Luminant

Mike Blevins
Senior Vice President &
Chief Nuclear Officer
Mike.blevins@luminant.com

Luminant Power
Comanche Peak Nuclear Power
Plant
P.O. Box 1002, E01
Glen Rose, TX 76043

T [illegible]
F [illegible]

File #: 225
Log #: TXX-07130

(Via Overnight Mail)

August 29, 2007

Executive Director
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Attention: Permits Administrative Review Section (MC 161)
Registration, Review, & Reporting Division
Water Quality Applications Team

Re: Comanche Peak Nuclear Power Plant (CPNPP)
TPDES Permit No. 01854
Permit Renewal Application

Dear Sir/Madam:

In accordance with the rules and regulations of the Texas Commission on Environmental Quality (TCEQ), TXU Generation Company LP (dba Luminant Power) hereby submits one original and four complete copies of an Industrial Wastewater Permit Application for renewal of the above referenced TPDES Permit. This application consists of the "Industrial Administrative Report" (Revised 10/05) and the "Industrial Technical Report" (Revised 09/06). In addition, TXU is submitting documents (Attachment G) to satisfy the new requirements of Section 316(b) of the Clean Water Act which impact 40 CFR Part 122.21. These new requirements became effective on September 7, 2004. Also, a check for the required renewal fee of $2,015.00 was mailed on August 22, 2007 to the TCEQ Revenues Section (Attachment A). Please note that the facility name has changed from "Comanche Peak Steam Electric Station" to "Comanche Peak Nuclear Power Plant".

TXU Corp's power generation and related businesses are in the process of changing names to "Luminant". TXU has submitted assumed name filings or "DBAs" that enable us to use the new Luminant names, however we have not yet filed legal name changes for the subsidiaries with the Secretary of State. We will promptly submit permit owner/operator name changes once the legal entity name changes are filed with the Secretary of State.

C001
NRR

TXU appreciates the opportunity to submit this permit renewal application. If there are questions, please contact Jennifer Bunting at 214.812.5659.

Sincerely,

Mike Blevins

By: Gerald R. Johnson

Attachment(s)

bcc: Danny Wilder (w/o attachments)
Bruce Turner (w/o attachments)
Carolyn Cosentino
Neil Harris
Jennifer Bunting
Gary Spicer (w/o attachments)
David Rutledge
File: JKB

CLEAN TEXAS CLEANER WORLD

CLEAN TEXAS, CLEANER WORLD

grants

TCEQ

TXU Power Comanche Peak Steam Electric Station, Glen Rose

National Leader

access to

Expedited Permitting

The site's permit will receive priority and be moved to the top of the stack for review.

Effective on July 1, 2005 Until April 26, 2008
(EMS Certified until April 26, 2008)

To access this incentive, the site must attach a copy of this certificate when applying for a specific permit and send a written request to Mary Talukder at **mtalukde@tceq.state.tx.us** (512-239-3186) prior to submitting a permit for expedited permitting. You may mail the request to Texas Commission On Environmental Quality, Small Business and Environmental Assistance Division, EMS Incentives, Mary Talukder, MC-112. P.O. Box 13087, Austin, TX 78711-3087.

Clean Texas, Cleaner World is a program of the Texas Commission on Environmental Quality. The program's vision is to create a sustainable Texas by transforming environmental management throughout the state . For more information on incentives, visit **www.cleantexas.org**.

Israel P. Anderson, Director
Small Business & Environmental Assistance Division

CORRESPONDENCE SIGN-OFF SHEET

Document Number: TXX07130		File Number: 225
Issued Date: August 24, 2007		Unit Affected: (1, 2, Generic)
Title/Subject: Permit Renewal Application Permit No. 01854		
Commitment(s) Identified: No: Yes: (if yes, list and attach)		
Attachments: Commitments: Attachment: Enclosure: Distribution Sheet: Special Instructions:		
Hand carry to next person for signature		Return to originator by: / /

FUNCTION	INITIALS	SIGNATURE*	COMMENTS	CORRECTIONS
Originator	DER			
Cognizant Manager	DTW		None	
	BGT		None	
Vice-President(s)	RF			
Legal Review				
Proof Reader				
RA/EHS Mgr. (Last)	GRJ		—	

Signature indicates approval of the correspondence content, commitment status (if identified) and attachments (if identified)

Associated Incoming Correspondence Information			Outgoing (this document) Correspondence Document Information			
Incoming Document No.	ACL No.	*New ACL No.*	*Electronic Submittal*	*Follow-up Submittal*	*Licensing Fee Required*	*Notary Required*
			Yes No	Yes No	Yes No	Yes No

Other References:
Comments:
Upon Issuance of attached correspondence, modify tracking database as required and initial this form:

TXU Generation Company LP

Comanche Peak Nuclear Power Plant
Wastewater Discharge Permit No. 01854
Permit Renewal Application

August 2007

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION

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

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

WORKSHEET	Y	N	WORKSHEET	Y	N
ADMINISTRATIVE REPORT 1.0	✓		WORKSHEET 9.0		✓
ADMINISTRATIVE REPORT 1.1		✓	USGS MAP	✓	
SPIF	✓		AFFECTED LANDOWNER MAP		✓
TECHNICAL REPORT 1.0	✓		LANDOWNER DISKETTE OR LABELS		✓
WORKSHEET 1.0	✓		COPY OF CHECK	✓	
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	✓	
WORKSHEET 6.0		✓	OTHER		
WORKSHEET 7.0		✓			
WORKSHEET 8.0		✓			

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.

1. APPLICANT INFORMATION (Instructions, Page 13)

a. Facility owner*: TXU Generation Company LP

* Owner of the facility must apply for the permit

Charter Number (issued by the Texas Secretary of State): 800025435

Mailing address for use on the permit and permit correspondence:

Street No. 1601 Street Name: Bryan Street Type: Street

P.O. Box: ___ City: Dallas State: TX Zip Code: 75201-3411

Telephone Number: 214-812-8699

Tax Identification Number issued by the State Comptroller: 75-2967820

Check one: ✓ The TCEQ has issued this Customer Reference Number to the owner. CN: 600135511

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

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

Facility operator: Not Applicable

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

Mailing address for use on the permit and permit correspondence:

Street No. ___ Street Name: ___ Street Type: ___

P.O. Box: ___ City ___ State ___ Zip Code ___

Telephone Number: ___ Date of Birth: ___

Tax Identification Number issued by the State Comptroller: ___

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

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

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

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

Name: **Not Applicable** Check one: _____ Male _____ Female

State Identification Number: _____

Date of Birth: _____

Assumed business or professional name: _____

Home Address:

Street No. _____ Street Name: _____ Street Type:

P.O. Box: City: State: Zip Code:

Telephone Number:

Business name:

Check one: ____ The TCEQ has issued this Customer Reference Number to this person. CN: _____

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

2. CONTACT INFORMATION (Instructions, Pages 14)

Name: **Gary Spicer** Company: **TXU Generation Company LP**

Telephone number: **214-812-8699** Fax number: **214-812-4395** E-Mail: **spicer@txu.com**

Street No. **1601** Street name: **Bryan** Street type: **Street**

P.O. Box: _____ City: **Dallas** State: **TX** Zip code: **75201-3411**

Check one or more: ✓ Administrative contact ✓ Technical contact

Name: **David Rutledge** Company: **TXU Generation Company LP**

Telephone number: **214-812-8477** Fax number: **214-812-4395** E-Mail: **d.rutledge@txu.com**

Street No. **1601** Street name: **Bryan** Street type: **Street**

P.O. Box: _____ City: **Dallas** State: **TX** Zip code: **75201-3411**

Check one or more: ✓ Administrative contact ✓ Technical contact

3. NOTICE INFORMATION (Instructions, Page 14)

a. Individual publishing the notices

Name: **Jennifer Bunting** Telephone number: **214-812-5659**

Company: **TXU Generation Company LP** Fax number: **214-812-5695**

Street No: **1601** Street name: **Bryan** Street type: **Street**

P.O. Box: _____ City: **Dallas** State: **TX** Zip code: **75201-3411**

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: **jbuntin1@txu.com**

____ Fax: Fax number: **214-812-4395**

_____ Overnight/Priority mail: (self addressed, prepaid envelope required)

Regular Mail: Street No. _____ Street name: _____

Street type: P.O. Box:_____City: _____State: _____Zip code:

c. Contact in the notice

Name: **Gary Spicer** Telephone number: **214-812-8699**

Company: **TXU Generation Company LP** Fax number **214-812-4395**

Street No. **1601** Street name: **Bryan** Street type: **Street**

P.O. Box:_____City: **Dallas** State: **TX** Zip code: **75201-3411**

d. Public place information

Location of public building: **Candace Garrett, County Clerk's Office (254)897-4427**

Public building name: **Court Annex Building (PO Box 1098)**

Street No. **107** Street name: **NE Vernon** Street type: **Street**

City: **Glen Rose** County: **Somervell** State: **TX** Zip code: **76043**

*If the facility and/or outfalls are located in more than one county, a public viewing place in each county is required.

e. Bilingual Notice Requirements:

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

1. Is a bilingual program required by the Texas Education Code in the school district where the facility is located?
✓ Yes ____ No (If No, alternative language notice publication is not required; skip to item 4.)

2. If Yes to question 1, are students enrolled in a bilingual education program at either the elementary school or the middle school nearest to the facility?
✓ Yes ____ No (IF Yes to questions 1 and 2, alternative language publication is required; If No to question 2, then consider the next question.)

3. If Yes to question 1, are there students enrolled at either the elementary school or the middle school nearest to the facility who attend a bilingual education program at another location?
_____ Yes ✓ No (If Yes to questions 1 and 3, alternative language publication is required; If No to question 3, then consider the next question.)

4. If Yes to question 1, would either the elementary school or the middle school nearest to the facility be required to provide a bilingual education program but for the fact that it secured a waiver from this requirement, as available under 19 TAC §89.1205(g)?
_____ Yes ✓ No (If Yes to questions 1 and 4, alternative language publication is required; If No to question 4, alternative language notice publication not required.)

5. If a bilingual education program(s) is provided by either the elementary school or the middle school nearest to the facility, which language(s) is required by the bilingual program? **Spanish**

4. FACILITY INFORMATION (Instructions, Page 15)

a. State/TPDES Permit No. 01854 Expiration date: 3/1/2008

EPA ID. No. TX0065854 Expiration date: N/A

Check one: ✓ The TCEQ has issued this Regulated Entity Reference Number for this facility. RN: 103044053

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

b. Plant Name: Comanche Peak Nuclear Power Plant (Name Change effective August 2007)

County in which the facility is located: Somervell

County in which the outfall is located: Somervell

c. Owner of treatment plant: TXU Generation Company LP

Street No. 1601 Street name: Bryan Street type: Street

City: Dallas State: TX Zip code: 75201-3411

d. Owner of land where treatment plant is/will be: TXU Generation Company LP

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. 1601 Street name: Bryan Street type: Street

City: Dallas State: TX Zip code: 75201-3411

e. Ownership of effluent disposal site: Not Applicable

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: Not Applicable

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:

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:

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:

Not Applicable

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

Not Applicable

e. For TLAP applications, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: **Not Applicable**

f. Is the location of the sewage sludge disposal site in the existing permit accurate: _____ Yes _____ No
If no, or a new permit application, please give an accurate description:

Not Applicable

g. Provide an original 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 3 miles downstream information	_____	New and future construction

See Attachment B: USGS Site Map and Facility Map

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: **Glen Rose (4.5 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 18)

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

Name: **Gary Spicer** Telephone number: **214-812-8699**
Company: **TXU Generation Company LP** Fax number: **214-812-4395**
Street No. **1601** Street name: **Bryan** Street type: **Street**
P.O. Box: _____ City: **Dallas** State: **TX** Zip code: **75201-3411**

Name: **David Rutledge** Telephone number: **214-812-8477**
Company: **TXU Generation Company LP** Fax number: **214-812-4395**
Street No. **1601** Street name: **Bryan** Street type: **Street**
P.O. Box: _____ City: **Dallas** State: **TX** Zip code: **75201-3411**

b. List each person formerly employed by the TCEQ who represented your company and was paid for service regarding the application. **Not Applicable**

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.

Somervell, Johnson, Bosque, McLennan, Falls, and Hill Counties

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

Company: **TXU Generation Company LP** Department: **Environmental Services**

Name: **Zeke Martinez**

Street No. **1601** Street Name: **Bryan** Street Type: **Street**

P.O. Box:_____ City: **Dallas** State: **TX** Zip code: **75201-3411**

Please provide the address for receiving Annual Billing Invoices:

Company: **TXU Generation Company LP** Department: **Environmental Services**

Name: **Gary Spicer**

Street No. **1601** Street Name: **Bryan** Street Type: **Street**

P.O. Box:_____ City: **Dallas** State: **TX** Zip code: **75201-3411**

7. **SIGNATURE PAGE** (Instructions, Pages 18-19)

I, **Mitchell L. Lucas** **Vice President**

Typed or printed name *Title*

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

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

Signature: Date: 8/27/07

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

SUPPLEMENTAL PERMIT INFORMATION FORM ATTACHMENT

USGS SITE MAPS
AND FACILITY MAP

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

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

8. SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF) (Instructions, Page 19)

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

The following applies to all applications:

1. Permittee: **TXU Generation Company LP**

2. Permit No. **01854** (NPDES Permit No./EPA ID No.) **TX0065854**

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

4.5 miles northwest of Glen Rose, Texas on SH 56

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

Name: **Gary Spicer** Telephone number: **214-812-8699**
Company: **TXU Generation Company LP** Fax number: **214-812-4395**

Street No.: **1601** Street name: **Bryan** Street type: **Street**

City: **Dallas** State: **Texas** Zip code: **75201-3411**

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

6. If the property is publicly owned and the owner is different that the permittee/applicant, please identify the owner of the property: **Not Applicable**

7. Identify the name of the water body (receiving waters) or TCEQ segment number that will receive the discharge:

To Squaw Creek Reservoir, thence to Squaw Creek, thence to the Paluxy River in Segment 1229 of the Brazos River Basin; or to Squaw Creek Reservoir, thence to Lake Granbury in Segment 1205 of the Brazos River Basin.

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

See Attached Map

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

Not Applicable

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

None

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

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

None, this is an established facility that has been in operation since 1990.

12. Describe existing disturbances, vegetation & land use:

Power plant with associated structures, facilities, and roads.

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

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

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

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

"HILL CITY QUADRANGLE, TEXAS"
N3215-W9745/7.5

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

D-01

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

"NEMO, QUADRANGLE TEX,"
N3215-W9737,5/7.5

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

D-02

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

"FACILITY MAP"

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

D-03

TECHNICAL REPORT 1.0 - INDUSTRIAL

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

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

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

Generation of Electricity

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

c. Describe the wastewater generating processes.

See Attachment C: General Description

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

Raw Materials	Intermediate Products	Final Products
water	**steam**	**electricity**
enriched uranium		

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: **B: USGS Site Map and Facility Map**

f. Is this a new permit application for an existing facility? _____ Yes ✓ No

If yes, provide background discussion below.

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:
Flood Insurance Rate Map, Somervell County, TX #48425C0050 C (April 3, 1995)

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.

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

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

If **yes**, provide the permit number: _____

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

2. TREATMENT SYSTEM (Instructions, page 25)

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

TREATMENT PROCESS	TREATMENT UNIT	CAPACITY or DIMENSIONS	OUTFALL
1. Solids separation	Condensate Polisher Decant Basin	34' x 15'3" x 8'	004
2. Solids separation	Clarifier Decant Basin	96'4" x 21' x 11'	004
3. Oil/water separation	API Separator	4'6" x 4' x 5'6"	004
4. Neutralization	See Pond #6 (Item 3)		
5. Radiological filtration	Waste water hold up tank 01	15' x 20' x 15'	004
6. Radiological filtration	Waste water hold up tank 02	15' x 20' x 15'	004

For additional information, see Attachment C: General Description.

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: D: Water Balance Diagram**

3. **IMPOUNDMENTS** (Instructions, pages 25-27)

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

a. Provide the following information in the table provided:

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

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

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

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

Impoundment Information Table

	Pond # SB	Pond # A	Pond # B	Pond # C	Pond # D
Designation	Surge Basin	LVW Pond A	LVW Pond B	LVW Pond C	MCW Pond
(T) (D) (C) or (E)	Flow Equalization	C, D, E, T	C, D, E, T	C, D, E, T	C, T, E
Discharge Point					
Outfall Number	004	004	004	004	004
Liner Information					
Liner Type (C) (I) or (S)	S	S	S	S	S
Alt. Liner Attachment Reference					
Dimensions					
Length (feet)	76 ft	410 ft	410 ft	410 ft	410 ft
Width (feet)	76 ft	114 ft	114 ft	366 ft	100 ft
Depth from Water Surface	3 ft	14 ft	14 ft	10 ft	10 ft
Depth from Nat. Ground Level	5 avg NA max	16 avg NA max	16 avg NA max	12 avg NA max	12 avg NA max
Freeboard (feet)	2 ft	2 ft	2 ft	2 ft	2 ft
Surface Area (acres)	NA acres	NA acres	NA acres	NA acres	NA acres
Storage Capacity (gallons)	130,400 gal.	1,600,000 gal.	1,600,000 gal.	6,400,000 gal.	1,500,000 gal.

	Pond # EB	Pond # ___	Pond # ___	Pond # ___	Pond # ___
Designation	Equalization Basin				
(T) (D) (C) or (E)	C				
Discharge Point					
Outfall Number	004				
Liner Information					
Liner Type (C) (I) or (S)	S over concrete				
Alt. Liner Attachment Reference					
Dimensions					
Length (feet)	210 ft	___ ft	___ ft	___ ft	___ ft
Width (feet)	46 ft	___ ft	___ ft	___ ft	___ ft
Depth from Water Surface	9 ft	___ ft	___ ft	___ ft	___ ft
Depth from Nat. Ground Level	11 avg NA max	___ avg ___ max	___ avg ___ max	___ avg ___ max	___ avg ___ max
Freeboard (feet)	2 ft	___ ft	___ ft	___ ft	___ ft
Surface Area (acres)	NA acres	___ acres	___ acres	___ acres	___ acres
Storage Capacity (gallons)	1,200,000 gal.	___ 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:

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

Attachment: _____

c. Are there any leak detection systems or ground water monitoring wells in place or planned? ____Yes ____ No

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

Attachment: _____

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

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

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

_____ A USGS quadrangle map or a color copy of original quality and scale which accurately locates and identifies water supply wells and/or monitor wells within 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.

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

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

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

OUTFALL: 001

Latitude			Longitude			Location Description
32	17	46	97	46	56	From the once-through cooling discharge canal to Squaw Creek Reservoir
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
3168	3168		3168	3168		24 (hrs./day) 30 (days/mo.) 12 (mo./year)
✓ Pumped ___ Gravity			Measurement Device: record			___ Intermittent ___ Seasonal ✓ Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
Once-through cooling	3168	variable
Previously monitored effluents from Outfall 004	1.128	variable

OUTFALL: 002

Latitude			Longitude			Location Description
32	17	29	97	47	10	From the Safe Shutdown Impoundment to Squaw Creek Reservoir
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
report	report		report	report		0 (hrs./day) 0 (days/mo.) 0 (mo./year)
___ Pumped ✓ Gravity			Measurement Device: estimate			✓ Intermittent ___ Seasonal ___ Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
Condenser cooling water	No Discharge anticipated	
Storm water runoff	No Discharge anticipated*	
* See Attachment C: General Description		

OUTFALL: 003

Latitude			Longitude			Location Description
32	17	46	97	46	56	From the Sewer Treatment Plant to Squaw Creek Reservoir
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
report	report		report	report		24 (hrs./day) 30 (days/mo.) 12 (mo./year)
✓ Pumped ___ Gravity			Measurement Device: estimate			___ Intermittent ___ Seasonal ✓ Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
Sanitary sewage effluent	0.078	100

OUTFALL: 004

Latitude			Longitude			Location Description
32	18	08	97	47	21	From the Waste Management System to Outfall 001 and/or Squaw Creek Reservoir
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
report	report		report	report		24 (hrs./day) 15 (days/mo.) 12 (mo./year)
✓ Pumped ___ Gravity			Measurement Device: estimate			✓ Intermittent ___ Seasonal ___ Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
Low volume waste (washdown water, floor/equipment drains,		
miscellaneous uses, water treatment wastes)	1.128	variable
Storm water runoff from bermed areas	variable	variable
Previously monitored effluents	variable	variable

OUTFALL: 005

Latitude			Longitude			Location Description
32	17	29	97	45	03	From Squaw Creek Reservoir to Lake Granbury
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
report	report		report	report		0 (hrs./day) 0 (days/mo.) 0 (mo./year)
✓ Pumped ___ Gravity			Measurement Device: estimate			___ Intermittent ___ Seasonal ✓ Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
Squaw Creek Reservoir water	No anticipated discharge	

OUTFALL: 104

Latitude			Longitude			Location Description
32	18	05	97	47	03	From the Metal Cleaning Waste (MCW) Pond to Low Volume Waste (LVW) Retention Ponds to Outfall 004
Permitted Flow (MGD)			Proposed Flow (MGD)			
Dly Avg	Dly Max		Dly Avg	Dly Max		Discharge Duration
report	report		report	report		24 (hrs./day) NA (days/mo.) NA (mo./year)
✓ Pumped ___ Gravity			Measurement Device: estimate			✓ Intermittent ___ Seasonal ___ Continuous

Contributing Wastestreams:	Volume (MGD)	% of Total Flow
metal cleaning waste	variable	variable

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

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

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

c. If **yes** to either item **a** or **b**, indicate with a check mark that the appropriate MSDS with the following information for each chemical additive was submitted with the application.

Information, if available, is provided for each chemical additive (See Attachments E and F)

____ 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: E: Boiler Chemical Additives and Attachment F: Once-through Cooling Chemical Additives

d. Cooling Towers and Boilers

	Number of Units	Daily Avg. Blowdown	Daily Max Blowdown
Cooling Towers	0 cooling towers	Daily Avg: 0 gallons/day	Daily Max: 0 gallons/day
Boilers	1 boilers	Daily Avg: * gallons/day	Daily Max: * gallons/day

***Note: The Auxiliary Boiler is an emergency back-up system that is only activated in the event of a loss of steam generator use; it is also operated periodically for maintenance purposes.**

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

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

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

Storm water runoff from the Turbine Generator Area for Unit 1 and small construction sites in this drainage area is routed to the Safe Shutdown Impoundment and eventually to Outfall 002. The Unit 2 side is routed through storm water outfalls permitted under the TCEQ's Multi-sector General Permit (Permit No. TXR05K098). Storm water runoff from the diked chemical storage areas and transformers, and, if feasible, small construction sites, is suctioned into tanker trucks and discharged through Outfall 004.

Other areas in which storm water runoff may be exposed to industrial processes are permitted under the TCEQ's Multi-Sector General Permit (Permit No. TXR05K098).

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

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

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

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

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

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

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

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

_____ Other. Please provide a detailed description below.

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

Plant/Hauler Name	Permit/Registration No.
Disposal Facility: CSC in Avalon, Ellis County, TX	TXD000836585
Hauler: Truck	34529

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

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

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

9. TOXICITY TESTING (Instructions, page 30)

Have any biological tests for acute or chronic toxicity been made on any of your discharges or on a receiving water in relation to your discharge within the last three (3) years?
_✓_ Yes ____ No

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

Chronic and 24-hour Acute Biomonitoring of Outfall 001 is done as required by the current permit. All test results have been previously submitted to the TCEQ.

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

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

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

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

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

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

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

11. RADIOACTIVE MATERIALS (Instructions, page 30)

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

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

Radioactive Materials	Conc. (pCi/L)
All radioactive materials used at this site falls under the jurisdiction of the	
Nuclear Regulatory Commission (NRC).	

THE FOLLOWING ITEMS ARE ONLY REQUIRED FOR EXISTING PERMITTED FACILITIES.

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

Are you requesting a major amendment of an existing permit? ____ Yes ✓ No
If **yes**, list each specific request and provide discussion on the scope of any requested permit changes.

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

13. MINOR MODIFICATION REQUESTS (Instructions, page 31)

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

If **yes**, list and discuss the requested changes.

14. MINOR AMENDMENT REQUESTS (Instructions, page 31)

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

If **yes**, list and discuss the requested changes.

WORKSHEETS
TO THE INDUSTRIAL WASTEWATER PERMIT APPLICATION TECHNICAL REPORT

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

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

Attachment A: Payment of Application Fee

Attachment B: USGS Site Maps and Facility Map

Attachment C: General Description

Attachment D: Water Balance Diagram

Attachment E: Boiler Chemical Additives

Attachment F: Once-through Cooling Chemical Additives

Attachment G: 40 CFR 122.21 Impacted by 316(b) of Clean Water Act
Design and Engineering Calculations for 316(b) of Clean Water Act

WORKSHEET 1.0 - EPA EFFLUENT CATEGORICAL GUIDELINES

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

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

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

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

Industry	CFR
Steam Electric Power Generating	423

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

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

Subcategory	Actual Quantity/Day	Design Quantity/Day	Units
N/A			

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

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

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

Not Applicable

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

PROCESS WASTEWATER	NON-PROCESS WASTEWATER
low volume waste sources non-chemical metal cleaning wastes	once-through cooling water

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

Process	EPA Guideline		Date Process/Construction Commenced
	Part	Subpart	
low volume waste sources	423	N/A	1990
chemical metal cleaning wastes	423	N/A	1990
once-through cooling water	423	N/A	1990
non-chemical metal cleaning wastes	423	N/A	1990

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854
Worksheet 2.0 – Pollutant Analysis Requirements

Outfall 001 is an external, continuous discharge of non-process wastewater. Complete analytical results for Tables 1 and 5 are provided. Since intermittent treatment of the wastewater with chlorine and/or bromine agents could produce undesirable byproducts, partial analytical results for Tables 2 and 7 are also provided. Grab samples representative of chlorination and/or bromination were used for some of the analyses.

Outfall 002 is an external discharge of non-process wastewater. Complete analytical results for Tables 1 and 5 are provided. Since the discharge to the Safe Shutdown Impoundment is from the Once-through Cooling Intake, partial analytical results for Tables 2 and 7 are also provided. This outfall was not discharging; therefore, the samples are not representative of a discharge (a discharge is not anticipated from Outfall 002).

Outfall 003 is an external discharge of process wastewater; therefore, complete analytical results are provided for Tables 1, 2, 5, and 7.

Outfall 004 is normally an internal outfall although it has an option to be discharged directly to the lake. This option has not been used for several years and presently has a flange installed to avoid use. Outfall 104 is an internal outfall. Since both of these outfalls are internal, no samples were taken.

Outfall 005 is an external outfall for Squaw Creek Reservoir back to Lake Granbury. The outfall has not been used since the plant initiated operation; therefore, no samples were obtained. The quality of any discharge from this outfall would be very similar to Outfall 001.

Pollutant analyses were performed by the following entities:

a. For Outfall 001, Temperature, flow, pH and Total Residual Chlorine (TRC) analyses were performed by Company personnel.
For Outfall 003, Temperature, flow, fecal coliform and pH were performed by Company personnel.

b. For Outfall 001, pH was performed on-site in order to meet the regulatory hold time. For Outfall 003, pH, BOD, fecal coliform, and total suspended solids (TSS) analyses were retrieved from Discharge Monitoring Reports (DMR). The analyses were performed by facility personnel at the on-site laboratory.

c. All other analyses were performed by ERMI Environmental Laboratories, 400 W. Bethany Rd., Suite 190, Allen, Texas 75013, (800) 228-3764.

WORKSHEET 2.0 - POLLUTANT ANANLYSES RQUIREMENTS

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)

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)	26.0	<2.00	<2.10	<2.00	7.3	
CBOD (5-day)	<4.20	2.30	<2.10	<2.20	1.64	
Chemical Oxygen Demand	82.0	61.0	71.0	93.0	76.8	
Total Organic Carbon	6.24	6.41	6.41	7.26	6.58	
Ammonia Nitrogen	<0.2	<0.2	<0.2	<0.2	<0.2	
Total Suspended Solids	7.50	6.50	8.00	3.50	6.38	
Nitrate Nitrogen	<0.1	<0.1	<0.1	<0.1	<0.1	
Total Organic Nitrogen	0.92	1.06	0.70	1.02	0.93	
Total Phosphorus	0.527	0.546	0.499	0.479	0.513	
Oil and Grease	<1.35	<1.28	<1.28	<1.28	<1.35	
Total Residual Chlorine						
Total Dissolved Solids	3540	3610	3120	2700	3243	
Sulfate	450	451	453	427	445	
Chloride	1150	1110	1130	1070	1115	
Fluoride	<0.5	<0.5	<0.5	<0.5	<0.5	
Fecal Coliform	<1	<1	190	<1	48	
Temperature (° F)	105	104	102	104	104	
pH (standard Units; min/max)	8.7	8.7	8.7	8.8	8.7/8.8	
	Effluent Concentration (µg/l)					**MAL (µg/l)**
Total Aluminum	<30	36.07	175.40	54.16	70.16	30
Total Antimony	<30	<30	<30	<30	<30	30
Total Arsenic	<10	<10	<10	<10	<10	10
Total Barium	245.00	230.50	240.50	212.70	232.18	10
Total Beryllium	<5	<5	<5	<5	<5	5
Total Cadmium	<1	<1	<1	<1	<1	1
Total Chromium	<10	<10	<10	<10	<10	10
Trivalent Chromium	<10	<10	<10	<10	<10	N/A
Hexavalent Chromium	<10	<10	<10	<10	<10	10
Total Copper	<10	<10	<10	<10	<10	10
Cyanide	<20	<20	<20	<20	<20	20
Total Lead	<5	<5	<5	<5	<5	5
Total Mercury	<0.2	<0.2	<0.2	<0.2	<0.2	0.2
Total Nickel	<10	<10	<10	<10	<10	10
Total Selenium	<10	<10	<10	<10	<10	10
Total Silver	<2	<2	<2	<2	<2	2.0
Total Thallium	<10	<10	<10	<10	<10	10
Total Zinc	6.2500	8.0800	<5	7.6500	6.1200	5

WORKSHEET 2.0 - POLLUTANT ANANLYSES RQUIREMENTS

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)

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

Outfall No.: 003 ☐ C ☒ G	**Effluent Concentration (mg/l)**					
Pollutants	**Samp. 1**	**Samp. 2**	**Samp. 3**	**Samp. 4**	**Average**	
BOD (5-day)	<2	<2	<2	<2	<2	
CBOD (5-day)	<2.10	<2.10	<2.10	<2.20	<2.10	
Chemical Oxygen Demand	42.0	<20	<20	29.0	22.8	
Total Organic Carbon	7.38	6.29	5.50	5.21	6.10	
Ammonia Nitrogen	<0.2	<0.2	<0.2	<0.2	<0.2	
Total Suspended Solids	3.50	2.50	<4	<2	2.25	
Nitrate Nitrogen	55.6	44.2	35.1	30.9	41.5	
Total Organic Nitrogen	<0.2	<0.2	<0.2	<0.2	<0.2	
Total Phosphorus	8.86	6.75	5.15	3.90	6.17	
Oil and Grease	<1.35	<1.28	<1.28	<1.35	<1.35	
Total Residual Chlorine	<0.050	<0.050	<0.050	<0.050	<0.050	
Total Dissolved Solids	696	686	497	623	626	
Sulfate	38.3	32.0	30.5	38.4	34.8	
Chloride	63.0	52.1	45.7	46.6	51.9	
Fluoride	<0.5	<0.5	<0.5	<0.5	<0.5	
Fecal Coliform	<1	<1	<1	<1	<1	
Temperature (° F)	83	80	94	80	84	
pH (standard Units; min/max)	7.1	7.0	7.6	7.7	7.0/7.7	
	Effluent Concentration (µg/l)					**MAL (µg/l)**
Total Aluminum	<30	<30	<30	<30	<30	30
Total Antimony	<30	<30	<30	<30	<30	30
Total Arsenic	<10	<10	<10	<10	<10	10
Total Barium	53.060	39.700	38.930	38.570	42.565	10
Total Beryllium	<5	<5	<5	<5	<5	5
Total Cadmium	<1	<1	<1	<1	<1	1
Total Chromium	<10	<10	<10	<10	<10	10
Trivalent Chromium	<10	<10	<10	<10	<10	N/A
Hexavalent Chromium	<10	<10	<10	<10	<10	10
Total Copper	20.500	16.140	13.510	10.110	15.065	10
Cyanide	<20	<20	<20	<20	<20	20
Total Lead	<5	<5	<5	<5	<5	5
Total Mercury	<0.2	<0.2	<0.2	<0.2	<0.2	0.2
Total Nickel	<10	<10	<10	<10	<10	10
Total Selenium	<10	<10	<10	<10	<10	10
Total Silver	<2	<2	<2	<2	<2	2.0
Total Thallium	<10	<10	<10	<10	<10	10
Total Zinc	130.70	77.380	62.110	21.610	72.95	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 discharge commingled with other wastestreams shall complete the table as instructed (Instructions, Page 34).

Outfall No.: 001 ☐ C ☒ G	**Effluent Concentration (mg/l)**					
Pollutants	**Samp. 1**	**Samp. 2**	**Samp. 3**	**Samp. 4**	**Average**	**MAL (µg/l)**
Benzene	<10	<10	<10	<10	<10	10
Benzidine						50
Benzo(a)anthracene						10
Benzo(a)pyrene						10
Carbon Tetrachloride	<10	<10	<10	<10	<10	10
Chlorobenzene	<10	<10	<10	<10	<10	10
Chloroform	<10	<10	<10	<10	<10	10
Chrysene						10
Cresols						(*2)
Dibromochloromethane	<10	<10	<10	<10	<10	10
1,2-Dibromoethane	<2	<2	<2	<2	<2	2
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	10
1,2-Dichloroethane	<10	<10	<10	<10	<10	10
1,1-Dichloroethylene	<10	<10	<10	<10	<10	10
Fluoride	<500	<500	<500	<0.5	<500	500
Hexachlorobenzene						10
Hexachlorobutadiene						10
Hexachloroethane	<20	<20	<20	<20	<20	20
Methyl Ethyl Ketone (2-Butanone)	<50	<50	<50	<50	<50	50
Nitrobenzene						10
n-Nitrosodiethylamine						20
n-Nitroso-di-n-Butylamine						20
PCB's (total by calculation)						1
Pentachlorobenzene						20
Pentachlorophenol						50
Phenanthrene						10
Pyridine						20
1,2,4,5-Tetrachlorobenzene						20
Tetrachloroethylene	<10	<10	<10	<10	<10	10
Trichloroethylene	<10	<10	<10	<10	<10	10
1,1,1-Trichloroethane	<10	<10	<10	<10	<10	10
2,4,5-Trichlorophenol						50
TTHM (Total Trihalomethanes)	<10	<10	<10	18.30	8.325	10
Vinyl Chloride	<10	<10	<10	<10	<10	10

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

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

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

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 discharge commingled with other wastestreams shall complete the table as instructed (Instructions, Page 34).

Outfall No.: 003 ☐ C ☒ G	**Effluent Concentration (mg/l)**					
Pollutants	**Samp. 1**	**Samp. 2**	**Samp. 3**	**Samp. 4**	**Average**	**MAL (µg/l)**
Benzene	<10	<10	<10	<10	<10	10
Benzidine	<50	<50	<50	<50	<50	50
Benzo(a)anthracene	<10	<10	<10	<10	<10	10
Benzo(a)pyrene	<10	<10	<10	<10	<10	10
Carbon Tetrachloride	<10	<10	<10	<10	<10	10
Chlorobenzene	<10	<10	<10	<10	<10	10
Chloroform	<10	<10	<10	<10	<10	10
Chrysene	<10	<10	<10	<10	<10	10
Cresols	<10	<10	<10	<10	<10	(*2)
Dibromochloromethane	<10	<10	<10	<10	<10	10
1,2-Dibromoethane	<2	<2	<2	<2	<2	2
1,4-Dichlorobenzene	<10	<10	<10	<10	<10	10
1,2-Dichloroethane	<10	<10	<10	<10	<10	10
1,1-Dichloroethylene	<10	<10	<10	<10	<10	10
Fluoride	<500	<500	<500	<500	<500	500
Hexachlorobenzene	<10	<10	<10	<10	<10	10
Hexachlorobutadiene	<10	<10	<10	<10	<10	10
Hexachloroethane	<20	<20	<20	<20	<20	20
Methyl Ethyl Ketone (2-Butanone)	<50	<50	<50	<50	<50	50
Nitrobenzene	<10	<10	<10	<10	<10	10
n-Nitrosodiethylamine	<20	<20	<20	<20	<20	20
n-Nitroso-di-n-Butylamine	<20	<20	<20	<20	<20	20
PCB's (total by calculation)	<1	<1	<1	<1	<1	1
Pentachlorobenzene	<20	<20	<20	<20	<20	20
Pentachlorophenol	<50	<50	<50	<50	<50	50
Phenanthrene	<10	<10	<10	<10	<10	10
Pyridine	<20	<20	<20	<20	<20	20
1,2,4,5-Tetrachlorobenzene	<20	<20	<20	<20	<20	20
Tetrachloroethylene	<10	<10	<10	<10	<10	10
Trichloroethylene	<10	<10	<10	<10	<10	10
1,1,1-Trichloroethane	<10	<10	<10	<10	<10	10
2,4,5-Trichlorophenol	<50	<50	<50	<50	<50	50
TTHM (Total Trihalomethanes)	<10	<10	<10	<10	<10	10
Vinyl Chloride	<10	<10	<10	<10	<10	10

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

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

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

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

a. **TRIBUTYLTIN:**

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

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

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

b. **ENTEROCOCCI**

Does your facility or will your proposed facility discharge directly into saltwater receiving waters?
_____ Yes __✓__ No

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

TABLE 3

Outfall No.: ☐C ☐G	**Effluent Concentration (µg/l)**					
Pollutants	**Samp. 1**	**Samp. 2**	**Samp. 3**	**Samp. 4**	**Average**	**MAL (µg/l)**
Tributyltin						0.010
Enterococci						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 38)

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

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						0.09
Endosulfan I (alpha)						0.1
Endosulfan II (beta)						0.1
Endosulfan Sulfate						0.1
Endrin						0.1
Gamma - Hexachlorocyclohexane (Lindane)						0.05
Guthion						0.10
Heptachlor						0.05
Heptachlor Epoxide						1.0
Hexachlorophene						10
Malathion						0.10
Methoxychlor						2.0
Mirex						0.2
Parathion						0.1
Toxaphene						5
2,4,5-TP (Silvex)						2

* Indicate units if different from mg/L.

5. **TABLE 5:** Complete table required for all external outfalls. Not required for internal outfalls. (Instructions, Page 35)

Table 5

Outfall No.: 001 C ☐ G ☒	**Believed Present**	**Believed Absent**	**Effluent Concentration (mg/l)**		
Pollutants			**Average**	**Maximum**	**No. of Samples**
Bromide	X		6.99		1
Color (PCU)	X		10		1
Nitrate-Nitrite(as N)		X	<1		1
Sulfide(as S)		X	<2		1
Sulfite(as SO_1)		X	<9		1
Surfactants		X	<0.2		1
Total Antimony		X	<30		1
Total Beryllium		X	<5		1
Total Boron	X		0.549		1
Total Cobalt		X	<0.005		1
Total Iron		X	<0.074		1
Total Magnesium	X		60.1		1
Total Molybdenum		X	<0.025		1
Total Manganese	X		<0.025		1
Total Thallium		X	<10		1
Total Tin		X	<0.015		1
Total Titanium		X	<0.025		1

5. **TABLE 5:** Complete table required for all external outfalls. Not required for internal outfalls. (Instructions, Page 35)

Table 5

Outfall No.: 003 ☐ ☒	**Believed Present**	**Believed Absent**	**fluent Concentration (mg**		
Pollutants			**Average**	**Maximum**	**No. of Samples**
Bromide		X	<0.1		1
Color (PCU)	X		75		1
Nitrate-Nitrite(as N)	X		55.6		1
Sulfide(as S)		X	<2		1
Sulfite(as SO_1)		X	<9		1
Surfactants	X		<0.2		1
Total Antimony		X	<30		1
Total Beryllium		X	<5		1
Total Boron	X		<0.27		1
Total Cobalt		X	<0.005		1
Total Iron		X	<0.074		1
Total Magnesium	X		9.95		1
Total Molybdenum	X		<0.025		1
Total Manganese	X		<0.025		1
Total Thallium		X	<10		1
Total Tin		X	<0.015		1
Total Titanium		X	<0.025		1

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

_____N/A	GC/MS Testing Required			
	Volatile	**Acid**	**Base/Neutral**	**Pesticides**
_____ Adhesives and Sealants	Yes ☐	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	Yes ✓	Yes ✓	No	No
_____ Textile Mills (Not Subpart C)	Yes ☐	Yes ☐	Yes ☐	No
_____ Timber Products Processing	Yes ☐	Yes ☐	Yes ☐	Yes ☐

* Test if "believed present"

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 (Instruction, Page 36).

Table 7

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

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

	Effluent Concentration (µg/l)*			
Pollutants	**Average**	**Maximum**	**No. of Samples**	**MAL(µg/l)**
BASE/NEUTRAL COMPOUNDS (con.)				
2,6-Dinitrotoluene			1	10
Di-n-Octyl Phthalate			1	10
1,2-Diphenyl Hydrazine (as Azobenzene)			1	20
Fluoranthene			1	10
Fluorene			1	10
Hexachlorobenzene			1	10
Hexachlorobutadiene			1	10
Hexachlorocyclopentadiene			1	10
Hexachloroethane			1	20
Indeno(1,2,3-cd)pyrene			1	20
Isophorone			1	10
Naphthalene			1	10
Nitrobenzene			1	10
N-Nitrosodimethylamine			1	50
N-Nitrosodi-n-Propylamine			1	20
N-Nitrosodiphenylamine			1	20
Phenanthrene			1	10
Pyrene			1	10
1,2,4-Trichlorobenzene			1	10
PESTICIDES				
Aldrin			1	0.05
alpha-BHC			1	0.05
beta-BHC			1	0.05
gamma-BHC			1	0.05
delta-BHC			1	0.05
Chlordane			1	0.15
4,4,-DDT			1	0.1
4,4,-DDE			1	0.1
4,4,-DDE			1	0.1
Dieldrin			1	0.1
alpha-Endosulfan			1	0.1
beta-Endosultan			1	0.1
Endosulfan Sulfate			1	0.1
Endrin			1	0.1
Endrin Aldehyde			1	0.1
Heptachlor			1	0.05
PCB-1254			1	1.0
PCB-1221			1	1.0
PCB-1232			1	1.0
PCB-1248			1	1.0
PCB-1260			1	1.0
PCB-1016			1	1.0
Toxaphene			1	5.0

* **Indicate units if different from mg/l**

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 (Instruction, Page 36).

Table 7

Outfall No.: 003 C ☐ G ☒	Effluent Concentration (µg/l)*			
Pollutants	**Average**	**Maximum**	**No. of Samples**	**MAL(µg/l)**
VOLATILE COMPOUNDS				
Acrolein	<50		1	50
Acrylonitrile	<50		1	50
Benzene	<10		1	10
Bromoform	<10		1	10
Carbon Tetrachloride	<10		1	10
Chlorobenzene	<10		1	10
Chlorodibromomethane	<10		1	10
Chloroethane	<50		1	50
2-Chloroethylvinyl Ether	<10		1	10
Chloroform	<10		1	10
Dichlorobromomethane	<10		1	10
1,1-Dichloroethane	<10		1	10
1,2-Dichloroethane	<10		1	10
1,1-Dichloroethylene	<10		1	10
1,2-Dichloropropane	<10		1	10
1,3-Dichloropropylene	<10		1	10
Ethylbenzene	<10		1	10
Methyl Bromide	<20		1	20
Methyl Chloride	<50		1	50
Methylene Chloride	<20		1	20
1,1,2,2-Tetrachloroethane	<10		1	10
Tetrachloroethylene	<50		1	50
Toluene	<10		1	10
1,2-Trans-Dichloroethylene	<10		1	10
1,1,1-Trichloroethane	<10		1	10
1,1,2-Trichloroethane	<10		1	10
Trichloroethylene	<10		1	10
Vinyl Chloride	<10		1	10

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

	Effluent Concentration (µg/l)*			
Pollutants	Average	Maximum	No. of Samples	MAL(µg/l)
BASE/NEUTRAL COMPOUNDS (con.)				
2,6-Dinitrotoluene			1	10
Di-n-Octyl Phthalate			1	10
1,2-Diphenyl Hydrazine (as Azobenzene)			1	20
Fluoranthene			1	10
Fluorene			1	10
Hexachlorobenzene			1	10
Hexachlorobutadiene			1	10
Hexachlorocyclopentadiene			1	10
Hexachloroethane			1	20
Indeno(1,2,3-cd)pyrene			1	20
Isophorone			1	10
Naphthalene			1	10
Nitrobenzene			1	10
N-Nitrosodimethylamine			1	50
N-Nitrosodi-n-Propylamine			1	20
N-Nitrosodiphenylamine			1	20
Phenanthrene			1	10
Pyrene			1	10
1,2,4-Trichlorobenzene			1	10
PESTICIDES				
Aldrin			1	0.05
alpha-BHC			1	0.05
beta-BHC			1	0.05
gamma-BHC			1	0.05
delta-BHC			1	0.05
Chlordane			1	0.15
4,4,-DDT			1	0.1
4,4,-DDE			1	0.1
4,4,-DDE			1	0.1
Dieldrin			1	0.1
alpha-Endosulfan			1	0.1
beta-Endosultan			1	0.1
Endosulfan Sulfate			1	0.1
Endrin			1	0.1
Endrin Aldehyde			1	0.1
Heptachlor			1	0.05
PCB-1254			1	1.0
PCB-1221			1	1.0
PCB-1232			1	1.0
PCB-1248			1	1.0
PCB-1260			1	1.0
PCB-1016			1	1.0
Toxaphene			1	5.0

* **Indicate units if different from mg/l**

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

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

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

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

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.

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

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, Pages 41)

a. Are there any pollutants listed in the instructions (page 41) 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

WORKSHEET 4.0 - RECEIVING WATERS

THE FOLLOWING IS REQUIRED FOR ALL TPDES PERMIT APPLICATIONS

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

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

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

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

Not Applicable

a. Width of the receiving water at the outfall? _____ feet

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

If yes, indicate approximate distance and direction from outfall(s):_____

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: _____

3. CLASSIFIED SEGMENT (Instructions, Page 54)

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, Page 55)

Name of the immediate receiving waters: **Squaw Creek Reservoir (For Outfalls 001, 002, 003, 004)**

a. Check the appropriate description of the receiving waters

_____ Man-made Channel or Ditch
_____ Stream or creek
✓ Lake or Pond
Surface area **3,300** acres. Average depth of the entire water body **46** feet
Average depth of water body within a 500-foot radius or the discharge point **25** feet
_____ Freshwater Swamp or Marsh
_____ Tidal Stream, Bayou, or Marsh
_____ Open Bay
_____ Other: _____

If a man-made channel, ditch or stream was checked above, provide the following: **Not Applicable**

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

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

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

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

Squaw Creek

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:

Changes from a reservoir to a stream.

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

Normal lake conditions

Date and time of observation: **July 31, 2007 10:30 am**

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

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

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

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

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

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

_____ Wilderness: outstanding natural beauty; usually wooded or unpastured area: water clarity exceptional
__✓__ Natural Area: trees and/or native vegetation common; some development evident (from fields, pastures,dwellings); water clarity discolored
____ Common Setting: not offensive, developed but uncluttered; water may be colored or turbid
_____ Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored

WORKSHEET 5.0 - SEWAGE SLUDGE MANAGEMENT AND DISPOSAL

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

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

a. Is this a new permit application or an amendment permit application? _____ Yes __✓__ No

b. Does the facility discharge in the Lake Houston watershed? _____ Yes __✓__ No

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

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

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

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

b. Disposal site name, TCEQ Permit/Registration Number and County where disposal site is located:
CSC in Avalon, Ellis County, TX Permit No. TXD000836585

c. Method of Transportation (truck, train, pipe, other) and hauler Registration Number:
Truck, Registration No. 34529

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

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

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

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

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

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

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

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

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

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

WORKSHEET 11.0 – COOLING WATER INTAKE STRUCTURES

REQUIRED FOR ALL INDIVIDUAL TPDES PERMIT APPLICATIONS FOR:

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

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

1. Phase I Facilities

a. Applicability

Please answer the following:

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

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

b. Compliance Alternative **Not Applicable**

Please indicate the compliance alternative selected for this facility.

	Compliance Alternative	Selected
i.	Track I, facilities withdrawing ≥ 10 MGD	
ii.	Track I, facilities withdrawing ≥ 2 MGD and <10 MGD	
iii.	Track II	

c. Application Requirements **Not Applicable**

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

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

316(b) Phase I Compliance Demonstration Requirements

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

[1] The Design and Construction Technology Plan is required ONLY where:

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

OR

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

OR

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

2. Phase II Facilities

a. Applicability

Please answer the following:

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

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

b. Compliance Alternative **(See Notes 1, 2)**

Please indicate the compliance alternative selected for this facility.

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

c. Application Requirements **(See Notes 1, 2)**

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

Note 1: Information required by 2.b and 2.c will be submitted at a later date along with the Comprehensive Demonstration Study where required by 40 CFR Part 125 Subpart J per TCEQ instructions.

Note 2: The wastewater permit was issued and the cooling water intake structure was constructed prior to January 17, 2002.

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

316(b) Phase II Compliance Demonstration Requirements

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

[1]This compliance alternative demonstrates compliance with impingement performance standards only. Where entrainment performance standards are applicable, please also select a separate compliance alternative for entrainment and submit all applicable data.
[2]The PIC is submitted ONLY where a FINAL PIC has not been previously submitted to the TCEQ.
[3]The Restoration Plan is submitted ONLY where the facility proposes restoration measures.
[4]The Verification Monitoring Plan is submitted ONLY where the facility proposes design and construction technologies and/or operational measures.

Attachment A

Payment Of Application Fee

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Administrative Report

Luminant

Mike Blevins Luminant Power

(Via Certified Mail)7005 2570 0000 8283 8975

August 24, 2007

Log #: TXX07129

Texas Commission on Environmental Quality
Revenues Section (MC 214)
P.O. Box 13088
Austin, Texas 78711-3087

Re: Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854
Permit Renewal Application Fee

Dear Sir or Madam:

In accordance with the rules and regulations of the Texas Commission on Environmental Quality (TCEQ), TXU Generation Company LP (d.b.a. Luminant Power) hereby submits a permit renewal application fee in the amount of $2,015.00 for the renewal of the Comanche Peak Nuclear Power Plant TPDES Permit No. 01854. The permit application is planned for submittal on or before September 1, 2007.

TXU Corp's power generation and related businesses are in the process of changing names to "Luminant". TXU has submitted assumed name filings or "DBAs" that enable us to use the new Luminant names, however we have not yet filed legal name changes for the subsidiaries with the Secretary of State. We will promptly submit permit owner/operator name changes once the legal entity name changes are filed with the Secretary of State.

Per TCEQ rules and regulations, the permit application will be submitted to the Permits Administrative Review Section (MC 161), Water Quality Applications Team. If you have questions, please contact Jennifer Bunting at 214.812.5659 or via e-mail at jbuntin1@txu.com.

Sincerely,

Mike Blevins

Mike Blevins

By: Gerald R. Johnson

Attachment(s)

Attachment B

USGS SITE MAPS
AND FACILITY MAP

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Administrative Report
Technical Report

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

"HILL CITY QUADRANGLE, TEXAS"
N3215-W9745/7.5

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

D-04

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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"NEMO, QUADRANGLE TEXAS"
N3215-W9737,5/7.5

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D-05

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

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"FACILITY MAP"

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D-06

Attachment C

General Description

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Technical Report

TXU GENERATION COMPANY LP
COMANCHE PEAK NUCLEAR POWER PLANT
GENERAL DESCRIPTION

The Comanche Peak Nuclear Power Plant (Comanche Peak N.P.P.) is a two-unit nuclear-powered steam electric generating facility owned and operated by TXU Generation Company LP (TXU Generation). The facility is located on the west side of Squaw Creek Reservoir along HWY 56 approximately four and a half (4.5) miles northwest of the city of Glen Rose, Somervell County, Texas. Wastewaters are discharged to Squaw Creek Reservoir, thence to Squaw Creek, thence to the Paluxy River in Segment No. 1229 of the Brazos River Basin; or to Squaw Creek Reservoir, thence to Lake Granbury in Segment No. 1205 of the Brazos River Basin. Squaw Creek Reservoir is the source of all water used for cooling and industrial use. When needed, make-up water is provided to the reservoir via a pipeline from nearby Lake Granbury. Potable water is obtained from groundwater and is delivered by Company-owned on-site wells.

The generating capacity and date of initial commercial operation for each generating unit are as follows:

Unit	Capacity (MW)	Date
1	1150	1990
2	1150	1993

Wastewaters produced at the plant site are collected, treated and discharged via six (6) permitted outfalls. TXU Generation's operating procedures and wastewater handling practices are designed both to comply with all applicable environmental regulations and to provide operational flexibility wherever practical.

The Company is aware of an increased potential for macroinvertebrate invasion of any plant water system. In the event of such occurrence, the Company is prepared to treat its water on a static or flow through basis with the following non-oxidizing biocide: Buckman Bulab 6002 Poly[oxyethylene(dimethyliminio)ethylene(dimethyiminio)ethylene dichloride] or GE Betz Spectrus CT-1300 [N-alkyldimethylbenzylammonium chloride (Quat); dodecylguanidine hydrochloride (DGH); ethylene glycol; isopropanol; ethanol].

The six (6) permitted outfalls are listed below and a description of the wastewater system pertinent to each outfall follows:

Outfall	Type of Wastewater
001	Once-through and auxiliary cooling water/previously monitored effluents
002	Safe Shutdown Impoundment containing cooling water, low volume wastes (service water), and stormwater runoff
003	Sanitary sewage effluent
004	Low volume wastewater/previously monitored effluents
005	Reservoir discharge
104	Metal cleaning wastes

Outfall 001 (Once-through and Auxiliary Cooling)

Water from Squaw Creek Reservoir is withdrawn at the intake structure, treated chemically and then passed through the main condensers or auxiliary heat exchange equipment to condense steam or cool system components. The intake water is treated with sodium hypochlorite to prevent biofouling and sodium bromide as a chlorine enhancer to improve the hypochlorite conversion and thereby reduce sodium hypochlorite feed rates. Application of these substances is intermittent and does not exceed the regulatory maximum frequency of two hours/unit/day. A mixture of hydroxyethylidine diphosphoric acid (HEDP)/ phosphoric acid/ polyacrylic acid is also added as a corrosion/scale inhibitor. This "once-through" cooling water, elevated in temperature by the cooling process, and previously monitored effluents from Outfalls 004 and 104 are then discharged via Outfall 001 back to the reservoir through a submerged discharge structure. A small slipstream, approximately 18.7 MGD, can be diverted through an opened valve for discharge to the Safe Shutdown Impoundment (SSI) to provide make-up and flow to this structure (see Outfall 002).

Outfall 002 (Safe Shutdown Impoundment)

The Safe Shutdown Impoundment (SSI) is a safety component of the facility required by the Nuclear Regulatory Commission (NRC) to provide a source of emergency cooling water for safe reactor shutdown in the unlikely event of a failure of the Squaw Creek Reservoir dam. This 367 acre-foot impoundment was created by constructing an earthen dam across an arm of the reservoir. The SSI and reservoir are connected by an equalization channel and an underwater weir (top elevation 769.5 ft MSL) located immediately southwest of the SSI dam. Outfall 002 is located in this channel; discharge occurs whenever there is a net flow of water into the SSI. This net flow will normally be achieved by diverting approximately 18.7 MGD of condenser cooling water as makeup to the SSI, if necessary. To date, this diversion of cooling water has not been necessary. Storm water runoff from portions of the plant area and surrounding undeveloped area, including small construction sites within this drainage area, also contributes water to this impoundment; however, this does not constitute a discharge of the Outfall because a similar quantity of runoff enters the reservoir on the other side of the equalization channel. Therefore, a storm event does not create a discharge of the SSI.

The Service Water System provides once-through cooling to plant components designated as safety-related reactor support systems by the NRC. To assure the availability of this cooling water under emergency conditions, the water must be extracted from the SSI; it is then circulated through reactor support components and is discharged back to the SSI. NRC regulations require treatment of this safety-related auxiliary cooling system at the Service Water System intake structure to assure its reliability. Treatment consists of Buckman Bulab 6002 {Poly [oxyethylene (dimethyliminio) ethylene (dimethyliminio) ethylene dichloride]} as a non-oxidizing biocide; sodium hypochlorite as a biocide; sodium bromide as chlorine enhancer to improve sodium hypochlorite conversion and thereby reduce sodium hypochlorite feed rates; and a coordinated system of hydroxyethylidine diphosphoric acid/ orthophosphate/ polyacrylate or polyacrylate co-polymer as a corrosion and deposition inhibitor.

Outfall 003 (Sanitary Sewage Effluent)

Domestic waste is received from Plant potable water systems and is discharged from a normal 0.090 MGD capacity treatment facility that employs the extended aeration, activated sludge return process for treatment of domestic sanitary sewage. The facility is designed as a single, integral, above ground installation consisting of a surge basin, grinder pumps, aeration basin, circular clarifier, aerobic digester and a sludge holding basin. Treated effluent is routed through an ultraviolet disinfection unit to a 3500 gallon contact chamber, then through a V-notch weir to the final discharge. Sludge from the sludge holding basin is transferred to a sludge dewatering facility for volume reduction. Dewatering is achieved by gravity flow through porous bags that retain solids while allowing filtrate to be returned to the domestic waste treatment process. All dewatered sludge is collected on-site in containment bins, then hauled to an industrial landfill for final disposal.

Outfall 004 (Low Volume Wastes)

Certain low volume wastes may become contaminated with low level radioactive material. These wastes must comply with both TCEQ-TPDES effluent limitations and the limitations imposed by the NRC. As a result, two separate low volume waste treatment systems are employed; as described below, one system is dedicated to the treatment of these potentially radioactive wastes and the other treats wastes generated from non-radioactive low volume sources.

The potentially low level radioactive low volume wastes are principally composed of wastewater from **primary support systems** which include equipment, floor, laboratory and sample drains, as well as the periodic drainage of various system components. These wastes are collected in holding tanks and are then processed, as necessary, to meet limitations imposed by the NRC Off-Site Dose Calculation Manual (ODCM) and TPDES, respectively. Treated effluent is collected in a monitoring tank where it is sampled and analyzed for compliance with both TPDES effluent limitations and the NRC ODCM for radioactive parameters. The monitored wastes are then batch discharged via Outfall 004 into the condenser cooling water. The discharge of these potentially low-level radioactive low volume wastes into the condenser cooling water is a practice approved by the NRC.

The non-radioactive low volume wastes from **secondary support systems** include equipment, floor, laboratory, and sample drains; water treatment wastes from demineralizer regeneration, reverse osmosis (R.O.) systems operation, condensate polisher system and other miscellaneous water treatment blowdown and backwash operations; periodic drainage and flushing of various system components; and intermittent boiler blowdown from the plant's auxiliary boiler. The R.O. system requires periodic membrane cleaning operations which may include the use of Buckman Bulab 6013 (potassium dimethyldithiocarbamate) and Buckman Bulab 6042 (2,2-dibromo-3-nitrilopropionamide) biocides. No detectable residual biocide would be expected to remain in the effluent from the WMS. These low volume wastes and the previously monitored wastes discharged from Outfall 104 are routed to a low volume Waste Management System (WMS) and discharged via Outfall 004. The WMS consists of the

following components: surge basin, API oil/water separator, clarifier blowdown and condensate polisher decant basin, three separate but interconnected low volume waste retention ponds with double synthetic liners and leachate collection systems, and a synthetic lined concrete equalization basin. The complete WMS provides for oil and grease removal, suspended solids reduction through settling and the addition of polymer, and pH control through addition of acid or caustic.

The treated non-radioactive low volume wastes are normally commingled with the wastes which are potentially low level radioactive and are discharged via Outfall 004 to the condenser cooling water; the commingled waste stream is sampled prior to mixing with the cooling water for compliance with the appropriate effluent limitations. An alternative practice, which has been utilized only on rare occasions, is to discharge the treated non-radioactive wastes via Outfall 004 directly to Squaw Creek Reservoir; this approach produces two separately discharging waste streams. Appropriate physical or mathematical flow-weight compositing is then employed for determining and reporting compliance with Outfall 004 limitations.

In addition to the low volume wastes described above, some storm water runoff may be discharged via this outfall. This consists of runoff from diked chemical storage areas and transformers, as well as small construction sites, which is loaded into tanker trucks and transported to the Outfall 004 discharge location.

Outfall 005 (Reservoir Discharge)

This outfall is designed to discharge water from Squaw Creek Reservoir via a pipeline to Lake Granbury on an "as needed" basis. The return of reservoir water to Lake Granbury is currently anticipated. To date, there have been no discharges from this outfall.

Outfall 104 (Metal Cleaning Wastes)

A metal cleaning waste pond has been dedicated for the storage and treatment of metal cleaning wastes. Metal cleaning wastes are generated by the chemical cleaning of plant equipment and are evaluated for treatment prior to their collection and retention in the pond. Unsuitable wastes are treated and/or disposed by alternative methods; e.g., off-site contract disposal.

Wastewater in the pond, as well as treatable metal cleaning wastes which might be collected in temporary facilities (frac tanks), is treated for metals and pH adjustment prior to discharge via Outfall 104 to the Low Volume Waste Ponds associated with Outfall 004. The treated wastes so discharged will be commingled as a previously monitored effluent with the non-radioactive low volume wastes prior to discharge via Outfall 004.

Attachment D

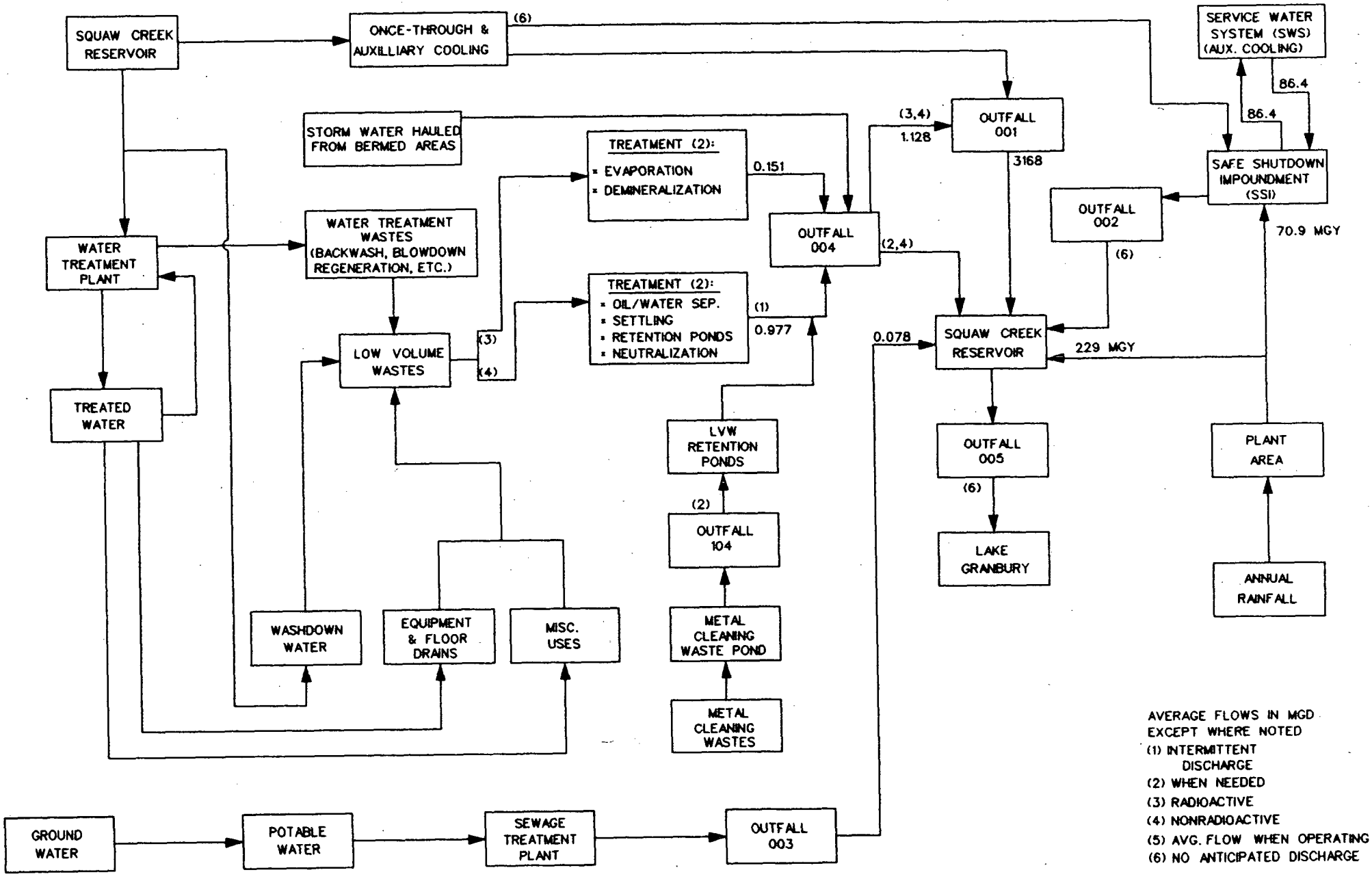
Water Balance Diagram

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Technical Report

TXU GENERATION COMPANY LP

COMANCHE PEAK NUCLEAR POWER PLANT
WATER BALANCE DIAGRAM
AUGUST 2007



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Attachment E

Boiler Chemical Additives

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Technical Report

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Auxiliary Boiler Chemical Additives

a. Manufacturers Product Identification Number: **Hydrazine**

b. Product Use: **Oxygen scavenger**

c. Chemical Composition: **See attached data sheets**

d. Classification (non-persistent, persistent or bioaccumulative): **Non-persistent**

e. Product or active ingredient half-life: **Not Available**

f. Frequency of product use: **Once or twice per year**

g. Product toxicity data: **See attached data sheets**

h. Concentration of whole product or active ingredient in wastestream: **Not Available**

i. Outfall: **004**

Bayer

MATERIAL SAFETY DATA SHEET

R017283

BAYER CHEMICALS CORPORATION
PRODUCT SAFETY & REGULATORY AFFAIRS
100 Bayer Road
Pittsburgh, PA 15205-9741

TRANSPORTATION EMERGENCY		NON-TRANSPORTATION	
CALL CHEMTREC:	800-424-9300	BAYER EMERGENCY PHONE...:	(412) 923-1800
INTERNATIONAL:	703-527-3887	BAYER INFORMATION PHONE.:	(800) 662-2927

1. CHEMICAL PRODUCT IDENTIFICATION:

PRODUCT NAME.....: Certified Hydrazine 35 %
PRODUCT CODE.....: V135
CHEMICAL FAMILY.....: Diamines
CHEMICAL NAME.....: Hydrazine
SYNONYMS.....: 54.7 % Hydrazine Hydrate; Aqueous Hydrazine Solution; Diamide Hydrate
FORMULA.....: $N_2H_4.H_2O$

2. COMPOSITION/INFORMATION ON INGREDIENTS:

INGREDIENT NAME /CAS NUMBER	EXPOSURE LIMITS		CONCENTRATION (%)
***** HAZARDOUS INGREDIENTS *****			
Hydrazine 302-01-2	OSHA :	1.00 ppm TWA - Skin	Approx. 35 %
		1.30 mg/m3 TWA - Skin	
	ACGIH:	.01 ppm TWA - Skin	
		.013 mg/m3 TWA - Skin	

3. HAZARDS IDENTIFICATION:

EMERGENCY OVERVIEW

WARNING! Toxic; Color: Colorless to slightly yellow; Form: Liquid; Odor: Ammonia like (fishy); May cause eye, skin, and respiratory tract irritation; Harmful if inhaled or ingested; May cause allergic skin reaction; May be fatal

Continued on next page

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* if absorbed through skin; May cause liver damage; May cause    *
* kidney damage; May affect nervous system; May cause lung       *
* damage; May cause blood disorders; May cause cancer based on   *
* animal data; Sudden reaction and fire may result when mixed    *
* with oxidizing agents; Use cold water spray to cool            *
* fire-exposed containers to minimize the risk of rupture;       *
* Toxic gases/fumes are given off during burning or thermal      *
* decomposition.                                                 *
*****************************************************************
```

POTENTIAL HEALTH EFFECTS:

ROUTE(S) OF ENTRY.....: Inhalation; Eye Contact; Skin Contact; Skin Absorption

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE:

ACUTE INHALATION.....: In sufficient concentrations, hydrazine vapors will cause irritation to the upper respiratory tract. Symptoms may include coughing, sore throat, dizziness and nausea.

CHRONIC INHALATION.....: Repeated or prolonged inhalation of hydrazine may lead to liver and kidney damage, hemolysis (destruction) of red blood cells, and pneumonia.

ACUTE SKIN CONTACT.....: Direct skin contact with this product may cause local irritation resulting in possible symptoms such as discomfort, itching, reddening and swelling. Hydrazine can be absorbed through the skin. Extensive skin contamination may result in fatal or near fatal consequences due to hepatic (liver) effects, central nervous system effects or other systemic effects.

CHRONIC SKIN CONTACT.....: Prolonged or repeated skin contact may cause dermatitis (inflammation) in the form of erythema (reddening of the skin), blistering or eczema-like (dermatitis) rash. Absorption of hydrazine may lead to liver and kidney damage and hemolysis of red blood cells. Some individuals have exhibited allergic skin reactions which disappear when removed from exposure to hydrazine.

ACUTE EYE CONTACT.....: Direct eye contact with hydrazine causes irritation. Possible symptoms may include discomfort, reddening and tearing. Severe eye exposure to hydrazine vapors has been reported to cause temporary blindness, lasting for as long as twenty-four (24) hours. Eye irritation may be delayed following exposure to hydrazine vapors.

ACUTE INGESTION.....: Hydrazine is irritating to the mucous membranes. Hydrazine is toxic by ingestion. Ingestion can result in fatal to near fatal consequences due to hepatic (liver) damage, central nervous system effects or other systemic effects.

CHRONIC INGESTION.....: Repeated or prolonged absorption of hydrazine into the body may lead to liver and kidney damage and hemolysis of red blood cells.

OTHER EFFECTS OF EXPOSURE.....: While hydrazine is known to be an animal carcinogen, no link has been established to cancer in humans. In an epidemiology study of hydrazine manufacturing workers covering more than thirty (30) years has found no unusual excess of cancer. (1)

Continued on next page

3. HAZARDS IDENTIFICATION (Continued)

CARCINOGENICITY

NTP.....: Hydrazine is listed as a Substance Reasonably Anticipated to be Carcinogenic in the National Toxicology Program (NTP) Seventh Annual Report on Carcinogens, 1994.

IARC.....: Hydrazine is listed by the International Agency for Research on Cancer (IARC) as Group 2B, Possible Human Carcinogen; human evidence inadequate, animal evidence sufficient.

OSHA.....: Not regulated.

OTHER.....: Based on the results of animal studies, the ACGIH has listed hydrazine in appendix A3, Confirmed Animal Carcinogen with Unknown Relevance to Humans in the ACGIH Threshold Limit Values for 1998.

MEDICAL CONDITIONS

AGGRAVATED BY EXPOSURE.....: Persons with preexisting eye, skin or respiratory tract, or impaired liver and/or kidney function conditions may be more susceptible to the effects of this chemical.

EXPOSURE LIMITS.....: Refer to Section 2.

1 Br. J. Ind. Med. 41, 31-34.

4. FIRST AID MEASURES:

FIRST AID FOR EYES.....: Flush the eyes with large amounts of running water at room temperature for at least 15 minutes and see a physician, preferably an ophthalmologist, immediately.

FIRST AID FOR SKIN.....: Wash immediately with cool, running water while removing contaminated clothing and shoes. Avoid using hot water and hard rubbing. Consult a physician, particularly if exposure is extensive, prolonged, or irritation persists after washing. Wash contaminated clothing thoroughly before reuse.

FIRST AID FOR INHALATION: Persons acutely overexposed to hydrazine vapors should be removed from the contaminated environment as quickly as possible by properly protected rescue personnel. Trained persons can administer oxygen to ease breathing. Consult a physician immediately.

FIRST AID FOR INGESTION.: Accidental ingestion of hydrazine solutions should be treated by taking large amounts of water. Never give anything by mouth to an unconscious person. Inducing vomiting is indicated in conscious patients, especially when there has been ingestion within the last thirty (30) minutes. A physician should be contacted immediately.

NOTE TO PHYSICIAN.....: There are no definitive antidotes for hydrazine exposure. Physicians should treat exposed persons symptomatically. Overexposed persons should be closely observed for symptoms of central nervous system involvement, respiratory irritation, bronchitis or edema, and treat accordingly. Parenteral pyridoxine administration has been used by some physicians to treat patients suffering acute central nervous system effects. (In one reported case, following pyridoxine administration parenterally, there was a rapid reversal of coma in 4 hours in a patient who had been comatose for over 60 hours.)

Continued on next page

5. FIRE FIGHTING MEASURES:

FLASH POINT.....: Greater than 212 F (100 C); DIN 51758 (PMCC).
FLAMMABLE LIMITS:
UPPER EXPLOSIVE LIMIT (UEL)(%): 83.4 % by volume in air at 1000 mbar
LOWER EXPLOSIVE LIMIT (LEL)(%): 9.3 % by volume in air at 1000 mbar
AUTO-IGNITION TEMPERATURE.....: Greater than 590 F (310 C).
EXTINGUISHING MEDIA.....: Dry Chemical; Foam; Carbon Dioxide; Water spray for large fires.
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should wear full protective clothing including self-contained breathing apparatus. Under fire conditions, hazardous vapors and gases may be emitted. Containers exposed to excessive heat may rupture violently. Use a water spray to keep containers cool. Fight fires from a protected area.

6. ACCIDENTAL RELEASE MEASURES:

SPILL OR LEAK PROCEDURES.....: Use appropriate protective equipment. Contain small spills by diking and digging a containment pit sufficiently large to hold at least 10 times the spill volume. Dilute to approximately 10 times the volume with water. Add sufficient dry commercial calcium hypochlorite (dry chlorine, HTHR, dry bleach) to completely oxidize the hydrazine. Use 7-10 lbs per pound of hydrazine (1 lb. of 35 % Hydrazine = 0.35 lbs. N2H4). Calcium hypochlorite or other oxidizing agents should never be allowed to mix with undiluted hydrazine solutions. The resulting reaction is very vigorous, releasing large amounts of heat and gas. Contaminated surfaces should be treated with household bleach or calcium hypochlorite solution to oxidize the residual hydrazine. In the event of larger spills, contain product, secure area and notify Bayer at (412-923-1800 during normal working hours of 9 am to 5 pm EST) or CHEMTREC at (800-424-9300).

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE(MIN/MAX): Ambient/122 F (50 C).
SHELF LIFE.....: Unlimited in tightly closed containers.
SPECIAL SENSITIVITY.....: Extreme heat, oxidizing materials or catalytic metals.
HANDLING/STORAGE PRECAUTIONS: When handling hydrazine, utilize protective clothing and equipment. Do not get in eyes or on skin. Do not breathe vapors or mists. Wash thoroughly after handling. Store in a dry place away from heat {below 122 F (50 C)} and away from ignition sources and oxidants, preferably outdoors. Shelter drums stored outdoors from direct

Continued on next page

7. HANDLING AND STORAGE (Continued)

sunlight. For indoor storage areas, continuous ventilation should be provided. This product may become electrostatically charged during filling and transferring. Make sure equipment is properly bonded and grounded. Store away from food and beverages.

8. PERSONAL PROTECTION:

EYE PROTECTION REQUIREMENTS.....: Splash goggles or full face shield.
SKIN PROTECTION REQUIREMENTS.....: PVC, neoprene or nitrile splash suits, boots and gloves should be worn when spray or splash protection is required.
VENTILATION REQUIREMENTS.....: Use local exhaust or other means to maintain airborne hydrazine concentration below the current Permissible Exposure Limit.
RESPIRATOR REQUIREMENTS.....: Whenever the hydrazine levels exceed the current Permissible Exposure Limit, a positive pressure supplied air respirator is recommended.
ADDITIONAL PROTECTIVE MEASURES.....: Safety showers and eyewash stations should be readily available. Do not store or transfer hydrazine solutions in open containers. Because hydrazine can be absorbed into the body by all common routes of exposure, protective equipment must be used. Personal protective equipment is not an adequate substitute for safe work practices, proper equipment design and good maintenance practices.

9. PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL FORM.....: Liquid
COLOR.....: Colorless to slightly yellow
ODOR.....: Ammonia like (fishy)
ODOR THRESHOLD.....: 3 to 5 ppm
MOLECULAR WEIGHT.....: (For hydrazine hydrate) 50.06
pH .....: Greater than 12 @ 350 g/l water @ 68 F (20 C), original soln
BOILING POINT.....: Approx. 228.9 F (109.4 C)
MELTING/FREEZING POINT....: Approx. -85 F (-65 C)
VISCOSITY.....: (Dynamic): Approx. 1.26 mPas @ 68 F (20 C)
SOLUBILITY IN WATER .....: Soluble
SPECIFIC GRAVITY .....: Approx. 1.021 @ 68 F (20 C)
BULK DENSITY.....: Not Established
% VOLATILE BY VOLUME.....: 100 %
VAPOR PRESSURE .....: 15 mbar @ 68 F (20 C)
VAPOR DENSITY .....: Approx. 1 (Air = 1)

Continued on next page

10. STABILITY AND REACTIVITY:

STABILITY.....: Stable at normal temperatures and pressures.
HAZARDOUS POLYMERIZATION...: Will not occur.
INCOMPATIBILITIES.....: Brisk or dangerous reactions with strong oxidizers, catalytic metals (Lead, Copper, Zinc, Cadmium, Cobalt, Molybdenum, Gold and Silver) and certain alloys (such as Bronze and Brass).
INSTABILITY CONDITIONS.....: Excessive temperatures. (Also, see INCOMPATIBILITIES)
DECOMPOSITION TEMPERATURE..: Refer to DECOMPOSITION PRODUCTS.
DECOMPOSITION PRODUCTS.....: Under catalytic influence or elevated temperatures, H_2, NH_3 and N_2 and other toxic or flammable nitrogen compounds can be formed. Slow reaction with oxygen from the air is possible at room temperature.

11. TOXICOLOGICAL INFORMATION:

ACUTE TOXICITY

ORAL LD50.....: Hydrazine Hydrate: 129 mg/kg (Rat). Anhydrous Hydrazine: 60 mg/kg (Rat)

DERMAL LD50.....: For 35 % hydrazine solution: greater than 200 mg/kg (Rabbit; DOT method); For hydrazine: 91 mg/kg (Rabbit).

INHALATION LC50....: For anhydrous hydrazine, LC50 = 570 ppm (Rat, 4 hours); For aerosols generated from a 64 % hydrazine solution, LC50 = 6.5 mg/L (5000 ppm) - the LC50 (1 hour) estimated in terms of hydrazine equivalents, LC50 = 4.2 mg/L (3200 ppm). (1)

EYE EFFECTS.....: Irritating.

SKIN EFFECTS.....: Not Corrosive (Rabbit; DOT protocol).

SENSITIZATION.....: Some individuals (humans) have exhibited allergic skin reactions.

CHRONIC TOXICITY.....: Several studies show increased tumor indidence in mice and rats following long term oral or intraperitoneal administration of hydrazine or its salts. The U.S. Air Force conducted a study concerning the chronic inhalation toxicity of hydrazine. The study concluded that hydrazine is a relatively weak tumorigen able to induce respiratory tumors in a dose related incidence at 1.0 and 5.0 ppm.

OTHER TOXICITY DATA...: (Mutagenic, Teratogenic, Reproductive Tests): Hydrazine has demonstrated mutagenic potential in several test systems such as bacteria, phage, higher plants, drosophila, and the host-mediated assay. It was negative in the dominant lethal assay in mice. Dermal contact with hydrazine at a dose causing skin damage and systemic effects has produced embryolethality in rats.

1 Huntingdon Research Centre, July 1993 (sponsored by the Chemical Manufacturer's Association, CMA).

Continued on next page

12. ECOLOGICAL INFORMATION:

AQUATIC TOXICITY.....: Gold orfe (Leuciscus idus), LC50 (48 hrs.): 0.75 mg/l. Do not allow to escape into waters, wastewater or soil.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD.....: Oxidize or incinerate in accordance with federal, state and local environmental control regulations.

14. TRANSPORTATION INFORMATION:

TECHNICAL SHIPPING NAME.....: Hydrazine solution 35 %
FREIGHT CLASS BULK.....: Item 50093 Compounds, Boiler Cleaning, Preserving
FREIGHT CLASS PACKAGE.....: Item 50093 Compounds, Boiler Cleaning, Preserving
PRODUCT LABEL.....: Certified Hydrazine 35 %

DOT (DOMESTIC SURFACE)

PROPER SHIPPING NAME.....: Hydrazine, Aqueous Solution
HAZARD CLASS OR DIVISION .....: 6.1
UN/NA NUMBER.....: UN3293
PACKING GROUP .....: III
DOT PRODUCT RQ lbs (kgs).....: 2.8 lbs (1.3 kgs)
HAZARD LABEL(s).....: Toxic
HAZARD PLACARD(s).....: Toxic

IMO / IMDG CODE (OCEAN)

PROPER SHIPPING NAME.....: Hydrazine, Aqueous Solution
HAZARD CLASS DIVISION NUMBER...: 6.1
UN NUMBER.....: UN3293
PACKAGING GROUP.....: III
HAZARD LABEL(s).....: Toxic
HAZARD PLACARD(s).....: Toxic

ICAO / IATA (AIR)

PROPER SHIPPING NAME.....: Hydrazine, Aqueous Solution
HAZARD CLASS DIVISION NUMBER...: 6.1
UN NUMBER.....: UN3293

Continued on next page

14. TRANSPORTATION INFORMATION (Continued)

ICAO / IATA (continued)

SUBSIDIARY RISK.....: None
PACKING GROUP.....: III
HAZARD LABEL(s).....: Toxic
RADIOACTIVE?.....: Non-Radioactive
PASSENGER AIR - MAX. QTY. .....: 60 L
PASSENGER PACKING INSTRUCTION..: 611
CARGO AIR - MAX. QTY. .....: 220 L
CARGO AIR PACKING INSTRUCTION..: 618

15. REGULATORY INFORMATION:

OSHA STATUS.....: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.
TSCA STATUS.....: On TSCA Inventory
CERCLA REPORTABLE QUANTITY..: Hydrazine: 1 lb. (0.454 kg).
SARA TITLE III:
SECTION 302 EXTREMELY
HAZARDOUS SUBSTANCES..: Hydrazine, CAS# 302-01-2, Approx. 35 %.
SECTION 311/312
HAZARD CATEGORIES.....: Immediate Health Hazard; Delayed Health Hazard; Reactive Hazard
SECTION 313
TOXIC CHEMICALS.....: Hydrazine, CAS# 302-01-2, Approx. 35 %.
RCRA STATUS.....: When discarded in its purchased form, this product is a listed RCRA hazardous waste and should be managed as a hazardous waste. (40 CFR 261.20-24) Hydrazine has been assigned the hazardous waste number U133. Any contaminated soil, water or debris resulting from the cleanup of a hydrazine spill is considered to be a hazardous waste.

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

COMPONENT NAME /CAS NUMBER	CONCENTRATION	STATE CODE
Hydrazine 302-01-2	Approx. 35 %	PA2, CA , MA, NJ2, NJ3
Water 7732-18-5	Approx. 65 %	PA3, NJ4

CA = California Proposition 65

Continued on next page

15. REGULATORY INFORMATION (Continued)

MA = Massachusetts Hazardous Substance List
NJ2 = New Jersey Environmental Hazardous Substance List
NJ3 = New Jersey Special Health Hazardous Substance List
NJ4 = New Jersey Other - included in 5 predominant ingredients > 1%
PA2 = Pennsylvania Special Substances List
PA3 = Pennsylvania Non-hazardous present at 3% or greater.

16. OTHER INFORMATION:

HMIS RATINGS:	Health	Flammability	Reactivity
	2*	1	1

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
*=Chronic Health Hazard

Bayer's method of hazard communication is comprised of Product Labels and Material Safety Data Sheets. HMIS ratings are provided by Bayer as a customer service.

REASON FOR ISSUE.....: Revise Section 8
PREPARED BY.....: P. E. Malichky
APPROVED BY.....: S. Van Volkenburg
APPROVAL DATE.....: 11/06/2002
SUPERSEDES DATE.....: 05/21/2001
MSDS NUMBER.....: 02353

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Bayer Corporation. The data on this sheet relates only to the specific material designated herein. Bayer Corporation assumes no legal responsibility for use or reliance upon these data.

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Auxiliary Boiler Chemical Additives

a. Manufacturers Product Identification Number: **Morpholine**

b. Product Use: **pH Adjuster**

c. Chemical Composition: **See attached data sheets**

d. Classification (non-persistent, persistent or bioaccumulative): **Non-persistent**

e. Product or active ingredient half-life: **Not Available**

f. Frequency of product use: **Intermittent use, not exceeding 2 hours/day/unit**

g. Product toxicity data: **See attached data sheets**

h. Concentration of whole product or active ingredient in wastestream: **Not Available**

i. Outfall: **004**

*** GENERAL PRODUCT INFORMATION ***

Trade Product Name :MORPHOLINE

Manufacturer Name :DOW CHEMICAL
Manufacturer's Address :NUMERICAL ADDRESS NOT STATED ON MSDS
City :MIDLAND
State :MICHIGAN
ZIP :48640
Emergency Phone Number :517/636-4400

Additional Information:
PRODUCT CODE :55937

*** INGREDIENTS INFORMATION ***

** EXPOSURE LIMITS **

INGREDIENT NAME	PEL	TLV
MORPHOLINE	NOT STATED	NOT STATED

** PERCENTAGES **

	HIGH %	LOW %
MORPHOLINE	100%	NOT STATED

** CAS NUMBERS **

	CAS ON MSDS
MORPHOLINE	NOT STATED

*** PHYSICAL/CHEMICAL CHARACTERISTICS ***

Boiling Point :262F (APPROXIMATELY)
Specific Gravity :1.0 25/25C
Vapor Pressure :8.0 MMHG @ 20C
Percent Volatiles :100
Vapor Density (air=1) :3.0
Water Solubility :COMPLETELY MISCIBLE
Appearance and Odor :COLORLESS, AMMONIACAL LIQUID.

*** FIRE AND EXPLOSION HAZARD DATA ***

Flash Point :98F
Flash Point Method :TAG CLOSED CUP
Upper Explosive Limit :NOT DETERMINED
Lower Explosive Limit :1.4%
Extinguisher Media :WATER FOG, ALCOHOL FOAM, CO2, DRY CHEMICAL.

Special Fire Fighting Procedures:
WEAR FULL PROTECTIVE CLOTHING WITH SELF-CONTAINED BREATHING APPARATUS.

Unusual Fire & Explosion Hazard:
NOT STATED ON THE ORIGINAL MSDS

*** REACTIVITY DATA ***

Is this chemical stable under normal

conditions of handling and storage?	:WILL IGNITE IN AIR AT 555F, DECOMPOSES @ 489F (254C)
Conditions to Avoid	:NONE STATED
Incompatibility(materials to avoid)	:ACID, OXIDIZING MATERIAL.
Hazardous decomposition products	:POSSIBLY AMINATED DIETHYLENE GLYCOL, ACETALDEHYDE, FORMALDEHYDE, & NITROGEN DIOXIDE.
Is hazardous polymerization possible	:WILL NOT OCCUR
Conditions to avoid regarding polymerization	:NOT STATED

*** HEALTH HAZARD DATA ***

EYES--CAUSES SEVERE BURNS.

SKIN--CAUSES SEVERE BURN. LD50 FOR RABBITS ABOUT 500 MG/KG. MODERATE TOXICITY.

INHALATION--OSHA GUIDE & ACGIH TLV IS 20 PPM

INGESTION--LOW SINGLE DOSE ORAL TOXICITY
LD50 (GUINEA PIGS) 900
MG/KG, (RAT) 1050 MG/KG. VERY IRRITATING TO MUCOUS MEMBRANE.

Systemic & Other Effects:
IRRITATION OF TISSUE AND TISSUE INJURY.

Is chemical listed as a carcinogen or potential carcinogen ? NO

National Toxicology Program	IARC Monographs	OSHA
NOT STATED	NOT STATED	NOT STATED

*** EMERGENCY AND FIRST AID PROCEDURES ***

Emergency Telephone Number: (517) 636-4400

Eyes:
IMMEDIATE AND CONTINUOUS IRRIGATION WITH FLOWING WATER FOR AT LEAST THIRTY MINUTES IS IMPERATIVE. PROMPT MEDICAL CONSULTATION ESSENTIAL.

Skin:
SKIN BURN LIKELY. IMMEDIATE CONTINUOUS AND THOROUGH WASHING IN FLOWING WATER FOR THIRTY MINUTES IS IMPERATIVE. REMOVE CLOTHING IMMEDIATELY. WASH CLOTHING BEFORE REUSE. DESTROY CONTAMINATED SHOES.

Ingestion:
IF SWALLOWED, INDUCE VOMITING IMMEDIATELY BY GIVING TWO GLASSES OF

WATER AND STICKING FINGER DOWN THROAT. CALL A PHYSICIAN.

Inhalation:
REMOVE TO FRESH AIR IF EFFECTS OCCUR. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.

Note To Physician:

Eyes: MAY CAUSE SEVERE CORNEAL INJURY OR BURN. IF CORNEA IS BURNED, INSTILL ANTIBIOTIC STEROID PREPARATION FREQUENTLY CONSULT OPTHALMOLOGIST.

Skin: MAY CAUSE SEVERE BURN.

Oral: MAY CAUSE SEVERE IRRITATION

Systemic: MAY CAUSE KIDNEY DAMAGE. MAY CAUSE LIVER DAMAGE. HUMAN EFFECTS NOT ESTABLISHED. (SOME DIFFERENCE IN THE LITERATURE AS TO THE SEVERITY OF SKIN RESPONSE TO DIRECT EXPOSURE). BASED ON MINIMAL DATA. VERY ALKALINE. TREATMENT BASED ON THE SOUND JUDGMENT OF THE PHYSICIAN AND THE INDIVIDUAL REACTIONS OF THE PATIENT.

*** PRECAUTIONS FOR SAFE HANDLING AND USE ***

Precautions To Be Taken In Handling And Storage:
HANDLE WITH GREAT CARE, AVOID EYE AND SKIN CONTACT AND BREATHING OF VAPORS.

Spill Or Leak Procedures:
USE ABSORBENT OR SAND. LARGE SPILLS MAY BE RECLAIMED FOR REDISTILLATION.

Waste Disposal Method:
BURN IN INCINERATOR OR BURY AWAY FROM WATER SUPPLIES.

** ADDITIONAL INFORMATION **

DO NOT USE SODIUM NITRITE OR OTHER NITROSATING AGENTS IN FORMULATIONS CONTAINING THIS PRODUCT. SUSPECTED CANCER-CAUSING NITROSAMINES COULD BE FORMED.

*** CONTROL MEASURES ***

Respiratory Protection:
NIOSH APPROVED RESPIRATORY PROTECTION REQUIRED IN ABSENCE OF PROPER ENVIRONMENT CONTROL. FOR EMERGENCIES, A SELF-CONTAINED BREATHING APPARATUS OR A FULL-FACE RESPIRATOR AS APPROVED BY NIOSH IS RECOMMENDED.

Protective Clothing:
CLEAN, BODY-COVERING CLOTHING. IN ADDITION, IMPERVIOUS GLOVES, BOOTS APRON DEPENDING UPON THE EXTENT AND THE SEVERITY OF EXPOSURE LIKELY.

Eye Protection:
CHEMICAL WORKERS GOGGLES.
Other Protective Equipment:
EYE FOUNTAIN AND SAFETY SHOWER IN WORK AREA.

Ventilation Requirements:
RECOMMENDED CONTROL OF VAPORS TO SUGGESTED GUIDE.

*** DOCUMENTARY ***

This MSDS prepared by :NOT STATED ON THIS MSDS
Date of preparation for this MSDS :DECEMBER 15, 1978

*** ADDITIONAL INFORMATION ***

THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE. CONSULT THE DOW CHEMICAL COMPANY FOR FURTHER INFORMAITON.

ADDITIONAL INFORMATION: DO NOT USE SODIUM NITRITE OR OTHER NITROSATING AGENTS IN FORMULATIONS CONTAINING THIS PRODUCT. SUSPECTED CANCER-CAUSING NITROSAMINES COULD BE FORMED.

Attachment F

Once – Through Cooling Chemical Additives

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Technical Report

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Once-Through Cooling Chemical Additives

a. Manufacturers Product Identification Number: **Sodium Hypochlorite**

b. Product Use: **Biocide (oxidizing)**

c. Chemical Composition: **NaOCl**

d. Classification (non-persistent, persistent or bioaccumulative): **Non-persistent**

e. Product or active ingredient half-life: **Not Available**

f. Frequency of product use: **Intermittent use; not exceeding 2 hours/day/unit**

g. Product toxicity data: **See attached data sheets**

h. Concentration of whole product or active ingredient in wastestream: **Not Available**

i. Outfall: **001**

R016609

Material Safety Data Sheet

Provided by:

DPC Industries, Inc. DX Distributors, Inc.
DPC Enterprises DX Systems Company
DXI Industries, Inc. DX Terminals

PO Box 24600
Houston, Tx 77229-4600
281-457-4888
888-647-7717
www.dxgroup.com

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name DIXICHLOR MAX

Synonyms BLEACH

Chemical Name SODIUM HYPOCHLORITE 12.5%

Emergency phone: *281-457-4888* ***Date of Issue:*** 01/08/01
Chemtrec: *800-424-9300* ***Revised Date:*** 10/4/2001

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS	PERCENT	CAS NO.
SODIUM HYPOCHLORITE	12.5%	7681-52-9
SODIUM CHLORIDE	9% - 10%	7647-14-5
SODIUM HYDROXIDE	0.5% - 2%	1310-73-2
WATER	REMAINDER	7732-18-5

SECTION 3 - HAZARDS IDENTIFICATION

Potential Health Effects

ACGIH - TLV: NOT ESTABLISHED.

Eye Contact MAY CAUSE SEVERE PAIN, BLURRED VISION, TEARING AND SWELLING. CONCENTRATED SOLUTIONS MAY CAUSE BURNING.

Skin Contact MAY CAUSE MODERATE SKIN IRRITATION. CONTACT WITH CONCENTRATED SOLUTIONS MAY BLEACH THE SKIN AND CAUSE REDNESS, PAIN, BLISTERING, ITCHY ECZEMA AND POSSIBLE CHEMICAL BURNS.

Ingestion MAY CAUSE PAIN AND INFLAMMATION OF THE MOUTH, THROAT, ESOPHAGUS, AND STOMACH. CAN CAUSE EROSION OF MUCOUS MEMBRANES, ESPECIALLY IN THE STOMACH.

Inhalation VAPORS MAY CAUSE SLIGHT TO SEVERE IRRITATION OF THE RESPIRATORY TRACT. HIGH CONCENTRATIONS MAY CAUSE SORE THROAT, BLISTERING, DELAYED PULMONARY EDEMA (SWELLING OF LUNG TISSUE) AND SHORTNESS OF BREATH.

Carcinogenicity: ***NTP*** NO ***IARC*** NO ***OSHA*** NO

SECTION 4 - FIRST AID PROCEDCURES

Eye Contact: IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION.

Skin Contact: IMMEDIATELY REMOVE CONTAMINATED CLOTHING OR SHOES. WIPE EXCESS FROM SKIN AND FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. USE SOAP IF AVAILABLE OR FOLLOW BY WASHING WITH SOAP AND WATER. DO NOT REUSE CLOTHING UNTIL THOROUGHLY CLEANED. GET MEDICAL ATTENTION.

Inhalation: REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GIVE ARTIFICIAL RESPIRATION IF NOT BREATHING. GET MEDICAL ATTENTION.

Ingestion: DO NOT INDUCE VOMITING. RINSE MOUTH WITH WATER. IF CONSCIOUS, GIVE LARGE QUANTITIES OF WATER OR MILK AND GET IMMEDIATE MEDICAL ATTENTION. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON!

SECTION 5 -FIRE FIGHTING MEASURES

Flash Point	NONFLAMMABLE.
Extinguishing Media	USE MEDIA APPROPRIATE FOR SURROUNDING AREA.
Special Firefighting Procedures/Precuations	WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE GEAR. STAY UPWIND AND KEEP OUT OF LOW AREAS.

SECTION 6 -ACCIDENTAL RELEASE MEASURES

For Spill: CLEAN-UP PERSONNEL SHOULD USE PROTECTIVE EQUIPMENT TO PREVENT CONTACT. CONTAIN MATERIAL. PLACE COLLECTED MATERIAL IN A DISPOSAL CONTAINER. PREVENT LIQUID FROM ENTERING SEWERS OR WATERWAYS. DO NOT USE COMBUSTIBLE ABSORBENTS.

SECTION 7 - HANDLING AND STORAGE

Keep container tightly closed when not in use. Store in a cool, dry, well-ventilated area, away from heat and incompatible materials. Protect containers from physical damage.

AVOID CONTACT WITH EYES AND SKIN AND INHALATION OF VAPORS, MISTS, AND FUMES.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection	USE NIOSH APPROVED RESPIRATOR PROTECTION. FOR CANISTER TYPE RESPIRATORS, USE CHLORINE FILTERS. IN CASE OF FIRE, WEAR SELF-CONTAINED BREATHING APPARATUS.
Ventilation	LOCAL AND MECHANICAL RECOMMENDED.
Protective Gloves	CHEMICAL IMPERVIOUS GLOVES.
Eye/Face Protection	CHEMICAL SAFETY GOGGLES AND/OR FULL-FACE SHIELD.
Other Protection	CHEMICAL RESISTANT CLOTHING SUCH AS COVERALLS/APRON, BOOTS, ETC.
Work Practices	USE GOOD PERSONAL HYGIENE PRACTICES. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTY OF SOAP AND WATER.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point (°F):	DECOMPOSES	***Vapor Pressure (mmHg):***	17.5 (@ 20 C)
Freezing Point (°F):	7 - 10	***Vapor Density (Air=1):***	NOT ESTABLISHED.
Solubility (H2O):	COMPLETE	***Specific Gravity (H2O=1):***	1.20 - 1.40
pH	12 - 13	***Evaporation Rate:***	NOT ESTABLISHED.

Appearance/Odor: CLEAR, PALE YELLOW OR GREENISH LIQUID WITH A CHLORINE ODOR.

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability:	YES
Incompatible Materials	ANY ACIDIC MATERIAL, AMMONIA, UREA, OXIDIZABLE MATERIALS AND METALS, SUCH AS NICKEL, COPPER, TIN, ALUMINUM AND IRON.
Decomposition Products	CHLORINE GAS RATE OF DECOMPOSITION INCREASES WITH THE CONCENTRATION WITH TEMPERATURES ABOVE 85 DEGREES F.
Hazardous Polymerization:	WILL NOT OCCUR.

SECTION 11 - TOXICITY INFORMATION

Oral = > 8000 mg/kg (Rat) Dermal LD50 = N.E. Inhalation LC50= > 10.5 mg/l (Rat)

SECTION 12 - ECOLOGICAL INFORMATION

DAPHNIA MAGNA 24 HR. LC50 = > 500 MG/L ZEBRA FISH STATIC 24 HR. LC50 = > 500 MG/L

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSE OF WASTE MATERIALS ACCORDING TO ALL FEDERAL, STATE AND LOCAL REGULATIONS.

SECTION 14 - TRANSPORT INFORMATION

USA DOT Shipping Name: HYPOCHLORITE SOLUTION

Hazard Class: 8

UN/NA Number: UN1791

Packing Group: III

Subsidiary Hazard

Marine Pollutant: NO

SECTION 15 - REGULATORY INFORMATION

CERCLA RQ (lbs): 100

SARA Title III Section 312:

☑ ***Acute*** ☐ ***Chronic*** ☐ ***Flammable*** ☐ ***Sudden Release of Pressure*** ☐ ***Reactive***

SARA Title III Section 313: No

SARA Extremely Hazardous Substance: No

HMIS HAZARD RATING

Health: 2 ***Fire:*** 0 ***Reactivity:*** 1

0 - Least 1 - Slight 2 - Moderate 3 - High 4 - Extren

SECTION 16 - OTHER INFORMATION

EPA Pesticide Registration Number: 813-15

NSF Maximum Use Level for Potable Water (Standard 60): 84 mg/l

TSCA (Toxic Substance Control Act), 40 CFR 710:

Sources of the raw materials used in this mixture assure that all chemical ingredients present are in compliance with Section 8(b) Chemical Substance Inventory, or are otherwise in compliance with TSCA.

DISCLAIMER

THE DATA PRESENTED IS TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF; HOWEVER, NEITHER SELLER NOR PREPARER MAKES ANY WARRANTIES, EXPRESSED OR IMPLIED, CONCERNING THE INFORMATION PRESENTED. THE USER IS CAUTIONED TO PERFOM HIS OWN HAZARD EVALUATION AND TO RELY UPON HIS OWN DETERMINATIONS.

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Once-Through Cooling Chemical Additives

a. Manufacturers Product Identification Number: **Sodium Bromide**

b. Product Use: **Biocide enhancement**

c. Chemical Composition: **See attached data sheets**

d. Classification (non-persistent, persistent or bioaccumulative): **Non-persistent**

e. Product or active ingredient half-life: **Not Available**

f. Frequency of product use: **Intermittent use; not exceeding 2 hours/day/unit**

g. Product toxicity data: **See attached data sheets**

h. Concentration of whole product or active ingredient in wastestream: **Not Available**

i. Outfall: **001**

BUCKMAN LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET

BULAB 6040

Revision date: 7/18/2005

Buckman Laboratories, Inc.
1256 North McLean Boulevard
Memphis, TN 38108

Phone 1-800-BUCKMAN

24 Hour Emergency Phone: (901) 767-2722

SECTION 1 — *OSHA HAZARD CLASSIFICATIONS*

CAUTION: Avoid contact with skin and clothing. Wash with soap and water after handling. Remove and wash contaminated clothing before reuse.

SECTION 2 — *HAZARDOUS COMPONENTS*

Chemical Name	*CAS Number*	*% by Weight*	*TLV*

Based on best available information, this product does not contain any reportable OSHA hazardous materials.

SECTION 3 — *FIRST AID INFORMATION*

Eye Exposure: **If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.**

Skin Exposure: **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 advise.**

Inhalation: **If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call poison control center or doctor for treatment advice.**

Ingestion: **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.**

SECTION 4 — *PRIMARY ROUTES OF EXPOSURE*

1. Effects from Acute Exposure:

Eye Exposure: **May cause eye irritation with reddness and swelling. Avoid contact with eyes.**

Skin Exposure: **May cause skin irritation with itching, reddness or rash. Avoid contact with skin.**

Inhalation: **May be irritating to nose and throat. Avoid breathing vapors**

Ingestion: **May be harmful if swallowed.**

2. Effects from Chronic Exposure:

Prolonged and excessive inhalation or ingestion may produce rashes, central nervous system depression and emaciation and, in severe cases, psychoses and metal deterioration.

SECTION 5 *Toxicological Information*

Acute Effects:

Acute	**Oral**	**(LD50) = >5000 mg/kg Rat**
Acute	**Dermal**	**(LD50) = >20000 mg/kg Rabbit**

Irritant / Sensitization Effects:

May cause eye irritation with reddness and swelling. Avoid contact with eyes.
May cause skin irritation with itching, reddness or rash. Avoid contact with skin.
May be irritating to nose and throat. Avoid breathing vapors

Carcinogenic Potential:

Not tested by Buckman Laboratories. Not shown as a carcinogen by OSHA, IARC, or NTP.

Target Organs Effects:

May cause damage to the following organs: upper respiratory tract, skin, eyes.

Other Health Effects:

May cause eye irritation. Based on the toxicological information available, this product is not expected to be irritating to the skin.

SECTION 6 *Environmental Toxicological Information*

No information available.

SECTION 7 *Physical and Chemical Properties*

Appearance	**Light Colorless. liquid**
Odor	**Odorless. (Slight.)**
Density	**1.43 g/cm^3**
Flash Point	**Non-Flammable**
Melting/Freezing Point	**-32.2°C (-26°F)**
Boiling Point	**>103°C (217.4 to 219.2°F)**
Solubility	**Completely Miscible**
pH (Neat)	**6.5 to 7.5 [Neutral.]**
pH (100 ppm in water)	**Not available.**
Vapor Pressure	**Not Established**
o/w Partition Coefficient	**Not available.**
Oxidizing/Reducing Properties	**Not available.**
Viscosity	**Not available.**
Additional pH Information	**Not available.**

NOTE: The physical data presented above are typical values and should not be construed as specifications.

SECTION 8 *Fire and Explosion Information*

Flammable Limits ..... **Not available.**

Extinguishing Media ..... **Appropriate to surrounding fire.**

Special Firefighting Procedures ..... **Firefighters should wear full protective clothing and self contained breathing apparatus (SCBA). Thoroughly decontaminate fire fighting equipment including all fire fighting wearing apparel after the incident.**

SECTION 9 *Reactivity Information*

Stability ..... **Stable under normal conditions of use and storage. Avoid extremely high heat.**

Incompatibility ..... **Strong acids, strong oxidants.**

Hazardous Decomposition Products ..... **If strongly overheated, may release hydrogen bromide and/or bromine.**

SECTION 10 *Handling Precautions*

ENGINEERING CONTROLS:
General room ventilation plus local exhaust should be used to minimize exposure to vapors.
PERSONAL PROTECTIVE EQUIPMENT: EYES AND FACE:
Wear chemical safety goggles when handling this product.
SKIN:
Wear rubber gloves when handling this product. Avoid contact with skin.
RESPIRATORY:
A respiratory protection programthatmeets OSHA 1910.134 and ANSI Z88.2 requirementsmust be followed whenever workplace conditions warrant a respirator's use.
WORK HYGIENIC PRACTICES:
Wash thoroughly after handling. Remove and wash contaminated clothing before reuse.
OTHER USE PRECAUTIONS:
Facilities storing or utilizing thismaterial should be equipped with an eyewash and safety shower.
HANDLING AND STORAGE GENERAL PROCEDURES:
Avoid contact with eyes, skin or clothing. Avoid breathing vapors.
HANDLING:
Use safe chemical handling procedures for the hazards presented by this material.
STORAGE:
Keep this product dry in tightly closed original container when not in use. Store in a cool, dry, well ventilated area. Product should be stored at 0 F or above.

SECTION 11 *Satisfactory Materials of Construction*

Not available.

SECTION 12 *Spill, Leak, and Disposal Procedures*

SPILL AND LEAK RESPONSE GUIDELINES:

STEP TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Utilizing approporiate clothing and safety equipment, contain spill material. Cover the liquid with an inert absorbent.
Using clean, dedicated equipment, sweep and scoop all spilled material, contaminated soil, and other contaminated material and place into clean dry plastic containers for disposal. Dispose of according to local, state and federal regulations.

SECTION 13 *Transportation and Shipping Information*

DOT Shipping Information:

Not Regulated.

IMO/IMDG Shipping Information:

Not Regulated.

IATA Shipping Information:

Not Regulated.

Unless otherwise stated, the shipping information provided above applies only to non-bulk containers of this product. Proper shipping name and general shipping information may vary depending on packaging and mode of shipment. All products shipped from Buckman locations have been properly packaged and labeled according to appropriate hazardous materials shipping regulations. If any alteration of packaging, product, or mode of transportation is further intended, different shipping information, including but not limited to proper shipping name, RQ designation, and labeling may apply. For further information pertaining to the shipping requirements for this product, contact Buckman's Transportation Department or DOT Coordinator.

SECTION 14 *Regulatory Information*

The following Regulations are known to apply to the use and disposal of this product. Additional Federal, State and Local regulations may also be applicable.

SARA (Superfund Amendments and Reauthorization Act)

SARA 302 Extremely Hazardous Substances List ...

No components of this product are listed.

SARA 312 Hazard Category ...

Immediate (Acute) Health Hazard

SARA 313 Toxic Chemicals List ...

No components of this product are present above the *de minimus* levels.

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)

No components of this product are present above the *de minimus* levels.

RCRA (Resource Conversation and Recovery Act) Listed Hazardous Waste

No components of this product are listed.

CWA (Clean Water Act) Listed Substances

No components of this product are listed.

FDA (Food and Drug Administration)

This product is approved under the following FDA (21 CFR) sections : 178.1010(b)(1) & (b)(2), 176.300: Not to exceed 22 ppm bromide ion in the process water, 173.315.

TSCA (Toxic Substances Control Act) Applicability

All components are listed on the TSCA Inventory. Registered pesticides are exempt from the requirements of TSCA.

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)

This product is a registered pesticide. EPA Reg. No. 5185-451-1448

HMIS/NPCA Rating ... Health **1** Flammability **0** Reactivity **0**

NFPA Ratings ..... Health **1** Flammability **0** Reactivity **0**

State Regulations

Various State Right To Know Acts ...

Non-proprietary hazardous chemicals are listed in Section 2 of this MSDS. Should you require further information on specific proprietary or inert ingredients please contact Buckman Laboratories' Regulatory Affairs Department.

The information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application which is not described in the Data Sheet is the responsibility of the user. This Material Data Safety Sheet was prepared to comply with the OSHA Hazard Communication regulations. While some components are claimed Trade Secret under OSHA Hazard Communication regulations, all known OSHA hazards associated with the Trade Secret component(s), if contained in this product, are fully disclosed.

Buckman Laboratories, Inc. warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions.

Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.

The exclusive remedy against seller shall be in a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort.

Any controversy or claim arising out or relating to this contract, or breach thereof, shall be settle by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Once-Through Cooling Chemical Additives

a. Manufacturers Product Identification Number: **Bulab 7016 (HEDP)/**
Bulab 7034 (Polyacrylic Acid)/
Bulab 9374 /Bulab 9051 (Phosphoric Acid)

b. Product Use: **Scale inhibitor and dispersant**

c. Chemical Composition: **See attached data sheets**

d. Classification (non-persistent, persistent or bioaccumulative): **Not Available**

e. Product or active ingredient half-life: **Not Available**

f. Frequency of product use: **Continuous low concentration feed**

g. Product toxicity data: **See attached data sheets**

h. Concentration of whole product or active ingredient in wastestream: **Not Available**

i. Outfall: **001**

BUCKMAN LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET

BULAB 7016

Revision date: 10/10/2005

Buckman Laboratories, Inc.
1256 North McLean Boulevard
Memphis, TN 38108

Phone 1-800-BUCKMAN

24 Hour Emergency Phone: (901) 767-2722

SECTION 1 — *OSHA HAZARD CLASSIFICATIONS*

Corrosive to eyes. Irritating to the skin and respiratory system.

SECTION 2 — *HAZARDOUS COMPONENTS*

Chemical Name	*CAS Number*	*% by Weight*	*TLV*

Based on best available information, this product does not contain any reportable OSHA hazardous materials.

SECTION 3 — *FIRST AID INFORMATION*

Eye Exposure: **Flush immediately with copious amounts of tap water or normal saline (minimum of 15 minutes). Take exposed individual to a health care professional, preferably an ophthalmologist, for further evaluation.**

Skin Exposure: **Wash exposed area with plenty of water. Repeat washing. Remove contaminated clothing and wash thoroughly before reuse. If irritation persists consult a health care professional.**

Inhalation: **If exposure by inhalation is suspected, immediately move exposed individual to fresh air. If individual experiences nausea, headache, dizziness, has difficulty in breathing or is cyanotic, seek a health care professional immediately.**

Ingestion: **DO NOT INDUCE VOMITING. Rinse with copious amounts of water or milk, first. Irrigate the esophagus and dilute stomach contents by slowly giving one (1) to two (2) glasses of water or milk. Avoid giving alcohol or alcohol related products. In cases where the individual is semi-comatose, comatose or convulsing, DO NOT GIVE FLUIDS BY MOUTH. In case of intentional ingestion of the product seek medical assistance immediately; take individual to nearest medical facility.**

SECTION 4 — *PRIMARY ROUTES OF EXPOSURE*

1. Effects from Acute Exposure:

Eye Exposure: **Very hazardous in case of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching.**

Skin Exposure: **Hazardous in case of skin contact (irritant). Non-corrosive for skin. Non-sensitizer for skin. Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.**

Inhalation: **May be harmful if inhaled. Do not breathe spray mists of the undiluted product. Effects will depend upon solution strength and length of time of exposure.**

Ingestion: **Ingestion is not expected to be a primary route of exposure.**

2. Effects from Chronic Exposure:

Not toxic to aquatic organisms and not suspected of long-term adverse effects in the aquatic environment.

SECTION 5 *Toxicological Information*

Acute Effects:

Acute	**Oral**	**(LD50) = 2000 mg/kg Rat**
Acute	**Dermal**	**(LD50) = 10000 mg/kg Rabbit**

Irritant / Sensitization Effects:

Very hazardous in case of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching.
Hazardous in case of skin contact (irritant). Non-corrosive for skin. Non-sensitizer for skin. Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
May be harmful if inhaled. Do not breathe spray mists of the undiluted product. Effects will depend upon solution strength and length of time of exposure.

Carcinogenic Potential:

Not tested by Buckman Laboratories. Not shown as a carcinogen by OSHA, IARC, or NTP.

Target Organs Effects:

May cause damage to the following organs: blood, gastrointestinal tract, upper respiratory tract, skin, eyes, bones.

Other Health Effects:

None known.

SECTION 6 *Environmental Toxicological Information*

LC50 = >368 mg/l 96 hours Rainbow trout
LC50 = 527 mg/l 48 hours Daphnia magna

SECTION 7 *Physical and Chemical Properties*

Appearance	**Clear, colorless liquid**
Odor	**Characteristic**
Density	**1.46 g/cm^3 at 20°C (68°F)**
Flash Point	**Closed cup: >100°C (212°F). (Tagliabue.)**
Melting/Freezing Point	**Not available.**
Boiling Point	**>100°C (212°F)**
Solubility	**Partially soluble in cold water. Soluble in hot water.**
pH (Neat)	**Not available.**
pH (100 ppm in water)	**Not available.**

Vapor Pressure..... **17 mm of Hg (@ 20°C)**

o/w Partition Coefficient..... **Not available.**

Oxidizing/Reducing Properties. **Not available.**

Viscosity..... **Dynamic: 64 cP**

Additional pH Information..... **pH (1% solution) = 2.0**

NOTE: The physical data presented above are typical values and should not be construed as specifications.

SECTION 8 *Fire and Explosion Information*

Flammable Limits..... **Not available.**

Extinguishing Media..... **Water fog, carbon dioxide, foam, dry chemical.**

Special Firefighting Procedures..... **Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.**

SECTION 9 *Reactivity Information*

Stability..... **Stable under normal conditions of use and storage.**

Incompatibility..... **Strong oxidizers, strong bases.**

Hazardous Decomposition Products..... **Oxides of both phosphorous and carbon; acids of phosphorous.**

SECTION 10 *Handling Precautions*

Rubber gloves, safety glasses or goggles, body protective clothing and shoes are required. Eye-wash fountains and safety showers in the work place are recommended. If splashing can occur, a face shield is advisable. Avoid breathing vapors or spray mists. Provide dilution ventilation to control vapor and/or mist level. When misting may occur in the work area, a NIOSH/MSHA approved respirator may be required. Use a respirator approved for the material and level of exposure. A comprehensive respiratory protection program is needed when respirators must be used. The handling precautions for this product are based on the characteristics of the neat product unless otherwise specified.

NSF Certification: This product is certified by NSF International to NSF/ANSI Standard 60 as a reverse osmosis antiscalant for use in potable water applications up to a maximum use rate of 0.8 mg/l.

SECTION 11 *Satisfactory Materials of Construction*

Polypropylene
Teflon.
PVC - rigid
Buna-N rubber
Viton
PVC - flexible
Silicone rubber
Tygon tubing R3603
Van leer epoxy liner 136
Polyethylene

SECTION 12	*Spill, Leak, and Disposal Procedures*

SPILL AND LEAK RESPONSE GUIDELINES:

Important: Before responding to a spill or leak of this product, review each section of this MSDS. Follow the recommendations given in the Handling Precautions sections. Check the Fire and Explosion Data section to determine if the use of non-sparking tools is merited. Insure that spilled or leaked product does not come into contact with materials listed as incompatible. If irritating fumes are present, consider evacuation of affected areas.

Emergency Response Assistance: Emergency technical assistance is available at any time from Buckman Laboratories, Inc., by calling (901) 767-2722. Collect calls are accepted.

Initially minimize area affected by the spill or leak. Block any potential routes to water systems (e.g., sewers, streams, lakes, etc.). Based on the product's toxicological and chemical properties, and on the size and location of the spill or leak, assess the impact on contaminated environments (e.g. water systems, ground, air equipment, etc.). There are no methods available to completely eliminate any toxicity this product may have on aquatic environments. Minimize adverse effects on these environments. Buckman Laboratories, Inc. can be contacted for technical assistance. Determine if federal, state, and/or local release notification is required (see Regulatory Information section of this MSDS). Recover as much of the pure product as possible into appropriate containers. Later, determine if this recovered product can be used for its intended purpose. Address clean-up of contaminated environments. Spill or leak residuals may have to be collected and disposed of. Clay, soil, or commercially available absorbents may be used to recover any material that can not readily be recovered as pure product. Flushing residual material to an industrial sewer, if present at the site of a spill or leak incident, may be acceptable if authorized approval is obtained. If product and/or spill/leak residuals are flushed to an industrial sewer, insure that they do not come into contact with incompatible materials.

DISPOSAL GUIDELINES

Note: Follow federal, state, and local regulations governing the disposal of waste materials.

Neat Product: Contact your Buckman representative.

Contaminated Materials: Determine if waste containing this product can be handled by available industrial effluent system or other on-site waste management unit. If off-site management is required, contact a company experienced in industrial waste management.

Container Disposal: If assistance is needed, contact your Buckman sales representative.

SECTION 13	*Transportation and Shipping Information*

DOT Shipping Information:

CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S., ((1-Hydroxyethylidene)diphosphonic Acid), Class 8, UN3265 , P.G. II , (ERG No. 153)

IMO/IMDG Shipping Information:

CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. ((1-Hydroxyethylidene)diphosphonic Acid), Class 8, UN3265 , P.G. II , (EmS No. F-A, S-B , ERG Guide 153, HazMat Code 4931255)

IATA Shipping Information:

CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. ((1-Hydroxyethylidene)diphosphonic Acid), Class 8, UN3265 , P.G. II , (ERG No. 153)

DOT "RQ": NONE

Unless otherwise stated, the shipping information provided above applies only to non-bulk containers of this product. Proper shipping name and general shipping information may vary depending on packaging and mode of shipment. All products shipped from Buckman locations have been properly packaged and labeled according to appropriate hazardous materials shipping regulations. If any alteration of packaging, product, or mode of transportation is further intended, different shipping information, including but not limited to proper shipping name, RQ designation, and labeling may apply. For further information pertaining to the shipping requirements for this product, contact Buckman's Transportation Department or DOT Coordinator.

SECTION 14 *Regulatory Information*

The following Regulations are known to apply to the use and disposal of this product. Additional Federal, State and Local regulations may also be applicable.

SARA (Superfund Amendments and Reauthorization Act)

SARA 302 Extremely Hazardous Substances List ...

No components of this product are listed.

SARA 312 Hazard Category ...

Immediate (Acute) Health Hazard

SARA 313 Toxic Chemicals List ...

No components of this product are present above the *de minimus* levels.

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)

No components of this product are present above the *de minimus* levels.

RCRA (Resource Conversation and Recovery Act) Listed Hazardous Waste

When disposed of, this product may be regulated as a RCRA Hazardous Waste with the characteristic of corrosivity due to the pH of the neat material.

CWA (Clean Water Act) Listed Substances

No components of this product are listed.

FDA (Food and Drug Administration)

This product is approved under the following FDA (21 CFR) sections : 173.310.

National Sanitation Foundation (NSF)

This product is listed by the NSF under NSF/ANSI Standard 60 for use in potable water applications with the following maximum allowable use rates : NSF certified as an antiscalant in reverse osmosis applications up to a maximum use rate of 0.8 mg/l.

TSCA (Toxic Substances Control Act) Applicability

All components are listed on the TSCA Inventory.

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)

This product is not a registered pesticide.

HMIS/NPCA Rating ...	Health	2	Flammability	1	Reactivity	1
NFPA Ratings	Health	2	Flammability	1	Reactivity	1

State Regulations

Various State Right To Know Acts ...

Non-proprietary hazardous chemicals are listed in Section 2 of this MSDS. Should you require further information on specific proprietary or inert ingredients please contact Buckman Laboratories' Regulatory Affairs Department.

The information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application which is not described in the Data Sheet is the responsibility of the user. This Material Data Safety Sheet was prepared to comply with the OSHA Hazard Communication regulations. While some components are claimed Trade Secret under OSHA Hazard Communication regulations, all known OSHA hazards associated with the Trade Secret component(s), if contained in this product, are fully disclosed.

Buckman Laboratories, Inc. warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions.

Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.

The exclusive remedy against seller shall be in a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort.

Any controversy or claim arising out or relating to this contract, or breach thereof, shall be settle by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

BUCKMAN LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET

BULAB 7034

Revision date: 5/12/2006

Buckman Laboratories, Inc.
1256 North McLean Boulevard
Memphis, TN 38108

Phone 1-800-BUCKMAN

24 Hour Emergency Phone: (901) 767-2722

SECTION 1 — *OSHA HAZARD CLASSIFICATIONS*

May cause mild eye irritation. Avoid breathing vapors or spray mists.

SECTION 2 — *HAZARDOUS COMPONENTS*

Chemical Name	*CAS Number*	*% by Weight*	*TLV*

Based on best available information, this product does not contain any reportable OSHA hazardous materials.

SECTION 3 — *FIRST AID INFORMATION*

Eye Exposure: **Flush immediately with copious amounts of tap water or normal saline (minimum of 15 minutes). Take exposed individual to a health care professional, preferably an ophthalmologist, for further evaluation.**

Skin Exposure: **Wash exposed area with plenty of water. Repeat washing. Remove contaminated clothing and wash thoroughly before reuse. If irritation persists consult a health care professional.**

Inhalation: **If exposure by inhalation is suspected, immediately move exposed individual to fresh air. If individual experiences nausea, headache, dizziness, has difficulty in breathing or is cyanotic, seek a health care professional immediately.**

Ingestion: **DO NOT INDUCE VOMITING. Rinse with copious amounts of water or milk, first. Irrigate the esophagus and dilute stomach contents by slowly giving one (1) to two (2) glasses of water or milk. Avoid giving alcohol or alcohol related products. In cases where the individual is semi-comatose, comatose or convulsing, DO NOT GIVE FLUIDS BY MOUTH. In case of intentional ingestion of the product seek medical assistance immediately; take individual to nearest medical facility.**

SECTION 4 — *PRIMARY ROUTES OF EXPOSURE*

1. Effects from Acute Exposure:

Eye Exposure: **Slightly hazardous in case of eye contact (irritant).**

Skin Exposure: **Non-irritant for skin. Non-sensitizer for skin.**

Inhalation: **Slightly hazardous in case of inhalation. Effects will depend on concentration and length of time of exposure.**

Ingestion: **May be hazardous in case of ingestion. Effects will depend on concentration and length of time of exposure.**

2. Effects from Chronic Exposure:

The effects from chronic exposure to this product have not been fully evaluated.

SECTION 5 *Toxicological Information*

Acute Effects:

Acute	**Oral**	**(LD50) = >5000 mg/kg Rat**
Acute	**Dermal**	**(LD50) = >5000 mg/kg Rabbit**

Irritant / Sensitization Effects:

Slightly hazardous in case of eye contact (irritant).
Non-irritant for skin. Non-sensitizer for skin.
Slightly hazardous in case of inhalation. Effects will depend on concentration and length of time of exposure.

Carcinogenic Potential:

Not tested by Buckman Laboratories. Not shown as a carcinogen by OSHA, IARC, or NTP.

Target Organs Effects:

May cause damage to the following organs: upper respiratory tract, skin, eyes.

Other Health Effects:

Not available.

SECTION 6 *Environmental Toxicological Information*

LC50 = >1000 mg/l 48 hours Daphnia magna
LC50 = >1000 mg/l 96 hours Bluegill sunfish
LC50 = >1000 mg/l 96 hours Rainbow trout
LC50 = 58 mg/l 96 hours

SECTION 7 *Physical and Chemical Properties*

Appearance	**Clear, yellow liquid**
Odor	**Slight.**
Density	**1.2 g/cm^3**
Flash Point	**Closed cup: >100°C (212°F). (Pensky-Martens.)**
Melting/Freezing Point	**Not available.**
Boiling Point	**100°C (212°F)**
Solubility	**Partially soluble in cold water. Partially soluble in hot water.**
pH (Neat)	**4 [Acidic.]**
pH (100 ppm in water)	**5**
Vapor Pressure	**17 mm of Hg (@ 20°C)**
o/w Partition Coefficient	**Not available.**
Oxidizing/Reducing Properties	**0.2% in water at room temperature**
Viscosity	**Dynamic: 600 cP**
Additional pH Information	**pH neat range 3.7 - 5.0**

NOTE: The physical data presented above are typical values and should not be construed as specifications.

SECTION 8 *Fire and Explosion Information*

Flammable Limits ..... **Not available.**

Extinguishing Media ..... **Water fog, carbon dioxide, foam, dry chemical.**

Special Firefighting Procedures ..... **Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.**

SECTION 9 *Reactivity Information*

Stability ..... **Stable under normal conditions of use and storage.**

Incompatibility ..... **None known, not tested.**

Hazardous Decomposition Products ..... **carbon oxides (CO, CO2)**

SECTION 10 *Handling Precautions*

Rubber gloves and safety glasses or goggles are recommended. Eye-wash fountains in the work place are recommended. If product is spilled, affected surfaces may be very slippery. Provide dilution ventilation to control vapor and\or mist level. When misting may occur in the work area, a NIOSH/MSHA approved respirator may be required. Use a respirator approved for the material and level of exposure. Chemical resistant gloves, indirect ventilation goggles, body-protective clothing, and chemical resistant safety shoes are required. A comprehensive respiratory protection program is needed when respirators must be used. The` handling precautions for this product are based on the characteristics of the neat product unless otherwise specified.

SECTION 11 *Satisfactory Materials of Construction*

Not available.

SECTION 12 *Spill, Leak, and Disposal Procedures*

SPILL AND LEAK RESPONSE GUIDELINES:

Important: Before responding to a spill or leak of this product, review each section of this MSDS. Follow the recommendations given in the Handling Precautions sections. Check the Fire and Explosion Data section to determine if the use of non-sparking tools is merited. Insure that spilled or leaked product does not come into contact with materials listed as incompatible. If irritating fumes are present, consider evacuation of enclosed areas.

Emergency Response Assistance: Emergency technical assistance is available at any time from Buckman Laboratories, Inc., by calling (901) 767-2722.

Initially minimize area affected by the spill or leak. Block any potential routes to water systems (e.g., sewers, streams, lakes, etc.). Based on the product's toxicological and chemical properties, and on the size and location of the spill or leak, assess the impact on contaminated environments (e.g. water systems, ground, air equipment, etc.). There are no methods available to completely eliminate any toxicity this product may have on aquatic environments. Minimize adverse effects on these environments. Buckman Laboratories, Inc. can be contacted for technical assistance. Determine if federal, state, and/or local release notification is required (see Regulatory Classifications section of this MSDS). Recover as much of the pure product as possible into appropriate containers. Later, determine if this recovered product can be used for its intended purpose. Address clean-up of contaminated environments. Spill or leak residuals may have to be collected and disposed of. Clay, soil, or commercially available absorbents may be used to recover any material that can not readily be recovered as pure product. Flushing residual material to an industrial sewer, if present at the site of a spill or leak incident, may be acceptable if authorized approval is obtained. If product and/or spill/leak residuals are flushed to an industrial sewer, insure that they do not come into contact with incompatible materials. Contact the person(s) responsible for the operation of your facility's industrial sewer system prior to intentionally flushing or pumping spills or leaks of this product to the industrial sewer.

DISPOSAL GUIDELINES

Note: Follow federal, state, and local regulations governing the disposal of waste materials.

Neat Product: Contact your Buckman representative or Buckman Laboratories, Inc., at (901) 278-0330.

Contaminated Materials: Determine if waste containing this product can be handled by available industrial effluent system or other on-site waste management unit. If off-site management is required, contact a company experienced in industrial waste management. This product is not specifically listed in 40 CFR 261 as a Resource Conservation and Recovery Act (RCRA) hazardous waste. However, spill or leak residuals may meet the criteria of a characteristic hazardous waste under this Act. Check the characteristics of the material to be disposed of and/or the physical and reactivity data given in this MSDS for the neat product.

Container Disposal: Empty containers, as defined by appropriate sections of the RCRA, are not RCRA hazardous wastes. However, insure proper management of any residuals remaining in container.

SECTION 13 *Transportation and Shipping Information*

DOT Shipping Information:

Not Regulated.

IMO/IMDG Shipping Information:

Not Regulated.

IATA Shipping Information:

Not Regulated.

Unless otherwise stated, the shipping information provided above applies only to non-bulk containers of this product. Proper shipping name and general shipping information may vary depending on packaging and mode of shipment. All products shipped from Buckman locations have been properly packaged and labeled according to appropriate hazardous materials shipping regulations. If any alteration of packaging, product, or mode of transportation is further intended, different shipping information, including but not limited to proper shipping name, RQ designation, and labeling may apply. For further information pertaining to the shipping requirements for this product, contact Buckman's Transportation Department or DOT Coordinator.

SECTION 14 *Regulatory Information*

The following Regulations are known to apply to the use and disposal of this product. Additional Federal, State and Local regulations may also be applicable.

SARA (Superfund Amendments and Reauthorization Act)

SARA 302 Extremely Hazardous Substances List ...

No components of this product are listed.

SARA 312 Hazard Category ...

Immediate (Acute) Health Hazard

SARA 313 Toxic Chemicals List ...

No components of this product are present above the *de minimus* levels.

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)

No components of this product are present above the *de minimus* levels.

RCRA (Resource Conversation and Recovery Act) Listed Hazardous Waste

No components of this product are listed.

CWA (Clean Water Act) Listed Substances

No components of this product are listed.

FDA (Food and Drug Administration)

This product is not approved for food contact uses.

TSCA (Toxic Substances Control Act) Applicability

All components are listed on the TSCA Inventory.

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)

This product is not a registered pesticide.

HMIS/NPCA Rating ... Health **1** Flammability **1** Reactivity **1**

NFPA Ratings ..... Health **1** Flammability **1** Reactivity **1**

State Regulations

Various State Right To Know Acts ...

Non-proprietary hazardous chemicals are listed in Section 2 of this MSDS. Should you require further information on specific proprietary or inert ingredients please contact Buckman Laboratories' Regulatory Affairs Department.

The information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application which is not described in the Data Sheet is the responsibility of the user. This Material Data Safety Sheet was prepared to comply with the OSHA Hazard Communication regulations. While some components are claimed Trade Secret under OSHA Hazard Communication regulations, all known OSHA hazards associated with the Trade Secret component(s), if contained in this product, are fully disclosed.

Buckman Laboratories, Inc. warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions.

Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.

The exclusive remedy against seller shall be in a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort.

Any controversy or claim arising out or relating to this contract, or breach thereof, shall be settle by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

BUCKMAN LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET

BULAB 9374

Revision date: 4/16/2007

Buckman Laboratories, Inc.
1256 North McLean Boulevard
Memphis, TN 38108

Phone 1-800-BUCKMAN

24 Hour Emergency Phone: (901) 767-2722

SECTION 1 — *OSHA HAZARD CLASSIFICATIONS*

Corrosive to eyes and skin. Avoid breathing vapors or spray mists.

SECTION 2 — *HAZARDOUS COMPONENTS*

Chemical Name	*CAS Number*	*% by Weight*	*TLV*
Phosphoric acid	**7664-38-2**	**6**	**ACGIH (United States). TWA: 1 mg/m³ STEL: 3 mg/m³ OSHA (United States). TWA: 1 mg/m³**

Buckman Laboratories reports the component(s) listed above as known OSHA hazardous material(s) contained in this product.

SECTION 3 — *FIRST AID INFORMATION*

Eye Exposure: **Flush immediately with copious amounts of tap water or normal saline (minimum of 15 minutes). Take exposed individual to a health care professional, preferably an ophthalmologist, for further evaluation.**

Skin Exposure: **Wash exposed area with plenty of water. Repeat washing. Remove contaminated clothing and wash thoroughly before reuse. If irritation persists consult a health care professional.**

Inhalation: **If exposure by inhalation is suspected, immediately move exposed individual to fresh air. If individual experiences nausea, headache, dizziness, has difficulty in breathing or is cyanotic, seek a health care professional immediately.**

Ingestion: **DO NOT INDUCE VOMITING. Rinse with copious amounts of water or milk, first. Irrigate the esophagus and dilute stomach contents by slowly giving one (1) to two (2) glasses of water or milk. Avoid giving alcohol or alcohol related products. In cases where the individual is semi-comatose, comatose or convulsing, DO NOT GIVE FLUIDS BY MOUTH. In case of intentional ingestion of the product seek medical assistance immediately; take individual to nearest medical facility.**

SECTION 4 — *PRIMARY ROUTES OF EXPOSURE*

1. Effects from Acute Exposure:

Eye Exposure: **Very hazardous in case of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching.**

Skin Exposure: **Sensitization of the product: Not available.**
Hazardous in case of skin contact (corrosive, irritant). Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Inhalation: **Hazardous in case of inhalation. Effects will depend on concentration and length of time of exposure.**

Ingestion: **Ingestion is not expected to be a primary route of exposure.**

2. Effects from Chronic Exposure:

The effects from chronic exposure to this product have not been fully evaluated.

SECTION 5 *Toxicological Information*

Acute Effects:

Not tested. Expected to be corrosive due to pH.

Irritant / Sensitization Effects:

Very hazardous in case of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching.
Sensitization of the product: Not available.
Hazardous in case of skin contact (corrosive, irritant). Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Hazardous in case of inhalation. Effects will depend on concentration and length of time of exposure.

Carcinogenic Potential:

Not tested by Buckman Laboratories. Not shown as a carcinogen by OSHA, IARC, or NTP.

Target Organs Effects:

May cause damage to the following organs: upper respiratory tract, skin, eyes.

Other Health Effects:

None known.

SECTION 6 *Environmental Toxicological Information*

No information available.

SECTION 7 *Physical and Chemical Properties*

Appearance	**Straw colored liquid**
Odor	**Slight.**
Density	**1.29 g/cm3 at 25°C (77°F)**
Flash Point	**CLOSED CUP: >100°C (212°F). (Pensky-Martens.)**
Melting/Freezing Point	**Not available.**
Boiling Point	**The lowest known value is 158°C (316.4°F) (Phosphoric acid).**
Solubility	**Soluble in cold water. Soluble in hot water.**
pH (Neat)	**<2 [Acidic.]**
pH (100 ppm in water)	**3-4**
Vapor Pressure	**Not available.**
o/w Partition Coefficient	**Not available.**
Oxidizing/Reducing Properties	**Not available.**
Viscosity	**Not available.**

Additional pH Information ..... **Not available.**

NOTE: The physical data presented above are typical values and should not be construed as specifications.

SECTION 8 — *Fire and Explosion Information*

Flammable Limits ..... **Not available.**

Extinguishing Media ..... **Water fog, carbon dioxide, foam, dry chemical.**

Special Firefighting Procedures ..... **Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.**

SECTION 9 — *Reactivity Information*

Stability ..... **Stable under normal conditions of use and storage.**

Incompatibility ..... **Avoid all contact with materials not compatible with strong phosphoric acid solutions! This material may react with strong alkalis. Avoid contact with aluminum, zinc, mild steel, and stainless steels. CONSULT A RECOGNIZED CHEMICAL REFERENCE (per 29 CFR 1910.1200) IF COMPATIBILITY IS UNKNOWN OR IN QUESTION.**

Hazardous Decomposition Products ..... **Oxides of carbon, nitrogen and phosphorus.**

SECTION 10 — *Handling Precautions*

Eye wash fountains in the work place are STRONGLY recommended.
If splashing can occur, a face shield is advisable.
Chemical resistant gloves, indirect ventilation goggles, body-protective clothing, and chemical resistant safety shoes are required.
Provide dilution ventilation to control vapor and\or mist level. When misting may occur in the work area, a NIOSH/MSHA approved respirator may be required. Use a respirator approved for the material and level of exposure. A comprehensive respiratory protection program is needed when respirators must be used.
The handling precautions for this product are based on the characteristics of the neat product unless otherwise specified.

SECTION 11 — *Satisfactory Materials of Construction*

ABS (Plastic)
Dow Sillastic Tube
EPDM rubber
Buna-N rubber
Butyl rubber
Fiberglass-reinforced polyester
6/6 Nylon
Polypropylene
Polyethylene - crosslink
Polyethylene - low density
Polyethylene - high density
PVC - flexible
PVC - rigid
Polyurethane tube
Silicone rubber
Stainless steels 304 and 316
Teflon
Tygon
Viton

NOTE: With respect to all other materials not listed above, user should be aware that use of such materials with this product may be hazardous and result in damages to such materials and other property and personal injuries. No data concerning such materials not listed above should be implied by the user.

SECTION 12 *Spill, Leak, and Disposal Procedures*

SPILL AND LEAK RESPONSE GUIDELINES:

Important: Before responding to a spill or leak of this product, review each section of this MSDS. Follow the recommendations given in the Handling Precautions sections. Check the Fire and Explosion Data section to determine if the use of non-sparking tools is merited. Insure that spilled or leaked product does not come into contact with materials listed as incompatible. If irritating fumes are present, consider evacuation of enclosed areas.

Emergency Response Assistance: Emergency technical assistance is available at any time from Buckman Laboratories, Inc., by calling (901) 767-2722.

Initially minimize area affected by the spill or leak. Block any potential routes to water systems (e.g., sewers, streams, lakes, etc.). Based on the product's toxicological and chemical properties, and on the size and location of the spill or leak, assess the impact on contaminated environments (e.g. water systems, ground, air equipment, etc.). There are no methods available to completely eliminate any toxicity this product may have on aquatic environments. Minimize adverse effects on these environments. Buckman Laboratories, Inc. can be contacted for technical assistance. Determine if federal, state, and/or local release notification is required (see Regulatory Classifications section of this MSDS). Recover as much of the pure product as possible into appropriate containers. Later, determine if this recovered product can be used for its intended purpose. Address clean-up of contaminated environments. Spill or leak residuals may have to be collected and disposed of. Clay, soil, or commercially available absorbents may be used to recover any material that can not readily be recovered as pure product. Flushing residual material to an industrial sewer, if present at the site of a spill or leak incident, may be acceptable if authorized approval is obtained. If product and/or spill/leak residuals are flushed to an industrial sewer, insure that they do not come into contact with incompatible materials. Contact the person(s) responsible for the operation of your facility's industrial sewer system prior to intentionally flushing or pumping spills or leaks of this product to the industrial sewer.

DISPOSAL GUIDELINES

Note: Follow federal, state, and local regulations governing the disposal of waste materials.

Neat Product: Contact your Buckman representative or Buckman Laboratories, Inc., at (901) 278-0330.

Contaminated Materials: Determine if waste containing this product can be handled by available industrial effluent system or other on-site waste management unit. If off-site management is required, contact a company experienced in industrial waste management. This product is not specifically listed in 40 CFR 261 as a Resource Conservation and Recovery Act (RCRA) hazardous waste. However, spill or leak residuals may meet the criteria of a characteristic hazardous waste under this Act. Check the characteristics of the material to be disposed of and/or the physical and reactivity data given in this MSDS for the neat product.

Container Disposal: Empty containers, as defined by appropriate sections of the RCRA, are not RCRA hazardous wastes. However, insure proper management of any residuals remaining in container.

SECTION 13 *Transportation and Shipping Information*

DOT Shipping Information:

UN1760 , CORROSIVE LIQUID, N.O.S., (Phosphoric Acid) , Class 8, P.G. III , (ERG GUIDE 154)

IMO/IMDG Shipping Information:

UN1760 , CORROSIVE LIQUID, N.O.S., (Phosphoric Acid) , Class 8, P.G. III , (EmS No. 8-15 , MFAG Table No. 760 & 4.3 , ERG Guide 154, HazMat Code 4936540)

IATA Shipping Information:

UN1760 , CORROSIVE LIQUID, N.O.S., (Phosphoric Acid) , Class 8, P.G. III , (ERG Guide 154)

Unless otherwise stated, the shipping information provided above applies only to non-bulk containers of this product. Proper shipping name and general shipping information may vary depending on packaging and mode of shipment. All products shipped from Buckman locations have been properly packaged and labeled according to appropriate hazardous materials shipping regulations. If any alteration of packaging, product, or mode of transportation is further intended, different shipping information, including but not limited to proper shipping name, RQ designation, and labeling may apply. For further information pertaining to the shipping requirements for this product, contact Buckman's Transportation Department or DOT Coordinator.

SECTION 14 *Regulatory Information*

The following Regulations are known to apply to the use and disposal of this product. Additional Federal, State and Local regulations may also be applicable.

SARA (Superfund Amendments and Reauthorization Act)

SARA 302 Extremely Hazardous Substances List ...

No components of this product are listed.

SARA 312 Hazard Category ...

Immediate (Acute) Health Hazard

SARA 313 Toxic Chemicals List ...

Phosphoric acid

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)

Phosphoric acid ..... 5000 lbs.

RCRA (Resource Conversation and Recovery Act) Listed Hazardous Waste

No components of this product are listed.

CWA (Clean Water Act) Listed Substances

No components of this product are listed.

FDA (Food and Drug Administration)

This product is not approved for food contact uses.

TSCA (Toxic Substances Control Act) Applicability

All components are listed on the TSCA Inventory.

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)

This product is not a registered pesticide.

HMIS/NPCA Rating ... Health **3** Flammability **1** Reactivity **1**

NFPA Ratings ..... Health **3** Flammability **1** Reactivity **1**

State Regulations

Various State Right To Know Acts ...

Non-proprietary hazardous chemicals are listed in Section 2 of this MSDS. Should you require further information on specific proprietary or inert ingredients please contact Buckman Laboratories' Regulatory Affairs Department.

The information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application which is not described in the Data Sheet is the responsibility of the user. This Material Data Safety Sheet was prepared to comply with the OSHA Hazard Communication regulations. While some components are claimed Trade Secret under OSHA Hazard Communication regulations, all known OSHA hazards associated with the Trade Secret component(s), if contained in this product, are fully disclosed.

Buckman Laboratories, Inc. warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions.

Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.

The exclusive remedy against seller shall be in a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort.

Any controversy or claim arising out or relating to this contract, or breach thereof, shall be settle by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

BUCKMAN LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET

BULAB 9051

Revision date: 11/3/2006

Buckman Laboratories, Inc.
1256 North McLean Boulevard
Memphis, TN 38108

Phone 1-800-BUCKMAN

24 Hour Emergency Phone: (901) 767-2722

SECTION 1 — *OSHA HAZARD CLASSIFICATIONS*

Corrosive to eyes and skin.

SECTION 2 — *HAZARDOUS COMPONENTS*

Chemical Name	*CAS Number*	*% by Weight*	*TLV*
Phosphoric acid	**7664-38-2**	**75**	**ACGIH (United States). TWA: 1 mg/m³ STEL: 3 mg/m³ OSHA (United States). TWA: 1 mg/m³**

Buckman Laboratories reports the component(s) listed above as known OSHA hazardous material(s) contained in this product.

SECTION 3 — *FIRST AID INFORMATION*

Eye Exposure: **Flush immediately with copious amounts of tap water or normal saline (minimum of 15 minutes). Take exposed individual to a health care professional, preferably an ophthalmologist, for further evaluation.**

Skin Exposure: **Wash exposed area with plenty of water. Repeat washing. Remove contaminated clothing and wash thoroughly before reuse. If irritation persists consult a health care professional.**

Inhalation: **If exposure by inhalation is suspected, immediately move exposed individual to fresh air. If individual experiences nausea, headache, dizziness, has difficulty in breathing or is cyanotic, seek a health care professional immediately.**

Ingestion: **DO NOT INDUCE VOMITING. Rinse with copious amounts of water or milk, first. Irrigate the esophagus and dilute stomach contents by slowly giving one (1) to two (2) glasses of water or milk. Avoid giving alcohol or alcohol related products. In cases where the individual is semi-comatose, comatose or convulsing, DO NOT GIVE FLUIDS BY MOUTH. In case of intentional ingestion of the product seek medical assistance immediately; take individual to nearest medical facility.**

SECTION 4 — *PRIMARY ROUTES OF EXPOSURE*

1. Effects from Acute Exposure:

Eye Exposure: **Very hazardous in case of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching.**

Skin Exposure: **Hazardous in case of skin contact (corrosive, irritant). Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.**

Inhalation: **Hazardous in case of inhalation. Effects will depend on concentration and length of time of exposure.**

Ingestion: **Ingestion is not expected to be a primary route of exposure.**

2. Effects from Chronic Exposure:

The effects from chronic exposure to this product have not been fully evaluated.

SECTION 5 *Toxicological Information*

Acute Effects:

Not tested. Expected to be moderately toxic based on components.

Irritant / Sensitization Effects:

Very hazardous in case of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching.
Hazardous in case of skin contact (corrosive, irritant). Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Hazardous in case of inhalation. Effects will depend on concentration and length of time of exposure.

Carcinogenic Potential:

Not tested by Buckman Laboratories. Not shown as a carcinogen by OSHA, IARC, or NTP.

Target Organs Effects:

May cause damage to the following organs: upper respiratory tract, skin, eyes.

Other Health Effects:

None known.

SECTION 6 *Environmental Toxicological Information*

LC50 = 138 mg/l 96 hours Mosquito fish.

SECTION 7 *Physical and Chemical Properties*

Appearance	**Clear, viscous liquid**
Odor	**Slight.**
Density	**1.58 g/cm3 at 25°C (77°F)**
Flash Point	**CLOSED CUP: >93.3°C (199.9°F). (Pensky-Martens.)**
Melting/Freezing Point	**-17.2°C (1°F)**
Boiling Point	**>135°C (275°F)**
Solubility	**Easily soluble in cold water. Easily soluble in hot water.**
pH (Neat)	**<2 [Acidic.]**
pH (100 ppm in water)	**Not available.**
Vapor Pressure	**Not available.**
o/w Partition Coefficient	**Not available.**
Oxidizing/Reducing Properties	**Not available.**
Viscosity	**Not available.**
Additional pH Information	**Not available.**

NOTE: The physical data presented above are typical values and should not be construed as specifications.

SECTION 8 *Fire and Explosion Information*

Flammable Limits ..... Not available.

Extinguishing Media ..... Water fog, carbon dioxide, foam, dry chemical.

Special Firefighting Procedures ..... Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 9 *Reactivity Information*

Stability ..... Stable under normal conditions of use and storage.

Incompatibility ..... Strong bases (organic and inorganic), strong oxidizers, strong acids. Contact with metals or metal alloys may cause generation of explosive hydrogen gas.

Hazardous Decomposition Products ..... Thermal decomposition of product can produce toxic vapors of phosphorous oxide, hydrogen gas, oxides of carbon.

SECTION 10 *Handling Precautions*

Rubber gloves, safety glasses or goggles, body protective clothing and shoes are required. Eye-wash fountains in the work place are recommended. When splashing can occur, a neoprene apron or neoprene rain suit and a face shield are advisable. Provide dilution ventilation to control vapor and\or mist level. When misting may occur in the work area, a NIOSH/MSHA approved respirator may be required. Use a respirator approved for the material and level of exposure. A comprehensive respiratory protection program is needed when respirators must be used. The handling precautions for this product are based on the characteristics of the neat product unless otherwise specified.

SECTION 11 *Satisfactory Materials of Construction*

Not available.

SECTION 12 *Spill, Leak, and Disposal Procedures*

SPILL AND LEAK RESPONSE GUIDELINES:

Important: Before responding to a spill or leak of this product, review each section of this MSDS. Follow the recommendations given in the Handling Precautions sections. Check the Fire and Explosion Data section to determine if the use of non-sparking tools is merited. Insure that spilled or leaked product does not come into contact with materials listed as incompatible. If irritating fumes are present, consider evacuation of affected areas.

Emergency Response Assistance: Emergency technical assistance is available at any time from Buckman Laboratories, Inc., by calling (901) 767-2722. Collect calls are accepted.

Initially minimize area affected by the spill or leak. Block any potential routes to water systems (e.g., sewers, streams, lakes, etc.). Based on the product's toxicological and chemical properties, and on the size and location of the spill or leak, assess the impact on contaminated environments (e.g. water systems, ground, air equipment, etc.). There are no methods available to completely eliminate any toxicity this product may have on aquatic environments. Minimize adverse effects on these environments. Buckman Laboratories, Inc. can be contacted for technical assistance. Determine if federal, state, and/or local release notification is required (see Regulatory Information section of this MSDS). Recover as much of the pure product as possible into appropriate containers. Later, determine if this recovered product can be used for its intended purpose. Address clean-up of contaminated environments. Spill or leak residuals may have to be collected and disposed of. Clay, soil, or commercially available absorbents may be used to recover any material that can not readily be recovered as pure product. Flushing residual material to an industrial sewer, if present at the site of a spill or leak incident, may be acceptable if authorized approval is obtained. If product and/or spill/leak residuals are flushed to an industrial sewer, insure that they do not come into contact with incompatible materials.

DISPOSAL GUIDELINES

Note: Follow federal, state, and local regulations governing the disposal of waste materials.

Neat Product: Contact your Buckman representative.

Contaminated Materials: Determine if waste containing this product can be handled by available industrial effluent system or other on-site waste management unit. If off-site management is required, contact a company experienced in industrial waste management.

Container Disposal: If assistance is needed, contact your Buckman sales representative.

SECTION 13 *Transportation and Shipping Information*

DOT Shipping Information:

UN1805 , PHOSPHORIC ACID SOLUTION , Class 8, P.G. III , (ERG Guide 154)

IMO/IMDG Shipping Information:

UN1805 , PHOSPHORIC ACID, LIQUID , Class 8, P.G. III , (EmS No. F-A, S-B , ERG Guide 154, HazMat Code 4930248)

IATA Shipping Information:

UN1805 , PHOSPHORIC ACID, LIQUID , Class 8, P.G. III , (ERG Guide 154, ERG Code 8L)

When shipped in a single package containing MORE THAN 505 GAL (6,666 LBS), this product contains a reportable quantity of PHOSPHORIC ACID and the shipping description should be preceded or followed by the letters "RQ".

Unless otherwise stated, the shipping information provided above applies only to non-bulk containers of this product. Proper shipping name and general shipping information may vary depending on packaging and mode of shipment. All products shipped from Buckman locations have been properly packaged and labeled according to appropriate hazardous materials shipping regulations. If any alteration of packaging, product, or mode of transportation is further intended, different shipping information, including but not limited to proper shipping name, RQ designation, and labeling may apply. For further information pertaining to the shipping requirements for this product, contact Buckman's Transportation Department or DOT Coordinator.

SECTION 14 *Regulatory Information*

The following Regulations are known to apply to the use and disposal of this product. Additional Federal, State and Local regulations may also be applicable.

SARA (Superfund Amendments and Reauthorization Act)

SARA 302 Extremely Hazardous Substances List ...

No components of this product are listed.

SARA 312 Hazard Category ...

Immediate (Acute) Health Hazard

SARA 313 Toxic Chemicals List ...

Phosphoric acid

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)

Phosphoric acid ..... RQ = 5000 lbs.

RCRA (Resource Conversation and Recovery Act) Listed Hazardous Waste

No components of this product are listed; however, this product may need to be disposed of as a Hazardous Waste based on its corrosivity characteristic (pH <2).

CWA (Clean Water Act) Listed Substances

No components of this product are listed.

FDA (Food and Drug Administration)

This product is approved under the following FDA (21 CFR) sections : 176.210.

TSCA (Toxic Substances Control Act) Applicability

All components are listed on the TSCA Inventory.

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)

This product is not a registered pesticide.

HMIS/NPCA Rating ... Health **2** Flammability **0** Reactivity **0**

NFPA Ratings ..... Health **2** Flammability **0** Reactivity **0**

State Regulations

Various State Right To Know Acts ...

Non-proprietary hazardous chemicals are listed in Section 2 of this MSDS. Should you require further information on specific proprietary or inert ingredients please contact Buckman Laboratories' Regulatory Affairs Department.

The information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application which is not described in the Data Sheet is the responsibility of the user. This Material Data Safety Sheet was prepared to comply with the OSHA Hazard Communication regulations. While some components are claimed Trade Secret under OSHA Hazard Communication regulations, all known OSHA hazards associated with the Trade Secret component(s), if contained in this product, are fully disclosed.

Buckman Laboratories, Inc. warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions.

Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.

The exclusive remedy against seller shall be in a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort.

Any controversy or claim arising out or relating to this contract, or breach thereof, shall be settle by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Low Volume Waste Chemical Additives
(internal to Once Through Cooling)

a. Manufacturers Product Identification Number: **Bulab 6013/ Bulab 6042**

b. Product Use: **Biocide used for cleaning RO membranes**

c. Chemical Composition: **See attached data sheets**

d. Product toxicity data: **See attached data sheets**

e. Classification (non-persistent, persistent or bioaccumulative): **Not Available**

f. Product or active ingredient half-life: **Not Available**

g. Concentration of whole product or active ingredient in wastestream: **Not Detectable***

h. Frequency of product use: **Continuous low concentration feed; as needed**

i. Outfall: **004 (internal)**

* Residual product would not be reasonably expected to be detected in the wastestream since it discharges through retention pond where it commingles with other biocide-demanding wastestreams prior to discharge through an internal outfall.

BUCKMAN LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET

BULAB 6013

Revision date: 3/2/2005

Buckman Laboratories, Inc.
1256 North McLean Boulevard
Memphis, TN 38108

Phone 1-800-BUCKMAN

24 Hour Emergency Phone: (901) 767-2722

SECTION 1 — *OSHA HAZARD CLASSIFICATIONS*

Corrosive to eyes. Irritating to skin. Avoid breathing vapors or spray mists.

SECTION 2 — *HAZARDOUS COMPONENTS*

Chemical Name	*CAS Number*	*% by Weight*	*TLV*
Potassium dimethyldithiocarbamate	**128-03-0**	**50**	**Not available.**

Buckman Laboratories reports the component(s) listed above as known OSHA hazardous material(s) contained in this product.

SECTION 3 — *FIRST AID INFORMATION*

Eye Exposure: **Flush immediately with copious amounts of tap water or normal saline (minimum of 15 minutes). Take exposed individual to a health care professional, preferably an ophthalmologist, for further evaluation.**

Skin Exposure: **Wash exposed area with plenty of water. Repeat washing. Remove contaminated clothing and wash thoroughly before reuse. If irritation persists consult a health care professional.**

Inhalation: **If exposure by inhalation is suspected, immediately move exposed individual to fresh air. If individual experiences nausea, headache, dizziness, has difficulty in breathing or is cyanotic, seek a health care professional immediately.**

Ingestion: **DO NOT INDUCE VOMITING. Rinse with copious amounts of water or milk, first. Irrigate the esophagus and dilute stomach contents by slowly giving one (1) to two (2) glasses of water or milk. Avoid giving alcohol or alcohol related products. In cases where the individual is semi-comatose, comatose or convulsing, DO NOT GIVE FLUIDS BY MOUTH. In case of intentional ingestion of the product seek medical assistance immediately; take individual to nearest medical facility.**

SECTION 4 *PRIMARY ROUTES OF EXPOSURE*

1. Effects from Acute Exposure:

Eye Exposure: **Very hazardous in case of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching.**

Skin Exposure: **Hazardous in case of skin contact (irritant, sensitizer). Non-corrosive for skin. Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.**

Inhalation: **May be harmful if inhaled. Do not breathe spray mists of the product. Effects will depend upon solution strength and length of time of exposure.**

Ingestion: **Ingestion is not expected to be a primary route of exposure.**

2. Effects from Chronic Exposure:

The effects from chronic exposure to this product have not been fully evaluated.

SECTION 5 *Toxicological Information*

Acute Effects:

Acute	**Oral**	**(LD50) = 2030 mg/kg Rat**
Acute	**Dermal**	**(LD50) = 2990 mg/kg Rabbit**

Irritant / Sensitization Effects:

Very hazardous in case of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching.
Hazardous in case of skin contact (irritant, sensitizer). Non-corrosive for skin. Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
May be harmful if inhaled. Do not breathe spray mists of the product. Effects will depend upon solution strength and length of time of exposure.

Carcinogenic Potential:

Not tested by Buckman Laboratories. Not shown as a carcinogen by OSHA, IARC, or NTP.

Target Organs Effects:

May cause damage to the following organs: upper respiratory tract, skin, eyes.

Other Health Effects:

This product has been shown to be a weak sensitizer according to animal data. No instances of human sensitization are known. 90 day exposure studies did not reveal any adverse effects. This product has tested positive in several in vitro mutagenicity assays.

SECTION 6 *Environmental Toxicological Information*

LC50 = 0.34 mg/l 48 hours Daphnia magna
LC50 = 0.36 mg/l 96 hours Rainbow trout
LC50 = 0.06 mg/l 96 hours Fathead minnow

SECTION 7 *Physical and Chemical Properties*

Appearance	Clear, green liquid
Odor	Pungent, ammoniacal
Density	1.23 g/cm^3
Flash Point	Closed cup: >100°C (212°F).
Melting/Freezing Point	-35°C (-31°F)
Boiling Point	Not available.
Solubility	Easily soluble in cold water. Easily soluble in hot water.
pH (Neat)	>13.5 [Basic.]
pH (100 ppm in water)	7.0 - 9.0
Vapor Pressure	Not available.
o/w Partition Coefficient	Not available.
Oxidizing/Reducing Properties	Not available.
Viscosity	Not available.
Additional pH Information	pH (10% solution) = 12.3.

NOTE: The physical data presented above are typical values and should not be construed as specifications.

SECTION 8 *Fire and Explosion Information*

Flammable Limits	Not available.
Extinguishing Media	Water fog, carbon dioxide, foam, dry chemical.
Special Firefighting Procedures	Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 9 *Reactivity Information*

Stability	Stable under normal conditions of use and storage.
Incompatibility	Strong acids, strong oxidizers, and reducing agents.
Hazardous Decomposition Products	Carbon disulfide and dimethylamine may be generated upon acidification. Thermal degradation may generate vapors of hydrogen sulfide. Contact with fire or strong oxidants may generate methyl isothiocyanates, oxides of sulfur, nitrogen, and carbon.

SECTION 10 *Handling Precautions*

Local exhaust should be maintained to control vapor and mist levels. Rubber gloves, safety glasses or goggles and body protective clothing and shoes are required. A face shield is advisable if splashing can occur. Eye-wash fountains in the work place are strongly recommended. The handling precautions for this product are based on the characteristics of the neat product unless otherwise specified.

SECTION 11 *Satisfactory Materials of Construction*

Plexiglas
Teflon
Buna-N rubber
Viton
EPDM rubber
PVC - flexible
Neoprene
Polyethylene - low density
Tygon R3603
Tyril 880
Silicone rubber
Hypalon
Stainless steels 304 and 316
6/6 Nylon
Polyethylene - high density
Mild steel C1010
Polyethylene - crosslink
Polypropylene
PVC - rigid
Butyl rubber
ABS (Plastic)
Morton test liner (108 T 44LV)
Dow Sillastic Tube
Rehau Tube
Polyurethane Liner
Norprene Tubing FRP G-10
Pharmed Tubing
NOTE: With respect to all other materials not listed above, user should be aware that use of such materials with this product may be hazardous and result in damages to such materials and other property and personal injuries. No data concerning such materials not listed above should be implied by the user.

SECTION 12 *Spill, Leak, and Disposal Procedures*

SPILL AND LEAK RESPONSE GUIDELINES:

Important: Before responding to a spill or leak of this product, review each section of this MSDS. Follow the recommendations given in the Handling Precautions sections. Check the Fire and Explosion Data section to determine if the use of non-sparking tools is merited. Insure that spilled or leaked product does not come into contact with materials listed as incompatible. If irritating fumes are present, consider evacuation of enclosed areas.

Emergency Response Assistance: Emergency technical assistance is available at any time from Buckman Laboratories, Inc., by calling (901) 767-2722.

Initially minimize area affected by the spill or leak. Block any potential routes to water systems (e.g., sewers, streams, lakes, etc.). Based on the product's toxicological and chemical properties, and on the size and location of the spill or leak, assess the impact on contaminated environments (e.g. water systems, ground, air equipment, etc.). There are no methods available to completely eliminate any toxicity this product may have on aquatic environments. Minimize adverse effects on these environments. Buckman Laboratories, Inc. can be contacted for technical assistance. Determine if federal, state, and/or local release notification is required (see Regulatory Classifications section of this MSDS). Recover as much of the pure product as possible into appropriate containers. Later, determine if this recovered product can be used for its intended purpose. Address clean-up of contaminated environments. Spill or leak residuals may have to be collected and disposed of. Clay, soil, or commercially available absorbents

may be used to recover any material that can not readily be recovered as pure product. Flushing residual material to an industrial sewer, if present at the site of a spill or leak incident, may be acceptable if authorized approval is obtained. If product and/or spill/leak residuals are flushed to an industrial sewer, insure that they do not come into contact with incompatible materials. Contact the person(s) responsible for the operation of your facility's industrial sewer system prior to intentionally flushing or pumping spills or leaks of this product to the industrial sewer.

DISPOSAL GUIDELINES

Note: Follow federal, state, and local regulations governing the disposal of waste materials.

Neat Product: Contact your Buckman representative or Buckman Laboratories, Inc., at (901) 278-0330.

Contaminated Materials: Determine if waste containing this product can be handled by available industrial effluent system or other on-site waste management unit. If off-site management is required, contact a company experienced in industrial waste management. This product is not specifically listed in 40 CFR 261 as a Resource Conservation and Recovery Act (RCRA) hazardous waste. However, spill or leak residuals may meet the criteria of a characteristic hazardous waste under this Act. Check the characteristics of the material to be disposed of and/or the physical and reactivity data given in this MSDS for the neat product.

Container Disposal: Empty containers, as defined by appropriate sections of the RCRA, are not RCRA hazardous wastes. However, insure proper management of any residuals remaining in container.

SECTION 13 *Transportation and Shipping Information*

DOT Shipping Information:

NON-BULK: CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S., (Potassium dimethyldithiocarbamate), Class 8, UN3267, P.G. III, (ERG Guide 153) — BULK: NOT REGULATED per 49 CFR 173.154(d)(2) when transported in non-steel packagings.

IMO/IMDG Shipping Information:

CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S., (Potassium dimethyldithiocarbamate), Class 8, UN3267, P.G. III, MARINE POLLUTANT, (EmS No. F-A, S-B, ERG Guide 153, HazMat Code 4935263)

IATA Shipping Information:

CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S., (Potassium dimethyldithiocarbamate), Class 8, UN3267, P.G. III, (ERG Guide 153, ERG Code 8L)

Unless otherwise stated, the shipping information provided above applies only to non-bulk containers of this product. Proper shipping name and general shipping information may vary depending on packaging and mode of shipment. All products shipped from Buckman locations have been properly packaged and labeled according to appropriate hazardous materials shipping regulations. If any alteration of packaging, product, or mode of transportation is further intended, different shipping information, including but not limited to proper shipping name, RQ designation, and labeling may apply. For further information pertaining to the shipping requirements for this product, contact Buckman's Transportation Department or DOT Coordinator.

SECTION 14 *Regulatory Information*

The following Regulations are known to apply to the use and disposal of this product. Additional Federal, State and Local regulations may also be applicable.

SARA (Superfund Amendments and Reauthorization Act)

SARA 302 Extremely Hazardous Substances List ...

No components of this product are listed.

SARA 312 Hazard Category ...

Immediate (Acute) Health Hazard

SARA 313 Toxic Chemicals List ...

This product contains the following toxic chemical(s) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372 :

Potassium dimethyldithiocarbamate

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)

No components of this product are present above the *de minimus* levels.

RCRA (Resource Conversation and Recovery Act) Listed Hazardous Waste

No components of this product are listed.

CWA (Clean Water Act) Listed Substances

No components of this product are listed.

FDA (Food and Drug Administration)

This product is approved under the following FDA (21 CFR) sections : 176.300.

TSCA (Toxic Substances Control Act) Applicability

All components may not be listed on the TSCA Inventory. Registered pesticides are exempt from the requirements of TSCA.

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)

This product is a registered pesticide. EPA Reg. No. 1448-70

HMIS/NPCA Rating ...	Health	3	Flammability	1	Reactivity	1
NFPA Ratings	Health	3	Flammability	1	Reactivity	1

State Regulations

Various State Right To Know Acts ...

Non-proprietary hazardous chemicals are listed in Section 2 of this MSDS. Should you require further information on specific proprietary or inert ingredients please contact Buckman Laboratories' Regulatory Affairs Department.

The information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application which is not described in the Data Sheet is the responsibility of the user. This Material Data Safety Sheet was prepared to comply with the OSHA Hazard Communication regulations. While some components are claimed Trade Secret under OSHA Hazard Communication regulations, all known OSHA hazards associated with the Trade Secret component(s), if contained in this product, are fully disclosed.

Buckman Laboratories, Inc. warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions.

Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.

The exclusive remedy against seller shall be in a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort.

Any controversy or claim arising out or relating to this contract, or breach thereof, shall be settle by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

*** GENERAL PRODUCT INFORMATION ***

SECTION 1

Trade Product Name :BULAB 6042
Synonyms :NOT LISTED

Manufacturer Name :BUCKMAN LABORATORIES, INC.
Manufacturer's Address :1256 NORTH MCLEAN BOULEVARD
City :MEMPHIS
State :TN
ZIP :38108
Emergency Phone Number :901-767-2722
Telephone :1-800-BUCKMAN

*** INGREDIENTS INFORMATION ***

SECTION 2

** EXPOSURE LIMIT **

INGREDIENT NAME	OSHA PEL	ACGIH TLV
2,2-DIBROMO-3-NITRILOPROPIONAMIDE	N/A	N/A

** PERCENTAGES **

INGREDIENT NAME	HIGH %	LOW %
2,2-DIBROMO-3-NITRILOPROPIONAMIDE	20	

** CAS NUMBERS **

INGREDIENT NAME	CAS NUMBER
2,2-DIBROMO-3-NITRILOPROPIONAMIDE	10222-01-2

Additional Information:
THE REMAINDER OF THE COMPONENTS COMPRISE PROPRIETARY INFORMATION.

*** PHYSICAL/CHEMICAL CHARACTERISTICS ***

SECTION 3

Boiling Point :DECOMPOSES AT 49C
Melting Point :NOT LISTED
Specific Gravity :NOT LISTED
Vapor Pressure :N/T
Percent Volatiles :NOT LISTED
Vapor Density (air=1) :NOT LISTED
Evaporation Rate :NOT LISTED
Compared to :NOT LISTED
Water Solubility :DISPERSES IN WATER
Appearance and Odor :AMBER LIQUID WITH SLIGHT ODOR

Additional Information:
DENSITY @ 25C :1.25 G/ML
FREEZING POINT :<-20C (0F)
PH :2-4
PH (100 PPM IN WATER) :6-7
O/W PARTITION COEFFICIENT :N/T
OXIDIZING/REDUCING PROPERTIES: N/T

*** FIRE AND EXPLOSION HAZARD DATA ***

SECTION 4

Flash Point :NOT LISTED
Flash Point Method :NOT LISTED
Upper Explosive Limit :NOT APPLICABLE
Lower Explosive Limit :NOT APPLICABLE
Autoignition Temperature :NOT LISTED
Extinguisher Media :WATER FOG, CARBON DIOXIDE, FOAM, DRY CHEMICAL
Special Fire Fighting Procedures :

SELF CONTAINED BREATHING APPARATUS IS REQUIRED.

Unusual Fire & Explosion Hazards :
NOT LISTED

*** REACTIVITY DATA ***

SECTION 5

Is this chemical stable under normal conditions of handling and storage?	:YES
Conditions to Avoid	:TEMPERATURES ABOVE 70C (158F). FOR OPTIMUM PRODUCT QUALITY, AVOID CONTAMINATION OR DILUTION AND STORE BELOW 95F. ALL STORAGE CONTAINERS SHOULD BE SELF-VENTED. DO NOT ALLOW TO FREEZE.
Incompatibility(materials to avoid)	:STRONG ALKALI. DO NOT STORE IN STEEL OR STAINLESS STEEL.
Hazardous decomposition products	:GASES POTENTIALLY FORMED ABOVE 120C (248F) INCLUDE BROMINE, CYANOGEN BROMIDE, AND DIBROMOACETONITRILE
Is hazardous polymerization possible	:NOT LISTED
Conditions to avoid regarding polymerization	:NOT LISTED

*** HEALTH HAZARD DATA ***

SECTION 6

Acute effects of overexposure:
Eye contact :CORROSIVE. EFFECTS MAY RANGE FROM MODERATE TO SEVERE (CORROSION) DEPENDING ON THE LENGTH OF EXPOSURE, SOLUTION CONCENTRATION AND FIRST AID MEASURES.

Skin contact :CORROSIVE. EFFECTS MAY RANGE FROM MODERATE TO SEVERE (CORROSION) DEPENDING ON THE LENGTH OF EXPOSURE, SOLUTION CONCENTRATION AND FIRST AID MEASURES.

Inhalation :MAY CAUSE IRRITATION OR CORROSION OF MUCUOS MEMBRANES AND THE LUNGS. EXPOSED INDIVIDUALS SHOULD BE MONITORED FOR RESPIRATORY DISTRESS, BRONCHITIS OR PNEUMONIA.

Ingestion :INGESTION IS NOT EXPECTED TO BE A PRIMARY ROUTE OF EXPOSURE.

Chronic effects of overexposure:
CONTAINS POLYETHYLENE GLYCOL. REPEATED EXCESSIVE EXPOSURES MAY CAUSE KIDNEY EFFECTS.

Other health effects:
CONTAINS POLYETHYLENE GLYCOL. REPEATED EXCESSIVE EXPOSURES MAY CAUSE KIDNEY EFFECTS.

Target organs:
SKIN AND EYES (IRRITATION) ARE EXPECTED TO BE THE PRIMARY TARGET ORGANS OF THIS PRODUCT.

Is chemical listed as a carcinogen or potential carcinogen?

National Toxicology Program IARC Monographs OSHA

NOT LISTED	NOT LISTED	NOT LISTED

*** FIRST AID PROCEDURES ***

Emergency phone number: 901-767-2722

Eye contact:
FLUSH IMMEDIATELY WITH COPIOUS AMOUNTS OF TAP WATER OR NORMAL SALINE (MINIMUM OF 15 MINUTES). TAKE EXPOSED INDIVIDUAL TO A HEALTH CARE PROFESSIONAL, PREFERABLY AN OPHTHALMOLOGIST, FOR FURTHER EVALUATION.

Skin contact:
WASH EXPOSED AREA WITH PLENTY OF SOAP AND WATER. REPEAT WASHING. REMOVE CONTAMINATED CLOTHING AND WASH THOROUGHLY BEFORE REUSE. IF IRRITATION PERSISTS CONSULT A HEALTH CARE PROFESSIONAL.

Inhalation:
IF EXPOSURE BY INHALATION IS SUSPECTED, IMMEDIATELY MOVE EXPOSED INDIVIDUAL TO FRESH AIR. IF INDIVIDUAL EXPERIENCES NAUSEA, HEADACHE, DIZZINESS, HAS DIFFICULTY IN BREATHING OR IS CYANOTIC, SEEK A HEALTH CARE PROFESSIONAL IMMEDIATELY.

Ingestion:
DO NOT INDUCE VOMITING. RINSE WITH COPIOUS AMOUNTS OF WATER OR MILK, FIRST. IRRIGATE THE ESOPHAGUS AND DILUTE STOMACH CONTENTS BY SLOWLY GIVING ONE (1) TO TWO (2) GLASSES OF WATER OR MILK. AVOID GIVING ALCOHOL OR ALCOHOL RELATED PRODUCTS. IN CASES WHERE THE INDIVIDUAL IS SEMI-COMATOSE, COMATOSE OR CONVULSING, DO NOT GIVE FLUIDS BY MOUTH. IN CASE OF INTENTIONAL INGESTION OF THE PRODUCT SEEK MEDICAL ASSISTANCE IMMEDIATELY; TAKE INDIVIDUAL TO NEAREST MEDICAL FACILITY.

Additional information:
NOTE TO PHYSICIAN:
NO SPECIFIC ANTIDOTE IS KNOWN. PROBABLY MUCOSAL DAMAGE MAY CONTRAINDICATE THE USE OF GASTRIC LAVAGE. TREAT SYMPTOMS. MEDICAL CONSULTATION IS AVAILABLE 24 HOURS A DAY. CALL THE NPI-BUCKMAN CENTER FOR PRODUCT INFORMATION AT U.S.A. (1)(901)767-2722.

TOXICOLOGICAL INFORMATION:
ACUTE EFFECTS:
ACUTE ORAL LD50 : 800.0 MG/KG
ACUTE DERMAL LD50: >2,000.0 MG/KG
IRRITANT EFFECTS : CORROSIVE TO EYES AND SKIN.
SENSITIZATION EFFECTS : NOT A HUMAN SENSITIZER.
CARCINOGENIC POTENTIAL: NOT LISTED IN ANY OF OSHA STANDARD, SECTION 1910.1200 SOURCES AS CARCINOGENIC, NOT TESTED BY BUCKMAN LABORATORIES, INC.

*** PRECAUTIONS FOR SAFE HANDLING AND USE ***

SECTION 7

Precautions to be taken in handling and storage:
NOT LISTED

Steps to be taken in case material is released or spilled:
Important :BEFORE RESPONDING TO A SPILL OR LEAK OF THIS PRODUCT, REVIEW EACH SECTION OF THIS MSDS. FOLLOW THE RECOMMENDATIONS GIVEN IN THE HANDLING PRECAUTIONS SECTION, ABOVE. CHECK THE FIRE AND EXPLOSION DATA SECTION TO DETERMINE IF THE USE OF NON-SPARKING TOOLS IS MERITED. INSURE THAT SPILLED OR LEAKED PRODUCT DOES NOT COME INTO CONTACT WITH MATERIALS LISTED AS INCOMPATIBLE. IF IRRITATING FUMES ARE PRESENT,

CONSIDER EVACUATION OF ENCLOSED AREAS.
INITIALLY MINIMIZE AREA AFFECTED BY THE SPILL OR LEAK. BLOCK ANY POTENTIAL ROUTES TO WATER SYSTEMS (E.G., SEWERS, STREAMS, LAKES, ETC.) BASED ON THE PRODUCT'S TOXICOLOGICAL AND CHEMICAL PROPERTIES, AND ON THE SIZE AND LOCATION OF THE SPILL OR LEAK, ASSESS THE IMPACT ON CONTAMINATED ENVIRONMENTS (E.G. WATER SYSTEMS, GROUND, AIR EQUIPMENT, ETC.). THERE ARE NO METHODS AVAILABLE TO COMPLETELY ELIMINATE ANY TOXICITY THIS PRODUCT MAY HAVE ON AQUATIC ENVIRONMENTS. MINIMIZE ADVERSE EFFECTS ON THESE ENVIRONMENTS. BUCKMAN LABORATORIES, INC. CAN BE CONTACTED FOR TECHNICAL ASSISTANCE. DETERMINE IF FEDERAL, STATE, AND/OR LOCAL RELEASE NOTIFICATION IS REQUIRED (SEE REGULATORY CLASSIFICATIONS SECTION OF THIS MSDS). RECOVER AS MUCH OF THE PURE PRODUCT AS POSSIBLE INTO APPROPRIATE CONTAINERS. LATER, DETERMINE IF THIS RECOVERED PRODUCT CAN BE USED FOR ITS INTENDED PURPOSE. ADDRESS CLEAN-UP OF CONTAMINATED ENVIRONMENTS. SPILL OR LEAK RESIDUALS MAY HAVE TO BE COLLECTED AND DISPOSED OF. CLAY, SOIL, OR COMMERCIALLY AVAILABLE ABSORBENTS MAY BE USED TO RECOVER ANY MATERIAL THAT CAN NOT READILY BE RECOVERED AS PURE PRODUCT. FLUSHING RESIDUAL MATERIAL TO AN INDUSTRIAL SEWER, IF PRESENT AT THE SITE OF A SPILL OR LEAK INCIDENT, MAY BE ACCEPTABLE IF AUTHORIZED APPROVAL IS OBTAINED. IF PRODUCT AND/OR SPILL/LEAK RESIDUALS ARE FLUSHED TO AN INDUSTRIAL SEWER, INSURE THAT THEY DO NOT COME INTO CONTACT WITH INCOMPATIBLE MATERIALS. CONTACT THE PERSON(S) RESPONSIBLE FOR THE OPERATION OF YOUR FACILITY'S INDUSTRIAL SEWER SYSTEM PRIOR TO INTENTIONALLY FLUSHING OR PUMPING SPILLS OR LEAKS OF THIS PRODUCT TO THE INDUSTRIAL SEWER.

Waste disposal methods:
NOTE: FOLLOW FEDERAL, STATE, AND LOCAL REGULATIONS GOVERNING THE DISPOSAL OF WASTE MATERIALS.
Neat product :CONTACT YOUR BUCKMAN REPRESENTATIVE OR BUCKMAN LABORATORIES, INC., AT 901-278-0330.
Contaminated materials :DETERMINE IF WASTE CONTAINING THIS PRODUCT CAN BE HANDLED BY AVAILABLE INDUSTRIAL EFFLUENT SYSTEM OR OTHER ON-SITE WASTE MANAGEMENT UNIT. IF OFF-SITE MANAGEMENT IS REQUIRED, CONTACT A COMPANY EXPERIENCED IN INDUSTRIAL WASTE MANAGEMENT. THIS PRODUCT IS NOT SPECIFICALLY LISTED IN 40 CFR 261 AS A RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) HAZARDOUS WASTE. HOWEVER, SPILL OR LEAK RESIDUALS MAY MEET THE CRITERIA OF A CHARACTERISTIC HAZARDOUS WASTE UNDER THIS ACT. CHECK THE CHARACTERISTICS OF THE MATERIAL TO BE DISPOSED OF AND/OR THE PHYSICAL AND REACTIVITY DATA GIVEN IN THIS MSDS FOR THE NEAT PRODUCT.
Container disposal :EMPTY CONTAINERS, AS DEFINED BY APPROPRIATE SECTIONS OF THE RCRA, ARE NOT RCRA HAZARDOUS WASTES. HOWEVER, INSURE PROPER MANAGEMENT OF ANY RESIDUALS REMAINING IN CONTAINER.

Additional information:
TRANSPORTATION AND SHIPPING INFORMATION:
DOT SHIPPING NAME : CORROSIVE LIQUID, N.O.S., (2,2-DIBROMO-3-NITRILOPROPIONAMIDE), 8, UN 1760, PG III (ERG GUIDE 60)

THE SHIPPING NAME LISTED ABOVE APPLIES ONLY TO A 55 GALLON DRUM OF THE PRODUCT. THIS PRODUCT MAY HAVE MORE THAN ONE PROPER SHIPPING NAME, DEPENDING ON PACKAGING, PRODUCT PROPERTIES, AND MODE OF SHIPMENT. ALL PRODUCTS SHIPPED FROM BUCKMAN LOCATIONS HAVE BEEN PROPERLY PACKAGED AND LABELED ACCORDING TO APPROPRIATE HAZARDOUS SHIPPING REGULATIONS THAT APPLY FOR THAT PARTICULAR SHIPMENT. IF ANY ALTERATION OF PACKAGING, PRODUCT, OR MODE OF TRANSPORTATION IS FURTHER INTENDED, DIFFERENT SHIPPING NAMES AND LABELING MAY APPLY. IF THERE ARE ANY QUESTIONS PERTAINING TO HAZARDOUS SHIPPING REQUIREMENTS, CONTACT THE BUCKMAN TRANSPORTATION DEPARTMENT FOR FURTHER DETAILS.

*** CONTROL MEASURES ***

SECTION 8

Respiratory Protection:
RESPIRATORY PROTECTION IS REQUIRED FOR WORK AREAS WHERE MISTING MAY OCCUR. AVOID BREATHING MISTS AND HEADSPACE VAPORS. A COMPREHENSIVE RESPIRATORY PROTECTION PROGRAM IS NEEDED WHEN RESPIRATORS MUST BE USED.

Protective Gloves:
RUBBER GLOVES

Eye Protection:
SAFETY GLASSES OR GOGGLES REQUIRED. EYE WASH FOUNTAINS IN THE WORK PLACE ARE STRONGLY RECOMMENDED. WHEN SPLASHING CAN OCCUR, A PROTECTIVE FACE SHIELD IS REQUIRED.

Other protective Clothing or Equipment:
BODY-PROTECTIVE CLOTHING AND SHOES ARE REQUIRED.

*** DOCUMENTARY ***

SECTION 9

This MSDS prepared by :NOT LISTED ON MSDS
Date of preparation for this MSDS :05/30/96

*** ADDITIONAL INFORMATION ***

SECTION 10

SATISFACTORY MATERIALS OF CONSTRUCTION:
TESTED SATISFACTORY MATERIALS:
POLYPROPYLENE
TEFLON
POLYETHYLENE
KYNAR RESIN
PLASTICITE 4005
HASTELLOY C276
TITANIUM
HERESITE P-403
AMERCOAT 23

NOTE: WITH RESPECT TO ALL OTHER MATERIALS NOT LISTED ABOVE, USER SHOULD BE AWARE THAT USE OF SUCH MATERIALS WITH BULAB 6042 MAY BE HAZARDOUS AND RESULT IN DAMAGES TO SUCH MATERIALS AND OTHER PROPERTY AND PERSONAL INJURIES. NO DATA CONCERNING SUCH MATERIALS NOT LISTED ABOVE SHOULD BE IMPLIED BY USER.

REGULATORY INFORMATION:
THE FOLLOWING REGULATIONS ARE KNOWN TO APPLY TO THE USE AND DISPOSAL OF THIS PRODUCT. ADDITIONAL FEDERAL, STATE AND LOCAL REGULATIONS MAY ALSO BE APPLIED.

SARA (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):
SARA 302 EXTREMELY HAZARDOUS SUBSTANCES LIST: NO COMPONENTS OF THIS PRODUCT ARE LISTED.
SARA 312 HAZARD CATEGORY: IMMEDIATE (ACUTE) HAZARD AND CHRONIC (DELAYED) HEALTH HAZARD.
SARA 313 TOXIC CHEMICALS LIST: THE FOLLOWING COMPONENTS ARE LISTED ON THE SARA 313 TOXIC SUBSTANCES LIST (MAY BE LISTED AS CATEGORIES):
2,2-DIBROMO-3-NITRILOPROPIONAMIDE
CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT): NO COMPONENTS OF THIS PRODUCT ARE LISTED.

RCRA (RESOURCE CONSERVATION AND RECOVERY ACT)LISTED HAZARDOUS WASTES:

NO COMPONENTS OF THIS PRODUCT ARE LISTED.

CWA (CLEAN WATER ACT)LISTED SUBSTANCES : NO COMPONENTS OF THIS PRODUCT ARE LISTED.
FDA (FOOD AND DRUG ADMINISTRATION): THIS PRODUCT IS APPROVED UNDER THE FOLLOWING FDA (21 CFR) SECTIONS: 173.320, 176.300
TSCA (TOXIC SUBSTANCES CONTROL ACT)APPLICABILITY: REGISTERED PESTICIDES ARE EXEMPT FROM THE REQUIREMENTS OF TSCA. ALL COMPONENTS MAY NOT BE LISTED ON TSCA INVENTORY.

FIFRA (FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT):
THIS PRODUCT IS A REGISTERED PESTICIDE. EPA REG. NO. 1448-72.

HMIS/NPCA RATINGS : HEALTH 3 ; FLAMMABILITY 1 ; REACTIVITY 1
NFPA RATINGS : HEALTH 3 ; FLAMMABILITY 1 ; REACTIVITY 1

STATE REGULATIONS:
VARIOUS STATE RIGHT TO KNOW ACTS: NON-PROPRIETARY HAZARDOUS CHEMICALS ARE LISTED IN SECTION OF THIS MSDS. SHOULD YOU REQUIRE FURTHER INFORMATION ON SPECIFIC PROPRIETARY CHEMICALS OR INERTS PLEASE CONTACT BUCKMAN LABORATORIES' REGULATORY AFFAIRS DEPARTMENT.

THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET REFLECTS THE LATEST INFORMATION AND DATA THAT WE HAVE ON HAZARDS, PROPERTIES, AND HANDLING OF THIS PRODUCT UNDER THE RECOMMENDED CONDITIONS OF USE. ANY USE OF THIS PRODUCT OR METHOD OF APPLICATION WHICH IS NOT DESCRIBED IN THE PRODUCT DATA SHEET IS THE RESPONSIBILITY OF THE USER. THIS MATERIAL SAFETY DATA SHEET WAS PREPARED TO COMPLY WITH THE OSHA HAZARD COMMUNICATION REGULATIONS.

BUCKMAN LABORATORIES, INC. WARRANTS THAT THIS PRODUCT CONFORMS TO ITS CHEMICAL DESCRIPTION AND IS REASONABLY FIT FOR THE PURPOSE REFERRED TO IN THE DIRECTIONS FOR USE WHEN USED IN ACCORDANCE WITH THE DIRECTIONS UNDER NORMAL CONDITIONS. BUYER ASSUMES THE RISK OF ANY USE CONTRARY TO SUCH DIRECTIONS.

SELLER MAKES NO OTHER WARRANTY OR REPRESENTATION OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT, INCLUDING NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. NO SUCH WARRANTIES SHALL BE IMPLIED BY LAW AND NO AGENT OF SELLER IS AUTHORIZED TO ALTER THIS WARRANTY IN ANY WAY EXCEPT IN WRITING WITH A SPECIFIC REFERENCE TO THIS WARRANTY.

THE EXCLUSIVE REMEDY SELLER SHALL BE A CLAIM FOR DAMAGES NOT TO EXCEED THE PURCHASE PRICE OF THE PRODUCT, WITHOUT REGARD TO WHETHER SUCH A CLAIM IS BASED UPON BREACH OF WARRANTY OR TORT.

THE EXCLUSIVE REMEDY AGAINST SELLER SHALL BE A CLAIM FOR DAMAGES NOT TO EXCEED THE PURCHASE PRICE OFTHE PRODUCT, WITHOUT REGARD TO WHETHER SUCH A CLAIM IS BASED UPON BREACH OF WARRANTY OR TORT.

ANY CONTROVERSY OR CLAIM ARISING OUT OF OR RELATING TO THIS CONTRACT, OR BREACH THEREOF, SHALL BE SETTLED BY ARBITRATION IN ACCORDANCE WITH THE COMMERCIAL ARBITRATION RULES OF THE AMERICAN ARBITRATION ASSOCIATION, AND JUDGEMENT UPON THE AWARD RENDERED BY THE ARBITRATOR(S) MAY BE ENTERED IN ANY COURT HAVING JURISDICTION THEREOF.

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Safe Shutdown Impoundment /Once-Through Cooling Chemical Additives

a. Manufacturers Product Identification Number: **Bulab 6002/GE Betz Spectrus CT-1300**

b. Product Use: **Biocide/Clamicide**

c. Chemical Composition: **See attached data sheets**

d. Product toxicity data: **See attached data sheets**

e. Classification (non-persistent, persistent or bioaccumulative): **Not Available**

f. Product or active ingredient half-life: **Not Available**

g. Concentration of whole product or active ingredient in wastestream: **Not Available***

h. Frequency of product use: **Intermittent; as needed**

i. Outfall: **002***

* System discharges to the Safe Shutdown Impoundment where the wastewaters commingle with additional biocide-demanding waters prior to any potential discharge. Therefore, residual concentrations would not reasonably be expected detected in the wastestream in the unlikely event of a discharge.

BUCKMAN LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET

BULAB 6002

Revision date: 3/2/2005

Buckman Laboratories, Inc.
1256 North McLean Boulevard
Memphis, TN 38108

Phone 1-800-BUCKMAN

24 Hour Emergency Phone: (901) 767-2722

SECTION 1 — *OSHA HAZARD CLASSIFICATIONS*

Irritating to eyes.

SECTION 2 — *HAZARDOUS COMPONENTS*

Chemical Name	*CAS Number*	*% by Weight*	*TLV*

Based on best available information, this product does not contain any reportable OSHA hazardous materials.

SECTION 3 — *FIRST AID INFORMATION*

Eye Exposure: **Flush immediately with copious amounts of tap water or normal saline (minimum of 15 minutes). Take exposed individual to a health care professional, preferably an ophthalmologist, for further evaluation.**

Skin Exposure: **Wash exposed area with plenty of water. Repeat washing. Remove contaminated clothing and wash thoroughly before reuse. If irritation persists consult a health care professional.**

Inhalation: **If exposure by inhalation is suspected, immediately move exposed individual to fresh air. If individual experiences nausea, headache, dizziness, has difficulty in breathing or is cyanotic, seek a health care professional immediately.**

Ingestion: **DO NOT INDUCE VOMITING. Rinse with copious amounts of water or milk, first. Irrigate the esophagus and dilute stomach contents by slowly giving one (1) to two (2) glasses of water or milk. Avoid giving alcohol or alcohol related products. In cases where the individual is semi-comatose, comatose or convulsing, DO NOT GIVE FLUIDS BY MOUTH. In case of intentional ingestion of the product seek medical assistance immediately; take individual to nearest medical facility.**

SECTION 4 — *PRIMARY ROUTES OF EXPOSURE*

1. Effects from Acute Exposure:

Eye Exposure: **Slightly hazardous in case of eye contact (irritant).**

Skin Exposure: **Slightly hazardous in case of skin contact (irritant). Non-sensitizer for skin. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.**

Inhalation: **Slightly hazardous in case of inhalation. Effects will depend on concentration and length of time of exposure.**

Ingestion: **Ingestion is not expected to be a primary route of exposure.**

2. Effects from Chronic Exposure:

The effects from chronic exposure to this product have not been fully evaluated.

SECTION 5 *Toxicological Information*

Acute Effects:

Acute	**Oral**	**(LD50) = 1951 mg/kg Male rat**
Acute	**Oral**	**(LD50) = 2587 mg/kg Female rat**
Acute	**Dermal**	**(LD50) = >2000 mg/kg Rabbit**
Acute	**Inhalation**	**(LC50) = 2.9 ppm (4 hours) Rat**

Irritant / Sensitization Effects:

Slightly hazardous in case of eye contact (irritant).
Slightly hazardous in case of skin contact (irritant). Non-sensitizer for skin. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Slightly hazardous in case of inhalation. Effects will depend on concentration and length of time of exposure.

Carcinogenic Potential:

Not tested by Buckman Laboratories. Not shown as a carcinogen by OSHA, IARC, or NTP. A two year rat carcinogenicity study showed a slight increase in c-cell adenomas in female rats. Studies with male rats and male and female mice did not show any evidence of carcinogenic response. This product is not considered a carcinogen.

Target Organs Effects:

May cause damage to the following organs: upper respiratory tract, skin, eyes.

Other Health Effects:

None known.

SECTION 6 *Environmental Toxicological Information*

LC50 = 0.37 mg/l 48 hours Invertebrate
LC50 = 0.26 mg/l 96 hours Fathead minnow
LC50 = 0.21 mg/l 96 hours Bluegill sunfish
LC50 = 0.047 mg/l 96 hours Rainbow trout
LC50 = >600 mg/l 96 hours Sheepshead minnow
LC50 = 13 mg/l 96 hours Mysid shrimp

SECTION 7 *Physical and Chemical Properties*

Appearance	**Clear, pale yellow liquid**
Odor	**Mild.**
Density	**1.15 g/cm^3**
Flash Point	**Closed cup: >100°C (212°F). (Tagliabue.)**
Melting/Freezing Point	**<-16°C (3.2°F)**
Boiling Point	**>100°C (212°F)**
Solubility	**Easily soluble in cold water. Easily soluble in hot water.**

pH (Neat)	7 [Neutral.]
pH (100 ppm in water)	6-7
Vapor Pressure	Not available.
o/w Partition Coefficient	Not available.
Oxidizing/Reducing Properties	Not available.
Viscosity	Kinetic: 125 cS
Additional pH Information	pH (neat) = 6.0 - 8.0

NOTE: The physical data presented above are typical values and should not be construed as specifications.

SECTION 8 *Fire and Explosion Information*

Flammable Limits	Not available.
Extinguishing Media	Water fog, carbon dioxide, foam, dry chemical.
Special Firefighting Procedures	Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

SECTION 9 *Reactivity Information*

Stability	Stable under normal conditions of use and storage.
Incompatibility	Anionic polymers
Hazardous Decomposition Products	Carbon monoxide may be formed upon burning.

SECTION 10 *Handling Precautions*

Eye-wash fountains in the work place are recommended. Rubber gloves, safety glasses or goggles and body protective clothing and shoes are required. The handling precautions for this product are based on the characteristics of the neat product unless otherwise specified.

SECTION 11 *Satisfactory Materials of Construction*

Buna-N rubber
Butyl rubber
Polypropylene
Plexiglas
Teflon.
PVC - rigid
Viton
EPDM rubber
PVC - flexible
Fiberglass
Neoprene
Polyethylene - low density
Tygon
Tyril 880
Gum rubber
Silicone rubber
Hypalon
Polyethylene - high density
Stainless steels 304 and 316

ABS (Plastic)
Morton test liner (108 T 44LV)
6/6 Nylon
FRP lined mild steel

SECTION 12 *Spill, Leak, and Disposal Procedures*

SPILL AND LEAK RESPONSE GUIDELINES:

Important: Before responding to a spill or leak of this product, review each section of this MSDS. Follow the recommendations given in the Handling Precautions sections. Check the Fire and Explosion Data section to determine if the use of non-sparking tools is merited. Insure that spilled or leaked product does not come into contact with materials listed as incompatible. If irritating fumes are present, consider evacuation of enclosed areas.

Emergency Response Assistance: Emergency technical assistance is available at any time from Buckman Laboratories, Inc., by calling (901) 767-2722.

Initially minimize area affected by the spill or leak. Block any potential routes to water systems (e.g., sewers, streams, lakes, etc.). Based on the product's toxicological and chemical properties, and on the size and location of the spill or leak, assess the impact on contaminated environments (e.g. water systems, ground, air equipment, etc.). There are no methods available to completely eliminate any toxicity this product may have on aquatic environments. Minimize adverse effects on these environments. Buckman Laboratories, Inc. can be contacted for technical assistance. Determine if federal, state, and/or local release notification is required (see Regulatory Classifications section of this MSDS). Recover as much of the pure product as possible into appropriate containers. Later, determine if this recovered product can be used for its intended purpose. Address clean-up of contaminated environments. Spill or leak residuals may have to be collected and disposed of. Clay, soil, or commercially available absorbents may be used to recover any material that can not readily be recovered as pure product. Flushing residual material to an industrial sewer, if present at the site of a spill or leak incident, may be acceptable if authorized approval is obtained. If product and/or spill/leak residuals are flushed to an industrial sewer, insure that they do not come into contact with incompatible materials. Contact the person(s) responsible for the operation of your facility's industrial sewer system prior to intentionally flushing or pumping spills or leaks of this product to the industrial sewer.

DISPOSAL GUIDELINES

Note: Follow federal, state, and local regulations governing the disposal of waste materials.

Neat Product: Contact your Buckman representative or Buckman Laboratories, Inc., at (901) 278-0330.

Contaminated Materials: Determine if waste containing this product can be handled by available industrial effluent system or other on-site waste management unit. If off-site management is required, contact a company experienced in industrial waste management. This product is not specifically listed in 40 CFR 261 as a Resource Conservation and Recovery Act (RCRA) hazardous waste. However, spill or leak residuals may meet the criteria of a characteristic hazardous waste under this Act. Check the characteristics of the material to be disposed of and/or the physical and reactivity data given in this MSDS for the neat product.

Container Disposal: Empty containers, as defined by appropriate sections of the RCRA, are not RCRA hazardous wastes. However, insure proper management of any residuals remaining in container.

SECTION 13 *Transportation and Shipping Information*

DOT Shipping Information:

Not Regulated.

IMO/IMDG Shipping Information:

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (Poly[oxyethylene (dimethyliminio)ethylene(dimethyliminio)ethylene dichloride]) , Class 9, UN3082 , P.G. III , MARINE POLLUTANT (EmS No. F-A, S-F , ERG Guide 171, HazMat Code 4960131)

IATA Shipping Information:

Not Regulated.

DOT "RQ": NONE

Unless otherwise stated, the shipping information provided above applies only to non-bulk containers of this product. Proper shipping name and general shipping information may vary depending on packaging and mode of shipment. All products shipped from Buckman locations have been properly packaged and labeled according to appropriate hazardous materials shipping regulations. If any alteration of packaging, product, or mode of transportation is further intended, different shipping information, including but not limited to proper shipping name, RQ designation, and labeling may apply. For further information pertaining to the shipping requirements for this product, contact Buckman's Transportation Department or DOT Coordinator.

SECTION 14 *Regulatory Information*

The following Regulations are known to apply to the use and disposal of this product. Additional Federal, State and Local regulations may also be applicable.

SARA (Superfund Amendments and Reauthorization Act)

SARA 302 Extremely Hazardous Substances List ...

No components of this product are listed.

SARA 312 Hazard Category ...

Immediate (Acute) Health Hazard

SARA 313 Toxic Chemicals List ...

No components of this product are present above the *de minimus* levels.

CERCLA (Comprehensive Environmental Response, Compensation and Liability Act)

No components of this product are present above the *de minimus* levels.

RCRA (Resource Conversation and Recovery Act) Listed Hazardous Waste

No components of this product are listed.

CWA (Clean Water Act) Listed Substances

No components of this product are listed.

FDA (Food and Drug Administration)

This product is not approved for food contact uses.

National Sanitation Foundation (NSF)

This product is listed by the NSF under NSF/ANSI Standard 60 for use in potable water applications with the following maximum allowable use rates : Concentrations of 2-5 ppm can be used at the initiation of treatment for up to 21 days. Thereafter, the maximum use rate is 0.5 ppm for potable water systems.

TSCA (Toxic Substances Control Act) Applicability

All components may not be listed on the TSCA Inventory. Registered pesticides are exempt from the requirements of TSCA.

FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)

This product is a registered pesticide. EPA Reg. No. 1448-42

HMIS/NPCA Rating ... Health **1** Flammability **1** Reactivity **0**

NFPA Ratings ..... Health **1** Flammability **1** Reactivity **0**

State Regulations

Various State Right To Know Acts ...

Non-proprietary hazardous chemicals are listed in Section 2 of this MSDS. Should you require further information on specific proprietary or inert ingredients please contact Buckman Laboratories' Regulatory Affairs Department.

The information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application which is not described in the Data Sheet is the responsibility of the user. This Material Data Safety Sheet was prepared to comply with the OSHA Hazard Communication regulations. While some components are claimed Trade Secret under OSHA Hazard Communication regulations, all known OSHA hazards associated with the Trade Secret component(s), if contained in this product, are fully disclosed.

Buckman Laboratories, Inc. warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use contrary to such directions.

Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.

The exclusive remedy against seller shall be in a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort.

Any controversy or claim arising out or relating to this contract, or breach thereof, shall be settle by arbitration in accordance with the commercial arbitration rules of the American Arbitration Association, and judgement upon the rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

R019376

[x] Company logo

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
Business telephone: (215) 355-3300

Material Safety Data Sheet

Issue Date: 16-NOV-2001

EMERGENCY TELEPHONE (Health/Accident): (800) 877-1940

1 PRODUCT IDENTIFICATION

PRODUCT NAME:

SPECTRUS CT1300

PRODUCT APPLICATION AREA:

WATER-BASED MICROBIAL CONTROL AGENT.

2 COMPOSITION / INFORMATION ON INGREDIENTS

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

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
68424-85-1	(C12-16)ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDE Corrosive (eyes and skin);toxic (by ingestion)
64-17-5	ETHYL ALCOHOL (ETHANOL) Flammable liquid; irritant (eyes); potential liver and kidney toxin; may cause CNS depression

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3 HAZARDS IDENTIFICATION

****

EMERGENCY OVERVIEW

DANGER

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

DOT hazard: Corrosive to skin, Flammable
Emergency Response Guide #132
Odor: Mild; Appearance: Colorless To Yellow, Liquid

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

****

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; Corrosive to skin. Potential skin sensitizer.

ACUTE EYE EFFECTS:
Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:
Vapors, gases, mists and/or aerosols may cause irritation to upper respiratory tract.

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

TARGET ORGANS:
Prolonged or repeated exposures may cause CNS depression, tissue narcroses, skin sensitization, and/or txicity to the liver and kidney.

MEDICAL CONDITIONS AGGRAVATED:
Not known.

SYMPTOMS OF EXPOSURE:
Inhalation of vapors/mists/aerosols may cause eye, nose, throat and lung irritation. Skin contact may cause severe irritation or burns.

4 FIRST AID MEASURES

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

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

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

INGESTION:

Do not feed anything by mouth to an unconscious or convulsive victim. Dilute contents of stomach. Induce vomiting by one of the standard methods. Immediately contact a physician.

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

5 FIRE FIGHTING MEASURES

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

EXTINGUISHING MEDIA:
dry chemical, carbon dioxide or foam--Avoid water if possible.

HAZARDOUS DECOMPOSITION PRODUCTS:
Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:
130F 54C P-M(CC)

MISCELLANEOUS:
Corrosive to skin, Flammable
2920 ;Emergency Response Guide #132

6 ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:
Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Remove ignition sources. Flush area with water. Spread sand/grit.

DISPOSAL INSTRUCTIONS:
Water contaminated with this product may be sent to a sanitary sewer treatment facility,in accordance with any local agreement,a permitted waste treatment facility or discharged under a permit. Product as is - Dispose of in approved pesticide facility or according to label instructions.

7 HANDLING & STORAGE

HANDLING:
Combustible. Corrosive to skin and/or eyes.

STORAGE:
Keep containers closed when not in use. Keep away from flames or sparks. Bond containers during filling or discharge when performed at temperatures at or above the product flash point.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

CHEMICAL NAME	EXPOSURE LIMITS
(C12-16)ALKYL DIMETHYL BENZYL AMMONIUM CHLORIDE	
PEL (OSHA):	NOT DETERMINED
TLV (ACGIH):	NOT DETERMINED
ETHYL ALCOHOL (ETHANOL)	
PEL (OSHA):	1,000 PPM

TLV (ACGIH): 1,000 PPM

ENGINEERING CONTROLS:
Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:
Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:
A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
If air-purifying respirator use is appropriate, use a respirator with organic vapor cartridges and dust/mist prefilters.

SKIN PROTECTION:
gauntlet-type neoprene gloves, chemical resistant apron--
Wash off after each use. Replace as necessary.

EYE PROTECTION:
splash proof chemical goggles, face shield

9 PHYSICAL & CHEMICAL PROPERTIES

Specific Grav.(70F,21C)	0.965	Vapor Pressure (mmHG)	44.0
Freeze Point (F)	-7	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-22		
Viscosity(cps 70F,21C)	73	% Solubility (water)	100.0

Odor		Mild
Appearance		Colorless To Yellow
Physical State		Liquid
Flash Point	P-M(CC)	130F 54C
pH As Is (approx.)		8.9
Evaporation Rate (Ether=1)		< 1.00

NA = not applicable ND = not determined

10 STABILITY & REACTIVITY

STABILITY:
Stable under normal storage conditions.

HAZARDOUS POLYMERIZATION:
Will not occur.

INCOMPATIBILITIES:
May react with strong oxidizers.

DECOMPOSITION PRODUCTS:
Thermal decomposition (destructive fires) yields elemental oxides.

INTERNAL PUMPOUT/CLEANOUT CATEGORIES:
"B"

11 TOXICOLOGICAL INFORMATION

Oral LD50 RAT:	445 mg/kg
Dermal LD50 RABBIT:	>1,800 mg/kg
Skin Sensitization G.PIG:	NEGATIVE

NOTE - Active component was neither a photoallergen nor a skin sensitizer

12 ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY

Annelida(Lumbriculus variegatus) 96 Hour Acute Toxicity
LC50= 1.47; LC10= .37 mg/L
Benthic Crustacean(Gammerus pseutolimnaeus) 96 Hour Acute Toxicity
LC50= .07 mg/L
Ceriodaphnia 48 Hour Static Renewal Bioassay
LC50= .35; No Effect Level= .15 mg/L
Channel Catfish 96 Hour Acute Toxicity
LC50= .86; No Effect Level= .54 mg/L
Daphnia magna 48 Hour Flow-Thru Bioassay
LC50= .04; No Effect Level= .026 mg/L
Daphnia magna 48 Hour Static Acute Bioassay
LC50= .11; No Effect Level= .06 mg/L
Daphnia pulex 48 Hour Static Renewal Bioassay
LC50= .05; No Effect Level= .031 mg/L
Fathead Minnow 96 Hour Flow-Thru Bioassay
LC50= .72; No Effect Level= .41 mg/L
Freshwater Snail(Physa sp.) 96 Hour Acute Toxicity
LC50= .46; No Effect Level= .36 mg/L
Menidia beryllina (Silversides) 96 Hour Flow-Thru Bioassay
LC50= .62; No Effect Level= .35 mg/L
Midge larvae (Chironomus tentans) 96 Hour Acute Toxicity
LC50= .5; No Effect Level= .13 mg/L
Mysid Shrimp 96 Hour Flow-Thru Bioassay
LC50= .16; No Effect Level= .03 mg/L
Rainbow Trout 96 Hour Flow-Thru Bioassay
LC50= 2; No Effect Level= 1.2 mg/L
Sheepshead Minnow 96 Hour Flow-Thru Bioassay
LC50= 1.76; No Effect Level= 1 mg/L

BIODEGRADATION

BOD-28 (mg/g): 156
BOD-5 (mg/g): 43
COD (mg/g): 1470
TOC (mg/g): 380

13 DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
D001=Ignitable.

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

14 TRANSPORT INFORMATION

DOT HAZARD:	Corrosive to skin, Flammable
UN / NA NUMBER:	2920

DOT EMERGENCY RESPONSE GUIDE #: 132

15 REGULATORY INFORMATION

TSCA:
This is an EPA registered biocide and is exempt from TSCA inventory requirements.

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):
No regulated constituent present at OSHA thresholds

FIFRA REGISTRATION NUMBER:
3876- 149

POTABLE WATER APPROVAL:
NSF Certified. Maximum use for disinfection and oxidation 3.5mg/L. Maximum use for reverse osmosis and distillation 10 mg/L.

FOOD AND DRUG ADMINISTRATION:
21 CFR 176.300 (slimicides for wet end use)
When used in this specified application, all ingredients comprising this product are authorized by FDA for the manufacture of paper and paperboard that may contact aqueous and fatty foods as per 21 CFR 176.170(a)(4).

USDA FEDERALLY INSPECTED MEAT AND POULTRY PLANTS:
SEC.G5,G7

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

SARA SECTION 302 CHEMICALS:
No regulated constituent present at OSHA thresholds

SARA SECTION 313 CHEMICALS:
No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	3	Serious Hazard
Fire	2	Moderate Hazard
Reactivity	0	Minimal Hazard
Special	CORR	DOT corrosive
(1) Protective Equipment	D	Goggles,Face Shield,Gloves,Apron

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

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
MSDS status:	18-NOV-1997		** NEW **

27-FEB-1998	15	18-NOV-1997
15-MAY-1998	2	27-FEB-1998
20-MAY-1998	11	15-MAY-1998
17-AUG-1998	15	20-MAY-1998
27-OCT-1998	;EDIT:9	17-AUG-1998
12-NOV-1998	;EDIT:9	27-OCT-1998
03-MAY-2000	12	12-NOV-1998
05-JUL-2001	12	03-MAY-2000
24-SEP-2001	3,4,5,7,8,14,16	05-JUL-2001
16-NOV-2001	12	24-SEP-2001

Attachment G

40 CFR 122.21 Impacted by 316(b) of Clean Water Act

TXU Generation Company LP
Comanche Peak Nuclear Power Plant
TPDES Permit No. 01854

Technical Report

ATTACHMENT 4 – Discharge Notification Form

In the event of a discharge of oil to navigable waters or adjoining shorelines, the following information will be provided to the National Response Center [also see the notification information provided in Section 7 of the Plan]:

Table G-20 Information provided to the National Response Center in the Event of a Discharge			
Discharge/Discovery Date		Time	
Facility Name			
Facility Location (Address/Lat-Long/Section Township Range)			
Name of reporting individual		Telephone #	
Type of material discharged		Estimated total quantity discharged	Gallons/Barrels
Source of the discharge		Media affected	☐ Soil ☐ Water (specify) _____ ☐ Other (specify) _____
Actions taken			
Damage or injuries	☐ No ☐ Yes (specify)	Evacuation needed?	☐ No ☐ Yes (specify)
Organizations and individuals contacted	☐ National Response Center 800-424-8802 Time _____		
	☐ Cleanup contractor (Specify) Time _____		
	☐ Facility personnel (Specify) Time _____		
	☐ State Agency (Specify) Time _____		
	☐ Other (Specify) Time _____		

[FR Doc. E9–27156 Filed 11–12–09; 8:45 am]
BILLING CODE 6560–50–C

PALCO Engineering & Construction Services
A Division of PALCO Enterprises, Inc.
211 East Beltline Rd., Ste. 103 ♦ DeSoto, TX 75115
Office: 972-223-7676 ♦ Fax: 972-223-7677

VELOCITY CALCULATIONS for Comanche Peak SES Service Water Intake Structure

Comanche Peak's Service Water Intake Structure (SWIS) serving Unit 1 and Unit 2 contains four (4) service water pumps in a common intake bay with two (2) shared traveling water screens:

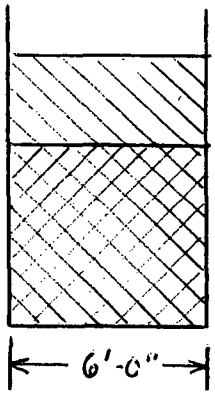
Each Service Water Pump is designed to operate at 17,000 gpm, and the normal operation is at 15,000 gpm. (see curve 2-RF-09) The SWIS is located on Squaw Creek Reservoir, and the normal and low water levels are found on Drawing 2323-S-1100.

Each Bay has the same dimensions and thus the same cross-section flow area (ref. Drawing 2323-S-1107 and 2323-S-1108 Section D-D for dimensions and water levels):

@ Normal High Water Level — EL 775.0'

@ Low Water Level — EL 770.0'

Pump Bay Bottom — EL 755.0'



$Area_{NWL}$ = (775.0'-755.0')x(6.00')
= 120.0 ft^2

$Area_{LWL}$ = (770.0'-755.0')x(6.00')
= 90.0 ft^2

Maximum Water Velocity is highest when all four Service Water Pumps are operating:

$$\text{Velocity}^* = \frac{\text{Flow Rate}}{\text{Flow Area}}$$

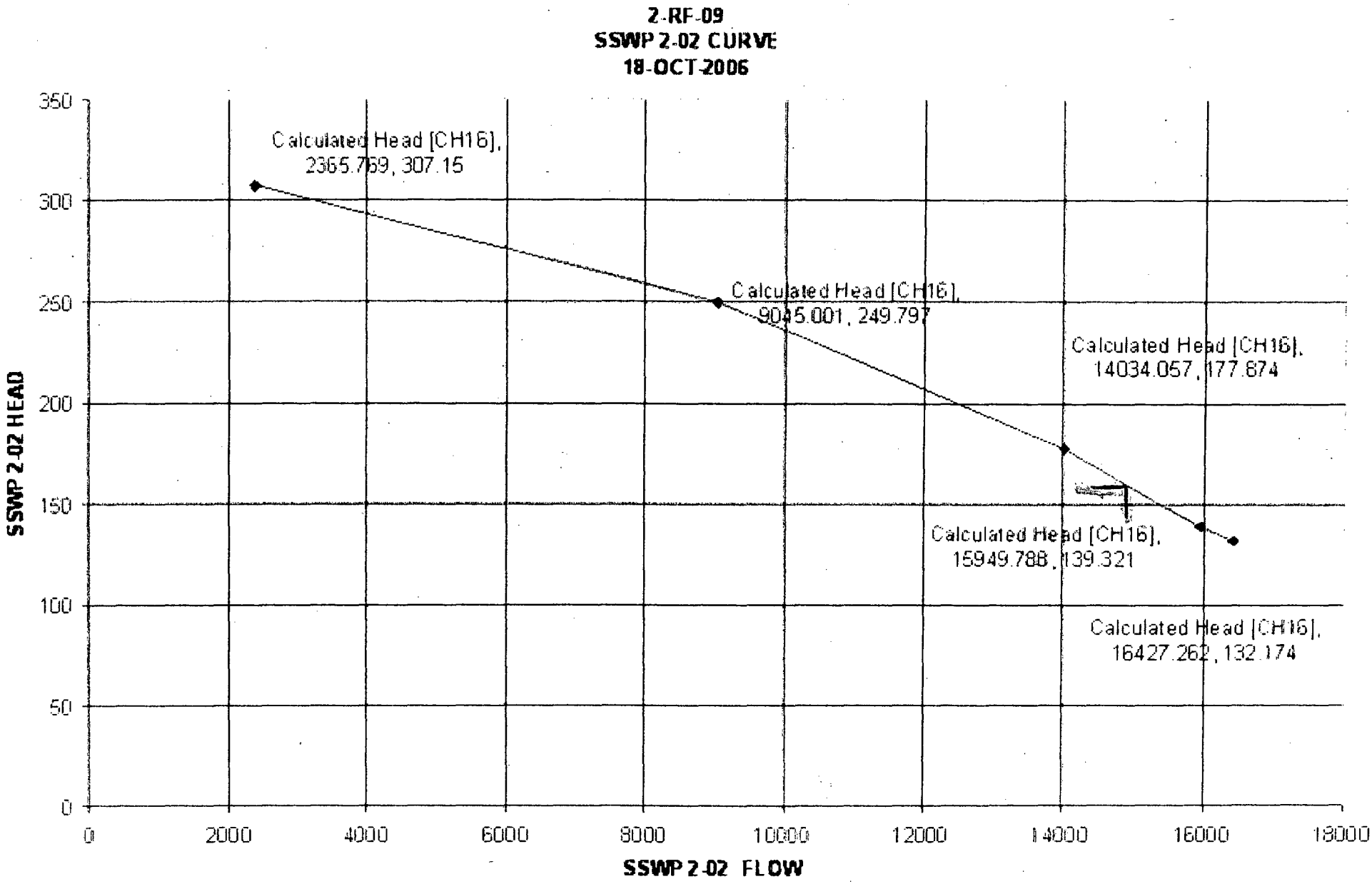
$$\text{Velocity @ Normal High Water Level} = \frac{(4 \times 15{,}000)\ \text{gal}}{\text{min}} \Big| \frac{}{2\text{x}120\ \text{ft}^2} \Big| \frac{\text{ft}^3}{7.48\ \text{gal}} \Big| \frac{\text{min}}{60\text{s}} = 0.55\ \text{ft/s}$$

$$\text{Velocity @ Low Water Level} = \frac{(4 \times 15{,}000)\ \text{gal}}{\text{min}} \Big| \frac{}{2\text{x}90\ \text{ft}^2} \Big| \frac{\text{ft}^3}{7.48\ \text{gal}} \Big| \frac{\text{min}}{60\text{s}} = 0.74\ \text{ft/s}$$

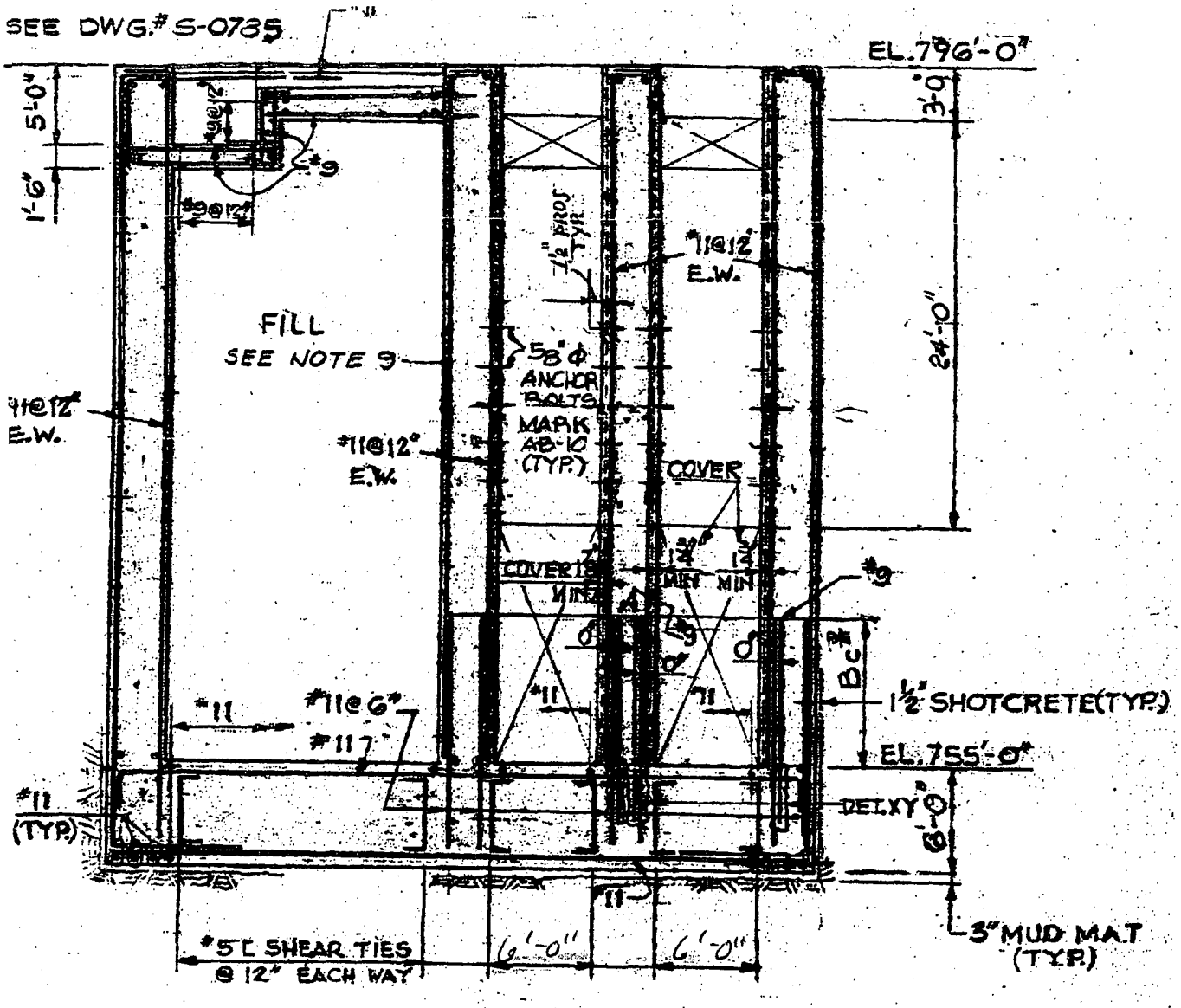
*This velocity is the approach velocity to the screen, not the through-screen velocity.

STATE OF TEXAS
CAROL ANN ALSTON
65830
LICENSED
PROFESSIONAL ENGINEER

Carol A Alston
12/1/06



CPSES Service Water Pumps



SECTION D-D
(1/8" = 1'-0")

TEXAS UTILITIES SERVICES INC.
AGENT FOR:
DALLAS POWER & LIGHT COMPANY
TEXAS ELECTRIC SERVICE COMPANY
TEXAS POWER & LIGHT COMPANY

COMANCHE PEAK S.E.S.
1980-82 — 2300 MW INSTALLATION

6

S.W. INTAKE STRUCT.
PLANS, SECTS. & DETS.

Gibbs & Hill, Inc.
ENGINEERS, DESIGNERS, CONSTRUCTORS
New York

SCALE: AS NOTED

2323-S-1108

JOB NO. 2323

H

PALCO Engineering & Construction Services
A Division of PALCO Enterprises, Inc.
211 East Beltline Rd., Ste. 103 ♦ DeSoto, TX 75115
Office: 972-223-7676 ♦ Fax: 972-223-7677

VELOCITY CALCULATIONS for Comanche Peak SES Circulating Water Intake Structure

Comanche Peak's Circulating Water Intake Structure (CWIS) serving Unit 1 and Unit 2 contains two identical pumping bays, one for each unit, separated by a concrete wall. Each unit CWIS contains six bays, each containing one traveling water screen. After passing the traveling screens, the water flows into an open area towards the circulating water pumps. Four (4) circulating water pumps serve each unit. See Drawing 2323-S-1100 for layout of pumps and screens.

Each Circulating Water Pump is designed to operate at 275,000 gpm when lake level is at EL 770.0'. (see curve NY-3552-4)

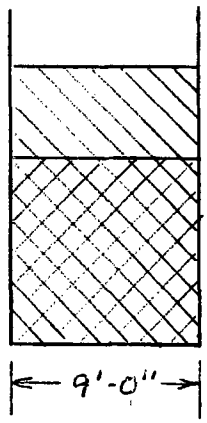
Each unit is served by two 1,200 gpm Screen Wash Pumps for a total of 2,400 gpm per unit.

Each Bay has the same dimensions and thus the same cross-section flow area (ref. Drawings 2323-S-1100 and 2323-S-1102 for dimensions and water levels):

@ Normal High Water Level — EL 775.0'

@ Low Water Level — EL 770.0'

Pump Bay Bottom — EL 730.0'



$Area_{NWL} = (775.0'-730.0')x(9.00') = 120.0\ ft^2$

$Area_{LWL} = (770.0'-730.0')x(9.00') = 90.0\ ft^2$

Maximum Water Velocity is highest when four Circulating Water Pumps and two Screen Wash Pumps are operating at design flow rate:

$$Velocity^* = \frac{Flow\ Rate}{Flow\ Area}$$

$$Velocity\ @\ Normal\ High\ Water\ Level = \frac{(4x275{,}000+2x1{,}200)gal}{min} \Big| \frac{}{6x120\ ft^2} \Big| \frac{ft^3}{7.48\ gal} \Big| \frac{min}{60s} = 1.0\ ft/s$$

$$Velocity\ @\ Low\ Water\ Level = \frac{(4x275{,}000+2x1{,}200)\ gal}{min} \Big| \frac{}{6x90\ ft^2} \Big| \frac{ft^3}{7.48\ gal} \Big| \frac{min}{60s} = 1.1\ ft/s$$

*This velocity is the approach velocity to the screen, not the through-screen velocity.

Carol Alston
12/1/06

STATE OF TEXAS
CAROL ANN ALSTON
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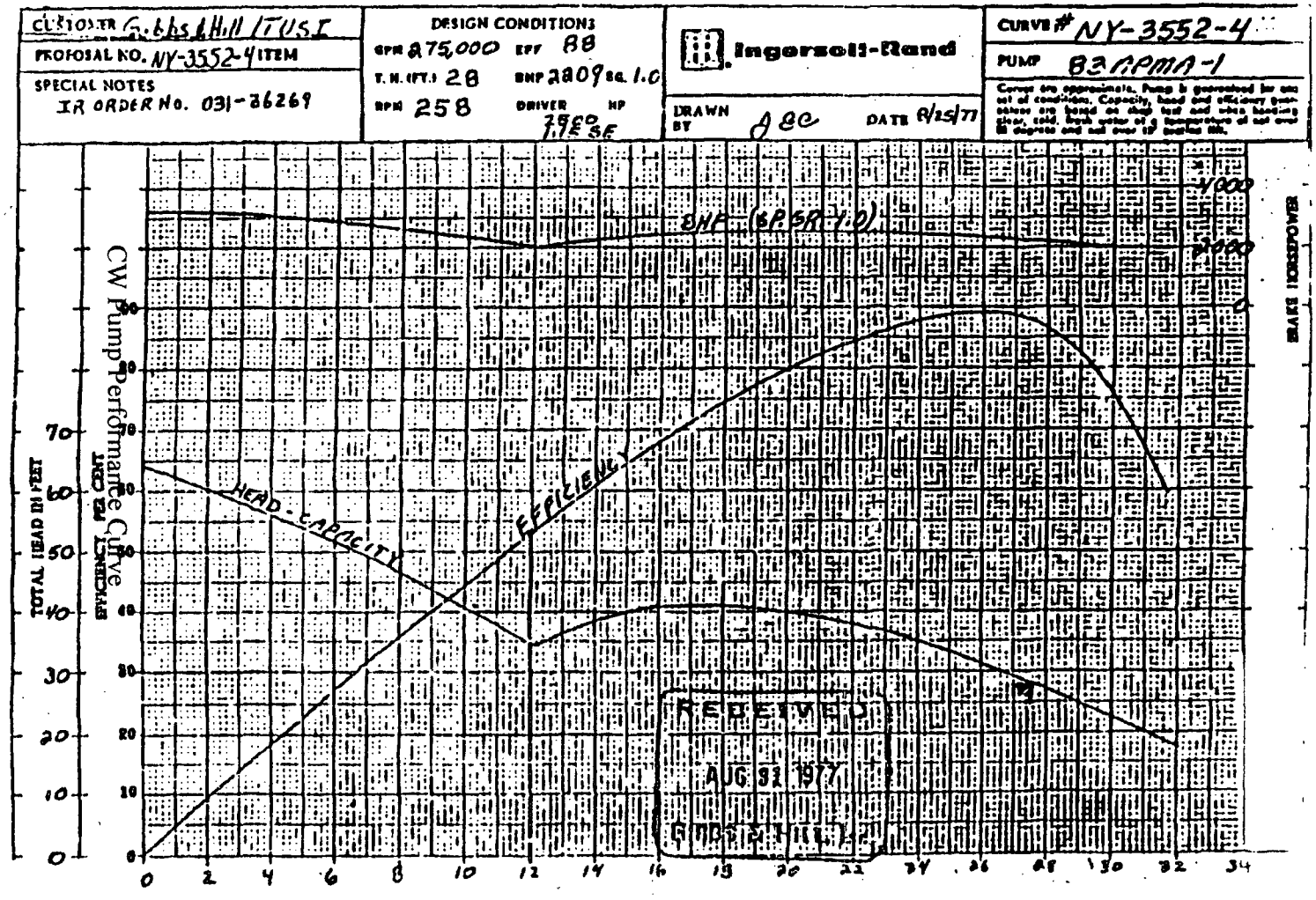

CW Pump Performance Curve

CPSES Circulating Water Pumps

THIS PAGE IS AN OVERSIZED DRAWING OR FIGURE,

THAT CAN BE VIEWED AT THE RECORD TITLED:

"CIRCULATING WATER INTAKE STRUCTURE PLAN AT EL.795-9"
2323-S-1100

WITH IN THIS PACKAGE... OR BY SEARCHING USING THE DOCUMENT/REPORT NO.

D-07

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"CIRCULATING WATER INTAKE STRUCTURE SECTS. & DETS-SH.1" 2323-S-1102

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"S.W. INTAKE STRUCT. PLANS & DETS." 2323-S-1107

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D-09X