1-800-424-9300
Address (Number, Street, City, State, and Zip Code)	Telephone Number for information: 1-979-245-7278
P.O. Box 528 / Hwy 35 West	Date Prepared: February 02, 2004
Van Vleck, TX 77482	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)

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): 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.

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

1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

PRODUCT IDENTITY: Sulfuric acid 93%
COMPANY IDENTITY:
COMPANY ADDRESS:
COMPANY CITY:
COMPANY PHONE:
CHEMTREC PHONE: 1-800-424-9300
MSDS DATE: 11/13/03

Chemical Name or Synonym:
SULFURIC ACID

Molecular Formula:
H_2SO_4

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Reg Number	OSHA Hazard	Percentage
SULFURIC ACID	7664-93-9	Y	65 - 100
WATER	7732-18-5	N	BALANCE

3. HAZARDS IDENTIFICATION

A. EMERGENCY OVERVIEW:

Physical Appearance and Odor:
colorless oily liquid, odorless.

Warning Statements:

 Continued on Next Page

Sulfuric Acid 93%

3. HAZARDS IDENTIFICATION (Continued)

DANGER! CAUSES SEVERE BURNS. REACTS VIOLENTLY WITH WATER. CONTENTS MAY BE UNDER PRESSURE OF EXPLOSIVE, FLAMMABLE HYDROGEN GAS. HIGHLY REACTIVE AND CAPABLE OF IGNITING COMBUSTIBLE MATERIAL ON CONTACT.

B. POTENTIAL HEALTH EFFECTS:

Acute Eye:
Corrosive. Causes burns, tissue destruction, Can cause blindness.

Acute Skin:
Corrosive. Causes redness, inflammation, burns.

Acute Inhalation:
Harmful if inhaled. Causes upper respiratory tract irritation, lung irritation, chest pain, wheezing, shortness of breath, a burning sensation, tickling of the nose and throat, sneezing.

Acute Ingestion:
Harmful if ingested. Can cause irritation, abdominal pain, corrosion, burns to mouth and esophagus, death.

Chronic Effects:
When mists are released from this product they are considered to be probable or suspected human carcinogens (see Section 11 - Chronic).

4. FIRST AID MEASURES

FIRST AID MEASURES FOR ACCIDENTAL:
Eye Exposure:
Hold eyelids open and flush with a steady, gentle stream of water for at least 15 minutes. Seek immediate medical attention.

Skin Exposure:
In case of contact, immediately wash with plenty of water for at least 15 minutes. Seek medical attention if irritation developes or persists. Remove contaminated clothing and shoes. Clean contaminated clothing and shoes before re-use.

Inhalation:
Remove victim from immediate source of exposure and assure that the victim is breathing. If breathing is difficult, administer oxygen, if

 Continued on Next Page

4. FIRST AID MEASURES (Continued)

available. If victim is not breathing, administer CPR (cardio-pulmonary resuscitation). Seek medical attention.

Ingestion:
DO NOT INDUCE VOMITING. If the person is conscious and has no trouble breathing a small (no more than one glass) amount of water may be given. Do not leave victim unattended. To prevent aspiration of the swallowed product, lay victim on side with head lower than waist. If vomiting occurs do not re-administer water. Do not give anything by mouth to an unconscious person. IMMEDIATELY obtain medical attention.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE:
Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

NOTES TO PHYSICIAN:
All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

This material is an acid. The primary toxicity of this product is due to its irritant effects on mucous membranes.

INHALATION: If cough or shortness of breath occurs, evaluate the possibility of bronchitis or pneumonitis. Chest x-ray and arterial blood gases can be used to determine the presence of pulmonary edema. In severe cases, use of humidified oxygen and assisted ventilation including positive end expiratory pressure (PEEP) may be needed. Parenteral steroids may be useful in limiting the extent of pulmonary damage.

SKIN: Wash exposed area thoroughly with soap and water. Chemical burns from strong acids are generally treated the same as thermal burns.

EYES: Irrigate eyes for 15 minutes with sterile saline. If irritation, pain, swelling, photophobia or lacrimation persist, examination by an ophthalmologist is recommended.

INGESTION: If not already performed by first aid personnel, irrigate mouth with large amounts of water and dilute the acid by having victim drink 4 to 8 ounces of water or milk. DO NOT induce vomiting. Use of gastric lavage is controversial. The advantage of removal of acid must

 Continued on Next Page

4. FIRST AID MEASURES (Continued)

be weighted against the risk of perforation or bleeding. If a large amount of acid (> 1 ml/kg body weight) has been recently ingested, cautious gastric lavage is generally advised if the patient is alert and there is little risk of convulsions. Consultation with a gastroenterologist and/or surgeon is advised. Serious complications such as perforation or stricture of the esophagus may occur requiring care by specialists. Laryngeal edema may develop requiring intubation or tracheostomy.

5. FIRE FIGHTING MEASURES

FIRE HAZARD DATA:

Flash Point:
Not Applicable

Extinguishing Media:
Not combustible. Use extinguishing method suitable for surrounding fire. Recommended (small fires): dry chemical.

Special Fire Fighting Procedures:
Firefighters should wear NIOSH/MSHA approved positive pressure breathing apparatus with full face-piece and full acid-resistant protective clothing. Fight fire from maximum distance.

Unusual Fire and Explosion Hazards:
Not combustible. Strong oxidizers can react with reducing agents or combustibles producing heat and causing ignition. Reacts violently with water releasing heat and corrosive material.

Hazardous Decomposition Materials (Under Fire Conditions):
oxides of sulfur

6. ACCIDENTAL RELEASE MEASURES

Evacuation Procedures and Safety:
Personnel handling this material should be thoroughly trained to handle

 Continued on Next Page

6. ACCIDENTAL RELEASE MEASURES (Continued)

spills and releases. Do not direct hose streams into an unignited transportation spill (tank truck or tank car).

Containment of Spill:
Stop leak if it can be done without risk. Dike spill using absorbent or impervious materials such as earth, sand or clay. Dike or retain dilution water or water from firefighting for later disposal.

Cleanup and Disposal of Spill:
Pump any free liquid into an appropriate closed container (see Section 7: Handling and Storage). Exercise caution during neutralization as considerable heat may be generated. Carefully neutralize spill with soda ash. Absorb neutralized spill with an inert absorbent. Scrape up and place in appropriate closed container (see Section 7: Handling and Storage).

Environmental and Regulatory Reporting:
Do not flush to drain. Runoff from fire control or dilution water may cause pollution. Dispose of as a hazardous waste. Spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies. Large spills should be handled according to a predetermined plan. For assistance in developing a plan contact the Technical Service Department using the Product Information phone number in Section 1.

7. HANDLING AND STORAGE

Minimum/Maximum Storage Temperatures:
Not Available

Handling:
Do not breathe vapors and mists. Do not get on skin or in eyes. This product reacts violently with bases liberating heat and causing spattering.

When diluting an acid, ALWAYS add the acid slowly to water and stir well to avoid spattering. NEVER ADD WATER TO ACID.

Storage:
Store in tightly closed containers. Store in an area that is dry, well-ventilated, diked with impermeable material, Freezing point varies

Sulfuric Acid 93%

7. HANDLING AND STORAGE (Continued)

with concentration. Maximum recommended storage temperature = 120F (49C).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Introductory Remarks:
These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. While developing safe handling procedures, do not overlook the need to clean equipment and piping systems for maintenance and repairs. Waste resulting from these procedures should be handled in accordance with Section 13: Disposal Considerations.

Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

Exposure Guidelines:
Exposure limits represent regulated or recommended worker breathing zone concentrations measured by validated sampling and analytical methods, meeting the regulatory requirements. The following limits apply to this material, where, if indicated, S=skin and C=ceiling limit:

SULFURIC ACID

	Notes	TWA	STEL
ACGIH		1 mg/cu m	3 mg/cu m
OSHA		1 mg/cu m	
RPI		0.3 mg/cu m	

Engineering Controls:
Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures: local exhaust ventilation at the point of generation.

Respiratory Protection:
When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance

 Continued on Next Page

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (Continued)

with the appropriate regulatory standards and/or industrial recommendations.

Under normal conditions, in the absence of other airborne contaminants, the following devices should provide protection from this material up to the conditions specified by the appropriate OSHA, WHMIS or ANSI standard(s): Air-purifying (half-mask/full-face) respirator with cartridges/canister approved for use against acid gases.

Eye/Face Protection:
Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material.

Eye contact should be prevented through use of chemical safety glasses with side shields or splash proof goggles. An emergency eye wash must be readily accessible to the work area.

Skin Protection:
Skin contact must be prevented through the use of permeation resistant clothing, gloves and footwear, selected with regard for use conditions and exposure potential. An emergency shower must be readily accessible to the work area. Consideration must be given both to durability as well as permeation resistance.

Work Practice Controls:
Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material:

(1) Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored.
(2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
(3) Wash exposed skin promptly to remove accidental splashes or contact with this material.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical properties here represent typical properties of

 Continued on Next Page

Sulfuric Acid 93%

9. PHYSICAL AND CHEMICAL PROPERTIES (Continued)

this product. Contact the business area using the Product Information phone number in Section 1 for its exact specifications.

Physical Appearance:
colorless oily liquid.

Odor:
odorless.

pH:
1 at 1 wt/wt%.

Specific Gravity:
Not Available

Water Solubility:
miscible

Melting Point Range:
Not Available

Boiling Point Range:
Not Available

Vapor Pressure:
Not Available

Vapor Density:
3.4

Molecular Weight:
98.08

10. STABILITY AND REACTIVITY

Chemical Stability:
This material is stable under normal handling and storage conditions described in Section 7.

Conditions To Be Avoided:

Sulfuric Acid 93%

10. STABILITY AND REACTIVITY (Continued)

none known

Materials/Chemicals To Be Avoided:
water
strong reducing agents
halogens
bases
metals
nitrogen compounds

The Following Hazardous Decomposition Products Might Be Expected:
Decomposition Type: thermal
oxides of sulfur

Hazardous Polymerization Will Not Occur.
Avoid The Following To Inhibit Hazardous Polymerization:
not applicable

11. TOXICOLOGICAL INFORMATION

Acute Eye Irritation:
Toxicological Information and Interpretation
eye - eye irritation, 250 ug/24 hr, rabbit.
Severely irritating.

Acute Skin Irritation:
No test data found for product. This product was not tested because strong acids are known to be corrosive and to cause severe tissue destruction.

Acute Dermal Toxicity:
No test data found for product. This product was not tested because strong acids are known to be corrosive and to cause severe tissue destruction.

Acute Respiratory Irritation:
Toxicological Information and Interpretation
lung - lung irritation, < 5 mg/cu m, human.
Mildly irritating.

Acute Inhalation Toxicity:

 Continued on Next Page

11. TOXICOLOGICAL INFORMATION (Continued)

Toxicological Information and Interpretation
LC50 - lethal concentration 50% of test species, 510 mg/cu m/2 hr, rat.
LC50 - lethal concentration 50% of test species, 347 ppm/1 hr, rat.

Acute Oral Toxicity:
Toxicological Information and Interpretation
LD50 - lethal dose 50% of test species, 2140 mg/kg, rat.

Chronic Toxicity:
This product contains the substances that are considered to be "probable" or "suspected" human carcinogens as follows:

The International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) have classified "occupational exposure to strong inorganic acid mists containing sulfuric acid" as a known human carcinogen (IARC Category 1). This classification applies only to sulfuric acid when generated as a mist. There is still debate in the scientific community whether the studies reviewed by IARC and NTP adequately controlled for confounding occupational exposures and personal habits such as cigarette smoking and alcohol consumption. A few epidemiology studies have suggested a possible association between sulfuric acid exposure and laryngeal or lung cancer; however, in all these studies, workers were exposed to many other chemicals, some of which are recognized carcinogens, such as diethylsulfate and nickel. Considering the multiple chemical exposures and other limitations of the studies, we disagree with IARC's conclusion that a cause and effect relationship between cancer and "occupational exposure to strong inorganic acid mist containing sulfuric acid" has been demonstrated. Also more recent epidemiological studies have failed to find any association between "occupational exposure to strong inorganic acid mist containing sulfuric acid" and laryngeal or lung cancer. ACGIH has classified "sulfuric acid as contained in strong inorganic acid mists" as a suspect human carcinogen. This classification does not apply to sulfuric acid per se.
Lifetime animal studies in hamsters, rats and guinea pigs were conducted in the 1970's under sponsorship of the Environmental Protection Agency (EPA) or the National Institutes of Environmental Health Sciences (NIEHS). All three lifetime studies were negative for carcinogenic effects. These studies were not formally published by the government agencies because they were satisfied that sulfuric acid mist was not a carcinogenic problem. Because these studies were not published, IARC or NTP did not consider them in their deliberations.

Ingredient Name	Regulatory Agency Listing Carcinogen			
	OSHA	IARC	NTP	ACGIH

 Continued on Next Page

11. TOXICOLOGICAL INFORMATION (Continued)

OCCUPATIONAL EXPOSURES TO STRONG-INORGANIC-ACID MISTS CONTAINING	No	1	Yes	A2

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:
Ecotoxicological Information and Interpretation:
The toxicity of sulfuric acid to fish is dependent on the resulting pH of the water. lethality at a pH of 5.0 or below. required to cause lethality varies depending on the hardness of the water (hard water has some buffering capacity) and the species of fish (some fish are more resistant to the effects of acidity). McKee, JE, and Wolf, HA (Editors), Water Quality Criteria, 2nd ed., Publication No. 3-A, p. 279, California State Water Resources Control Board, Sacramento, CA (rev. 1963).

Chemical Fate Information:
No data found for product.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:
Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Please be advised that state and local requirements for waste disposal may be more restrictive or otherwise different from federal laws and regulations. Consult state and local regulations regarding the proper disposal of this material.

EPA Hazardous Waste - YES

EPA RCRA HAZARDOUS WASTE CODES:
"C" Corrosive; "R" Reactive.

 Continued on Next Page

Sulfuric Acid 93%

14. TRANSPORTATION INFORMATION

Transportation Status: IMPORTANT! Statements below provide additional data on listed DOT classification.
The listed Transportation Classification does not address regulatory variations due to changes in package size, mode of shipment or other regulatory descriptors.

US Department of Transportation
Hazard Class..... 8

Shipping Name:
SULFURIC ACID
ID Number..... UN1830
Packing Group.... II
Labels..... CORROSIVE
Emergency Guide #.... 137

15. REGULATORY INFORMATION

Inventory Status

Inventory	Status
UNITED STATES (TSCA)	Y
CANADA (DSL)	Y
EUROPE (EINECS/ELINCS)	Y
AUSTRALIA (AICS)	Y
JAPAN (MITI)	Y
SOUTH KOREA (KECL)	Y

Y = All ingredients are on the inventory.
E = All ingredients are on the inventory or exempt from listing.
P = One or more ingredients fall under the polymer exemption or are on the no longer polymer list. All other ingredients are on the inventory or exempt from listing.
N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing.

FEDERAL REGULATIONS

Inventory Issues:
All functional components of this product are listed on the TSCA Inventory.

15. REGULATORY INFORMATION (Continued)

SARA Title III Hazard Classes:

Fire Hazard	- NO
Reactive Hazard	- YES
Release of Pressure	- NO
Acute Health Hazard	- YES
Chronic Health Hazard	- NO

SARA 313 Chemicals
SULFURIC ACID (65 - 100%)

SARA Extremely Hazardous Substances (EHS)/CERCLA Hazardous Substances

Ingredient	CERCLA/SARA RQ	SARA EHS TPQ
SULFURIC ACID	1000 lbs	1000 lbs
UNLISTED HAZARDOUS WASTES - CHARACTERISTIC OF CORROSIVITY	100 lbs	
UNLISTED HAZARDOUS WASTES - CHARACTERISTIC OF REACTIVITY	100 lbs	

STATE REGULATIONS:
This product contains the following components that are regulated under California Proposition 65:

Ingredient Name	Cancer List	Reprod. List	No Sign. Risk Lvl (ug/day) California	RPI
OCCUPATIONAL EXPOSURES TO STRONG-INORGANIC-ACID MISTS CONTAINING SULFU	Y	N	ND	ND

16. OTHER INFORMATION

National Fire Protection Association Hazard Ratings--NFPA(R):
3 Health Hazard Rating--Serious
0 Flammability Rating--Minimal
2 Instability Rating--Moderate
0 * NO WATER

National Paint & Coating Hazardous Materials Identification System--HMIS(R):
3 Health Hazard Rating--Serious
0 Flammability Rating--Minimal
2 Reactivity Rating--Moderate

Reason for Revisions:

Sulfuric Acid 93%

16. OTHER INFORMATION (Continued)

Change and/or addition made to Section 4, Section 7, Section 9, Section 11, Regulatory Review and Update.

Key Legend Information:
ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
TLV - Threshold Limit Value
PEL - Permissable Exposure Limit
TWA - Time Weighted Average
STEL - Short Term Exposure Limit
NTP - National Toxicology Program
IARC - International Agency for Research on Cancer
ND - Not determined
RPI - Rhodia Established Exposure Limits

Disclaimer:
The information herein is given in good faith but no warranty, expressed or implied, is made.

APPENDIX WS 1.0-3
Cross Reference Technical Report, Worksheet 1.0, Page 1-2

3. Process/Non-Process Wastewater Flows: Provide a breakdown of process wastewater flow(s) and non-process wastewater flow(s) as directed.

For Steam Electric Generating Stations (*Not all waste streams are generated at this facility):

1. Process Wastewater
   - A. Chemical Metal Cleaning Wastewater
   - B. Coal Pile Runoff*
   - C. Ash Management Area Runoff*

2. Non-Process Wastewater
   - A. Utility Wastewater
     1) Once Through Cooling Water
     2) Cooling Tower Blowdown
     3) Non-Chemical Metal Cleaning Wastewater
     4) Low Volume Wastewater, including flows from the following sources:
        - a. Floor Drainage
        - b. Boiler Blowdown
        - c. Ion Exchange Water Treatment Systems
        - d. Reverse Osmosis Water Treatment Systems*
        - e. Recirculating Service Water Systems
        - f. Wet Scrubber Air Pollution Control Systems*
        - g. Laboratory and Sampling Streams
        - h. Cooling Tower Basin Cleaning Wastes
   - B. Domestic Sewage
   - C. Air Conditioning Condensate