GW - 119

GENERAL CORRESPONDENCE

YEAR(S):
1992 - 2002

ATTACHMENT TO THE DISCHARGE PLAN GW-119 RENEWAL
PHILLIPS PETROLEUM COMPANY
EAST VACUUM LIQUIDS RECOVERY PLANT
DISCHARGE PLAN APPROVAL CONDITIONS
(September 12, 1997)

1. Payment of Discharge Plan Fees: The $1,667.50 flat fee shall be submitted upon receipt of this approval. The required flat fee may be paid in a single payment due at the time of approval, or in equal annual installments over the duration of the plan, with the first payment due upon receipt of this approval.

2. Phillips Commitments: Phillips will abide by all commitments submitted in the discharge plan application dated June 26, 1997.

3. Waste Disposal: All wastes shall be disposed of at an OCD approved facility. Only oilfield exempt wastes shall be disposed of down Class II injection wells. Non-exempt oilfield wastes that are non-hazardous by characteristics may be disposed of at an OCD approved facility upon proper waste characterization per 40 CFR Part 261.

4. Drum Storage: All drums containing materials other than fresh water must be stored on an impermeable pad with curbing. All empty drums will be stored on their sides with the bungs in and lined up on a horizontal plane. Chemicals in other containers such as sacks or buckets will also be stored on an impermeable pad and curb type containment.

5. Process Areas: All process and maintenance areas which show evidence that leaks and spills are reaching the ground surface must be either paved and curbed or have some type of spill collection device incorporated into the design.

6. Above Ground Tanks: All above ground tanks which contain fluids other than fresh water must be bermed to contain a volume of one-third more than the total volume of the largest tank or of all interconnected tanks. All new facilities or modifications to existing facilities must place the tank on an impermeable type pad within the berm.

7. Above Ground Saddle Tanks: Above ground saddle tanks must have impermeable pad and curb type containment unless they contain fresh water or fluids that are gases at atmospheric temperature and pressure.

8. Labeling: All tanks, drums and containers should be clearly labeled to identify their contents and other emergency information necessary if they were to rupture, spill, or ignite.

9. Below Grade Tanks/Sumps: All below grade tanks, sumps, and pits must be approved by the OCD prior to installation or upon modification and must incorporate secondary containment and leak-detection into the design. All pre-existing sumps and below-grade tanks must demonstrate integrity on an annual basis. Integrity tests include pressure testing to 3 pounds per square inch above normal operating pressure and/or visual inspection of cleaned out tanks and/or sumps, or other OCD approved methods. The OCD will be notified at least 72 hours prior to all testing.

10. Underground Process/Wastewater Lines: All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity at present and then every 5 years thereafter, or prior to discharge plan renewal. Permittees may propose various methods for testing such as pressure testing to 3 pounds per square inch above normal operating pressure or other means acceptable to the OCD. The OCD will be notified at least 72 hours prior to all testing.

11. Class V Wells: Leach fields and other wastewater disposal systems at OCD regulated facilities which inject fluid other than domestic waste sewage below the surface are considered Class V injection wells under the EPA UIC program. All class V wells will be closed unless, it can be demonstrated that protectable groundwater will not be impacted in the reasonably foreseeable future. Class V wells must be closed through the Santa Fe Office. The OCD allows industry to submit closure plans which are protective of human health, environment and groundwater as defined by the WQCC, and are cost effective.

12. Housekeeping: All systems designed for spill collection/prevention should be inspected to ensure proper operation and to prevent overtopping or system failure.

13. Spill Reporting: All spills/releases shall be reported pursuant to OCD Rule 116 and WQCC 1203 to the OCD Hobbs District Office.

14. Transfer of Discharge Plan: The OCD will be notified prior to any transfer of ownership, control, or possession of a facility with an approved discharge plan. A written commitment to comply with the terms and conditions of the previously approved discharge plan must be submitted by the purchaser and approved by the OCD prior to transfer.

15. Closure: The OCD will be notified when operations of the facility are discontinued for a period in excess of six months. Prior to closure of the facility a closure plan will be submitted for approval by the Director. Closure and waste disposal will be in accordance with the statutes, rules and regulations in effect at the time of closure.

16. Certification: Phillips, by the officer whose signature appears below, accepts this permit and agrees to comply with all terms and conditions contained herein. Phillips further acknowledges that these conditions and requirements of this permit may be changed administratively by the Division for good cause shown as necessary to protect fresh water, human health and the environment.

Accepted:

PHILLIPS PETROLEUM COMPANY

by _____
Title

Permian Profit Center Manager
Phillips Petroleum Company

THE SANTA FE
NEW MEXICAN
Founded 1849

NM OIL CONSERVATION DIVISION
1220 ST. FRANCIS DR.
SANTA FE, NM 87505
ATTN WAYNE PRICE

AD NUMBER: 268498 ACCOUNT: 56689
LEGAL NO: 71731 P.O.#: 02199000249
200 LINES 1 time(s) at $ 88.16
AFFIDAVITS: 5.25
TAX: 5.84
TOTAL: 99.25

NOTICE OF PUBLICATION

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan applications has been submitted to the Director of the Oil Conservation Division, 1220 S. Saint Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3440:

(GW-119) - Phillips Petroleum Company, Sean C. Parks, (915-368-1620), 4001 Penbrook, Odessa, Texas 79762, has submitted a discharge plan renewal application for the East Vacuum Liquids Recovery Plant located in the W/2 NE/4 of Section 33, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico. Approximately 50 barrels per day of waste water is disposed of in Phillips waterflood project for secondary oil recovery. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 90 feet with a total dissolved solids concentration of approximately 300-500 mg/l. Natural gas products, waste oil and water is stored in above ground tanks prior to being transported offsite to OCD approved facilities. The discharge plan addresses how oilfield products and waste will be properly handled, stored, and disposed of, including how spills, leaks, and other accidental discharges to the surface will be managed in order to protect fresh

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 25th day of June 2002.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

S E A L

LORI WROTENBERY, Director
Legal #71731
Pub. July 1, 2002

AFFIDAVIT OF PUBLICATION

STATE OF NEW MEXICO
COUNTY OF SANTA FE
I, K. Voorhees being first duly sworn declare and say that I am Legal Advertising Representative of THE SANTA FE NEW MEXICAN, a daily newspaper published in the English language, and having a general circulation in the Counties of Santa Fe and Los Alamos, State of New Mexico and being a Newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 on Session Laws of 1937; that the publication #71731 a copy of which is hereto attached was published in said newspaper 1 day(s) between 07/01/2002 and 07/01/2002 and that the notice was published in the newspaper proper and not in any supplement; the first publication being on the 1 day of July, 2002 and that the undersigned has personal knowledge of the matter and things set forth in this affidavit.

/S/ K. Voorhees
LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 1 day of July A.D., 2002

Notary Laura E. Harding

Commission Expires 11/23/03

Approved W Price 7/3/02

AFFIDAVIT OF PUBLICATIO.

State of New Mexico,
County of Lea.

I, KATHI BEARDEN

Publisher

of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not a supplement thereof for a period.

of 1

weeks.

Beginning with the issue dated

June 29 2002

and ending with the issue dated

June 29 2002

Kathi Bearden

Publisher

Sworn and subscribed to before

me this 1st day of

July 2002

Jodi Henson

Notary Public.

My Commission expires
October 18, 2004
(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

LEGAL NOTICE
June 29, 2002
NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan applications has been submitted to the Director of the Oil Conservation Division, 1220 S. Saint Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3440:

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Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 25th day of June 2002.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY, Director
(seal)
#19069

01100060000 02556930

State of New Mexico Oil &
1220 S. St. Francis
Santa Fe, NM 87505

Approved
7/3/02
W.J.

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 25th day of June 2002.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

for LORI WROTENBERY, Director

SEAL

Price, Wayne

From: S Chris Parks [scparks@ppco.com]
Sent: Thursday, June 20, 2002 12:22 PM
To: Price, Wayne
Cc: Sean T Robinson; Price, Wayne
Subject: RE: Waste water sent to CTB

Ultimately, it all is injected into the formation. Anything else, let me know. . . .

Sean C. (Chris) Parks CSP, MS
Sr. Safety & Environmental Representative
Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762
Tel: (915) 368 - 1620 Cell: (915) 556 - 9106
Fax: (915) 368 - 1507 scparks@ppco.com

"Price, Wayne" <WPrice@state.nm.us>

06/20/2002 12:53 PM

To: S Chris Parks/PPCO@Phillips, "Price, Wayne" <WPrice@state.nm.us>
cc: Sean T Robinson/PPCO@Phillips
Subject: RE: Waste water sent to CTB

After it goes to the CTB how is it used or dispoed of?

-----Original Message-----
From: S Chris Parks [mailto:scparks@ppco.com]
Sent: Thursday, June 20, 2002 9:48 AM
To: WPrice@state.nm.us
Cc: Sean T Robinson
Subject: Waste water sent to CTB

Wayne, per your telephone call, here are the numbers for the amount of water sent to the CTB from the EVLRP as provided by operations. 52 BBL/day appears to be the amount.

Most of the water from the injection system is removed prior to entering the EVLRP.

Any more questions, please let me know. Thanks!

Sean C. (Chris) Parks CSP, MS
Sr. Safety & Environmental Representative
Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762
Tel: (915) 368 - 1620 Cell: (915) 556 - 9106
Fax: (915) 368 - 1507 scparks@ppco.com

----- Forwarded by S Chris Parks/PPCO on 06/20/2002 10:44 AM -----

Sean T Robinson

06/20/2002 10:38 AM

To: scparks@ppco.com

cc:

Subject: Waste water sent to CTB

Cooling tower blowdown line = about 17 bbls a day
RO unit = about 17 bbls a day

Both of these systems go into the same tank and are pumped to the CTB. All of this water is clean.

The Produced gas separator blowcase recieves about 18 bbls of liquid from the field a da y which is sent to our existing overflow tank and is then pumped to the overflow tank at the CTB.

Thanks,

Sean R.

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. [redacted] dated 6/4/0

or cash received on _____ in the amount of $ 4100=

from PHILLIPS PETROLEUM CO.

for EV CO_2 PLANT GW-119 .
(Facility Name)

Submitted by: WAYNE PRICE . Date: 6/14/02
(OGRID No.)

Submitted to ASD by: [signature] Date: "

Received in ASD by: _____ Date: _____

Filing Fee ✓ New Facility ___ Renewal ✓

Modification ___ Other _____
(specify)

Organization Code 521.07 Applicable FY 2002

To be deposited in the Water Quality Management Fund.

Full Payment ✓ or Annual Increment ___

THIS IS WATERMARKED PAPER - DO NOT ACCEPT WITHOUT NOTING WATERMARK - HOLD TO LIGHT TO VERIFY WATERMARK

ARVEST BANK

Phillips Petroleum Co.
Bartlesville, OK 74004

[redacted] 06/04/2002 [redacted] $******4,100.00*

PAY TO THE ORDER OF EXACTLY ****4100 US Dollars and 00 Cents***

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
1220 SOUTH ST FRANCIS DRIVE
SANTA FE, NM 87505

[signature]
Treasurer

[redacted]

PHILLIPS PETROLEUM COMPANY

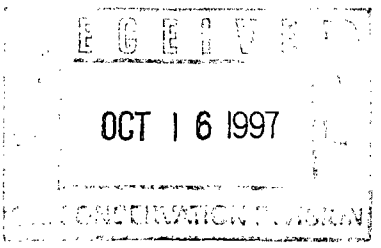
4001 PENBROOK
ODESSA, TEXAS 79762

EXPLORATION AND PRODUCTION
Permian Profit Center

October 13, 1997

CERTIFIED MAIL NUMBER
Z 017 287 987
RETURN RECEIPT REQUESTED

State of New Mexico
Oil Conservation Division
Attention: Roger C. Anderson
2040 South Pacheco Street
Santa Fe, New Mexico 87505



Re: Discharge Plan GW - 119
East Vacuum Liquids Recovery Plant/CO_2
Lea County, New Mexico

Dear Mr. Anderson:

During a review of the recently renewed Discharge Plan for Phillips' East Vacuum Liquids Recovery Plant/CO_2 it was discovered that a typographical error may have appeared on some of the copies of the plan which were distributed. This error would have occurred on Page 2 of the plan reflecting the facility location as Section 34, Township 17 South, Range 35 East, Lea County, New Mexico. In actuality it should read **Section 33**.

Enclosed for your further handling, if your office received an erroneous original, is a corrected Page 2 reflecting the correct location information. If you have any questions, please give me a call at **915-368-1620**.

I apologize for any inconvenience.

Sincerely,

Sam E. Christy
Safety & Environmental Analyst

enclosure

cc. Chris Williams (NMOCD/Hobbs, NM)
T. B. Bennett
H. E. Chesley

FACILITY LOCATION

W/2 NE/4 Section 33, Township 17 South, Range 35 East
Lea County, New Mexico

LANDOWNER

State of New Mexico 1-505-827-5760
State Land Office
P. O. Box 1148
Santa Fe, New Mexico 87504-1148

PLANT WATER SYSTEM

Raw Water:

EVLRP receives its process make-up water and non-potable water from the existing Central Tank Battery(CTB) located adjacent to the plant. Approximately 4,400 gallons per day are provided to the plant from this source.
(See Attachment 1 for Plot Plan information.)

Potable Water:

Bottled drinking water for Phillips employees, contract personnel and quest of the facility is supplied in the EVLRP office.

Cooling Tower System:

The cooling tower system is comprised of one open recirculating tower. The cooling tower has a recirculation rate of 800 gallons per minute with an approximate daily volume of 400 gallons per day. The water in the this tower is recirculated and treated to maintain a pH of 7.2 to 7.6 and a Phosphate level 12 to 17 Then following chemicals with their specific feed rates, are being added to cooling tower waters for the treatment of scale, corrosion and biological treatment:

Alpha 512
Unichem 1304
Calcium Hypochlorite
Hydrochloric Acid

(See Attachment 3 for MSDS information)

Engine Cooling Systems:

Water and antifreeze (50% mix) are used as coolant in the jacket water systems of all engines at the plant. The plant has two propane compressors referred to as the "Refrigeration Compressors."

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. [redacted] dated 9/26/97

or cash received on _____ in the amount of $ 1667.50

from GPM (Phillips Pet)

for E. Vacuum Liquids Rec. GW 119
(Facility Name) (DP No.)

Submitted by: _____ Date: _____

Submitted to ASD by: R. Chandler Date: 10/20/97

Received in ASD by: _____ Date: _____

Filing Fee ___ New Facility ___ Renewal X

Modification ___ Other _____
(specify)

Organization Code 521.07 Applicable FY 98

To be deposited in the Water Quality Management Fund.

Full Payment X or Annual Increment ___

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA 74004
86-82/1031

ESTSTAR BANK OF
BARTLESVILLE

DATE	CHECK NO.	AMOUNT
09/26/97	[redacted]	$1,667.50

B000027604

PAY TO THE ORDER OF EXACTLY *******$1,667DOLLARS AND 50 CENTS

NEW MEXICO ENVIRONMENTAL DEPT
WATER QUALITY MANAGEMENT
2040 S PACHECO
SANTA FE NM 87505

PHILLIPS PETROLEUM COMPANY 5

[redacted]

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

September 12, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-288-258-973

Mr. Sam Christie
Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

RE: Discharge Plan GW-119 Renewal
East Vacuum Liquids Recovery Plant
Lea County, New Mexico

Dear Mr. Christie:

The ground water discharge plan GW-119, for the Phillips Petroleum Company (Phillips) East Vacuum Liquids Recovery Plant located in the W/2 NE/4 of Section 33, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, **is hereby approved** under the conditions contained in the enclosed attachment. The discharge plan consists of the original discharge plan as approved September 9, 1992, and the discharge plan renewal application dated June 26, 1997. Enclosed are two copies of the conditions of approval. **Please sign and return one copy to the New Mexico Oil Conservation Division (OCD) Santa Fe Office within 10 working days of receipt of this letter.**

The discharge plan was submitted pursuant to Section 3106 of the New Mexico Water Quality Control Commission (WQCC) Regulations. It is approved pursuant to Section 3109.A. Please note Sections 3109.E and 3109.F., which provide for possible future amendments or modifications of the plan. Please be advised that approval of this plan does not relieve Phillips of liability should operations result in pollution of surface water, ground water, or the environment.

Please be advised that all exposed pits, including lined pits and open tanks (tanks exceeding 16 feet in diameter), shall be screened, netted, or otherwise rendered nonhazardous to wildlife including migratory birds.

Please note that Section 3104 of the regulations require "When a facility has been approved, discharges must be consistent with the terms and conditions of the plan." Pursuant to Section 3107.C. Phillips is required to notify the Director of any facility expansion, production increase, or process modification that would result in any change in the discharge of water quality or volume.

Pursuant to Section 3109.G.4., this plan is for a period of five years. This approval will expire on September 9, 2002, and Phillips should submit an application in ample time before this date. Note that under Section 3106.F. of the regulations, if a discharger submits a discharge plan renewal application at least 120 days before the discharge plan expires and is in compliance with the approved plan, then the existing discharge plan will not expire until the application for renewal has been approved or disapproved. It should be noted that all discharge plan facilities will be required to submit the results of an underground drainage testing program as a requirement for discharge plan renewal.

The discharge plan renewal application for the Phillips Petroleum Company East Vacuum Liquids Recovery Plant is subject to WQCC Regulation 3114. Every billable facility submitting a discharge plan will be assessed a fee equal to the filing fee of $50 plus a flat fee of $1,667.50 for compressor stations. The OCD has received the filing fee. The flat fee is due upon receipt of this approval. The flat fee may be paid in a single payment due on the date of the discharge plan approval or in five equal installments over the expected duration of the discharge plan. Installment payments shall be remitted yearly, with the first installment due on the date of the discharge plan approval.

Please make all checks payable to: **NMED-Water Quality Management** and addressed to the OCD Santa Fe Office.

On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation during this discharge plan review.

Sincerely,

William J. LeMay
Director

WJL/mwa
Attachment

xc: OCD Hobbs Office

SEP 23 1997

Affidavit of Publication

STATE OF NEW MEXICO)
) ss.
COUNTY OF LEA)

Joyce Clemens being first duly sworn on oath deposes and says that he is Adv. Director of THE LOVINGTON DAILY LEADER, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Legal Notice

Notice of Publication

and numbered ..... was published in a regular and entire issue of THE LOVINGTON DAILY LEADER and not in any supplement thereof, for one (1) day consecutive weeks, beginning with the issue of

July 9, 1997

and ending with the issue of

July 9, 1997

And that the cost of publishing said notice is the sum of $ 50.40

which sum has been (Paid) (Assessed) as Court Costs

Joyce Clemens

Subscribed and sworn to before me this 18th day of July, 1997

Jean Kennedy
Notary Public, Lea County, New Mexico

My Commission Expires Sept. 28, 1998

LEGAL NOTICE
NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan renewal application has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

(GW-119) - Phillips Petroleum Company, Sam Christy, (915) 368-1620, 4001 Penbrook, Odessa, Texas, 79762, has submitted a discharge application for renewal of its previously approved discharge plan for the East Vacuum Liquids Recovery Plant located in the W/2 NE/4 of Section 33, Township 17 South , Range 35 East, NMPM, Lea County, New Mexico. Approximately 2100 gallons per day of waste water with a total dissolved solids concentration of approximately 3715 mg/l is disposed of into a Class II injection well waterflood. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 220 feet with a total dissolved solids concentration of approximately 300 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan applications may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the discharge plan application and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 30th day of June 1997.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
WILLIAM J. LEMAY,
Director

SEAL

Published in the Lovington Daily Leader July 9, 1997.

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

July 2, *1997*

LOVINGTON DAILY LEADER
P. O. Box 1717
Lovington, New Mexico 88260

ATTN: ADVERTISING MANAGER

RE: NOTICE OF PUBLICATION

Dear Sir/Madam:

Please publish the attached notice one time immediately on receipt of this request. Please proofread carefully, as any error in a land description or in a key word or phrase can invalidate the entire notice.

Immediately upon completion of publication, please send the following to this office:

1. ***Publisher's affidavit in duplicate.***
2. ***Statement of cost (also in duplicate.)***
3. ***CERTIFIED invoices for prompt payment.***

We should have these immediately after publication in order that the legal notice will be available for the hearing which it advertises, and also so that there will be no delay in your receiving payment.

Please publish the notice no later than July 9, *1997.*

Sincerely,

Sally Martinez

Sally E. Martinez
Administrative Secretary

Attachment

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

July 2, *1997*

THE NEW MEXICAN
202 E. Marcy
Santa Fe, New Mexico 87501

RE: NOTICE OF PUBLICATION

PO #96-199-002997

ATTN: Betsy Perner

Dear Sir/Madam:

Please publish the attached notice one time immediately on receipt of this request. Please proofread carefully, as any error in a land description or in a key word or phrase can invalidate the entire notice.

Immediately upon completion of publication, please send the following to this office:

1. *Publisher's affidavit.*
2. *Invoices for prompt payment.*

We should have these immediately after publication in order that the legal notice will be available for the hearing which it advertises, and also so that there will be no delay in your receiving payment.

Please publish the notice on Monday, July 7, *1997.*

Sincerely,

Sally Martinez

Sally E. Martinez
Administrative Secretary

Attachment

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan renewal application has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

(GW-119) - Phillips Petroleum Company, Sam Christy, (915) 368-1620, 4001 Penbrook, Odessa, Texas, 79762, has submitted a discharge application for renewal of its previously approved discharge plan for the East Vacuum Liquids Recovery Plant located in the W/2 NE/4 of Section 33, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico. Approximately 2100 gallons per day of waste water with a total dissolved solids concentration of approximately 3715 mg/l is disposed of into a Class II injection well waterflood. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 220 feet with a total dissolved solids concentration of approximately 300 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan renewal application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan applications, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the Director will approve or disapprove the proposed plan based on the information in the discharge plan renewal application and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 30th day of June 1997.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

WILLIAM J. LEMAY, Director

The Santa Fe New Mexican

Since 1849. We Read You.

NM OIL DIVISION
ATTN: SALLY MARTINEZ
2040 S. PACHECO ST.
SANTA FE, NM 87505

AD NUMBER: 661160 ACCOUNT: 56689

LEGAL NO: 62003 P.O. #: 96-199-0029

174	LINES	ONCE	at $ 69.60
Affidavits:			5.25
Tax:			4.68
Total:			$ 79.53

NOTICE OF PUBLICATION

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan renewal application has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico, 87505, Telephone (505) 827-7131:

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If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the Director will approve or disapprove the proposed plan based on the information in the discharge plan renewal application and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 30th day of June 1997.

STATE OF NEW MEXICO
OIL CONSERVATION
DIVISION
WILLIAM J. LEMAY,
Director
Legal #62003
Pub. July 7, 1997

AFFIDAVIT OF PUBLICATION

STATE OF NEW MEXICO
COUNTY OF SANTA FE

I, BETSY PERNER being first duly sworn declare and say that I am Legal Advertising Representative of THE SANTA FE NEW MEXICAN, a daily news paper published in the English language, and having a general circulation in the Counties of Santa Fe and Los Alamos, State of New Mexico and being a News paper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 on Session Laws of 1937; that the publication # 62003 a copy of which is hereto attached was published in said newspaper once each WEEK for ONE consecutive week(s) and that the notice was published in the newspaper proper and not in any supplement; the first publication being on the 7 day of JULY 1997 and that the undersigned has personal knowledge of the matter and things set forth in this affidavit.

/S/ Betsy Perner
LEGAL ADVERTISEMENT REPRESENTATIVE

MA OK 7-9-97

Subscribed and sworn to before me on this 7 day of JULY A.D., 1997

Notary Laura E. Harding
Commission Expires 11/23/99

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan renewal application has been submitted to the Director of the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

(GW-119) - Phillips Petroleum Company, Sam Christy, (915) 368-1620, 4001 Penbrook, Odessa, Texas, 79762, has submitted a discharge application for renewal of its previously approved discharge plan for the East Vacuum Liquids Recovery Plant located in the W/2 NE/4 of Section 33, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico. Approximately 2100 gallons per day of waste water with a total dissolved solids concentration of approximately 3715 mg/l is disposed of into a Class II injection well waterflood. Ground water most likely to be affected in the event of an accidental discharge is at a depth of approximately 220 feet with a total dissolved solids concentration of approximately 300 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan renewal application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan applications, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and a public hearing may be requested by any interested person. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the Director will approve or disapprove the proposed plan based on the information in the discharge plan renewal application and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 30th day of June 1997.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

WILLIAM J. LEMAY, Director

PHILLIPS PETROLEUM COMPANY

4001 PENBROOK
ODESSA, TEXAS 79762

EXPLORATION AND PRODUCTION
Permian Profit Center

June 26, 1997

State of New Mexico
Oil Conservation Division
Attention: Roger C. Anderson
2040 South Pacheco Street
Santa Fe, New Mexico 87505

Re: Discharge Plan GW-119 Renewal
East Vacuum Liquids Recovery Plant
Lea County, New Mexico

Dear Mr. Anderson:

Enclosed you will find the original and one copy of Phillips Petroleum Company's renewal application for Discharge Plan GW-119 for the East Vacuum Liquids Recovery Plant located in Lea County, New Mexico. Also enclosed you will find a check to cover the applicable $50.00 filing fee for this renewal application.

If you have any questions, please feel free to contact me at **915-368-1620**.

Sincerely,

Sam E. Christy
Safety & Environmental Analyst

enclosure

cc. Chris Williams - NMOCD/Hobbs, NM

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

June 6, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-288-258-927

Mr. Sam Christie
Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

RE: Discharge Plan GW-119 Renewal
East Vacuum Liquids Recovery Plant
Lea County, New Mexico

Dear Mr. Christie:

On September 9, 1992, the groundwater discharge plan, GW-119, for the Phillips Petroleum Company (Phillips) East Vacuum Liquids Recovery Plant located in Section 33, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, was approved by the Director of the New Mexico Oil Conservation Division (OCD). This discharge plan was required and submitted pursuant to Water Quality Control Commission (WQCC) regulation 3106 and was approved pursuant to section 3109 for a period of five years. The approval will expire on September 9, 1997.

On February 18, 1997 Phillips was notified of the upcoming expiration. If the discharge plan renewal is not received and approved by the OCD by September 19, 1997, East Vacuum Liquids Recovery Plant will be required to cease operations until the OCD receives and approves the discharge plan renewal.

If the facility continues to have potential or actual effluent or leachate discharges and Phillips wishes to continue operations, the discharge plan must be renewed. The OCD is reviewing discharge plan submittals and renewals carefully and the review time can extend for several weeks to months. Please indicate whether Phillips has made, or intends to make, any changes in the system, and if so, please include these modifications in the application for renewal.

The discharge plan renewal application for the East Vacuum Liquids Recovery Plant is subject to the WQCC Regulation 3114. Every billable facility submitting a discharge plan renewal will be assessed a fee equal to the filing fee of $50 plus a flat fee of $1,667.50 for gas processing

plants. The $50 filing fee is to be submitted with the discharge plan renewal application and is nonrefundable. The flat fee for an approved discharge plan renewal may be paid in a single

payment due at the time of approval, or in equal annual installments over the duration of the discharge plan with the first payment due the at the time of approval.

Please make all checks payable to: **NMED-Water Quality Management** and addressed to the OCD Santa Fe Office.

Please submit the original and one copy to the OCD Santa Fe Office and one copy to the OCD Hobbs District Office. **Note that the completed and signed application form must be submitted with the discharge plan renewal request.** Copies of the WQCC regulations and discharge plan application form and guidelines have been enclosed. If Phillips requires additional copies of these items notify the OCD at (505) 827-7152. A complete copy of the regulations is also available on the OCD's website at **www.emnrd.state.nm.us/ocd/**.

If Phillips no longer has any actual or potential discharges and a discharge plan is not needed, please notify this office. If Phillips has any questions, please do not hesitate to contact Mark Ashley at (505) 827-7155.

Sincerely,

Roger C. Anderson
Environmental Bureau Chief

RCA/mwa

xc: OCD Hobbs Office

ACKNOWLEDGEMENT OF RECEIPT OF CHECK/CASH

I hereby acknowledge receipt of check No. [redacted] dated 5-6-97,

or cash received on _____ in the amount of $ 50.00

from Phillips Pet

for E. Vacuum GW-119

(Facility Name) (OP No.)

Submitted by: _____ Date: _____

Submitted to ASD by: [signature] Date: 7/31/97

Received in ASD by: _____ Date: _____

Filing Fee XR New Facility ____ Renewal ____

Modification ____ Other _____

(specify)

Organization Code 521.07 Applicable FY 98

To be deposited in the Water Quality Management Fund.

Full Payment ____ or Annual Increment ____

LIBERTY

ODESSA IMPREST FUND ACCT. 1-90
915-368-1517
4001 PENBROOK, RM. 212
ODESSA, TX 79762

5-6 19 97 [redacted]

88-8685/3183

PAY TO THE ORDER OF NMED-Water Quality Management $ 50 00/xx

Fifty and 00/100 DOLLARS

Odessa Credit Union
ODESSA, TEXAS 79762
(915) 367-8911 (800) 344-3416

MEMO _____ Kelly Summers

[redacted]

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

February 18, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-288-258-910

Mr. Sam Christie
Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

RE: Discharge Plan GW-119 Renewal
East Vacuum Liquids Recovery Plant
Lea County, New Mexico

Dear Mr. Christie:

On September 9, 1992, the groundwater discharge plan, GW-119, for the Phillips Petroleum Company (Phillips) East Vacuum Liquids Recovery Plant located in Section 33, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico, was approved by the Director of the New Mexico Oil Conservation Division (OCD). This discharge plan was required and submitted pursuant to Water Quality Control Commission (WQCC) regulation 3106 and was approved pursuant to section 3109 for a period of five years. The approval will expire on September 9, 1997.

If the facility continues to have potential or actual effluent or leachate discharges and Phillips wishes to continue operations, the discharge plan must be renewed. **Pursuant to Section 3106.F., if an application for renewal is submitted at least 120 days before the discharge plan expires (on or before May 9, 1997), then the existing approved discharge plan for the same activity shall not expire until the application for renewal has been approved or disapproved.** The OCD is reviewing discharge plan submittals and renewals carefully and the review time can extend for several weeks to months. Please indicate whether Phillips has made, or intends to make, any changes in the system, and if so, please include these modifications in the application for renewal.

The discharge plan renewal application for the East Vacuum Liquids Recovery Plant is subject to the WQCC Regulation 3114. Every billable facility submitting a discharge plan renewal will be assessed a fee equal to the filing fee of $50 plus a flat fee of $1,667.50 for gas processing plants. The $50 filing fee is to be submitted with the discharge plan renewal application and is nonrefundable. The flat fee for an approved discharge plan renewal may be paid in a single

payment due at the time of approval, or in equal annual installments over the duration of the discharge plan with the first payment due the at the time of approval.

Please make all checks payable to: **NMED-Water Quality Management** and addressed to the OCD Santa Fe Office.

Please submit the original and one copy to the OCD Santa Fe Office and one copy to the OCD Hobbs District Office. **Note that the completed and signed application form must be submitted with the discharge plan renewal request.** Copies of the WQCC regulations and discharge plan application form and guidelines have been enclosed. If Phillips requires additional copies of these items notify the OCD at (505) 827-7152. A complete copy of the regulations is also available on the OCD's website at **www.emnrd.state.nm.us/ocd/**.

If Phillips no longer have any actual or potential discharges and a discharge plan is not needed, please notify this office. If Phillips has any questions, please do not hesitate to contact Mark Ashley at (505) 827-7155.

Sincerely,

Roger C. Anderson
Environmental Bureau Chief

RCA/mwa

xc: OCD Hobbs Office

ACKNOWLEDGEMENT OF RECEIPT
OF CHECK/CASH

I hereby acknowledge receipt of check No. [redacted] dated 10-13-92,
or cash received on 10/23/92 in the amount of $ 3385.00
from Phillips Petroleum Company
for East Vacuum Liquids Recovery Plant (Facility Name) GW-119 (DP No.)
Submitted by: _____ Date: _____
Submitted to ASD by: Kathy Brown Date: 10/23/92
Received in ASD by: Sherry Gonzales Date: 10/23/92
Filing Fee X New Facility X Renewal ___
Modification ___ Other _____ (specify)

Organization Code 521.07 Applicable FY 93

To be deposited in the Water Quality Management Fund.
Full Payment X or Annual Increment ___

WESTSTAR BANK, n.a.
BARTLESVILLE, OKLAHOMA

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA 74004

86-82/1031

	DATE	CHECK NO.	AMOUNT
B000091187	10/13/92	[redacted]	$3,385.00

PAY TO THE ORDER OF EXACTLY *******$3,385 DOLLARS AND 00 CENTS

N.M.E.D. - WATER QUALITY MANAGEMENT
OCD OFFICE
P.O. BOX 2088
SANTA FE NM 87504

PHILLIPS PETROLEUM COMPANY

TREASURER

[redacted]

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP
Permian Basin Region

October 14, 1992

Mr. Roger Anderson
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

Dear Mr. Anderson:

The discharge plan application for Phillips East Vacuum Liquids Recovery Plant is subject to the WQCC Regulation 3-114 discharge plan fee. Every billable facility submitting a discharge plan will be assessed a fee equal to the filing fee of fifty dollars ($50) plus the flat fee of three-thousand, three-hundred and thirty five dollars ($3,335.00) for gas processing plants.

Please find enclosed the total amount of three-thousand, three-hundred and eighty-five dollars ($3,385.00) to comply with WQCC Regulation 3-114.

Sincerely,

Jeffrey A. Carlson

Jeffrey A. Carlson
Safety & Environmental Representative

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP
Permian Basin Region

August 14, 1992

CERTIFIED MAIL
RETURN RECEIPT NO. P-132-443-270

Mr. Roger Anderson/Ms. Kathy Brown
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

RE: **Discharge plan GW-119**
East Vacuum Liquids Recovery Gas Processing Plant
Lea County, New Mexico

Dear Mr. Anderson/Ms. Brown:

Phillips Petroleum Company wishes to notify the Oil Conservation Division in writing that the East Vacuum Liquids Recovery Gas Processing Plant commenced operations on August 8, 1992.

Phillips Petroleum Company is currently working with Chris Eustice of the Hobbs, New Mexico Oil Conservation Division office to schedule the EVLRP facility inspection.

If you should have any questions or require additional information please contact me at (915) 368-1229.

Sincerely,

Jeff Carlson

Jeff Carlson
Safety & Environmental Representative

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND
NATURAL RESOURCES
DEPARTMENT
OIL CONSERVATION
DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan applications and modifications have been submitted to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fé, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-119) — Phillips Petroleum Company, Jeffrey Carlson, Safety and Environmental Analyst, 4001 Penbrook, Odessa, Texas 79762, has submitted a discharge plan application for their East Vacuum Liquids Recovery Plant (EVLRP) which is located in Section 33, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico. Approximately 2,100 gallons per day of waste water with a total dissolved solids concentration of approximately 3,715 mg/l is discharged into a Class II well for beneficial reuse into a waterflood. Groundwater most likely to be affected by an accidental discharge is at a depth ranging from 220 to 280 feet with a total dissolved solids concentration ranging from 300 mg/l to 500 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-123) — Yates Petroleum Corporation, Chuck Morgan, 105 South Fourth Street, Artesia, New Mexico, 88210, has submitted a discharge plan application for their 7-Rivers Compressor Station located in the NW/4NW/4, Section 25, Township 19 South, Range 24 East, NMPM, Eddy County, New Mexico. Approximately 260 gallons per day of wash down water with a total dissolved solids concentration of approximately 56,800 mg/l is stored in two 300 barrels above ground fiberglass tanks and then transferred via pipeline and injected into an OCD approved Class II injection well. Ground water most likely to be affected by an accidental discharge is at a depth approximately 250 feet with a total dissolved solids concentration of approximately 1,650 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-89) — Transwestern Pipeline Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico, 88202-1717, has submitted a discharge plan modification application for the previously approved discharge plan for their Corona Compressor Station located in the NW/4, Section 36, Township 4 South, Range 15 East, NMPM, Lincoln County, New Mexico. The modification proposes the addition of a landfarm which will accept non-hazardous hydrocarbon contaminated soil generated at field operations owned by Transwestern. No liquids or hazardous waste will be accepted at the site. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 552 feet with a total dissolved solids concentration of approximately 1,500 mg/l. The discharge plan addresses how spills, leaks and other accidental discharges to the surface will be managed.

(GW-110) — Transwestern Pipeline Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico, 88202-1717, has submitted a discharge plan modification application for the previously approved discharge plan for their Mountainair Compressor Station located in the NE/4, Section 3, Township 1 South, Range 6 East, NMPM, Torrance County, New Mexico. The modification proposes the addition of a landfarm which will accept non-hazardous hydrocarbon contaminated soil generated at field operations owned by Transwestern. No liquids or hazardous waste will be accepted at the site. Groundwater most likely to be affected by an acidental discharge is at a depth of approximately 350 feet with a total dissolved solids concentration of approximately 2,800 mg/l. The discharge plan addresses how spills, leaks and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 AM and 5:00 PM, Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fé, New Mexico, on this 16th day of June, 1992.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
/s/ WILLIAM J. LEMAY
Director

SEAL

To be published one time in the Torrance County Citizen on July 2, 1992.

THE
CITIZEN

P.O. BOX 288
ESTANCIA, NEW MEXICO 87016-0288

EDITOR'S AFFIDAVIT

STATE OF NEW MEXICO)
)
COUNTY OF TORRANCE)

Before me, the undersigned, personally appeared James Morrow Hall, who being sworn, states:

That he is the editor of the TORRANCE COUNTY CITIZEN, a weekly newspaper of general circulation, which is entered under the second class privilege in Torrance County, New Mexico, continuously and uninterruptedly during the period of more than twenty-six consecutive weeks next prior to the first issue containing the attached legal notice; that the notice attached hereto in Cause No. Notice of Publication in the Court in and for Torrance County, New Mexico, was published in said newspaper for One consecutive issues, the first publication being dated July 2, 19 92, and the last publication being dated July 2, 19 92; that such legal notice was published in a newspaper duly qualified for that purpose within the meaning of Chapter 167, New Mexico Session Laws of 1937; and that payment therefor in the sum of $22.96 is to be assessed as court costs in said cause.

James Morrow Hall
EDITOR

Subscribed and sworn to before me this 10th day of July, 1992.

Vivian Carruth
Notary Public

My commission expires: Oct 17, 1992

STATE OF NEW MEXICO
County of Bernalillo ss

Thomas J. Smithson being duly sworn declares and says that he is National Advertising manager of the **Albuquerque Journal** , and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chaper 167, Session Laws of 1937, and that payment therefore has been made or assessed as court costs; that the notice, a copy of which is hereto attached, was published in said paper in the regular daily edition,

for.....1.....times, the first publication being on the....26...day

of.....June....., 1992, and the subsequent consecutive

publications on....., 1992.

Thomas J. Smithson

OFFICIAL SEAL
Bernadette Ortiz
BERNADETTE ORTIZ
NOTARY PUBLIC NEW MEXICO
BY BOND FILED WITH SECRETARY OF STATE
Commission Expires 12-18-93

Sworn and subscribed to before me, a Notary Public in and for the County of Bernalillo and State of New Mexico, this ....26.... day of.....June....., 1992.

PRICE.....$ 47.11.....

Statement to come at end of month.

CLA-22-A (R-12/92) ACCOUNT NUMBER.....CB1184.....

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DEPARTMENT

Notice is hereby given that pursuant to the New Mexico Water Quality Control Commission Regulations, the following discharge plan applications and modifications have been submitted to the Director of the Oil Conservation District, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

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(GW-123) - Yates Petroleum Corporation, Chuck Morgan, 105 South Fourth Street, Artesia, New Mexico, 88210, has submitted a discharge plan application for their 7-Rivers Compressor Station located in the NW/4 NW/4, Section 25, Township 19 South, Range 24 East, NMPM, Eddy County, New Mexico. Approximately 260 gallons per day of wash down with a total dissolved solids concentration of approximately 56,800 mg/l is stored in two 300 barrel above ground fiberglass tanks and then transferred via pipeline and injected into an OCD approved Class II injection well. Ground water most likely to be affected by an accidental discharge is at a depth of approximately 250 feet with a total dissolved solids concentration of approximately 1650 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-89) - Transwestern Pipeline Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico 88202-1717, has submitted a discharge plan modification application for the previously approved discharge plan for their Corona Compressor Station located in the NW/4, Section 36, Township 4 South, Range 18 East, NMPM, Lincoln County, New Mexico. The modification proposes the addition of a landfarm which will accept non-hazardous hydrocarbon contaminated soil generated at field operations owned by Transwestern. No liquids or hazardous waste will be accepted at the site. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 552 feet with a total dissolved solids concentration of approximately 1500 mg/l. The discharge plan addresses how spills, leaks and other accidental discharges to the surface will be managed.

(GW-110) - Transwestern Pipeline Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico 88202-1717, has submitted a discharge plan modification application for the previously approved discharge plan for their Mountainair Compressor Station located in the NE/4, Section 3, Township 1 South, Range 6 East, NMPM, Torrance County, New Mexico. The modification proposes the addition of a landfarm which will accept non-hazardous hydrocarbon contaminated soil generated at field operations owned by Transwestern. No liquids or hazardous waste will be accepted at the site. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 350 feet with a total dissolved solids concentration of approximately 2900 mg/l. The discharge plan addresses how spills, leaks and other accidental discharges to the surface will be managed.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The discharge plan application may be viewed at the above address between 8:00 a.m. and 5:00 p.m., Monday through Friday. Prior to ruling on any proposed discharge plan or its modification, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Requests for public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines there is significant public interest.

If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 16th day of June, 1992

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
WILLIAM J. LEMAY, Director

Journal: June 26, 1992

PUBLISHER'S AFFIDAVIT

STATE OF NEW MEXICO
COUNTY OF LINCOLN } SS.

Before me, the undersigned, personally appeared Ruth Hammond, who being sworn states:

That she is the publisher of the Lincoln County News, a weekly newspaper of general paid circulation, which is entered under the second class privilege in Lincoln County, New Mexico; that said newspaper has been so published in Lincoln County, New Mexico, continuously and uninterruptedly during the period of more than twenty-six consecutive weeks next prior to the first issue containing the attached legal notice; that the notice attached hereto is Cause in the Court in and for Lincoln County, New Mexico, was published in said newspaper for ONE successive issues, the first publication being dated June 25, 19 92 and the last publication being dated June 25, 19 92 that such legal notice was published in a newspaper duly qualified for that purpose within the meaning of Chapter 167, New Mexico Session Laws of 1937; and the payment therefor in the sum of $ 77.45 is to be assessed as court costs in said cause.

Ruth Hammond
PUBLISHER

Subscribed and sworn to before me this 26th day of June, 19 92

Virginia L. Carter
NOTARY PUBLIC

My Commission Expires 2/26, 19 93

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations, the following discharge plan applications and modifications have been submitted to the Director of the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504-2088, Telephone (505) 827-5800:

(GW-119)-Phillips Petroleum Company, Jeffrey Carlson, Safety and Environmental Analyst, 4001 Penbrook, Odessa, Texas 79762, has submitted a discharge plan application for the East Vacuum Liquids Recovery Plant (EVLRP) which is located in Section 33, Township 17 South, Range 35 East, NMPM, Lea County, New Mexico. Approximately 2100 gallons per day of waste water with a total dissolved solids concentration of approximately 3715 mg/l is discharged into a Class II well for beneficial reuse into a waterflood. Groundwater most likely to be affected by an accidental discharge is at a depth ranging from 220 to 280 feet with a total dissolved solids concentration ranging from 300 mg/l to 500 mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

(GW-123)-Yates Petroleum Corporation, Chuck Morgan, 105 South Fourth Street, Artesia, New Mexico, 88210, has submitted a discharge plan application for their 7-Rivers Compressor Station located in the NW/4NW/4, Section 25, Township 19 South, Range 24 East, NMPM, Eddy County, New Mexico. Approximately 260 gallons per day of wash down water with a total dissolved solids concentration of approximately 56,800 mg/l is stored in two 300 barrel above ground fiberglass tanks and then transferred via pipeline and injected into an OCD approved [illegible] Ground watar most likely to be affected by an accidental discharge is at a depth of approximately 250 feet with a total dissolved solids concentration of approximately 1650mg/l. The discharge plan addresses how spills, leaks, and other accidental discharges to the surface will be managed.

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If no public hearing is held, the Director will approve or disapprove the proposed plan based on information available. If a public hearing is held, the director will approve or disapprove the proposed plan based on information in the plan and information submitted at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 16th day of June, 1992.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY,
Director

SEAL

Published in the Lincoln County News on June 25, 1992.

Affidavit of Publication

STATE OF NEW MEXICO)
) ss.
COUNTY OF LEA)

Joyce Clemens being first duly sworn on oath deposes and says that he is Adv. Director of THE LOVINGTON DAILY LEADER, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled Notice Of Publication

and numbered ..... in the Court of Lea County, New Mexico, was published in a regular and entire issue of THE LOVINGTON DAILY LEADER and not in any supplement thereof, once each week on the same day of the week, for one (1) day consecutive weeks, beginning with the issue of June 24, 19 92 and ending with the issue of June 24, 19 92

And that the cost of publishing said notice is the sum of $ 50.76 which sum has been (Paid) (Assessed) as Court Costs

Joyce Clemens

Subscribed and sworn to before me this 25th day of June, 19 92

Notary Public, Lea County, New Mexico

My Commission Expires Sept. 28, 19 94

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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GIVEN under the Seal o
New Mexico Oil Conservatio
Commission at Santa Fe, Nev
Mexico, on this 16th day o
June, 1992.
STATE OF NEW MEXICO
OIL CONSERVATION
DIVISIO
WILLIAM J. LEMAY, Directo
SEAL
Published in the Lovington Dail
Leader June 24, 1992.

Affidavit of Publication

No. 13984

STATE OF NEW MEXICO,

County of Eddy:

GAry D. Scott being duly sworn, says: That he is the Publisher of The Artesia Daily Press, a daily newspaper of general circulation, published in English at Artesia, said county and state, and that the hereto attached Legal Notice

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for 1 consecutive days weeks on the same day as follows:

First Publication June 24, 1992

Second Publication

Third Publication

Fourth Publication

Subscribed and sworn to before me this 24th day of June 19 92

Notary Public, Eddy County, New Mexico

My Commission expires September 23, 1996

line Company, Larry Campbell, Compliance Environmentalist, P.O. Box 1717, Roswell, New Mexico, 88202-1717, has submitted a discharge plan modification application for the previously approved discharge plan for their Corona Compressor Station located in the NW/4, Section 36, Township 4 South, Range 15 East, NMPM, Lincoln County, New Mexico. The modification proposes the addition of a landfarm which will accept non-hazardous hydrocarbon contaminated soil generated at field operations owned by Transwestern. No liquids or hazardous waste will be accepted at the site. Groundwater most likely to be affected by an accidental discharge is at a depth of approximately 552 feet with a total dissolved solids concentration of approximately 1500 mg/1. The discharge plan addresses how spills, leaks and other accidental discharges to the surface will be managed.

L__AL NOTICE

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 16th day of June, 1992.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
s-William J. LeMay
WILLIAM J. LEMAY
Director

SEAL

Published in the Artesia Daily Press, Artesia, N.M. June 24, 1992.

Legal 13984

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

ANITA LOCKWOOD
CABINET SECRETARY

June 23, 1992

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

CERTIFIED MAIL
RETURN RECEIPT NO. P-670-683-650

Mr. Jeffrey Carlson
Safety and Environmental Analyst
Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

RE: **Discharge Plan GW-119**
East Vacuum Liquids Recovery Gas Processing Plant
Lea County, New Mexico

Dear Mr. Carlson:

The Oil Conservation Division (OCD) has received your request dated May 1, 1992 for a 120 day extension to start-up operations and discharge without an approved groundwater discharge plan in place. The OCD has also received your discharge plan application dated May 1, 1992, and is in the process of reviewing the application.

Pursuant to Section 3-106.B. of the New Mexico Water Quality Control Commission (WQCC) regulations and for good cause shown, Phillips Petroleum Company is hereby granted an extension to start-up and operate the above referenced facility without an approved discharge plan for 120 days from start-up of operations. This extension is granted to allow the OCD time to conduct a facility inspection and for Phillips to incorporate any requirements into their discharge plan application.

Please notify the OCD in writing when the facility commences operations. If you have any questions, please feel free to contact Kathy Brown at (505) 827-5884.

Sincerely,

William J. LeMay
Director

WJL/kmb

xc: Chris Eustice, OCD Hobbs Office

STATE OF NEW MEXICO

OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time	Date
		June 23, 1992

Originating Party	Other Parties
K. Brown OCD	Jeff Carlson - Phillips

Subject: EVLRP Discharge Plan
Set up inspection, Find out start-up date

Discussion: July 3rd 1992 start-up scheduled.
Keith Farris - Plant Superintendent/Supervisor
Will contact Keith for DP inspection (391-5309)
Also, on TDS of effluent on May 29, 1992 correspondence from Phillips the cooling tower & make-up water values are switched

Conclusions or Agreements

Distribution

Signed K. Brown

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 16th day of June, 1992.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

S E A L

WILLIAM J. LEMAY, Director

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP
Permian Basin Region

Odessa, Texas
May 1, 1992

Discharge Plan
East Vacuum Liquids
Recovery Plant

CERTIFIED MAIL
RETURN RECEIPT NO. P-132 443 257

Director of The Oil Conservation Division
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504-2088
Attn: Mr. Roger Anderson

Dear Sir:

In accordance with New Mexico Water Quality Control Commission regulations, Phillips Petroleum Company submits the attached Groundwater Discharge Plan for the East Vacuum Liquids Recovery Plant (EVLRP), located in Lea County, New Mexico. The EVLRP is a new facility under construction. We are requesting a 120 day extension for facility start-up without an approved Groundwater Discharge Plan in place. Three copies of the proposed Groundwater Discharge Plan, along with a signed affirmation, are enclosed as requested.

If you should have any questions regarding this information, please contact me at (915) 368-1229.

Yours Very Truly,

Jeffrey A. Carlson

Jeffrey Carlson
Safety and Environmental
Analyst

JAC:sft

Attachments

PHILLIPS PETROLEUM COMPANY

EAST VACUUM LIQUIDS RECOVERY PLANT

DISCHARGE PLAN

AFFIRMATION

"I hereby certify that I am familiar with the information contained in and submitted with this application and that such information is true accurate and complete to the best of my knowledge and belief."

Jeffrey A. Carlson
(Signature)

May 1, 1992
(Date)

Jeffrey A. Carlson
(Printed Name of Person Signing)

Safety and Environmental Analyst
(Title)

DISCHARGE PLAN
PHILLIPS PETROLEUM COMPANY
EAST VACUUM LIQUIDS RECOVERY PLANT
SECTION 33, TOWNSHIP 17 SOUTH, RANGE 35 EAST N.M.P.M., LEA COUNTY

I. GENERAL PROCESS DESCRIPTION

The East Vacuum Liquids Recovery Plant (EVLRP) is a Ryan-Holmes type process plant that is licensed from Koch Engineering. The process will be a two column process operating in the propane recovery mode. The plant is sized for a maximum inlet feed capacity of 20 MMSCFD, as much gas as possible will be fed to the EVLRP with the remainder being bypassed through the existing CO_2 Reinjection Facility. Feed gas to the EVLRP will be taken from downstream of the Triethylene Glycol (TEG) contactor after the 3rd stage of compression at about 300 psig. Compression liquids recovered from the 3rd stage compression (collected in the TEG Knockout Drum) will be processed (stabilized) in the EVLRP. These liquids will enter the first column as a liquid feed stream. Molecular sieve dehydration will be required before the feed streams are processed in the EVLRP. The residue CO_2 stream (CO_2, H_2S, Methane and Ethane) from the EVLRP will be delivered back to the fourth stage suction header. The recovered NGL will be delivered to the NGL storage facility. The NGL product will be pumped from the storage facility and delivered via a metering skid to the Phillips Petroleum Company NGL Pipeline No. 38 which is about 2,200 feet south of the EVLRP. An automatic bypass line around the EVLRP is installed to allow continued CO_2 reinjecton when the EVLRP is down. The Hot Oil system will provide heat for the column reboilers and to heat the regeneration gas for the molecular sieve dehydrators. The Propane Refrigeration system will provide refrigeration for the overhead condenser on the first column of the EVLRP. The Cooling Water system and TEG system will be shared with the existing CO_2 Reinjection facility.

Attachment 1 and 2 are a plot plan and process flow sheet of the plant.

II. PLANT WATER SYSTEMS

A. RAW WATER

East Vacuum Liquids Recovery plant receives its process make-up water and non-potable water from the existing Central Tank Battery (CTB) located adjacent to the plant (#20, Attachment 1). Approximately 450 gpd are provided to the plant.

B. POTABLE WATER

Drinking water for the plant's office and control room is bottled water.

C. COOLING TOWER SYSTEM

The cooling tower system is comprised of one open recirculating cooling tower. The cooling tower has a recirculation rate of 800 gpm with an approximate daily volume of 400 gal/day. The water in this tower is recirculated and treated to maintain a pH of 7.2-7.6 and a Phosphate level of 12-17. The following chemicals, with their specific feed rates, are being added to the cooling tower waters for scale, corrosion, and biological treatment:

Chemical	Feed Rate (gal/day)
BETZ 25K	.142857 gal/day
BETZ 409	.017857 gal/day
SLIMICIDE C31	.017857 gal/day
STANNOUS CLORIDE CRYSTAL	.004336 gal/day

Material safety data sheets for these chemicals are found in Attachment 3.

D. ENGINE COOLING SYSTEMS

Water and antifreeze (50% Mix) is used as coolant in the jacket water systems of all engines at the plant (Attachment 4). The plant has two propane compressors referred to as the "Refrigeration Compressors."

Coolant from engines is drained to the respective jacket water storage tank when an engine is being worked on. The coolant is pressured back to the engine when the work is completed. Coolant in engines equipped with self-contained cooling systems is drained into a common supply storage header before an engine is worked on. Coolant is placed back in the engine when the work is completed.

E. FILTER COALESCER SYSTEM

The filter coalescer is a two stage separator that separates micron size particles and tiny mist like droplets of triethylene glycol (TEG). The glycol is recycled through as existing TEG contactor (#5, Attachment 1) and any particles are trapped in cartridge type filters which are changed as needed. Approximately 20 gpd of glycol are recycled.

III. PLANT DRAIN SYSTEMS

A. ENGINE OIL DRAIN SYSTEMS

Lube oil in the EVLRP's Refrigeration Compressors is changed by draining the "spent" oil charge from an engine into a below grade storage and collection point constructed of a steel tank contained in a cement vault (#15, Attachment 1). Atmospheric drains, located around the plants engines, are designed to catch leaking oil, and drain to the above mentioned below grade storage and collection point. The existing plant engines have atmospheric drains and are serviced/catch leaking oil in the same manner. The oil is drained to a different below grade storage and collection point (#11, Attachment 1) constructed of a steel tank contained in a cement vault. Liquids from the steel tanks are pumped into the Central Tank Battery (CTB) overflow storage tank (#21, Attachment 1). Attachment 5 is a process flowsheet of this system.

B. COOLING TOWER WASTEWATER DISPOSAL SYSTEM

Cooling tower blowdown is sent through a two inch line to the Central Tank Battery emergency overflow pit which has a fiberglass reinforced plastic lining (#19, Attachment 1). Attachment 6 is the permitting correspondence for the emergency overflow pit.

IV. SOLID WASTE

A. All solid waste is picked up by Waste Management for disposal in a Hobbs landfill. This includes paper, pipe, concrete and other non-hazardous refuse.

B. SPENT MOLECULAR SIEVE

Approximately every five years the molecular sieve dehydrators at the plant are recharged. The spent molecular sieve (Attachment 7) will be disposed of in accordance with all appropriate state and federal regulations. Approximately 14,000 pounds of this material are disposed of each time the beds are recharged.

V. SPILL/LEAK PREVENTION AND HOUSEKEEPING PROCEDURES

The plant's below grade vessels and piping are visually inspected and/or pressure tested prior to being put in service. The vessels and lines are externally and/or internally coated if required, to ensure against corrosion. This equipment is checked continuously by operators who are on duty 24 hours per day. Any leaks would be detected by the operators and corrected. Operators are required to notify the plant supervisor of any leak. If the leak is significant, the plant supervisor will notify the Oil Conservation Division in accordance with Rule 116.

VI. MISCELLANEOUS INFORMATION

A. SANITARY WASTES

Sanitary wastes from the plant and office are handled by a septic tank and leach field located North of the Control Room.

B. PLANT TOPOGRAPHY

A topographic map of the plant area is found in Attachment 8. EVLRP facility is represented by the #1 on Attachment 8 and #2 represents the existing facility. There are no bodies of water within a one mile radius of the plant.

C. FLOODING POTENTIAL

None.

D. GROUND WATER INFORMATION

The depth of ground water at EVLRP is approximately 220-280 feet and the quality of the water is potable. There are no ground water monitoring wells at this facility.

E. GEOLOGICAL INFORMATION

The Plant is underlain by caliche soil. Ground water is in the Ogallala aquifer which has a composition of sand to grave to caliche with some clay beds. The depth of rock at base of alluvium is less then one foot.
Reference source: New Mexico State Geologist

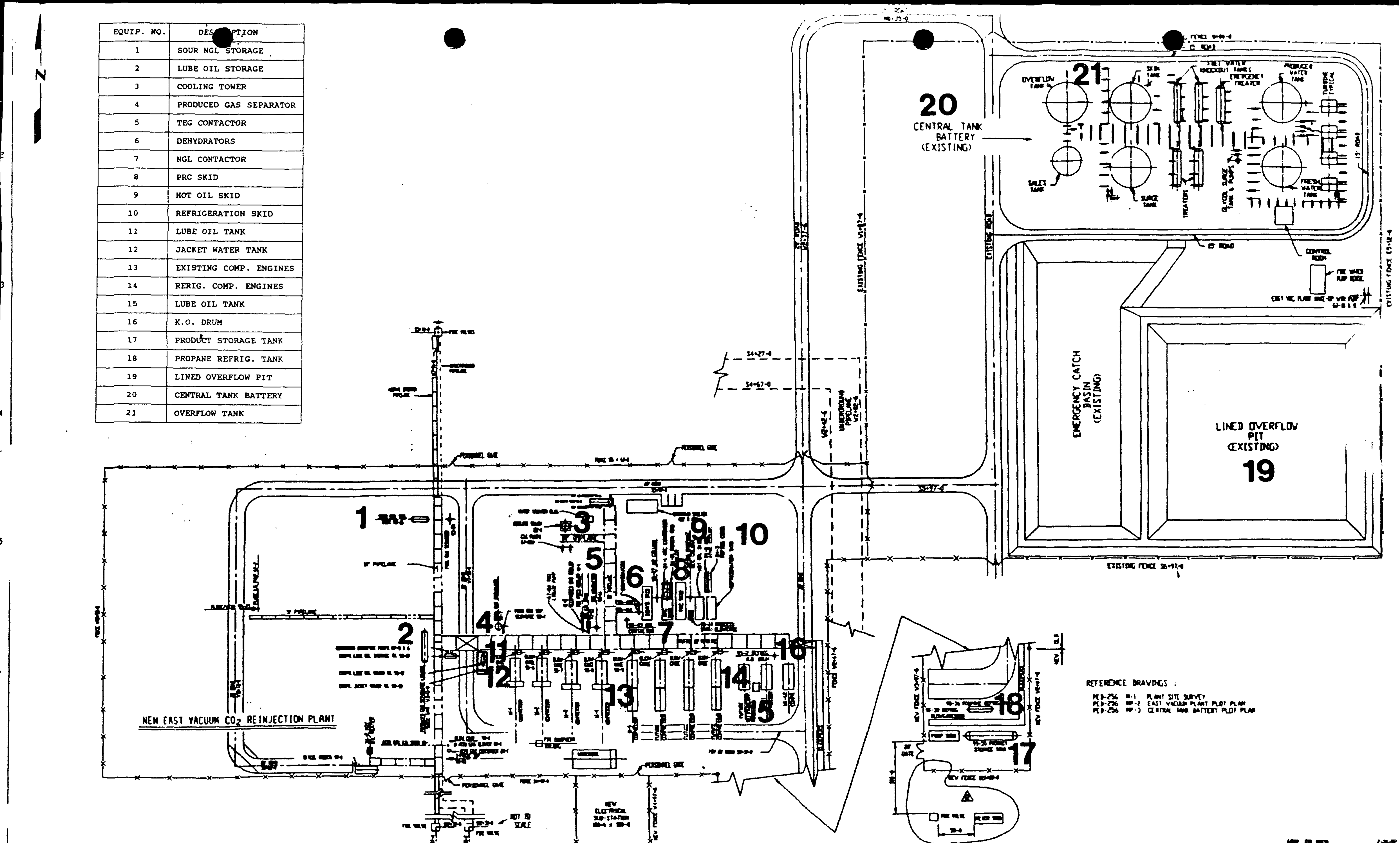
G. CONTACT PERSON

Facility Supervisor: A.K. Farris
HC 60, Box 450
Lovington, NM 88260
(505) 397-5578

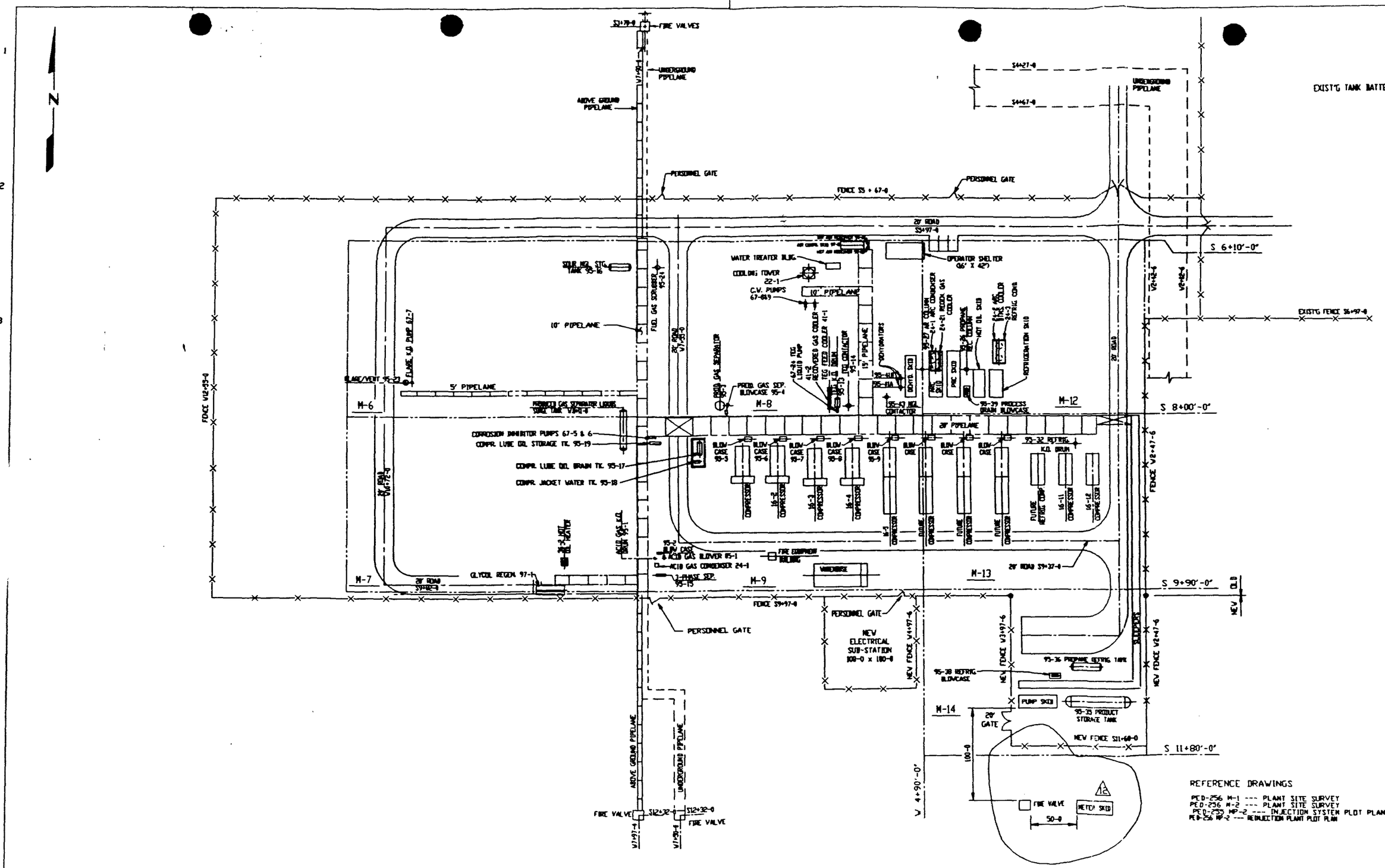
ATTACHMENT 1

EVGLR PLOT PLAN

EQUIP. NO.	DESCRIPTION
1	SOUR NGL STORAGE
2	LUBE OIL STORAGE
3	COOLING TOWER
4	PRODUCED GAS SEPARATOR
5	TEG CONTACTOR
6	DEHYDRATORS
7	NGL CONTACTOR
8	PRC SKID
9	HOT OIL SKID
10	REFRIGERATION SKID
11	LUBE OIL TANK
12	JACKET WATER TANK
13	EXISTING COMP. ENGINES
14	RERIG. COMP. ENGINES
15	LUBE OIL TANK
16	K.O. DRUM
17	PRODUCT STORAGE TANK
18	PROPANE REFRIG. TANK
19	LINED OVERFLOW PIT
20	CENTRAL TANK BATTERY
21	OVERFLOW TANK



PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA
PLOT PLAN
EXISTING CENTRAL TANK BATTERY
&
NEW EAST VACUUM CO_2 REINJECTION PLANT



NO.	REVISION	BY	DATE
		CHKD	APP'D
1	ISSUE FOR CONSTR. P-KN51	FRANKLIN	7/2/85
		R.D.B.	R.A.E.
2	ADDED M-7 AND REMOVED M-10 & M-11 P-KN51	COLEMAN	9/9/85
		RDB	RAE
4	MOVED VTR. TREATER BLDG. & REMOVED ACCESS WALKWAYS P-KN51	RDB	12/19/85
		JC	RDB
5	REV. & ADDED NEW PERSONNEL GATE P-KN51	RANKIN	2/86
		DRG	
6	REVISED PER AS BUILT. P-KN51	ELR	6/86
		DRG	
8	ADDED 16-4 & 95-8 AS NEW EQUIP P-C142	ELR	11/88
		JHM	ELR
9	ISSUE FOR CONSTRUCTION P-C412	JHM	11/88
		ELR	ELR
10	ADDED 16-5 AS NEW EQUIP. & EXTENDED PIPE RACK, ADDED SURGE TANK	JAM	5/91
		CFD	7-10-91
12	REVISED LOCATION OF 67-24, 24-1, 24-2, & 95-32 P-C867	CFD	9-16-91
13	REVISED LOCATION OF FIRE VALVE & METER SKID IN STORAGE AREA	CFD	2-24-92

FOR BIDS	
FOR APPR	D-5-24-85 RAE
FOR CONST	1-8-5-85 RAE
DRAWN	S. FRANKLIN 4/25/85
CHECKED	BARTNECK SMS

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

EQUIPMENT DRAWING INDEX
EAST VACUUM CO2 REINJECTION PLANT

JA NO.	569241
AFE NO.	P-KN51
DWG NO.	PED-256
SH NO.	M-
FILE	S
SCALE	1"=50'

ATTACHMENT 2

PROCESS FLOW SHEET

REINJECTION COMP. 4TH & 5TH STAGES

CO2 INJECTION

PV

SC

16-11

REFRIGERATION COMP.

16-12

PIC

PRC

TO PRC CONDENSER

FROM PRC CONDENSER 41-7

95-32 REFR. K.O. DRUM

LI

TO REFR. COND. 24-3

FILL TRUCK

95-36 PROPANE STORAGE TANK

TO PRC CONDENSER 41-7

TO 5 PSIG PRODUCED GAS SEPARATOR(95-3)

FE

EXISTING 41-1

PLANT FEED

FEED COMP. 1ST 2ND,3RD STAGES

ARC

RYAN HOLMES AREA

REF. PF-01

LI

EXISTING TEG K.O. DRUM 95-13

LC

VAPOR DEHYD.

LIQUID DEHYD.

REGEN

VENT TO PRODUCED GAS SEP'R. (95-3)

PC

LC

RESET

OL

95-35 NGL PRODUCT STORAGE TANK

PROD. H2O TO EXISTING TANK

67-22 A/B

INERT BLANKET FUEL GAS

HOT OIL HEATER

FILL

HOT OIL SURGE TANK 95-34

LI

67-23 A/B

36-2

TIC

FT

HOT OIL PUMPS 67-21 A/B

TI

M

FR

ESDV

FUEL GAS

METER SKID

NGL PRODUCT TO PIPELINE #38

1-28-92

NO	REVISION	BY CHKD	DATE APP'D
P1	KPS DECM 1997		
P2	KPS DECM 2065		
P3	KPS DECM 2128		

A	ISSUED FOR APPROVAL P-C867	CFD	9-30-91
0	ISSUED FOR CONSTRUCTION	CFD	1-28-92

FOR BIDS

FOR APPR A 10-29-91 CFD

FOR CONST 0 1-28-92 CFD

DRAWN

CHECKED

APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

PROCESS SCHEMATIC DIAGRAM
RYAN/HOLMES PLANT-EVGSAU CO2 FACILITY

JA NO. 36-9288

FILE CODE 311

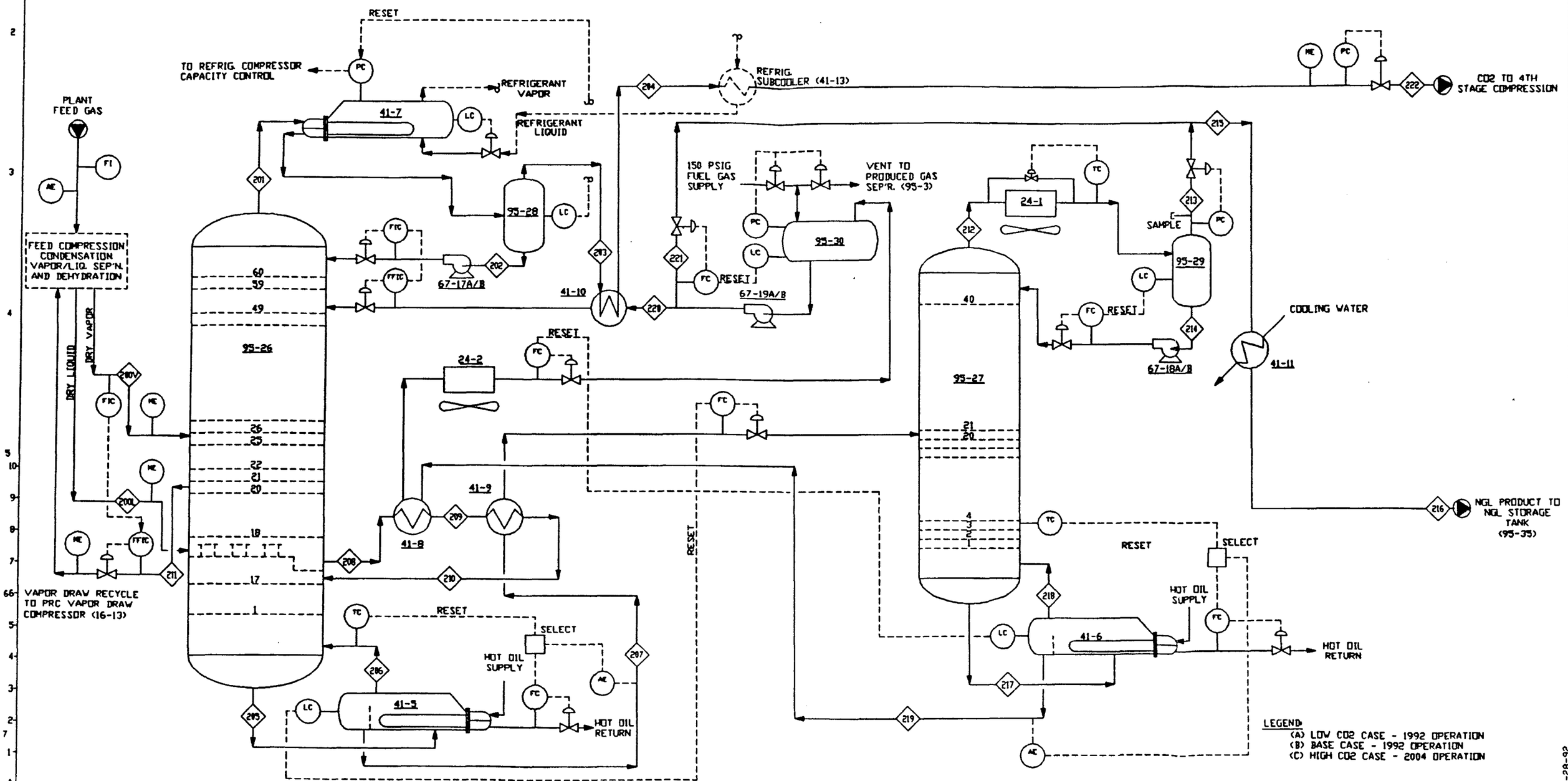
AFE NO. P-C867

SCALE NONE

DWG NO. PED-256

SH NO. PF-06-0

95-26 PROPANE RECOVERY COLUMN (PRC)	41-5 PRC REBOILER	41-8 PRC SIDE REBOILER	41-9 PRC SIDE HEATER	41-7 PRC CONDENSER	95-28 PRC REFLUX DRUM	41-10 ADDITIVE SUBCOOLER	67-17A/B PRC REFLUX PUMP	95-27 ADDITIVE RECOVERY COLUMN (ARC)	41-6 ARC REBOILER	24-1 ARC CONDENSER	95-29 ARC REFLUX DRUM	67-19A/B ADDITIVE PUMP	95-30 ADDITIVE DRUM	67-18A/B ARC REFLUX PUMP	24-2 ARC BTMS COOLER	41-11 NGL CONDENSER
	DUTY MM BTU/HR	DUTY MM BTU/HR	DUTY MM BTU/HR	DUTY MM BTU/HR		DUTY MM BTU/HR	GPM		DUTY MM BTU/HR	DUTY MM BTU/HR		GPM		GPM	DUTY MM BTU/HR	DUTY MM BTU/HR
	(A) 2.77	(A) 0.59	(A) 0.51	(A) 5.00		(A) 0.17	(A) 83		(A) 2.00	(A) 0.67		(A) 26		(A) 18	(A) 0.22	(A) 1.39
	(B) 2.22	(B) 0.67	(B) 0.45	(B) 4.75		(B) 0.25	(B) 74		(B) 1.89	(B) 0.60		(B) 26		(B) 16	(B) 0.18	(B) 1.12
	(C) 2.46	(C) 1.40	(C) 1.68	(C) 3.91		(C) 1.01	(C) 62		(C) 1.94	(C) 0.88		(C) 62		(C) 24	(C) 0.84	(C) 0.32



NO	REVISION	BY CHKD	DATE APP'D				
P1	KPS DEDN 1997			A	ISSUED FOR APPROVAL P-C867	CFD	10-29-91
P2	KPS DEDN 2065			0	ISSUED FOR CONSTRUCTION	CFD	1-28-92
P3	KPS DEDN 2128						

FOR INFO
FOR APPR A 10-29-91 CFD
FOR CONST 0 1-28-92 CFD
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

PROCESS FLOW SHEET RYAN/HOLMES PLANT EVGSAU CO2 FACILITY

A NO. 56-9288 | FILE CODE
APE NO. P-C867 | SCALE NONE
DWG NO. PED-256
SH NO. PF-01-0

1-28-92

ATTACHMENT 3

CHEMICAL MSDS SHEETS

BETZ INDUSTRIAL
4636 [redacted]MERTON ROAD, TREVOSE, PA. [redacted]047

BETZ MATERIAL SAFETY DATA SHEET

24 HOUR EMERGENCY TELEPHONE (HEALTH OR ACCIDENT) 215/355-3300

PRODUCT :BETZ 25K SERIES 25307 EFFECTIVE DATE 12-13-89
PRINTED: 1/22/90
REVISIONS TO SECTIONS: APPENDIX

PRODUCT APPLICATION : WATER-BASED CORROSION INHIBITOR/DEPOSIT CONTROL AGENT.

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

INFORMATION ON PHYSICAL HAZARDS, HEALTH HAZARDS, PEL'S AND TLV'S FOR SPECIFIC PRODUCT INGREDIENTS AS REQUIRED BY THE OSHA HAZARD COMMUNICATIONS STANDARD ARE LISTED. REFER TO SECTION 4 (PAGE 2) FOR OUR ASSESSMENT OF THE POTENTIAL ACUTE AND CHRONIC HAZARDS OF THIS FORMULATION.

POTASSIUM HYDROXIDE***(CAUSTIC POTASH);CAS#1310-58-3;CORROSIVE;TOXIC IF ORALLY INGESTED;PEL/TLV:2.0MG/M3(CEILING).

PHOSPHONIC ACID,(1-HYDROXYETHYLIDINE)BIS-***HEDP;CAS#2809-21-4;EYE IRRITANT;PEL:NONE;TLV:NONE.

1-H-BENZOTRIAZOLE,METHYL***(TOLYLTRIAZOLE;TTA);CAS#29385-43-1; IRRITANT(EYE);PEL:NONE;TLV:NONE.

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: AS IS (APPROX.) 12.6	ODOR: MILD
FL.PT.(DEG.F): >200 P-M(CC)	SP.GR.(70F)OR DENSITY: 1.388
VAPOR PRESSURE(mmHG): 18	VAPOR DENSITY(AIR=1): <1
VISC cps70F: 30	%SOLUBILITY(WATER): 100
EVAP.RATE: <1 ETHER=1	APPEARANCE: YELLOW
PHYSICAL STATE: LIQUID	FREEZE POINT(DEG.F): -3

-----SECTION 3----------REACTIVITY DATA----------

STABLE.MAY REACT WITH STRONG OXIDIZERS.DO NOT CONTAMINATE.BETZ TANK CLEAN-OUT CATEGORY 'B'

THERMAL DECOMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.

ODUCT BETZ 25A SERIES 25307

---SECTION 4----------HEALTH HAZARD EFFECTS----------

UTE SKIN EFFECTS *** PRIMARY ROUTE OF EXPOSURE
SEVERE IRRITANT TO THE SKIN

UTE EYE EFFECTS ***
CORROSIVE TO THE EYES

UTE RESPIRATORY EFFECTS ***
MISTS/AEROSOLS CAUSE IRRITATION TO UPPER RESPIRATORY TRACT

RONIC EFFECTS OF OVEREXPOSURE***
PROLONGED OR REPEATED CONTACT MAY CAUSE PRIMARY IRRITANT DERMATITIS.

DICAL CONDITIONS AGGRAVATED ***
NOT KNOWN

MPTOMS OF EXPOSURE ***
CAUSES SEVERE IRRITATION,BURNS OR TISSUE ULCERATION WITH SUBSEQUENT SCARRING.

ECAUTIONARY STATEMENT BASED ON TESTING RESULTS ***
MAY BE TOXIC IF ORALLY INGESTED.

---SECTION 5----------FIRST AID INSTRUCTIONS----------

IN CONTACT***
REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES

E CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT

ALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY

GESTION***
DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
DO NOT INDUCE VOMITING.IMMED.CONTACT PHYSICIAN.DILUTE CONTENTS OF STOMACH USING 3-4 GLASSES MILK OR WATER

---SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS---------

ILL INSTRUCTIONS***
VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN AND ABSORB ON ABSORBENT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER. THE WASTE CHARACTERISTICS OF THE ABSORBED MATERIAL,OR ANY CONTAMINATED SOIL, SHOULD BE DETERMINED IN ACCORDANCE WITH RCRA REGULATIONS.
FLUSH AREA WITH WATER. WET AREA MAY BE SLIPPERY. SPREAD SAND/GRIT.

SPOSAL 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 NPDES PERMIT
PRODUCT(AS IS)-
INCINERATE OR BURY IN APPROVED LANDFILL

RE EXTINGUISHING INSTRUCTIONS***
FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).PROPER FIRE EXTINGUISHING MEDIA:
DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER

PRODUCT: BETZ 25K SERIES 25307

----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------

USE PROTECTIVE EQUIPMENT IN ACCORDANCE WITH 29CFR SECTION 1910.132-134. USE RESPIRATORS WITHIN USE LIMITATIONS OR ELSE USE SUPPLIED AIR RESPIRATORS.

VENTILATION PROTECTION***
ADEQUATE VENTILATION TO MAINTAIN AIR CONTAMINANTS BELOW EXPOSURE LIMITS

RECOMMENDED RESPIRATORY PROTECTION***
IF VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY, USE A RESPIRATOR WITH DUST/MIST FILTERS.

RECOMMENDED SKIN PROTECTION***
RUBBER GLOVES
WASH OFF AFTER EACH USE.REPLACE AS NECESSARY

RECOMMENDED EYE PROTECTION***
SPLASH PROOF CHEMICAL GOGGLES

----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

STORAGE INSTRUCTIONS***
KEEP DRUMS & PAILS CLOSED WHEN NOT IN USE.
PROTECT FROM FREEZING

HANDLING INSTRUCTIONS***
ALKALINE.CORROSIVE(EYES).DO NOT MIX WITH ACIDIC MATERIAL.

****

THIS MSDS COMPLIES WITH THE OSHA HAZARD COMMUNICATION STANDARD
HAROLD M. HERSH (ENVIRONMENTAL INFORMATION COORDINATOR)

****

APPENDIX: REGULATORY INFORMATION

THE CONTENT OF THIS APPENDIX REPRESENTS INFORMATION KNOWN TO BETZ ON THE EFFECTIVE DATE OF THIS MSDS. THIS INFORMATION IS BELIEVED TO BE ACCURATE. ANY CHANGES IN REGULATIONS WILL RESULT IN UPDATED VERSIONS OF THIS DOCUMENT.

...TSCA: ALL COMPONENTS OF THIS PRODUCT ARE LISTED IN THE TSCA INVENTORY
...REPORTABLE QUANTITY(RQ) FOR UNDILUTED PRODUCT:
1,721 GALLONS DUE TO POTASSIUM HYDROXIDE
...RCRA: IF THIS PRODUCT IS DISCARDED AS A WASTE,THE RCRA HAZARDOUS WASTE IDENTIFICATION NUMBER IS: D002=CORROSIVE (PH)
...DOT HAZARD/UN#/ER GUIDE# IS: ORM-B(WHEN CONTAINER > RQ) NA1760/#60
...THIS PRODUCT CONTAINS THESE CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER OR REPRODUCTIVE TOXICITY: NONE PRESENT IN SIGNIFICANT AMOUNTS
...SARA SECTION 302 CHEMICALS: NONE PRESENT IN SIGNIFICANT AMOUNTS
...SARA SECTION 313 CHEMICALS: NONE PRESENT IN SIGNIFICANT AMOUNTS
...SARA SECTION 312 HAZARD CLASS: IMMEDIATE(ACUTE) AND DELAYED(CHRONIC)
...MICHIGAN CRITICAL MATERIALS: NONE PRESENT IN SIGNIFICANT AMOUNTS
NFPA/HMIS : HEALTH - 3 ; FIRE - 1 ; REACTIVITY - 0 ; SPECIAL - ALK ; PE - B

BETZ LABORATORIES, INC.
4636 SOMERTON ROAD, TREVOSE, PA. 19047

BETZ MATERIAL SAFETY DATA SHEET

24 HOUR EMERGENCY TELEPHONE (HEALTH OR ACCIDENT) 215/355-3300

PRODUCT: BETZ 409 EFFECTIVE DATE 6/85

PRODUCT APPLICATION : WATER-BASED DEPOSIT CONTROL AGENT.

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

INFORMATION ON PHYSICAL HAZARDS, HEALTH HAZARDS, PEL'S AND TLV'S FOR SPECIFIC PRODUCT INGREDIENTS AS REQUIRED BY THE OSHA HAZARD COMMUNICATIONS STANDARD ARE LISTED. REFER TO SECTION 4 (PAGE 2) FOR OUR ASSESSMENT OF THE POTENTIAL ACUTE AND CHRONIC HAZARDS OF THIS FORMULATION.

ETHYLENE GLYCOL***(1,2-ETHANEDIOL);CAS#107-21-1;POTENTIAL REPRODUCTIVE TOXIN,LIVER AND KIDNEY TOXIN;BLOOD TOXIN;PEL:NONE;TLV:50PPM(CEILING).

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: AS IS (APPROX.) 12.4	ODOR: NONE
FL.PT.(DEG.F): >200 SETA(CC)	SP.GR.(70F)OR DENSITY: 1.020
VAPOR PRESSURE(mmHG): ND	VAPOR DENSITY(AIR=1): ND
VISC cps70F: 9	%SOLUBILITY(WATER): 100
EVAP.RATE: <1 ETHER=1	APPEARANCE: COLORLESS
PHYSICAL STATE: LIQUID	FREEZE POINT(DEG.F): 25

-----SECTION 3----------REACTIVITY DATA----------

STABLE

THERMAL DECOMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.

RODUCT: BETZ 409

--SECTION 4----------HEALTH HAZARD EFFECTS----------

JTE SKIN EFFECTS *** PRIMARY ROUTE OF EXPOSURE
SLIGHTLY IRRITATING TO THE SKIN

CUTE EYE EFFECTS ***
MODERATELY IRRITATING TO THE EYES

CUTE RESPIRATORY EFFECTS ***
MISTS/AEROSOLS MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT

HRONIC EFFECTS OF OVEREXPOSURE***
PROLONGED OR REPEATED EXPOSURES MAY CAUSE BLOOD CELL DAMAGE OR IMPAIR BLOOD CELL FUNCTION AND MAY CAUSE REPRODUCTIVE SYSTEM TOXICITY;PROLONGED OVEREXPOSURE MAY CAUSE CNS DEPRESSION AND LIVER AND KIDNEY DAMAGE.

EDICAL CONDITIONS AGGRAVATED ***
NOT KNOWN

YMPTOMS OF EXPOSURE ***
MAY CAUSE REDNESS OR ITCHING OF SKIN.

----SECTION 5----------FIRST AID INSTRUCTIONS----------

KIN CONTACT***
REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES

CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT

NHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY

NGESTION***
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

----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS---------

PILL INSTRUCTIONS***
VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN AND ABSORB ON ABSORBENT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER. THE WASTE CHARACTERISTICS OF THE ABSORBED MATERIAL,OR ANY CONTAMINATED SOIL, SHOULD BE DETERMINED IN ACCORDANCE WITH RCRA REGULATIONS.
FLUSH AREA WITH WATER.WET AREA MAY BE SLIPPERY.IF SO,SPREAD SAND OR GRIT.

ISPOSAL 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 NPDES PERMIT
PRODUCT(AS IS)-
INCINERATE OR BURY IN APPROVED LANDFILL

E EXTINGUISHING INSTRUCTIONS***
FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).
DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER.FOAM OR WATER CREATE A SLIPPERY CONDITION.SPREAD SAND OR GRIT

CT: BETZ 409

----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------

NTILATION PROTECTION***
ADEQUATE VENTILATION TO MAINTAIN AIR CONTAMINANTS BELOW EXPOSURE LIMITS
COMMENDED RESPIRATORY PROTECTION***
IF VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY, USE A RESPIRATOR WITH ORGANIC VAPOR CARTRIDGES AND DUST/MIST PREFILTERS.FOLLOW MANUFACTURERS GUIDELINES FOR VAPORS WITH POOR WARNING PROPERTIES
COMMENDED SKIN PROTECTION***
RUBBER GLOVES
REPLACE AS NECESSARY
COMMENDED EYE PROTECTION***
SPLASH PROOF CHEMICAL GOGGLES

----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

ORAGE INSTRUCTIONS***
KEEP CONTAINER CLOSED
PROTECT FROM FREEZING
NDLING INSTRUCTIONS***
MMEDIATELY REMOVE CONTAMINATED CLOTHING,WASH BEFORE REUSE
KALINE.DO NOT MIX WITH ACIDIC MATERIAL.

----SECTION 9----------FEDERAL REGULATIONS----------

SHA(29CFR)-FOR RESPIRATORY PROTECTION USE PROPERLY FITTED MSHA/NIOSH APPROVED RESPIRATORY EQUIPMENT WITHIN USE LIMITATIONS.OTHERWISE,USE SUPPLIED AIR APPARATUS.
WA(40CFR)REPORTABLE QUANTITY: AS IS PRODUCT (HAZARDOUS SUBSTANCE)
NOT APPLICABLE
CRA(40CFR): IF DISCARDED,THIS MATERIAL BEARS HWI# D002
OT(49CFR)CLASSIFICATION: NOT APPLICABLE
FPA/HMIS : HEALTH - 2 ; FIRE - 0 ; REACTIVITY - 0 ; SPECIAL - ALK

****

HIS DOCUMENT IS PROVIDED TO SUPPLY ALL THE INFORMATION NECESSARY TO COMPLY ITH OSHA HAZARD COMMUNICATIONS REGULATIONS, AND RIGHT-TO-KNOW REQUIREMENTS. HILE THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN ARE BELIEVED TO E ACCURATE AS OF THE DATE HEREOF, BETZ LABORATORIES,INC.MAKES NO WARRANTY ITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

HAROLD M. HERSH
ENVIRONMENTAL INFORMATION COORDINATOR

BETZ LABORATORIES, INC.
4636 SOMERTON ROAD TREVOSE, PA. 19047

BETZ MATERIAL SAFETY DATA SHEET

24 HOUR EMERGENCY TELEPHONE (HEALTH OR ACCIDENT) 215/355-3300

PRODUCT: SLIMICIDE C31 EFFECTIVE DATE 1-85

PRODUCT APPLICATION : SOLVENT-BASED MICROBIAL CONTROL AGENT.

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

INFORMATION ON PHYSICAL HAZARDS, HEALTH HAZARDS, PEL'S AND TLV'S FOR SPECI
PRODUCT INGREDIENTS AS REQUIRED BY THE OSHA HAZARD COMMUNICATIONS STANDARD
LISTED. REFER TO SECTION 4 (PAGE 2) FOR OUR ASSESSMENT OF THE POTENTIAL AC
AND CHRONIC HAZARDS OF THIS FORMULATION.

DODECYLGUANIDINE HYDROCHLORIDE***(DGH);CAS#13590-97-1;CORROSIVE;PEL:NON
TLV:NONE.

METHYLENE BIS(THIOCYANATE)***CAS#6317-18-6;POTENTIAL REPRODUCTIVE TOXIN
PEL:NONE;TLV:NONE.

ISOPROPYL ALCOHOL***(IPA);CAS#67-63-0;FLAMMABLE LIQUID;CHRONIC
OVEREXPOSURE MAY CAUSE LIVER AND KIDNEY TOXICITY;PEL:400PPM;TLV:400PPM.

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: AS IS (APPROX.) 3.2	ODOR: NONE
FL.PT.(DEG.F): 120 SETA(CC)	SP.GR.(70F)OR DENSITY: 1.095
VAPOR PRESSURE(MMHG): 24	VAPOR DENSITY(AIR=1): NO
VISC CPS70F: 64	%SOLUBILITY(WATER): 100
EVAP.RATE: NO WATER=1	APPEARANCE: YELLOW
PHYSICAL STATE: LIQUID	FREEZE POINT(DEG.F): <-30

-----SECTION 3----------REACTIVITY DATA----------

STABLE

THERMAL DECOMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.

PRODUCT: SLIMICIDE C31

-----SECTION 4----------HEALTH HAZARD EFFECTS----------

ACUTE SKIN EFFECTS *** PRIMARY ROUTE OF EXPOSURE
SEVERE IRRITANT TO THE SKIN.SKIN SENSITIZER

ACUTE EYE EFFECTS ***
SEVERE IRRITANT TO THE EYES, POSSIBLY CORROSIVE

ACUTE RESPIRATORY EFFECTS *** PRIMARY ROUTE OF EXPOSURE
VAPORS,GASES,MISTS AND/OR AEROSOLS CAUSE IRRITATION TO UPPER RESPIRATORY TRACT

CHRONIC EFFECTS OF OVEREXPOSURE***
PROLONGED OR REPEATED EXPOSURES MAY CAUSE REPRODUCTIVE SYSTEM TOXICITY.

MEDICAL CONDITIONS AGGRAVATED ***
NOT KNOWN

SYMPTOMS OF EXPOSURE ***
INHALATION MAY CAUSE IRRITATION OF MUCOUS MEMBRANES AND RESPIRATORY TRA
SKIN CONTACT CAUSES SEVERE IRRITATION OR BURNS.

PRECAUTIONARY STATEMENT BASED ON TESTING RESULTS ***
MAY BE TOXIC IF ORALLY INGESTED.

-----SECTION 5----------FIRST AID INSTRUCTIONS----------

SKIN CONTACT***
REMOVE CLOTHING.WASH AREA WITH LARGE AMOUNTS OF SOAP SOLUTION OR WATER FOR 15 MIN.IMMEDIATELY CONTACT PHYSICIAN

EYE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT PHYSICIAN FOR ADDITIONAL TREATMENT

INHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA.APPLY NECESSARY FIRST AID TREATMENT.IMMEDIATELY CONTACT A PHYSICIAN.

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

-----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS----------

SPILL INSTRUCTIONS***
VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN AND ABSORB ON ABSORBANT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER.THE CONTAMINATED ABSORBANT SHOULD BE CONSIDERED A PESTICIDE AND DISPOSED OF IN AN APPROVED PESTICIDE LANDFILL.SEE PRODUCT LABEL STORAGE AND DISPOSAL INSTRUCTIONS.
REMOVE IGNITION SOURCES.FLUSH AREA WITH WATER.SPREAD SAND OR 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 NPDES PERMIT
PRODUCT(AS IS)-
BURY IN AN APPROVED PESTICIDE FACILITY OR DISPOSE OF IN ACCORDANCE WITH LABEL INSTRUCTIONS

FIRE EXTINGUISHING INSTRUCTIONS***
FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).
DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER.FOAM OR WATER CREATE A SLIPPER CONDITION.SPREAD SAND OR GRIT

PRODUCT: SLIMICIDE C31

-----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------

VENTILATION PROTECTION***
ADEQUATE VENTILATION TO MAINTAIN AIR CONTAMINANTS BELOW EXPOSURE LIMITS
RECOMMENDED RESPIRATORY PROTECTION***
IF VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY,
USE RESPIRATOR WITH ORGANIC VAPOR,HIGH EFFICIENCY PARTICULATE CARTRIDGE
RECOMMENDED SKIN PROTECTION***
GAUNTLET-TYPE RUBBER GLOVES,CHEMICAL RESISTANT APRON
REPLACE AS NECESSARY
RECOMMENDED EYE PROTECTION***
SPLASH PROOF CHEMICAL GOGGLES,FACE SHIELD

-----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

STORAGE INSTRUCTIONS***
KEEP CONTAINER CLOSED
KEEP AWAY FROM FLAMES OR SPARKS.GROUND DRUMS DURING FILLING OR
DISCHARGE OPERATIONS
HANDLING INSTRUCTIONS***
IMMEDIATELY REMOVE CONTAMINATED CLOTHING,WASH BEFORE REUSE
COMBUSTIBLE.ACIDIC.DO NOT MIX WITH ALKALINE MATERIAL.

-----SECTION 9----------FEDERAL REGULATIONS----------

FIFRA(40CFR):EPA REG.NO. 3876- 121
OSHA(29CFR)-FOR RESPIRATORY PROTECTION USE PROPERLY FITTED MSHA/NIOSH
APPROVED RESPIRATORY EQUIPMENT WITHIN USE LIMITATIONS.OTHERWISE,USE SU
AIR APPARATUS.
CWA(40CFR)REPORTABLE QUANTITY: AS IS PRODUCT (HAZARDOUS SUBSTANCE)
NOT APPLICABLE
RCRA(40CFR): IF DISCARDED,THIS MATERIAL BEARS HWI# D001
DOT(49CFR)CLASSIFICATION: COMBUSTIBLE
NFPA/HMIS : HEALTH - 2 ; FIRE - 1 ; REACTIVITY - 0 ; SPECIAL - NONE

****

THIS DOCUMENT IS PROVIDED TO SUPPLY ALL THE INFORMATION NECESSARY TO COMPL
WITH OSHA HA ARD COMMUNICATIONS REGULATIONS, AND RIGHT-TO-KNOW REQUIREMEN
WHILE THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN ARE BELIEVED TO
BE ACCURATE AS OF THE DATE HEREOF, BETZ LABORATORIES,INC.MAKES NO WARRANT
WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

HAROLD M. HERSH
ENVIRONMENTAL INFORMATION COORI

SLIMICIDE C-31

Slimicide C-31 is composed of methylene bisthiocyanate, dodecylguanidine hydrochloride, plus organic dispersants and penetrants. Methylene bisthiocyanate breaks down with elevating pH. Its half is affected as follows (half life in hours versus pH):

288 hours @ pH 6.0

19 hours @ pH 7.0

5 hours @ pH 8.0

1 hour @ pH 9.0

Dodecylguanidine hydrochloride is biodegradable, but will not hydrolyze. The rate of biodegradation is dependent on the types and quantities of microorganisms present. Suffice to say it is not considered a component that will remain indefinitely when in contact with soil, etc.

BETZ LABORATORIES, INC. PA
4636 SOMERTON ROAD TREVOSE, PA. 19047
BETZ MATERIAL SAFETY DATASHEET
24 HOUR EMERGENCY (HEALTH OR ACCIDENT) 215/355-3300

REAGENT :STANNOUS CHLORIDE CRYSTAL

EFFECTIVE DATE 02-05-87
LATEST VERSION

REAGENT APPLICATION : FIELD TEST REAGENT

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

INFORMATION ON PHYSICAL HAZARDS, HEALTH HAZARDS, PEL'S AND TLV'S FOR SPECIFIC REAGENT INGREDIENTS AS REQUIRED BY THE OSHA HAZARD COMMUNICATIONS STANDARD ARE LISTED. REFER TO SECTION 4 (PAGE 2) FOR OUR ASSESSMENT OF THE POTENTIAL ACUTE AND CHRONIC HAZARDS OF THIS FORMULATION. THIS REAGENT IS SUBJECT TO THE PENNSYLVANIA WORKER AND COMMUNITY RIGHT TO KNOW LAW.

STANNOUS CHLORIDE***CAS#7772-99-8;EYE,SKIN,AND RESPIRATORY IRRITANT; PEL:2MG/M3 AS SN;TLV:2MG/M3 AS SN.

NONHAZARD INGREDIENTS: NONE

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: NO DATA	ODOR: NONE
FL.PT.(DEG.F): NA	SP.GR.(70F)OR DENSITY: 3.95
VAPOR PRESSURE(mmHG): NA	VAPOR DENSITY(AIR=1): NA
VISC cps70F: NA	%SOLUBILITY(WATER): 90
EVAP.RATE: NA WATER=1	APPEARANCE: COLORLESS
PHYSICAL STATE: SOLID	FREEZE POINT(DEG.F): NA

-----SECTION 3----------REACTIVITY DATA----------

STABLE

THERMAL DECOMPOSITION (DESTRUCTIVE FIRES) YIELDS ELEMENTAL OXIDES.

REAGENT: STANNOUS CHLORIDE CRYSTAL

-----SECTION 4----------HEALTH HAZARD EFFECTS----------
ACUTE SKIN EFFECTS *** PRIMARY ROUTE OF EXPOSURE
MODERATELY IRRITATING TO THE SKIN
ACUTE EYE EFFECTS ***
SEVERE IRRITANT TO THE EYES
ACUTE RESPIRATORY EFFECTS ***
DUSTS CAUSE IRRITATION TO UPPER RESPIRATORY TRACT
CHRONIC EFFECTS OF OVEREXPOSURE***
PROLONGED OR REPEATED CONTACT MAY CAUSE PRIMARY IRRITANT DERMATITIS.
MEDICAL CONDITIONS AGGRAVATED ***
NOT KNOWN

SYMPTOMS OF EXPOSURE ***
INHALATION MAY CAUSE IRRITATION OF RESPIRATORY TRACT;SKIN CONTACT MAY CAUSE ITCHING AND/OR REDNESS.

-----SECTION 5----------FIRST AID INSTRUCTIONS----------
SKIN CONTACT***
REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES

EYE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT
INHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY
INGESTION***
GENERAL-DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
SPECIFIC- DILUTE CONTENTS OF STOMACH.INDUCE VOMITING BY ONE OF THE STANDARD METHODS.IMMEDIATELY CONTACT A PHYSICIAN

-----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS---------
SPILL INSTRUCTIONS***
GENERAL-VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.SWEEP UP AND PLACE IN WASTE DISPOSAL CONTAINER.
SPECIFIC- FLUSH AREA WITH WATER.WET AREA MAY BE SLIPPERY.IF SO,SPREAD SAND OR GRIT.
DISPOSAL INSTRUCTIONS***
GENERAL-WATER CONTAMINATED WITH THIS REAGENT MAY BE SENT TO A SANITARY SEWER,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A TREATMENT FACILITY OR DISCHARGED UNDER A NPDES PERMIT
REAGENT(AS IS)- INCINERATE OR BURY IN APPROVED LANDFILL
FIRE EXTINGUISHING INSTRUCTIONS***
GENERAL-FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).
DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER

REAGENT: STANNOUS CHLORIDE CRYSTAL

-----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------

VENTILATION PROTECTION***
ADEQUATE VENTILATION TO MAINTAIN AIR CONTAMINANTS BELOW EXPOSURE LIMITS
RECOMMENDED RESPIRATORY PROTECTION***
IF VENTILATION IS INADEQUATE OR SIGNIFICANT REAGENT EXPOSURE IS LIKELY, USE A RESPIRATOR WITH DUST/MIST FILTERS.
RECOMMENDED SKIN PROTECTION***
RUBBER GLOVES
REPLACE AS NECESSARY
RECOMMENDED EYE PROTECTION***
AIRTIGHT CHEMICAL GOGGLES

-----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

STORAGE INSTRUCTIONS***
KEEP DRUMS & PAILS CLOSED WHEN NOT IN USE.
KEEP DRY
HANDLING INSTRUCTIONS***
IMMEDIATELY REMOVE CONTAMINATED CLOTHING,WASH BEFORE REUSE
NORMAL CHEMICAL HANDLING

-----SECTION 9----------FEDERAL REGULATIONS----------

OSHA(29CFR)-USE PROTECTIVE EQUIPMENT IN ACCORDANCE WITH 29CFR SECTIONS 1910.132-1910.134. USE RESPIRATORS WITHIN USE LIMITATIONS OR ELSE USE SUPPLIED AIR RESPIRATORS.
RCRA(40CFR): IF DISCARDED,THIS MATERIAL BEARS HWI# NOT APPLICABLE
DOT(49CFR)CLASSIFICATION: NOT APPLICABLE
NFPA/HMIS : HEALTH - 2 ; FIRE - 0 ; REACTIVITY - 0 ; SPECIAL - NONE ; PE - B

****

THIS DOCUMENT IS PROVIDED TO SUPPLY ALL THE INFORMATION NECESSARY TO COMPLY WITH OSHA HAZARD COMMUNICATIONS REGULATIONS, AND RIGHT-TO-KNOW REQUIREMENTS. WHILE THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN ARE BELIEVED TO BE ACCURATE AS OF THE DATE HEREOF, BETZ LABORATORIES MAKES NO WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

HAROLD M. HERSH
ENVIRONMENTAL INFORMATION COORDINATOR

ATTACHMENT 4

MSDS: ANTIFREEZE

Date October, 1985

MATERIAL SAFETY DATA SHEET

Product Name:

ANTIFREEZE

PHILLIPS PETROLEUM COMPANY
Bartlesville, Oklahoma 74004

Emergency Phone Nos.
918-661-3865 (during business)
918-661-8118 (after hours)

PHILLIPS 66 — USA AND CANADA

PHILLIPS PETROLEUM 66 — WORLDWIDE OTHER COUNTRIES

PRODUCT IDENTIFICATION

Synonyms: NE

Chemical Name: Ethylene Glycol

Chemical Family: Glycol

Chemical Formula: $C_2 H_6 O_2$

CAS Reg. No: 107-21-1

Product No: NE

Product and/or Components Entered on EPA's TSCA Inventory: Yes [X] No [ ]

HAZARDOUS COMPONENTS

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV
Ethylene Glycol and other Glycols	107-21-1	88-90	NE	50*
Inhibitors and Dye	Various	10-12	NE	NE

* Ceiling Limit

PERSONAL PROTECTION INFORMATION

- ✓ Ventilation: Use adequate ventilation to control below recommended exposure levels.

  Respiratory Protection: For concentrations exceeding the recommended exposure level, use NIOSH/MSHA approved air purifying respirator. In case of spill or leak resulting in unknown concentration, use NIOSH/MSHA approved supplied air respirator. If conditions immediately dangerous to life or health (IDLH) exist, use NIOSH/MSHA approved self-contained breathing apparatus (SCBA) equipment.

- ✓ Eye Protection: Use chemical goggles. For splash protection, use face shield with chemical goggles.

- ✓ Skin Protection: Use gloves impervious to the material being used. Use full-body, long sleeved garments impervious to the material.

Note: Personal protection information shown above is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

HANDLING AND STORAGE PRECAUTIONS

Avoid inhalation and skin and eye contact. Wash hands after handling. Wear protective equipment and/or garments described above if exposure conditions warrant. Launder contaminated clothing before reuse. Store in a cool, well-ventilated area. Protect from sources of ignition.

REACTIVITY DATA

Stability: Stable ☒ Unstable ☐ Conditions to Avoid:

Incompatibility (Materials to Avoid): Oxygen and strong oxidizing agents.

Hazardous Polymerization: Will not Occur ☒ May Occur ☐ Conditions to Avoid

Hazardous Decomposition Products: Carbon oxides and various hydrocarbons formed when burned.

HEALTH HAZARD DATA

RECOMMENDED EXPOSURE LIMITS: ACGIH TLV 50 ppm (ceiling)

ACUTE EFFECTS OF OVEREXPOSURE:

EYE: May cause moderate irritation. Repeated vapor exposure causes severe eye irritation.

SKIN: May cause moderate irritation. Can be absorbed through skin in dangerous amounts.

INHALATION: Causes nausea, vomiting, increased heart rate, drop in blood pressure, depressed reflexes, seizures, convulsions, changes in the eyes, coma. May be aspirated into lungs if swallowed.

INGESTION: Causes eye changes such as optic atrophy and nystagmus. May cause cyanosis.

SUBCHRONIC AND CHRONIC EFFECTS OF OVEREXPOSURE:
Causes central nervous system depression.

OTHER HEALTH EFFECTS: No known applicable information.

HEALTH HAZARD CATEGORIES: (For Epichlorohydrin)

	Animal	Human		Animal	Human
Known Carcinogen	☐	☐	Toxic	☐	☐
Suspect Carcinogen	☐	☐	Corrosive	☐	☐
Mutagen	☐	☐	Irritant	☐	☐
Teratogen	☐	☐	✓ Target Organ Toxin	☒	☒
Allergic Sensitizer	☐	☐	Specify Causes kidney damage and eye damage.		
Highly Toxic	☐	☐			

FIRST AID AND EMERGENCY PROCEDURES:

EYE: Flush eyes with running water for at least 15 minutes. If irritation develops, seek medical attention.

SKIN: Wash with soap and water. If irritation develops, seek medical attention.

INHALATION: Remove from exposure. If illness or adverse symptoms develop, seek medical attention.

INGESTION: Do not induce vomiting. Seek immediate medical assistance. A physician may, at his discretion, perform gastric lavage using a cuffed endotracheal tube.

PHYSICAL DATA

Appearance: Liquid

Odor: Mild

Boiling Point: 330 (166°C)

Vapor Pressure: NE

Vapor Density (Air = 1): > 1

Solubility in Water: Complete

Specific Gravity (H_2O = 1): 1.11 - 1.14 at 60/60°F

Percent Volatile by Volume: 100

Evaporation Rate (Butyl Acetate = 1): < 1

Viscosity: NE

FIRE and EXPLOSION DATA

Flash Point (Method Used): 250°F (121°C) (COC, ASTM D92)

Flammable Limits (% By Volume in Air): LEL 3.2 UEL NE (For Ethylene Glycol)

Fire Extinguishing Media: Dry chemical, foam or carbon dioxide (CO_2).

Special Fire Fighting Procedures: Evacuate area of all unnecessary personnel. Shut off source, if possible. Use NIOSH/MSHA approved self-contained breathing apparatus and other protective equipment and/or garments described on Page 2 if conditions warrant. Water fog or spray may be used to cool exposed equipment and containers.

Fire and Explosion Hazards: Carbon oxides and various hydrocarbons formed when burned.

SPILL, LEAK and DISPOSAL PROCEDURES

Precautions Required if Material is Released or Spilled: Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments described on Page 2 if exposure conditions warrant. Shut off source, if possible and contain spill. Protect from ignition. Keep out of water sources and sewers. Absorb in dry, inert material (sand, clay, sawdust, etc.). Transfer to disposal containers.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):

Incinerate or otherwise manage in a permitted waste management facility.

DOT TRANSPORTATION

Shipping Name: NA
Hazard Class: NA
ID Number: NA
Marking: NA
Label: NA
Placard: NA
Hazardous Substance/RQ: NA
Shipping Description: NA
Packaging References: NA

RCRA CLASSIFICATION *(FOR UNADULTERATED PRODUCT AS A WASTE)*

NA

PROTECTIVE MEASURES DURING REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT

Wear protective equipment and/or garments described on Page 2 if exposure conditions warrant. Use NIOSH/MSHA approved respiratory protection, such as air-supplied mask, in confined spaces or other poorly ventilated areas. See Page 2 for protective clothing requirements. Contact immediate supervisor for specific instructions before work is initiated.

HAZARD CLASSIFICATION

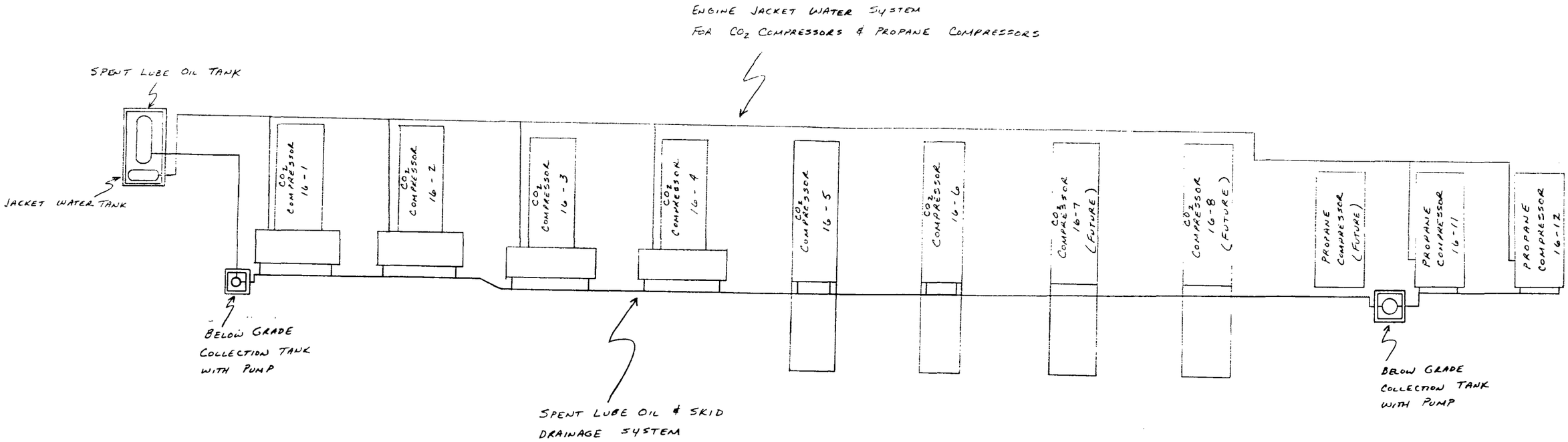
THIS PRODUCT MEETS THE FOLLOWING HAZARD DEFINITION(S) AS DEFINED BY OCCUPATIONAL SAFETY AND HEALTH REGULATIONS (29 CFR PART 1910. 1200):

☐ Not Hazardous	☐ Flammable Solid	☐ Oxidizer
☐ Combustible Liquid	☐ Flammable Aerosol	☐ Pyrophoric
☐ Compressed Gas	☐ Explosive	☐ Unstable
☐ Flammable Gas	☒ Health Hazard (See Page 3)	☐ Water Reactive
☐ Flammable Liquid	☐ Organic Peroxide	

ADDITIONAL COMMENTS

ATTACHMENT 5

FLOW SHEET OF DRAIN SYSTEM


ENGINE JACKET WATER SYSTEM
FOR CO_2 COMPRESSORS & PROPANE COMPRESSORS
SPENT LUBE OIL TANK
JACKET WATER TANK
CO_2 COMPRESSOR 16-1
CO_2 COMPRESSOR 16-2
CO_2 COMPRESSOR 16-3
CO_2 COMPRESSOR 16-4
CO_2 COMPRESSOR 16-5
CO_2 COMPRESSOR 16-6
CO_2 COMPRESSOR 16-7 (FUTURE)
CO_2 COMPRESSOR 16-8 (FUTURE)
PROPANE COMPRESSOR (FUTURE)
PROPANE COMPRESSOR 16-11
PROPANE COMPRESSOR 16-12
BELOW GRADE COLLECTION TANK WITH PUMP
SPENT LUBE OIL & SKID DRAINAGE SYSTEM
BELOW GRADE COLLECTION TANK WITH PUMP

ATTACHMENT 6

PERMITTING CORRESPONDENCE ON OVERFLOW PIT

PHILLIPS 66 NATURAL GAS COMPANY
A SUBSIDIARY OF PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

May 10, 1988

Permitting Correspondence
Emergency Overflow Pit
East Vacuum Central Tank Battery

Mr. David Boyer
Environmental Bureau Chief
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Boyer:

Attached, per your request, is a copy of the correspondence regarding the permitting of the lined emergency overflow pit at our East Vacuum Central Tank Battery.

If you should have any questions regarding this information, please contact me at (915) 367-1316.

Very truly yours,

Michael D. Ford

Michael D. Ford
Environmental Analyst

MDF

Attachments

N O T E G R A M

March 8, 1979

To: J. W. Maharg
(r) W. W. Allen

From: R. L. Loper

Subject: East Vacuum Grayburg-San Andres Unit -
Emergency Overflow Pit

Joe Woodson and I met with Mr. Les Clements, field representative of the New Mexico Oil Conservation Division, yesterday, February 27, 1979 in Hobbs. We discussed our proposed emergency overflow pit at the Central Tank Battery and showed Mr. Clements the general tank battery layout and pit construction drawings. Mr. Clements stated that we could proceed with construction of the pit as planned and no application or permit will be required. They will expect the pit to be lined and will not allow it to hold produced water on a continuous basis.

Mr. Clements asked that he be kept advised of construction status and stated that he or another representative would probably visit the construction site from time to time. More out of curiosity than for inspection.

We touched upon the question of handling salt water flow during our drilling program. Mr. Clements' position was that he (New Mexico Oil Conservation Division) should be advised immediately we encounter a salt water flow, day or night. He further indicated that construction of a temporary, lined holding pit for containment of the water flow would be acceptable provided the Oil Conservation Division had been notified and that the rancher was aware of the problem and agreed to the pit. Mr. Clements' had no problem with our using the emergency overflow pit (if completed) for holding salt water on an emergency basis.

/hh

cc: J. O. Woodson
T. L. Surratt
C. A. Benson
(r) F. G. Schuman

Houston, Texas 77024 Phone: (713) 465-7545 DATE May 22, 1979

IFICATION	VENDOR	DATE REC'D AT SITE	DESCRIPTION	REFERENCE
—		me 1, 1979	—	

SEND COPIES TO _____ EST. _____ EXTRA COPIES P.O. REQ'D. _____

USED FOR Pit Liner - EVGSAU CTB, Emergency Overflow Pit

ADDITIONAL INFO. RUSH THIS ORDER! We must do this work immediately to keep sand from blowing out of pit.

PURCHASE ORDER

No. 9 — 606099 — TF

DATE 6/6/79

VENDOR
Koto-Lyn Inc
9225 Katy Freeway Suit 325
Houston 77024

SHOW OUR ORDER NO. AND CONSIGNEE ADDRESS ON ALL SHIPPING PAPERS AND TAGS

SHIP TO
Phillips Petroleum Company
c/o T. L. Surratt
EVGSAU Central Tank Battery
Buckeye, New Mexico
Phone: (505) 393-3573

CHARGE AND MAIL TO COMPANY SHOWN BELOW SEPARATE ITEMIZED AND EXTENDED INVOICE IN TRIPLICATE FOR EACH SHIPMENT, SHOWING ABOVE ORDER NO. INCLUDING PREFIX AND SUFFIX.

PURCHASER - Roselina L 328

PHILLIPS PETROLEUM COMPANY
Purchasing
BARTLESVILLE, OKLAHOMA 74004

SHIP BY 6-12

VIA: ☐ 1. Uninsured Parcel Post if Package(s) meets Postal Regulations; otherwise Motor Freight & Motor Express prepaid.
☐ 2. MOTOR FREIGHT _____ RAIL FREIGHT _____ OTHER _____

ROUTE Delta

F.O.B. DEST. _____ ORIG. _____

REFER ALL INQUIRIES TO: (IF NO ADDRESS IS SHOWN BELOW, SEND INQUIRIES TO PURCHASING)
R L Lipar

CHARGE TO AFE # P-2160
East Vacuum Gb-SA Unit Central Tank Battery

RFE NO.

INVOICES, PACKING LISTS AND TAGS SHOULD SHOW CHARGE AND IF APPLICABLE PHILLIPS STOCK NUMBER

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Fibre Line Pit Liner installed at East Vacuum Grayburg-San Andres Unit Emergency overflow pit near Buckeye, New Mexico. - see drawings attached. Pad-100 Sh MP-4-1 + Pad-100 Sh MP-10-0
		Vendor shall: 1) Manufacture the Fibre-line sheets.
		2) Deliver lining, materials, and supplies to job site.
		3) Complete installation of the lining.
		4) Double line the 4' x 4' x 2' concrete sump and seal to the outlet pipe.
		5) Seal the inlet pipe to the liner.
		6) Shape and refill anchor ditch for sealing purposes—Phillips will dig ditch, and fill and pack ditch after installation of liner.
		7) Be required only to hand rake sand pad if necessary. Sand pad shall otherwise be installed and maintained by Phillips.

6 ORDERING DIVISION COPY

FORM 3502 1-77

99500

EST. _____ EXTRA COPIES P.O. NEEDS _____

VAL INFO. _____

PURCHASE ORDER

No. — 606099 —

VENDOR

SHOW OUR ORDER NO. AND CONSIGNEE ADDRESS ON ALL SHIPPING PAPERS AND TAGS

DATE 2-1-72

CHARGE PURCHASER -

AND MAIL TO COMPANY SHOWN BELOW SEPARATE ITEMIZED AND EXTENDED INVOICE IN TRIPLICATE FOR EACH SHIPMENT, SHOWING ABOVE ORDER NO. INCLUDING PREFIX AND SUFFIX.

PHILLIPS PETROLEUM COMPANY
Purchasing
BARTLESVILLE, OKLAHOMA 74004

SHIP TO

REFER ALL INQUIRIES TO: (IF NO ADDRESS IS SHOWN BELOW, SEND INQUIRIES TO PURCHASING)

SHIP BY _____

VIA: ☐ 1. PREPAID UNINSURED-LIMITED PARCEL SERVICE OR PARCEL POST IF PACKAGE(S) MEETS REGULATIONS; OTHERWISE, THE LEAST EXPENSIVE OF MOTOR FREIGHT OR EXPRESS.
☐ 2. MOTOR FREIGHT _____ RAIL FREIGHT _____ OTHER _____

ROUTE _____

F.O.B. DEST. _____ ORIG. _____

CHARGE TO

RFE NO.

INVOICES, PACKING LISTS AND TAGS SHOULD SHOW CHARGE AND IF APPLICABLE PHILLIPS STOCK NUMBER

ITEM NO.	QUANTITY	DESCRIPTION
		8) Apply Gel coat on installed lining approximately 20 feet down the berm, around circumference of pit.
		9) Check seams with 17,000 volt holiday detector as well as visually inspect entire liner and shall unconditionally guarantee materials and workmanship in liner for a period of not less than ten (10) years from date of completion of work.

6 ORDERING DIVISION COPY

FORM 3503

VENDOR	DATE REC'D AT SITE	DESCRIPTION	DATE PREPARED / REFERENCE NO.

EST. _____ EXTRA COPIES P.O. REQ'D. _____

ONAL INFO. _____

PURCHASE ORDER

No. — 606099 —

DATE 5-23-79

VENDOR

SHOW OUR ORDER NO. AND CONSIGNEE ADDRESS ON ALL SHIPPING PAPERS AND TAGS

SHIP TO

CHARGE AND MAIL TO COMPANY SHOWN BELOW SEPARATE ITEMIZED AND EXTENDED INVOICE IN TRIPLICATE FOR EACH SHIPMENT, SHOWING ABOVE ORDER NO. INCLUDING PREFIX AND SUFFIX.

PURCHASER -

PHILLIPS PETROLEUM COMPANY
Purchasing
BARTLESVILLE, OKLAHOMA 74004

SHIP BY _____

VIA: ☐ 1. PREPAID UNINSURED-LIMITED PARCEL SERVICE OR PARCEL POST IF PACKAGE(S) MEETS REGULATIONS, OTHERWISE, THE LEAST EXPENSIVE OF MOTOR FREIGHT OR EXPRESS.
☐ 2. MOTOR FREIGHT _____ RAIL FREIGHT _____ OTHER _____

ROUTE _____

F.O.B. DEST. _____ ORIG. _____

REFER ALL INQUIRIES TO: (IF NO ADDRESS IS SHOWN BELOW, SEND INQUIRIES TO PURCHASING)

CHARGE TO

RFE NO.

INVOICES, PACKING LISTS AND TAGS SHOULD SHOW CHARGE AND IF APPLICABLE PHILLIPS STOCK NUMBER

ITEM NO.	QUANTITY	DESCRIPTION
		NOTE: In reference to Kote-Line's bid attached per conversation Schuman/Jarrell 5-16-79:
		1. Deduct $1500 if Phillips digs anchor ditch.
		2. Kote-Line will gel coat at least 20 feet down berm at no extra charge.
		3. Kote-Line will use 17,000 volt holiday detector on seams in field, and will visually inspect and spot check sheets in plant with holiday detector.
		4. Kote-Line's bid is for a lump sum of $1.225/ft^2$, with the total cost estimated for a 100,000 ft^2 pit.
		5. The pit is already constructed.
		Lining .750 sq ft
		Gohn & Equip .400 sq ft
		Installation with .075 sq ft.

6 ORDERING DIVISION COPY

FORM 3503

VENDOR	DATE REC'D AT SITE	DESCRIPTION	REFERENCE NO.

DATE PREPARED

EST. _____ EXTRA COPIES P.O. REQ'D. _____

FOR _____

ADDITIONAL INFO. _____

PURCHASE ORDER

No. P-[illegible]

PAGE 1 OF 4

VENDOR

KOTE-LINE, INC.

SHOW OUR ORDER NO. AND CONSIGNEE ADDRESS ON ALL SHIPPING PAPERS AND TAGS

SHIP TO

PHILLIPS PETROLEUM COMPANY

DATE 6/7/79

CHARGE

AND MAIL TO COMPANY SHOWN BELOW SEPARATE ITEMIZED AND EXTENDED INVOICE IN TRIPLICATE FOR EACH SHIPMENT, SHOWING ABOVE ORDER NO. INCLUDING PREFIX AND SUFFIX.

PURCHASER -

PHILLIPS PETROLEUM COMPANY
Purchasing
BARTLESVILLE, OKLAHOMA 74004

SHIP BY _____

VIA: ☐ 1. PREPAID UNINSURED-UNITED PARCEL SERVICE OR PARCEL POST IF PACKAGE(S) MEETS REGULATIONS, OTHERWISE, THE LEAST EXPENSIVE OF MOTOR FREIGHT OR EXPRESS

☐ 2. MOTOR FREIGHT _____ RAIL FREIGHT _____ OTHER _____

ROUTE _____

F.O.B. DEST. _____ ORIG. _____

REFER ALL INQUIRIES TO: (IF NO ADDRESS IS SHOWN BELOW, SEND INQUIRIES TO PURCHASING)

CHARGE TO

RFE NO.

INVOICES, PACKING LISTS AND TAGS SHOULD SHOW CHARGE AND IF APPLICABLE PHILLIPS STOCK NUMBER

ITEM NO.	QUANTITY	DESCRIPTION

THIS ORDER EXPRESSLY LIMITS ACCEPTANCE TO THE TERMS STATED HEREIN. PURCHASER OBJECTS TO ANY ADDITIONAL OR DIFFERENT TERMS OF SELLER.

ATTACHED FORM 6741 IS MADE PART OF THIS P.O. COMPLIANCE WITH ALL CONDITIONS THEREIN IS NECESSARY.

7 ORDERING DIVISION COPY

FORM 3503

KOTE LINE inc.

713 · 465-7545 | 9225 Katy Freeway | Suite 325 | Houston, Texas 77024
915 · 563-0576 | 12101 East Highway 80 | P.O. Box 4595 | Odessa, Texas 79760

May 15,1979

Phillips Petroleum Co.
4001 Penbrook
Odessa, Texas 79762

RE: Pit Lining
East Vacuum Grayberg-San Andres Unit
Lea County, New Mexico

Attn: Mr. Fred Schuman

Gentlemen:

Subject to your acceptance, Kote-Line, Inc., offeres to perform the following:

To furnish labor, equipment, and materials to manufacture,deliver and install one (1) "FIBRE-LINE" pit lining in your overflow pit with dimensions of 290' X 290' X 9' loacted near Buckeye, New Mexico.

Manufacture and Deliver

100,000 Ft.^{2}	@ \$.750/Ft.^{2}		\$75,000.

Install

Labor and Equipment	@ \$.400/Ft.^{2}	\$40,000.	
Materials	@ \$.075/Ft.^{2}	\$ 7,500.	
Total	@ \$.475/Ft.^{2}		\$47,500.
LUMP SUM BID:	\$1.225/Ft.^{2}		\$122,500.

State sales taxes are in addition to the base price.

The invoicing will be for the actual amount of lining material installed. Invoices will be issued when the liner material is received at the job site. Progress invoicing is normally done for the installation of the lining.

THE BASE PRICE INCLUDES:

1. Manufacturing of "FIBRE-LINE sheets.
2. Delivery of the lining, materials, and supplies to the job site.
3. Complete installation of the lining.
4. Double lining the 4' X 4' X 2' concrete sump and sealing to the outlet pipe.
5. Sealing the inlet pipe to the liner.

6. Digging and shaping of the anchor ditch.
7. Refilling the anchor ditch only for sealing purposes. The dirt contractor must fill and pack the ditch and level the dike.
8. Hand raking only of the sand pad or receiving surface. The sand pand must be maintained by the dirt contractor.
9. Per Diem and travel expenses will be the responsibility of Kote-Line, Inc.
10. Cleaning job site.

The pit is to be prepared by your dirt contractor. Kote-Line, Inc. will furnish a Supervisor during the final stages of the dirt work to see that the finished surface is satisfactory to receive the liner. Usually the sand pad is installed directly before the liner is layed. If additonal dirt work other than the final hand raking is done, it will be invoiced as per our labor and equipment rate schedule.

Manufacturing can commence within ten (10) days after notification and installation can commence the following week. Four weeks maximum should be allowed for installing the lining. At present we have over 100,000 square feet of lining in stock. We should be able to start the job immediately.

The "FIBRE-LINE" FRP lining is guaranteed against defects in material and workmanship for a period of ten (10) years. A written warranty is delivered at the completion of the job.

If further information is required for the acceptance of this bid, please advise.

Sincerely,

KOTE-LINE, INC.

Hal K. Jarrell

Hal K. Jarrell
President

HKJ/lp
enc.

KOTE LINE inc.

713 - 465-7545 9225 Katy Freeway Suite 325 Houston, Texas 77024
915 - 563-0576 12101 East Highway 80 P.O. Box 4595 Odessa, Texas 79760

PHILLIPS PETROLEUM COMPANY

LEA COUNTY, NEW MEXICO FACILITY

PIT LINING SPECIFICATION

REFERENCE DRAWINGS: Pond Layout and Cross Sections, Drawing No. PED-100.

I. SCOPE OF WORK

Furnish and install one "FIBRE-LINE", fiberglass reinforced plastic pond lining at the Lea County, New Mexico Facility.

II. GENERAL

1. The liner fabricator will furnish all supervision, insurance, labor, equipment, hand tools and materials for manufacturing and to provide complete installation of the lining.

2. Surfaces to be lined shall be smooth and free of all sharp rocks and objects, vegetation, stubble, etc., which could damage liner or prevent it from laying smoothly. An authorized representative of the fabricator shall certify in writing that the surface on which the lining is to be placed is acceptable. No installation of lining shall commence until this certificate is furnished. It shall be the responsibility of the dirt contractor to keep the receiving surface in the accepted condition until complete installation of the lining is accomplished.

III. MANUFACTURING

1. Polyester resin shall be a Kote-Line, Inc. flexible Iso with wax additive.

2. The lining material shall be 65 mils minimum thickness FRP sheets. The construction shall be a layer of 90# kraft paper and a layer of 1½ oz. fiberglass mat saturated with resin.

3. The sheet size shall be 10' x 50'.

4. The finished sheet shall be free of holes, blemishes, delaminations, or other defects.

5. All sheets shall be 100% visually inspected by the fabricator during fabrication and any defects marked at the plant for field repair.

IV. SHIPPING

1. The sheets shall be rolled into bundles with a one foot (1') minimum core diameter and secured with four (4) strips of banding straps.

V. INSTALLATION

1. Liner sheets are to be rolled out, cut and positioned, overlapped 3" to 4", stapled and/or riveted and the seams sandblasted.

2. Catalyzed resin shall be applied to the sandblasted seam, a layer of 6" wide 2 oz. fiberglass mat positioned, a second layer of resin applied and rolled out with paint rollers to finish out the seam.

3. The liner shall be anchored in the ground a minimum of one foot (1') at the top of each slope. The anchor ditch is to be dug and shaped by Kote-Line.

4. No fiberglass or sandblasted areas shall be left exposed either in the fabricated sheet or in the field seam.

5. Inspection of the installed lining shall be performed. All defects shall be repaired by solvent cleaning or sandblasting, then applying additional fiberglass mat and resin.

VI. GEL COATING

1. Not required.

VII. SAFETY

1. The fabricator shall instruct the installation crew of the hazards of installation, such as handling sheets in high winds, applying and handling resins and solvents, fire hazards, and walking on wet sheeted slopes. Soft rubber shoes are best for walking on the liner. Work gloves shall be worn while handling the sheets. Plastic gloves shall be worn while handling liquid resin and catalyst.

VIII. QUALITY OF WORKMANSHIP

1. All joints and seals upon completion of work shall be tightly bonded. Upon completion of the installation of the liners, the fabricator shall remove all trash, waste material and equipment. The work areas shall be left in a neat and acceptable condition.

IX. ACCEPTANCE OF INSTALLATION

1. No leakage will be allowed. If any leakage occurs prior to final acceptance, the fabricator shall make the necessary repairs in accordance with procedures under this specification. If the inspection indicates no leakage and all other parts of installation are satisfactory, the liner will be accepted.

X. WARRANTY

1. The installed "FIBRE-LINE" liner is guaranteed against defects in material and workmanship for a period of ten (10) years.

XI. COMPLIANCE WITH GOVERNMENT REGULATIONS:

The "FIBRE-LINE" Liner shall:

1. Have a permeability less than or equal to 10^{-7} cm./sec.

2. Be used which are expected to last 25% longer than the expected time of facility usage.

3. Be placed on a stable base.

4. Satisfactorily resist attack from ozone, ultraviolet rays, soil bacteria and fungus.

5. Have ample weather resistance to withstand the stress of freezing and thawing.

6. Have adequate tensile strength to elongate sufficiently and withstand the stress of installation or use of machinery or equipment.

7. Resist laceration, abrasion and puncture from any matter that may be contained in the fluids it will hold.

8. Be of uniform thickness, free of thin spots, cracks, tears, blisters and foreign particles.

9. Be easily repaired.

KOTE LINE inc.

713 - 465-7545 | 9225 Katy Freeway | Suite 325 | Houston, Texas 77024
915 - 563-0576 | 12101 East Highway 80 | P.O. Box 4595 | Odessa, Texas 79760

WARRANTY

To: Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

Date:

Invoice No.:

Covering: 1 - 100,000 Ft^2 FIBRE-LINE" Pond Lining installed in your overflow pit located in Lea County, New Mexico.

Kote-Line, Inc. does hereby unconditionally guarantee the materials used in lining the above overflow pit and the workmanship in applying said materials for a period of ten (10) years from the above date of completion of said work.

TERMS & CONDITIONS

Upon notification of our main office listed above, in the event that this lining should fail during the warranty period we will repair the lining using the same type and kind of FRP lining as originally installed at no extra charge to the customer.

This warranty does not cover acts of God, changes in chemical compositions of the inlet fluids, or any other circumstances which are beyond the control of the contractor.

Validated: _____ By: _____

Date Hal K. Jarrell, President

[redacted]

296'-0"

136'-10"

ABSORBTION TANK CONCRETE BLOCKS SEE SHEET NO M-11-0

1000 GAL PRECAST CONCRETE SEPTIC TANK. SEE SHEET NO. M-1-2

B SEE SHEET NO MP-5-1

EL-1½' EL-1¾' EL-2.0' EL-1¾'

20'-0"

EL-1¾' EL-3¼' EL-3½' EL-3¼' EL-1¼'

EL.+½'

174'-4"

FLOAT & READOUT VERTICAL CAN PUMP FLOAT & READOUT FLOAT & READOUT

EL. 6½' EL. 6½' EL-6½'

12'-0" 27'-0"

EMERGENCY CATCH BASIN
(ORDINARY COMPACTION)

365'-0"

EL. 1½' EL-2.0' EL-2½' EL-2.0'

SUCTION FILLET

LINED OVERFLOW PIT (SEE SHEET NO. MP-5-1)
(ORDINARY COMPACTION)

80'-0" c/c 80'-0" c/c

425'-0"

EL. 6½'

2" HYDROSTATIC DISCHARGE LEAK DETECTION

4" ALTERNATE DISCHARGE LEAK DETECTION

4" HYDROSTATIC DISCHARGE LEAK DETECTION

EL. 6½'

246'-0"

SEE SHEET NO. MP-E-1 A

EL-2.0' EL-2½' EL-2.0'

EL-4.0' EL-4.0'

18'-0" 8'-0" 12'-0"

EL. 1½' EL. 1½' EL. 6½' EL. 6½' EL-6½'

12'-0" 10'-0" 18'-0" 114'-0" 27'-0" 30'-0" 27'-0" 246'-0" 27'-0" 9'-0" 12'-0"

SEE SHEET NO MP-5-1 B

513'-0"

REF. ONLY

NO.	REVISION	BY	DATE
		CHKD.	APP'D.
1	OVERFLOW PIT SPECS. CHANGED	R.F.	11/22/72
	SEPTIC SYST. CHANGED		

FOR BIDS
FOR APPR
FOR CONST
DESIGN RF 2/1/72
DRAWN
CHECKED
APP'D

BARTLESVILLE, OKLAHOMA

CATCH BASIN & OVERFLOW PIT
CENTRAL TANK BATTERY

SPT INDIAN WATER TREATMENT UNIT LEA Co., N.M.

APE NO. P-2160
SCALE 1" = 20'
DWG NO. PED-100
DR NO. MP-4-1

ATTACHMENT 7

MSDS: MOLECULAR SIEVE

MATERIAL SAFETY DATA SHEET

(Essentially similar to U.S. Department of Labor Form OSHA-20 and generally accepted in Canada for information purposes)
An explanation of the terms used herein may be found in OSHA publication 2265, available from OSHA regional or area offices.
Do Not Duplicate This Form. Request an Original.

I. PRODUCT IDENTIFICATION

PRODUCT	Molecular Sieve Type 4ADG		
CHEMICAL NAME	Sodium Alumino silicate	SYNONYMS	Zeolite
FORMULA	$Na_2O\ Al_2O_3\ SiO_2$	CHEMICAL FAMILY	Molecular Sieve
		MOLECULAR WEIGHT	Not Applicable
TRADE NAME	UNION CARBIDE® Molecular Sieve		

II. HAZARDOUS INGREDIENTS

A complex of elements and compounds composed of material shown below.
NOTE: In the table below, the symbol "<" means "less than".

MATERIAL (CAS No.)	Wt (%)	1983-1984 ACGIH TLV-TWA (OSHA-PEL)
Sodium Oxide (1313-59-3)	< 30	None established (None established)
Silicon Oxide (14808-60-7)	< 50	Use quartz formula (Use quartz formula)
Aluminum Oxide (1344-28-1)	< 40	Nuisance particulate (Nuisance dust) 10 mg/m^3 Total dust (15 mg/m^3 Respirable fraction) 5 mg/m^3 Respirable dust (5 mg/m^3 Respirable fraction)

III. PHYSICAL DATA

BOILING POINT, 760 mm. Hg	Not Applicable	FREEZING POINT	Not Applicable
SPECIFIC GRAVITY (H_2O = 1)	1.1	VAPOR PRESSURE AT 20°C.	Not Applicable
VAPOR DENSITY (air = 1)	Not Applicable	SOLUBILITY IN WATER, % by wt.	Not Applicable
PERCENT VOLATILES BY VOLUME	Not Applicable	EVAPORATION RATE (Butyl Acetate = 1)	Not Applicable
APPEARANCE AND ODOR	Depending on product may appear as bead, pellet, mesh, cake or powder; odorless.		

EMERGENCY PHONE NUMBER

IN CASE OF EMERGENCIES involving this material, further information is available at all times:
In the USA 304 – 744-3487 In Canada 514 – 645-5311
For routine information contact your local supplier

Union Carbide requests the users of this product to study this Material Safety Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of this product a user should (1) notify its employees, agents and contractors of the information on this MSDS and any product hazards and safety information, (2) furnish this same information to each of its customers for the product, and (3) request such customers to notify their employees and customers for the product of the same product hazards and safety information.

UNION CARBIDE CORPORATION ☐ MOLECULAR SIEVES DEPARTMENT
UNION CARBIDE CANADA LIMITED ☐ MOLECULAR SIEVES DEPARTMENT

M-4837

IV. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE See Section II – 5 mg/m^3 (ACGIH-1983–1984) as respirable dust (nuisance particulate)

EFFECTS OF ACUTE EXPOSURE:

SWALLOWING – None known

SKIN CONTACT – May cause irritation and reddening

EYE CONTACT – May cause irritation

INHALATION – May cause irritation of the nose and throat, accompanied by cough and chest discomfort.

EFFECTS OF CHRONIC EXPOSURE – None known

EMERGENCY AND FIRST AID PROCEDURES:

SWALLOWING – Drink large amounts of water

SKIN CONTACT – Wash with soap and water

EYE CONTACT – Immediately flush with water for at least 15 minutes

INHALATION – Remove to fresh air. If breathing is difficult, oxygen may be administered. If breathing has stopped, administer artificial respiration.

If any irritation or other symptoms persist, see a physician.

NOTE TO PHYSICIAN – This product is a desiccant and generates heat as it adsorbs water. The used product can contain material of a hazardous nature. Identify that material and treat accordingly.

V. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (test method)	Does not burn	AUTOIGNITION TEMPERATURE	Not Applicable
FLAMMABLE LIMITS IN AIR, % by volume	LOWER Not Applicable	UPPER	Not Applicable

EXTINGUISHING MEDIA

Unused material will not burn. Use media appropriate for surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES

Depends on the use of the material. Used material may contain products of a hazardous nature. The user of this product must identify the hazards of the retained material and inform the fire fighters of these hazards.

UNUSUAL FIRE AND EXPLOSION HAZARDS

In their fresh unused state, molecular sieves are not flammable. When exposed to water, however, they can get quite hot. When first wetted they can heat to the boiling point of water. Flooding will reduce the temperature to safe limits.

VI. REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID
UNSTABLE	STABLE	
	X	Moisture (water) can cause rise in temperature which may result in burn.

INCOMPATIBILITY (materials to avoid) Sudden contact with high concentrations of chemicals having high heats of adsorption such as olefins, HCl, etc.

HAZARDOUS DECOMPOSITION PRODUCTS

Hydrocarbons and other materials that contact the molecular sieve during normal use can be retained on the sieve. It is reasonable to expect that decomposition products will come from these retained materials of use. The molecular sieve itself does not readily decompose unless subjected to extreme temperature or chemical conditions. If such decomposition did occur, the products would include the mix of oxides listed in Section II.

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur	Will not Occur	
	X	None currently known

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Sweep the spill area. Collect and place the spilled material in a waste disposal container. Avoid raising dust.

WASTE DISPOSAL METHOD

Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, state and local regulations.

VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)

Where there is excessive dustiness, wear a respirator selected as per OSHA 29 CFR 1910.134 and approved by NIOSH/MSHA

VENTILATION	LOCAL EXHAUST	As appropriate to minimize dust
	MECHANICAL (general)	Not Applicable
	SPECIAL	Not Applicable
	OTHER	Not Applicable
PROTECTIVE GLOVES		Recommended
EYE PROTECTION		Safety glasses or goggles selected as per OSHA 29 CFR 1910.133
OTHER PROTECTIVE EQUIPMENT		Eyewash fountain

IX. SPECIAL PRECAUTIONS

Causes eye irritation. Breathing dust may be harmful. May cause skin irritation. Open container slowly to avoid dust. Do not get in eyes. Avoid breathing dust and prolonged contact with skin. Use with adequate ventilation. Keep container closed. Wash thoroughly after handling. Do not ingest.

Before using you should know the hazards of the products to be adsorbed on the molecular sieve. The products could be flammable or toxic. You should know and follow all the safety precautions related to the adsorbed products.

OTHER HANDLING AND STORAGE CONDITIONS

pH range if in aqueous slurry 8 – 11

UNION CARBIDE MOLECULAR SIEVES

GENERAL OFFICES

IN THE USA:
Union Carbide Corporation
Molecular Sieves Department
Old Ridgebury Road
Danbury, CT 06817

IN CANADA:
Union Carbide Canada Limited
Molecular Sieves Department
123 Eglinton Avenue East
Toronto, Ontario M4P 1J3

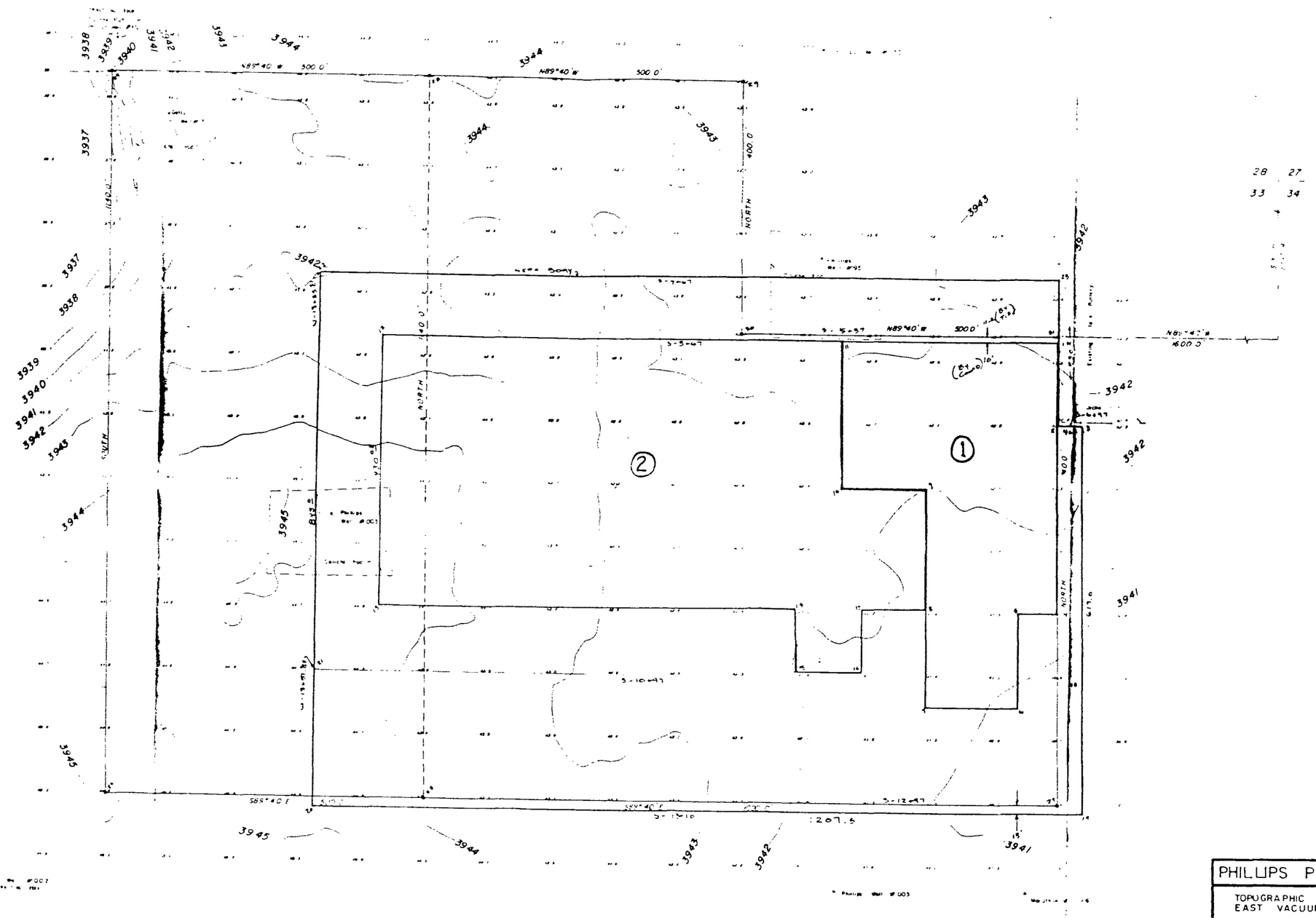
Other offices in principal cities all over the world.

M-4837 84-0946 8/84 1M

Lithographed in U.S.A.

ATTACHMENT 8

TOPOGRAPIC MAP



PHILLIPS PETROLEUM COMPANY

TOPOGRAPHIC SURVEY OF PROPOSED
EAST VACUUM CO_2 PLANT SITE

SITUATE WITHIN SECTION 33, TOWNSHIP 17 SOUTH, RANGE 35 EAST, N. M. P. M., LEA COUNTY, NEW MEXICO

JOHN WEST ENGINEERING CO.
CONSULTANTS
HOBBS NEW MEXICO

RENEWAL CERTIFICATION

I hereby certify that the information submitted with this application for renewal is true and correct to the best of my knowledge and belief.

L. A. Takla
Permian Profit Center Manager
Phillips Petroleum Company

6/26/97
Date

DISCHARGE PLAN
EAST VACUUM LIQUIDS RECOVERY PLANT
LEA COUNTY, NEW MEXICO

PHILLIPS PETROLEUM COMPANY
PERMIAN PROFIT CENTER
4001 PENBROOK
ODESSA, TX 79762
915-368-1266

GENERAL PROCESS DESCRIPTION

The East Vacuum Liquids Recovery Plant (EVLRP) is a Ryan-Holmes type process plant that is licensed from Koch Engineering. The process will be a two column process operating in the propane recovery mode. The plant is sized for a maximum inlet feed capacity of 28 MMSCFD; and as much gas as possible will be fed to the EVLRP with remainder being bypassed through the existing CO_2 Reinjection Facility. Feed gas to the EVLRP will be taken from downstream of the Triethylene Glycol (TEG) contactor after the 3rd stage of compression at about 300 psig. Compression liquids recovered from the 3rd stage compression (collected in the TEG Knockout Drum) will be processed (stabilized) in the EVLRP. These liquids will enter the first column as a liquid feed stream. Molecular sieve dehydration will be required before the feed streams are processed in the EVLRP. The residue CO_2 stream (CO_2, H_2S, Methane and Ethane) from the EVLRP will be delivered back to the 4th stage suction header. The recovered Natural Gas Liquids (NGL) will be delivered to the NGL storage facility. The NGL product will be pumped from the storage facility and delivered via a metering skid to the Phillips Petroleum Company NGL Pipeline No. 38 which is about 2,200 feet south of the EVLRP. An automatic bypass line around the EVLRP is installed to allow continued CO_2 reinjection when the EVLRP is down. The Hot Oil system will provide heat for the column reboilers and to heat the regeneration gas for molecular sieve dehydrators. The Propane Refrigeration system will provide refrigeration for the overhead condenser on the first column of the EVLRP. The cooling Water system and TEG system will be shared with the existing CO_2 Reinjection facility.

(See Attachment 1 for Plot Plan information.)
(See Attachment 2 for Process Flow information.)

PHILLIPS CONTACT PERSONNEL

Sam E. Christy — 1-915-368-1620
Safety & Environmental Analyst
4001 Penbrook
Odessa, Texas 79762

Ted B. Bennett — 1-505-391-5309
EVLRP/CO_2 Supervisor — 1-505-391-5323
HC 60, Box 450
Lovington, New Mexico 88260

FACILITY LOCATION

W/2 NE/4 Section 33, Township 17 South, Range 35 East
Lea County, New Mexico

LANDOWNER

State of New Mexico
State Land Office
P. O. Box 1148
Santa Fe, New Mexico 87504-1148

1-505-827-5760

PLANT WATER SYSTEM

Raw Water:

EVLRP receives its process make-up water and non-potable water from the existing Central Tank Battery(CTB) located adjacent to the plant. Approximately 4,400 gallons per day are provided to the plant from this source.
(See Attachment 1 for Plot Plan information.)

Potable Water:

Bottled drinking water for Phillips employees, contract personnel and quest of the facility is supplied in the EVLRP office.

Cooling Tower System:

The cooling tower system is comprised of one open recirculating tower. The cooling tower has a recirculation rate of 800 gallons per minute with an approximate daily volume of 400 gallons per day. The water in the this tower is recirculated and treated to maintain a pH of 7.2 to 7.6 and a Phosphate level 12 to 17 Then following chemicals with their specific feed rates, are being added to cooling tower waters for the treatment of scale, corrosion and biological treatment:

Alpha 512
Unichem 1304
Calcium Hypochlorite
Hydrochloric Acid

(See Attachment 3 for MSDS information)

Engine Cooling Systems:

Water and antifreeze (50% mix) are used as coolant in the jacket water systems of all engines at the plant. The plant has two propane compressors referred to as the "Refrigeration Compressors."

Coolant from engines is drained to the respective jacket water storage tank when an engine is being worked on. The coolant is pressured back to the engine when the work is completed. Coolant in engines equipped with self-contained cooling systems is drained into a common supply storage header before an engine is worked on. Coolant is placed back in the engine when the work is completed.

(See Attachment 3 for MSDS information.)

Filter Coalescer System:

The filter coalescer is a two stage separator that separates micron size particles and tiny mist like droplets of triethylene glycol (TEG). The TEG is recycled through an existing TEG contactor and any particles are trapped in cartridge type filters which are changed as needed. Approximately 20 gallons per day of TEG are recycled.

(See Attachment 1 for Plot Plan information.)
(See Attachment 3 for MSDS information.)

PLANT DRAIN SYSTEM

Engine Oil Drain System:

Lube oil in the EVLRP's Refrigeration Compressors is changed by draining the "spent" oil charge from an engine into a below grade storage and collection point constructed of a steel tank contained in a cement vault. Atmospheric drains, located around the plants engines, are designed to catch leaking oil, and drain to the above mentioned below grade storage and atmospheric drains and are serviced/catch leaking oil in the same manner. The oil is drained to a different below grade storage and collection point constructed of a steel tank contained in a cement vault. Liquids from the steel tanks are pumped into the CTB overflow storage tank.

(See Attachment 1 for Plot Plan information.)
(See Attachment 5 for Drain System information.)

Cooling Tower Wastewater Disposal System:

The cooling tower blowdown is sent through a 2 inch line to the CTB emergency overflow pit which has a fiberglass reinforced plastic lining.

(See Attachment 1 for Plot Plan information.)
(See Attachment 6 for Overflow Pit Permitting information.)

SOLID WASTE

General Waste:

All solid waste is picked up by Waste Management for disposal in a Hobbs, New Mexico landfill. This includes paper, pipe, concrete and other non-hazardous refuse.

Spent Molecular Sieve:

Approximately every five years the molecular sieve dehydrators at the plant are recharged. The spent molecular sieve will be disposed of in accordance with all appropriate state and federal regulations. Approximately 14,000 pounds of this material are disposed of each time the beds are recharged.

Sanitary Waste:

Sanitary waste from the plant and office are handled by a septic tank and leach field located North of the Control Room of the facility.

SPILL/LEAK PREVENTION, REPORTING, AND CLEAN-UP

The EVLRP's below grade vessels and piping are visually inspected and and/or pressure tested prior to being put into service. The vessels and lines are externally and/or internally coated if required, to ensure against corrosion. This equipment is checked continuously by operators o are on duty 24 hours a day. Any leaks would be detected by the operators and corrected in a timely manner. The plant supervisor will notify the New Mexico Oil Conservation Division of any such leaks under the terms of Statewide Rule 116.

MISCELLANEOUS INFORMATION

Plant Topography:

A topographic map of the plant area is found in Attachment 8. The EVLRP is represented by the #1 on Attachment 8 and #2 represents the existing facility. There are no bodies of water within a one mile radius of the plant.

Flooding Potential:

None.

Groundwater Information:

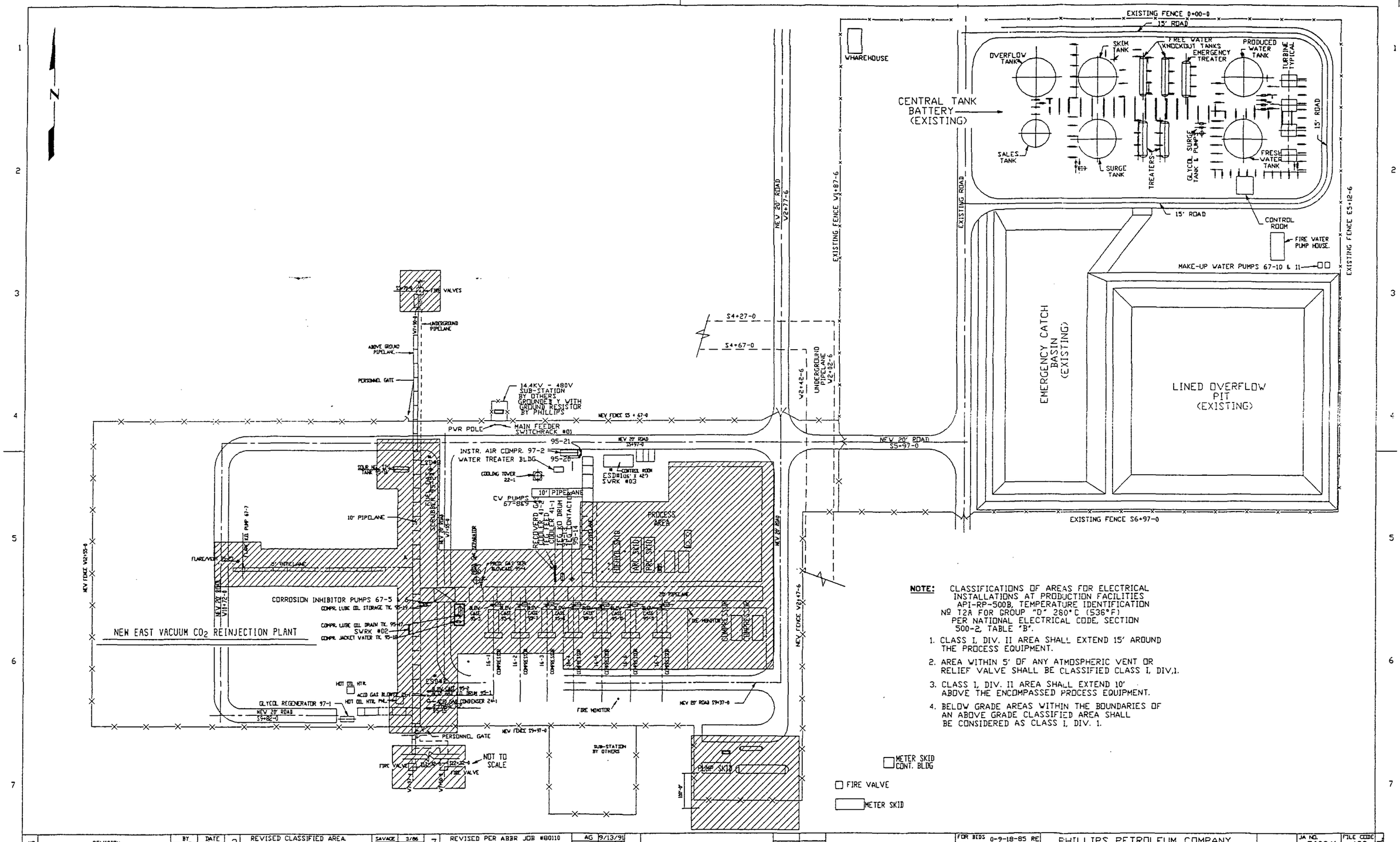
The depth of groundwater at the EVLRP approximately 220 to 280 feet and the quality of the water is potable. There are no groundwater monitoring wells at the facility.

Geological Information:

The facility is underlain by caliche soil. Groundwater is in the Ogallala aquifer which has composition of sand to gravel to caliche with some clay beds. The depth of the rock at base of alluvium is less than one foot. (Reference source: New Mexico State Geologist)

ATTACHMENT 1

EVLRP PLOT PLANS



NOTE: CLASSIFICATIONS OF AREAS FOR ELECTRICAL INSTALLATIONS AT PRODUCTION FACILITIES API-RP-500B, TEMPERATURE IDENTIFICATION Nº T2A FOR GROUP "D" 280°C (536°F) PER NATIONAL ELECTRICAL CODE, SECTION 500-2, TABLE 'B'.

1. CLASS I, DIV. II AREA SHALL EXTEND 15' AROUND THE PROCESS EQUIPMENT.
2. AREA WITHIN 5' OF ANY ATMOSPHERIC VENT OR RELIEF VALVE SHALL BE CLASSIFIED CLASS I, DIV,1.
3. CLASS I, DIV. II AREA SHALL EXTEND 10' ABOVE THE ENCOMPASSED PROCESS EQUIPMENT.
4. BELOW GRADE AREAS WITHIN THE BOUNDARIES OF AN ABOVE GRADE CLASSIFIED AREA SHALL BE CONSIDERED AS CLASS I, DIV. 1.

NO.	REVISION	BY	DATE
		CHKD	APP'D
1	MOVED CONTROL RM & PARKING LOT & CHANGED INTO UNCLASSIFIED AREA. ADDED NOTE. P-KN51	SAVAGE	10/85
		BIZZARRE	RICH
2	REVISED CLASSIFIED AREA. ADDED ESD#1,2,3. P-KN51	SAVAGE	12/85
3	REVISED CLASSIFIED AREA. P-KN51	SAVAGE	3/86
		RLB	TJR
4	REVISED AS BUILT. P-KN51	L.B.	9-86
		TJR	TJR
5	COMPRESSOR 16-3 IS NO LONGER FUTURE. P-C131	BEP	11/87
		RJ	RLB
6	ADDITION OF COMPRESSOR #16-4 P-C412	KLS	12/88
		FLH	
7	REVISED PER ABBR JOB #80110	AG	9/13/91
		TLD	
8	AS BUILT	GSS	01-3-92
		TLD	01-3-92
9	COMPRESSOR 16-5, 16-6, AND 16-7 ARE NO LONGER FUTURE.	DGU	2-6-97

FOR BIDS	0-9-18-85 RE
FOR APPR	
FOR CONST	1-12-20-85 SCHOCH 8-11-3-92 GSS
DRAWN	SAVAGE 8/85
CHECKED	BIZZARRI 12/85
APP'D	RICH 12/85

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

AREA CLASSIFICATION

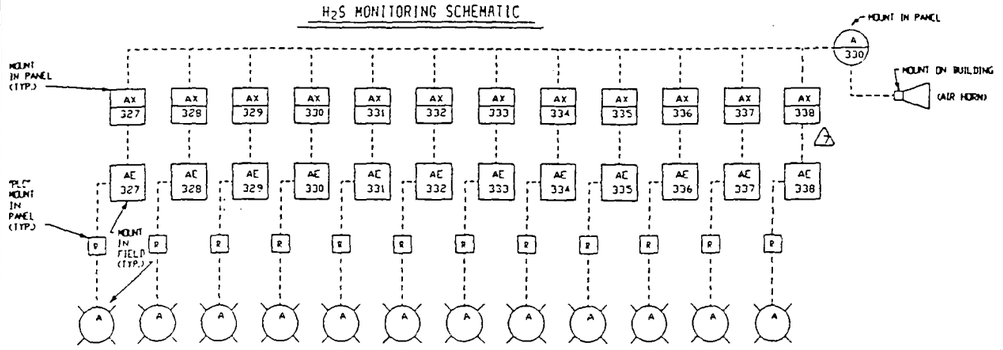
EAST VACUUM CO_2 REINJECTION PLANT

EAST VACUUM PLANT LEA CO., NEW MEXICO

JA NO.	569241
FILE CODE	#492
AFE NO.	P-KN51
SCALE	1"=60'
DWG NO.	PED-256
SH NO.	E-12-8

MCADD EDGAL

H_2S MONITORING SCHEMATIC



NOTE: AC 000 INDICATES H_2S DETECTOR

NO	REVISION	BY	DATE	NO	REVISION	BY	DATE	NO	REVISION	BY	DATE
		CHKD	APPD			CHKD	APPD			CHKD	APPD
1	REV. H_2S MONITORING SCHEMATIC & ADDED MONITORS 328B,328C,329A AND 329B. P-KN51	SWF / RDB	7/85 / RAE	3	REVISED TO SHOW RELOCATED EQUIPMENT P-KN51	LI / RDB	10/85 / RAE	7	ADDED COMPR #16-4, BLDVCASE #95-8 & AC 338 P-C412	JWH / CLP	11/88 / CLP
				4	REV. & ADDED NEW PERSONNEL GATE P-KN51	CLP / RDB	2/86 / DMG	8	ISSUED FOR CONSTRUCTION P-CB67	DH	5-6-92
				5	REVISED PER AS BUILT. P-KN51	CLP / DMG	6/86 / PDB	9	AS-BUILT		
2	REV. H_2S MONITORING SCHEMATIC & REV MONITOR NUMBERS P-KN51	SWF / RDB	8/85 / RAE	6	RELOCATED 16-3 & 95-7 & SHOWED AS NEW EQUIP P-C13N	JF / RDB	11/87 / PDB				

FOR BIDS		
FOR APPR	0-6-6-85	RAE
FOR CONST	1-8-7-85	RAE
	5-6-10-86	KRS
DRAWN	BARRINGER	5/85
CHECKED	RAE	6/85
APPD	RAE	6/85

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

MECHANICAL FLOW SHEET
EAST VACUUM CO_2 REINJECTION PLANT
H_2S MONITORS

EAST VACUUM PLANT — LEA COUNTY, NEW MEXICO

HEAD # MFK6 | COORDINATE REV W/ CAD SUPV

ABBR JOB 80110 — 9-16-92

JA NO	56-9241
FILE CODE #	506
AFC NO	P-KN51
SCALE	NONE
DWG NO	PED-256
SH NO	MF-14-9

ATTACHMENT 2

EVLRP PROCESS FLOW SHEET

REINJECTION COMP. 4TH & 5TH STAGES

CO2 INJECTION

PV

SC

16-11

REFRIGERATION COMP.

16-12

PIC

PRC

TO PRC CONDENSER

FROM PRC CONDENSER 41-7

95-32 REFR. K.O. DRUM

LI

TO REFR. COND. 24-3

FILL TRUCK

95-36 PROPANE STORAGE TANK

TO PRC CONDENSER 41-7

TO 5 PSIG PRODUCED GAS SEPARATOR(95-3)

TE

EXISTING 41-1

PLANT FEED

FEED COMP. 1ST 2ND 3RD STAGES

ARC

RYAN HOLMES AREA

REF. PF-01

EXISTING TEG K.O. DRUM 95-13

LC

VAPOR DEHYD.

LIQUID DEHYD.

REGEN

VENT TO PRODUCED GAS SEP'R. (95-3)

PC

95-35 NGL PRODUCT STORAGE TANK

RESET

PROD. H2O TO EXISTING TANK

67-22 A/B

TIC

INERT BLANKET FUEL GAS

HOT OIL HEATER

FILL

HOT OIL SURGE TANK 95-34

67-23 A/B

36-2

FT

HOT OIL PUMPS 67-21 A/B

TI

FUEL GAS

FE

ESDV

METER SKID

NGL PRODUCT TO PIPELINE #38

NO.	REVISION	BY DSGN	DATE APP'D				
P1	KPS DEO# 1997			A	ISSUED FOR APPROVAL P-C867	CFD	10-29-91
P2	KPS DEO# 2065			0	ISSUED FOR CONSTRUCTION	CFD	1-28-92
P3	KPS DEO# 2128						

FOR BIDS

FOR APPR A 10-29-91 CFD

FOR CONST 0 1-28-92 CFD

DRAWN

CHECKED

APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

PROCESS SCHEMATIC DIAGRAM
RYAN/HOLMES PLANT-EVGSAU CO2 FACILITY

JOB NO. 56-9288

FILE CODE 511

APPROVAL NO. P-C867

REV'S NONE

DWG NO. PED-256

SHT NO. PF-06-0

1-28-92

8 7 6 5 4 3 2 1

95-26 PROPANE RECOVERY COLUMN (PRC)	41-5 PRC REBOILER	41-8 PRC SIDE REBOILER	41-9 PRC SIDE HEATER	41-7 PRC CONDENSER	95-28 PRC REFLUX DRUM	41-10 ADDITIVE SUBCOOLER	67-17A/B PRC REFLUX PUMP	95-27 ADDITIVE RECOVERY COLUMN (ARC)	41-6 ARC REBOILER	24-1 ARC CONDENSER	95-29 ARC REFLUX DRUM	67-19A/B ADDITIVE PUMP	95-30 ADDITIVE DRUM	67-18A/B ARC REFLUX PUMP	24-2 ARC BTMS COOLER	41-11 NGL CONDENSER
	DUTY MM BTU/HR	DUTY MM BTU/HR	DUTY MM BTU/HR	DUTY MM BTU/HR		DUTY MM BTU/HR	GPM		DUTY MM BTU/HR	DUTY MM BTU/HR		GPM		GPM	DUTY MM BTU/HR	DUTY MM BTU/HR
	(A) 2.77	(A) 0.59	(A) 0.51	(A) 5.00		(A) 0.17	(A) 83		(A) 2.00	(A) 0.67		(A) 26		(A) 18	(A) 0.22	(A) 1.39
	(B) 2.22	(B) 0.67	(B) 0.45	(B) 4.75		(B) 0.23	(B) 74		(B) 1.89	(B) 0.60		(B) 26		(B) 16	(B) 0.18	(B) 1.12
	(C) 2.46	(C) 1.40	(C) 1.68	(C) 3.91		(C) 1.01	(C) 62		(C) 1.94	(C) 0.88		(C) 62		(C) 24	(C) 0.84	(C) 0.32

RESET
TO REFRIG. COMPRESSOR CAPACITY CONTROL
REFRIGERANT VAPOR
REFRIGERANT LIQUID
41-7
REFRIG. SUBCOOLER (41-13)
CO2 TO 4TH STAGE COMPRESSION
PLANT FEED GAS
FEED COMPRESSION CONDENSATION VAPOR/LIQ. SEP'N AND DEHYDRATION
DRY LIQUID
DRY VAPOR
95-28
150 PSIG FUEL GAS SUPPLY
VENT TO PRODUCED GAS SEP'R. (95-3)
95-30
24-1
SAMPLE
95-29
67-17A/B
41-10
RESET
67-19A/B
COOLING WATER
41-11
95-26
24-2
95-27
RESET
41-9
41-8
NGL PRODUCT TO NGL STORAGE TANK (95-35)
RESET
SELECT
HOT OIL SUPPLY
HOT OIL RETURN
41-6
VAPOR DRAW RECYCLE TO PRC VAPOR DRAW COMPRESSOR (16-13)
RESET
SELECT
HOT OIL SUPPLY
41-5
HOT OIL RETURN

LEGEND:
(A) LOW CO2 CASE - 1992 OPERATION
(B) BASE CASE - 1992 OPERATION
(C) HIGH CO2 CASE - 2004 OPERATION

1-28-92

NO.	REVISION	BY CHK'D	DATE APP'D		
P1	KPS DED# 1997			A	ISSUED FOR APPROVAL P-C867
P2	KPS DED# 2065			0	ISSUED FOR CONSTRUCTION
P3	KPS DED# 2128				

FOR BIDS A 10-29-91 CFD
FOR CONST 0 1-28-92 CFD
DRAWN
CHECKED
APP'D

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA
PROCESS FLOW SHEET
RYAN/HOLMES PLANT
EVGSAU CO2 FACILITY

JA NO. 56-9288
APE NO. P-C867
SCALE NONE
DWG NO. PED-256
SH NO. PF-01-C

ATTACHMENT 3

EVLRP MSDS

Product Name: ALPHA 512

Section: 01 PRODUCT IDENTIFICATION

UNICHEM
A DIVISION OF BJ SERVICES CO.
707 N. LEECH
HOBBS, NM 88241-1499

Emergency Telephone 505-393-7751
Previous Version Date 9/21/93
Date Prepared 10/01/96
Version: 0000003

Product Name: ALPHA 512

Chemical Description:
Proprietary Microbiocide Blend

Section: 02 HAZARDOUS INGREDIENTS

Component Name	CAS#	% Range
methanol	00067-56-1	40%
potassium dimethyldithiocarbamate	00128-03-0	30%

Section: 03 PHYSICAL DATA

Freezing Point: - 35 Deg.F.
Boiling Point, 760 mm Hg: init 150 Deg.F
Specific Gravity(H2O=1) : 1.000 Solubility in water: Complete
Appearance and Odor: Brown, clear liquid; sulfur odor.

Section: 04 FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method): 69 Deg.F TCC

Extinguishing Media

CO2, dry chemical, water spray or fog, or foam. Use water to keep containers cool. Isolate "fuel" supply from fire. Contain fire fighting liquids for proper disposal.

Special Fire Fighting Procedures

Do not enter confined fire space without proper personal protective equipment including NIOSH approved self-contained breathing apparatus with full facepiece operated in the positive pressure demand mode. Do not inject a solid stream of water or foam into hot, burning pools; this may cause splattering and increase fire intensity. Evacuate personnel to a safe area. Keep unnecessary people away.

Unusual Fire and Explosion Hazards

This material is volatile and readily gives off vapors that may travel along the ground or be moved by ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electrical motors, static discharge, or other ignition sources at locations distant from material handling point. Never use welding or cutting torch on or near drum

Product Name: ALPHA 512

Section: 04 FIRE AND EXPLOSION HAZARD DATA CONTINUED

(even empty) because product (even just residue) can ignite explosively. Containers may explode from internal pressure if confined to fire. Keep containers cool. Keep unnecessary people away.

Section: 05 HEALTH HAZARD DATA

Effects of Overexposure

Eye Contact: may cause moderate irritation, including burning sensation, tearing, redness, swelling and blurred vision. Effects may vary depending on the length of exposure, solution concentration, and first aid measures.

Skin Contact: may produce mild to severe irritation depending on length of exposure, solution concentration and first aid measures. Can also cause defatting and dermatitis. May cause skin sensitization. No instances of human allergic reaction are known. Exposure to this material can result in absorption through skin causing health hazard.

Inhalation: overexposure may cause coughing, shortness of breath, dizziness, intoxication and collapse. Can cause nasal and respiratory irritation, weakness, nausea, fatigue, headache, and possible unconsciousness and even death.

Ingestion: can cause gastrointestinal irritation, acidosis, nausea, vomiting, diarrhea, ocular toxicity ranging from diminished visual capacity to complete blindness and death.

Chronic Overexposure: may cause liver abnormalities, kidney damage, eye damage, lung damage, brain damage, and nervous system damage.

Environmental Hazards: this product is toxic to fish. Do not apply in marine and/or estuarine oil fields. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

Note to Physician: no specific antidote is known. Probable mucosal damage may contraindicate the use of gastric lavage. Treat symptoms.

Emergency and First Aid Procedures

SKIN

Wash with soap and water. Remove contaminated clothing and launder contaminated clothing before reuse. Get medical

Product Name: ALPHA 512

Section: 05 HEALTH HAZARD DATA CONTINUED

attention if redness or irritation develops.

EYES

Flush eyes immediately with large amounts of water for at least 15 minutes. Lift lower and upper lids occasionally. Get medical attention.

INHALATION

Remove victim to fresh air. Give artificial respiration if not breathing. If breathing is difficult, administer oxygen. Keep person warm, quiet and get medical attention.

INGESTION

Call a physician immediately. Give victim a glass of water. Do NOT induce vomiting unless instructed by a physician or poison control center. Never give anything by mouth to an unconscious person.

Section: 06 REACTIVITY DATA

Stable (Y=Yes/N=No): Y

Stability -- Conditions to Avoid

None known.

Incompatibility (Materials to Avoid)

Avoid contact with strong oxidizing agents, strong alkalies, and strong mineral acids.

Hazardous Decomposition Products

Thermal decomposition or combustion may produce smoke, carbon monoxide and carbon dioxide.

Hazardous Polymerization May Occur(Y=Yes/N=No): N

Hazardous Polymerization -- Conditions to Avoid

None

Section: 07 SPILL OR LEAK PROCEDURES

Steps to be Taken if Material is Released or Spilled

Eliminate sources of ignition. Persons not wearing suitable personal protective equipment should be excluded from area of spill until clean-up has been completed. Shut off source of spill if possible to do so without hazard. Prevent material from entering sewers or watercourses. Provide adequate ventilation. Contain spilled materials with sand or earth. Recover undamaged and minimally contaminated material for reuse or reclamation. Place all collected material and spill absorbents into DOT approved containers.

Product Name: ALPHA 512

Section: 07 SPILL OR LEAK PROCEDURES CONTINUED

Advise authorities. If this product is an EPA hazardous substance (see Section 10), notify the U.S.EPA and/or the National Response Center. Additional notification pursuant to SARA Section 302/304 (40 CFR 355) may also be required.

Waste Disposal Method

Treatment, storage, transportation and disposal must be in accordance with EPA or State regulations under authority of the Resource Conservation and Recovery Act (40 CFR 260-271).

Section: 08 SPECIAL PROTECTIVE INFORMATION

Respiratory Protection

If workplace exposure limit(s) of product or any component is exceeded, an NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure organic vapor type) under specified conditions. Engineering or administrative controls should be implemented to reduce exposure.

Ventilation

The use of mechanical dilution ventilation is recommended whenever this product is used in confined spaces, is heated above ambient temperatures or is agitated. When applicable, sufficient local ventilation should be provided to maintain employee exposures below safe working limits (TWA's).

Protective Gloves

Neoprene, nitrile, polyvinyl alcohol (PVA), polyvinyl chloride (PVC)

Eye Protection

Chemical splash goggles or face shield in compliance with OSHA regulations is advised; however OSHA regulations also permits safety glasses under certain conditions. The use of contact lenses is not recommended.

Other Protective Equipment

Eye wash and safety shower

Section: 09 SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing

Avoid contact with eyes, skin or clothing. Avoid breathing vapors or mist. Keep away from heat, sparks, and open flames and never use a cutting torch on or near container (even empty) or explosion may result. Vapors may travel to areas away from the work site and ignite.

Product Name: ALPHA 512

Section: 09 SPECIAL PRECAUTIONS CONTINUED

Other Precautions

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Do not transfer to improperly marked container. Do not use pressure to empty container. Do not cut, heat, weld, or expose containers to flame or other sources of ignition. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Containers should be grounded and bonded to receiving container(s) when being emptied. Containers should not be washed out and used for other purposes.
FOR INDUSTRIAL USE ONLY

Section: 10 REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act Of 1986(SARA) Title III

Section 302/304-Extremely Hazardous Substances (40 CFR 355)

SARA requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). These values are subject to change and the regulations should be consulted to verify current statutory requirements.

Components present in this product at a level which could require reporting under the statute are:

Component Name	RQ	TPQ	% Range
NONE			

Section 311/312 Chemical Inventory Reporting Requirements (40 CFR 370)

The Superfund Amendments and Reauthorization Act (SARA) may require submission of reports (chemical list, MSDS, Tier I & Tier II) to the State Emergency Response Commission, Local Emergency Response Committee and the local fire department. The SARA physical and health hazards related to this product are:

X Acute Health Hazard	_ Sudden Release of Pressure	X Fire
X Chronic Health Hazard	_ Reactive	

Section 313-List of Toxic Chemicals (40 CFR 372)

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 372). This information should be included in all MSDSs that are copied and distributed for this material.

Component Name	CAS #	% Range
methanol	00067-56-1	40%

Product Name: ALPHA 512

Section: 10 REGULATORY INFORMATION CONTINUED

CERCLA, 40 CFR 261 AND 302

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center 1-800-424-8802 of any release of a Hazardous Substances equal to or greater than the reportable quantities (RQs) listed in 40CFR 302.4. Values are given in pounds for the component and not the mixture, if applicable. (These values are subject to change and the regulations should be consulted to verify current statutory levels.)

Component Name	CAS #	CERCLA RQ
methanol	00067-56-1	5000

OSHA Exposure Limits

Component Name

methanol

TWA ppm: 200.0 TWA MG/M3: 260.0 STEL ppm: 250.0 STEL MG/M3: 310.0 Skin: X

National Fire Protection Agency

2 Health 3 Fire

0 Reactive ____ Other

Department of Transportation Shipping Information

Proper Shipping Name: Flammable liquids, n.o.s.

Hazard Class: 3 Identification: UN1993

Packaging Group: PG II

Contains: methanol

Hazardous Substance RQ: 12500# Emergency Response Guide Number: 128

Labels: Flammable liquid

Toxic Substances Control Act (TSCA), 40 CFR 261

This product, or components if product is a mixture, is/are listed on the Toxic Substance Control Act (TSCA) inventory.

- -

Section 10 information is to remain attached to the material safety data sheet for this product.

- -

While UNICHEM believes that the above data is correct, UNICHEM expressly disclaims liability for any loss or injury arising out of the use of this information or the use of any materials designated.

- -

END OF MSDS

REPORT NUMBER: 703 VAN WATERS & ROGERS INC.
MSDS NO: PG0122 MATERIAL SAFETY DATA SHEET
EFFECTIVE DATE: 06/21/93 VERSION: 002

PRODUCT: CALCIUM HYPOCHLORITE TABLETS

ORDER NO: 110925
PROD NO : 232147

UNICHEM INTERNATIONAL
707 NORTH LEECH
P.O.BOX 1499

HOBBS ,NM 88240

VAN WATERS & ROGERS INC. , SUBSIDIARY OF UNIVAR (206)889-3400
6100 CARILLON POINT , KIRKLAND , WA 98033

---------- EMERGENCY ASSISTANCE ----------

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800)424-9300

---------- FOR PRODUCT AND SALES INFORMATION ----------

CONTACT YOUR LOCAL VAN WATERS & ROGERS BRANCH OFFICE AT
VW&R ODESSA 915-366-3243 ODESSA , TX

PRODUCT NAME:
CALCIUM HYPOCHLORITE TABLETS

MSDS #: PG0122

- - - CALCIUM HYPOCHLORITE TABLETS

DATE: 06/16/93
EDITION: 004
TRADE NAME: CALCIUM HYPOCHLORITE TABLETS
CHEM NAME/SYN: CAL HYPO, PITTABS, REPAK

CHEMICAL FAMILY: HYPOCHLORITE
FORMULA: CA(OCL)2
CAS NUMBER: 007778-54-3
U.S. DOT SHIPPING NAME: CALCIUM HYPOCHLORITE, HYDRATED
U.S. DOT HAZARD CLASS: 5.1 (OXIDIZER)
SUBSIDIARY RISK: N/A
I.D. NUMBER: UN2880
PACKING GROUP: II
REPORTABLE QUANTITY: 10 LBS/4.5 KG
ID. DESCRIPTION: CALCIUM HYPOCHLORITE, HYDRATED, CLASS 5.1, UN2880, PACKING GROUP II, RQ, IMDG CODE PAGE 5138.

JCT: CALCIUM HYPOCHLORITE TABLETS

ORDER NO: 110925
PROD NO : 232147

SECTION 1 - PHYSICAL DATA

OILING POINT @ 760 MM HG: DECOMPOSES @ 180 C
APOR DENSITY (AIR=1): N/A
PECIFIC GRAVITY (H2O=1): N/A
H OF SOLUTIONS: ALKALINE
REEZING/MELTING POINT: N/A
OLUBILITY (WEIGHT % IN WATER): 217 G/L @ 27 C

ULK DENSITY: N/A
OLUME % VOLATILE: N/A
APOR PRESSURE: N/A
VAPORATION RATE: N/A
EAT OF SOLUTION: SLIGHTLY EXOTHERMIC
PPEARANCE AND ODOR:
WHITE TABLETS WITH SLIGHT CHLORINE ODOR

SECTION 2 - INGREDIENTS

ATERIAL	PERCENT
ALCIUM HYPOCHLORITE (65% AVAILABLE CHLORINE)	65
NERT (INCLUDES 5.5 - 10% MOISTURE)	35

SECTION 3 - FIRE/EXPLOSION HAZARD DATA

LASH POINT (METHOD USED):
NONE

LAMMABLE LIMITS IN AIR (% BY VOLUME)
LEL: N/A
UEL: N/A

XTINGUISHING MEDIA:
WATER ONLY! SMOTHERING INEFFECTIVE-PRODUCT SUPPLIES OWN OXYGEN

PECIAL FIRE FIGHTING PROCEDURES:
FIRE FIGHTERS MUST WEAR NIOSH/MSHA APPROVED, PRESSURE DEMAND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACE PIECE FOR POSSIBLE EXPOSURE TO HAZARDOUS GASES.

SUAL FIRE AND EXPLOSION HAZARDS:
DECOMPOSES AT 180 C RELEASING OXYGEN GAS; CONTAINERS MAY RUPTURE.

PRODUCT: CALCIUM HYPOCHLORITE TABLETS

ORDER NO: 110925
PROD NO : 232147

SECTION 4 - HEALTH HAZARD DATA

TOXICITY DATA:

LC50 INHALATION:	(RAT) NO MORTALITY @ 3.5 MG/L (1 HR)
LD50 DERMAL:	(RABBIT) >1000 MG/KG
SKIN/EYE IRRITATION:	SEE SECTION 5
LD50 INGESTION:	SEE SECTION 5
FISH,LC50 (LETHAL CONCENTRATION):	TLM 96 HR.: 10-1 PPM

CLASSIFICATION:

INHALATION:	IRRITATING
SKIN:	SLIGHTLY TOXIC
SKIN/EYE:	CORROSIVE
INGESTION:	SLIGHTLY TOXIC
AQUATIC:	HIGHLY TOXIC

SECTION 5 - EFFECTS OF OVEREXPOSURE

IS CHEMICAL LISTED AS A CARCINOGEN OR POTENTIAL CARCINOGEN?
NTP - NO IARC - NO OSHA - NO

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
NONE KNOWN

PERMISSIBLE EXPOSURE LIMITS:
NONE ESTABLISHED BY OSHA OR ACGIH FOR THIS PRODUCT.

PPG INTERNAL PERMISSIBLE EXPOSURE LIMIT (IPEL): 1 MG/CU.M., 8-HOUR TWA (TIME WEIGHTED AVERAGE); 2 MG/CU.M. STEL (SHORT-TERM EXPOSURE LIMIT).

ACUTE:

INHALATION: INHALATION OF CALCIUM HYPOCHLORITE DUST AND DEPOSITION OF PARTICLES IN THE RESPIRATORY TRACT CAN LEAD TO IRRITATION OF THE TISSUE AND CAUSE A VARIETY OF EFFECTS. THESE EFFECTS ARE DEPENDENT ON CONCENTRATION AND INCLUDE: UPPER RESPIRATORY TRACT IRRITATION, NASAL CONGESTION, COUGHING, SORE THROAT, LARYNGITIS AND SHORTNESS OF BREATH. IN OPERATIONS WHERE THERE ARE HIGH CONCENTRATIONS OF RESPIRABLE PARTICULATES, PULMONARY EDEMA (FLUID IN THE LUNG) MAY BE PRODUCED. IF NOT TREATED IMMEDIATELY, PULMONARY EDEMA CAN BE LIFE THREATENING. SINCE THIS PRODUCT IS IN TABLET FORM, PARTICLES OF RESPIRABLE SIZE ARE NOT GENERALLY ENCOUNTERED.

JCT: CALCIUM HYPOCHLORITE TABLETS

ORDER NO: 110925
PROD NO : 232147

EYE/SKIN: CALCIUM HYPOCHLORITE IS CORROSIVE TO THE EYES. CONTACT OF CALCIUM HYPOCHLORITE DUST WITH THE EYES, EVEN A MINUTE AMOUNT FOR A SHORT DURATION, CAN CAUSE SEVERE IRRITATION AND EVEN BLINDNESS. CONTACT WITH THE SKIN MAY CAUSE SEVERE IRRITATION, BURNS, OR TISSUE DESTRUCTION.

IN STUDIES UTILIZING RABBITS, THE SKIN IRRITATION SCORE WAS 8/8 AND THE EYE IRRITATION SCORE WAS 98.5/110. THE CLASSIFICATION FOR BOTH OF THESE IS CORROSIVE.

INGESTION: CALCIUM HYPOCHLORITE, IF SWALLOWED, CAUSES SEVERE BURNS TO THE DIGESTIVE TRACT AND CAN BE FATAL.

CHRONIC:
GENOTOXICITY: CALCIUM HYPOCHLORITE PRODUCED POSITIVE RESPONSES IN IN-VITRO ASSAYS USING BACTERIAL SYSTEMS (THE AMES TEST) AND CHROMOSOMAL ABERRATIONS IN CHINESE HAMSTER FIBROBLASTS. IN A WHOLE ANIMAL EXPERIMENT (MOUSE MICRONUCLEUS TEST), EXPOSURES RANGING FROM 20 TO 160 MG/KG PRODUCED NO COMPOUND RELATED CHROMOSOMAL ABNORMALITIES.

CARCINOGENISIS: ALTHOUGH NO STUDY HAS BEEN CONDUCTED WITH CALCIUM HYPOCHLORITE, THE CARCINOGENIC POTENTIAL OF SODIUM HYPOCHLORITE WAS STUDIED IN F344 RATS. AFTER 104 WEEKS OF DRINKING WATER CONTAINING UP TO 2000 PPM SODIUM HYPOCHLORITE, THERE WAS NO EVIDENCE THAT THIS CHEMICAL PRODUCED ANY CARCINOGENIC RESPONSE. IN ADDITION, THIS EXPOSURE DID NOT RESULT IN ANY ADVERSE EFFECTS IN BLOOD, CLINICAL CHEMISTRY, OR OTHER TARGET ORGANS.

ONE OF THE MAJOR USES OF CALCIUM HYPOCHLORITE IS AS A SOURCE OF CHLORINE FOR WATER SANITIZATION IN DRINKING AND RECREATIONAL WATER. STUDIES HAVE BEEN CONDUCTED TO DETERMINE THE LONG-TERM EFFECTS OF CHLORINATED DRINKING WATER. SEVEN GENERATIONS OF RATS WERE GIVEN 100 PPM CHLORINE IN THEIR DRINKING WATER. NO DIFFERENCE IN FERTILITY, GROWTH, BLOOD PARAMETERS, OR SPECIFIC ORGAN TOXICITY WAS OBSERVED BETWEEN CONTROL AND EXPOSED ANIMALS. TWO SEPARATE ANIMAL STUDIES CONDUCTED BY DIFFERENT GOVERNMENT AGENCIES DETERMINED THAT THE CHLORINATION OF MUNICIPAL DRINKING WATER DID NOT RESULT IN TOXICITY TO THE DEVELOPING MOUSE FETUS.

SAFE HANDLING OF THIS MATERIAL ON A LONG-TERM BASIS SHOULD EMPHASIZE MINIMIZING REPEATED ACUTE EXPOSURES.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION:
REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION,

---

PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.

EYE OR SKIN CONTACT:
FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. FOR EYE CONTACT, GET IMMEDIATE MEDICAL ATTENTION. IF SKIN IRRITATION OCCURS, GET MEDICAL ATTENTION.

INGESTION:
IF CONSCIOUS, DRINK LARGE QUANTITIES OF WATER AND ANY COMMON COOKING (VEGETABLE) OIL, IF AVAILABLE. DO NOT INDUCE VOMITING. TAKE IMMEDIATELY TO A HOSPITAL OR PHYSICIAN. IF UNCONSCIOUS, OR IN CONVULSIONS, TAKE IMMEDIATELY TO A HOSPITAL. DO NOT ATTEMPT TO INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTES TO PHYSICIAN (INCLUDING ANTIDOTES):
TREAT SYMPTOMATICALLY.

SECTION 6 - REACTIVITY DATA

STABILITY:
UNSTABLE
CONDITIONS TO AVOID:
CONTAMINATION OR EXCESSIVE HEAT ABOVE 177 C

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS TO AVOID: NONE-WILL NOT POLYMERIZE

INCOMPATIBILITY (MATERIALS TO AVOID):
ACIDS, COMBUSTIBLE MATERIALS, ORGANICS, REDUCING AGENTS

HAZARDOUS DECOMPOSITION PRODUCTS:
ACIDS OR AMMONIA CONTAMINATION WILL RELEASE TOXIC GASES. EXCESSIVE HEAT WILL CAUSE DECOMPOSITION RESULTING IN THE RELEASE OF OXYGEN AND CHLORINE GAS.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED:
NOTE: USE EXTREME CAUTION IN HANDLING SPILLED MATERIAL. CONTAMINATION WITH ORGANIC OR COMBUSTIBLE MATERIAL MAY CAUSE FIRE OR VIOLENT DECOMPOSITION. IF FIRE OR DECOMPOSITION OCCURS IN AREA OF SPILL, IMMEDIATELY DOUSE WITH PLENTY OF WATER. OTHERWISE, SWEEP UP ALL VISIBLE MATERIAL USING A CLEAN, DRY SHOVEL AND BROOM AND DISSOLVE MATERIAL IN WATER. DISPOSE OF WASTE MATERIAL AS

OUTLINED BELOW.

ASTE DISPOSAL METHOD:
SPILLED MATERIAL THAT HAS BEEN SWEPT UP AND DISSOLVED IN WATER SHOULD BE USED IMMEDIATELY IN THE NORMAL APPLICATION FOR WHICH CALCIUM HYPOCHLORITE IS BEING CONSUMED. IF THIS IS NOT POSSIBLE, CAREFULLY NEUTRALIZE DISSOLVED MATERIAL BY ADDING HYDROGEN PEROXIDE (ONE PINT OF 35% HYDROGEN PEROXIDE SOLUTION PER POUND OF CALCIUM HYPOCHLORITE TO BE NEUTRALIZED) THEN DILUTE THE NEUTRALIZED MATERIAL WITH PLENTY OF WATER AND FLUSH TO SEWER. NOTE: ONLY PROPERLY NEUTRALIZED MATERIAL SHOULD BE FLUSHED TO SEWER. UNNEUTRALIZED MATERIAL CAN CAUSE ENVIRONMENTAL DAMAGE TO RECEIVING WATER OR CAN INTERFERE WITH TREATMENT PLANT OPERATION. FOR ON-SITE NEUTRALIZATION, CAREFULLY AND SLOWLY POUR THE APPROPRIATE QUANTITY OF 35% HYDROGEN PEROXIDE SOLUTION OVER ALL SPILLED MATERIAL THEN FLUSH AREA WITH PLENTY OF WATER.
COMMENTS: CARE MUST BE TAKEN WHEN USING OR DISPOSING OF CHEMICAL MATERIALS AND/OR THEIR CONTAINERS TO PREVENT ENVIRONMENTAL CONTAMINATION. IT IS YOUR DUTY TO DISPOSE OF THE CHEMICAL MATERIALS AND/OR THEIR NTAINERS IN ACCORDANCE WITH THE CLEAN AIR ACT, THE CLEAN WATER ACT, E RESOURCE CONSERVATION AND RECOVERY ACT, FIFRA, AS WELL AS ANY OTHER RELEVANT FEDERAL, STATE, OR LOCAL LAWS/REGULATIONS REGARDING DISPOSAL.

SECTION 8 - SPECIAL PROTECTION INFORMATION

ESPIRATORY PROTECTION:
IF DUSTY CONDITIONS ARE ENCOUNTERED, USE NIOSH/MSHA APPROVED RESPIRATOR WITH ACID GAS CARTRIDGE AND DUST PREFILTER. THE RESPIRATOR USE LIMITATIONS SPECIFIED BY NIOSH/MSHA OR THE MANUFACTURER MUST BE OBSERVED. RESPIRATORY PROTECTION PROGRAMS MUST BE IN ACCORDANCE WITH 29 CFR 1910.134.

ENTILATION(TYPE):
NONE, UNLESS DUSTY CONDITIONS ARE ENCOUNTERED.

YE PROTECTION:
CHEMICAL SAFETY GOGGLES

LOVES:
NATURAL OR SYNTHETIC RUBBER

THER PROTECTIVE EQUIPMENT:
BOOTS, APRONS, OR CHEMICAL SUITS SHOULD BE USED WHEN NECESSARY TO PREVENT SKIN CONTACT. PERSONAL PROTECTIVE CLOTHING AND USE OF EQUIPMENT MUST BE ACCORDANCE WITH 29 CFR 1910.132 AND 29 CFR 1910.133.

REPORT NUMBER: 703 VAN WATERS & ROGERS INC. PAGE: 007
MSDS NO: PG0122 MATERIAL SAFETY DATA SHEET
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PRODUCT: CALCIUM HYPOCHLORITE TABLETS

ORDER NO: 110925
PROD NO : 232147

SECTION 9 - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORING:
- DO NOT GET IN EYES, ON SKIN OR ON CLOTHING.
- KEEP IN ORIGINAL CONTAINER IN A COOL, DRY PLACE.
- KEEP CONTAINER CLOSED WHEN NOT IN USE.
- KEEP AWAY FROM HEAT SOURCES, SPARKS, OPEN FLAMES AND LIGHTED TOBACCO PRODUCTS.
- USE ONLY A CLEAN, DRY SCOOP MADE OF METAL OR PLASTIC EACH TIME THIS PRODUCT IS TAKEN FROM CONTAINER.
- DO NOT ADD THIS PRODUCT TO ANY DISPENSING DEVICE CONTAINING REMNANTS OF ANY OTHER PRODUCT. SUCH USE MAY CAUSE VIOLENT REACTION LEADING TO FIRE OR EXPLOSION.
- ADD THIS PRODUCT ONLY TO WATER.
- MAY CAUSE FIRE OR EXPLOSION IF MIXED WITH OTHER CHEMICALS.
- FIRE MAY RESULT IF CONTAMINATED WITH ACIDS OR EASILY COMBUSTIBLE MATERIAL SUCH AS OIL, KEROSENE, GASOLINE, PAINT PRODUCTS AND MOST OTHER ORGANIC MATERIALS.
- WASH HANDS AFTER HANDLING.
- DO NOT REUSE CONTAINER. RESIDUAL MATERIAL REMAINING IN EMPTY DRUM CAN REACT TO CAUSE FIRE. THOROUGHLY FLUSH EMPTY CONTAINER WITH WATER THEN DESTROY BY PLACING IN TRASH COLLECTION. DO NOT CONTAMINATE WATER, FOOD, OR FEED BY STORAGE OR DISPOSAL.

OTHER PRECAUTIONS:
- KEEP OUT OF REACH OF CHILDREN.
- STRONG OXIDIZER - FIRE MAY RESULT FROM CONTACT WITH HEAT, ACIDS, ORGANIC OR COMBUSTIBLE MATTER.
- MAY BE FATAL OR HARMFUL IF SWALLOWED.
- MAY CAUSE CHEMICAL BURNS.
- IRRITATING TO NOSE AND THROAT - AVOID BREATHING DUST.

COMMENTS:
TSCA - CALCIUM HYPOCHLORITE IS ON THE TSCA INVENTORY UNDER CAS #7778-54-3.

SARA TITLE III - A) 311/312 CATEGORIES - ACUTE AND REACTIVITY, B) NOT LISTED IN SECTION 313, C) NOT LISTED AS AN "EXTREMELY HAZARDOUS SUBSTANCE" IN SECTION 302.

CERCLA - LISTED IN TABLE 302.4 OF 40 CFR PART 302 AS A HAZARDOUS SUBSTANCE WITH A REPORTABLE QUANTITY OF 10 POUNDS. RELEASES TO AIR, LAND OR WATER WHICH EXCEED THE RQ MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER, 800-424-8802.

RCRA - WASTE CALCIUM HYPOCHLORITE AND CONTAMINATED SOILS/MATERIALS FROM SPILL CLEANUP ARE D001 HAZARDOUS WASTE AS PER 40 CFR 261.21(A)(4) AND MUST BE DISPOSED OF ACCORDINGLY UNDER RCRA.

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JCT: CALCIUM HYPOCHLORITE TABLETS

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FIFRA - CALCIUM HYPOCHLORITE IS REGISTERED WITH EPA AS A PESTICIDE.

NSF - PPG CALCIUM HYPOCHLORITE IS CERTIFIED FOR MAXIMUM USE AT 46 MG/L UNDER ANSI/NSF STANDARD 60.

REVISIONS MADE TO 7/28/92, 3RD EDITION: DATE, EDITION, ADDITION OF NSF STATEMENT.

---------- FOR ADDITIONAL INFORMATION ----------

CONTACT: MSDS COORDINATOR VW&R ODESSA
DURING BUSINESS HOURS, PACIFIC TIME (206)889-3400

08/10/93 14:43 PRODUCT: 232147 CUST NO: 213664 ORDER NO: 110925

---------- NOTICE ----------

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* * * E N D O F M S D S * * *

1735

MATERIAL SAFETY DATA SHEET

"Essentially Similar" to Form OSHA-20

UNICHEM INTERNATIONAL

Date Prepared JULY 28, 1987

Supersedes Previous Sheet Dated 1983

SECTION I. MATERIAL IDENTIFICATION

MATERIAL NAME: HYDROCHLORIC ACID

DESCRIPTION: This material is a water solution of hydrogen chloride gas.

OTHER DESIGNATIONS: Muriatic Acid, Concentrated Hydrochloric Acid, GE Material D4A3, CAS# 007 647 010, Aqueous Hydrochloric Acid

MANUFACTURER: Available from many suppliers.

SECTION II. INGREDIENTS AND HAZARDS	%	HAZARD DATA
Hydrogen Chloride (HCl)	<38	8-hr TWA 5 ppm or 7 mg/m^3 (C)*
Impurities (depends on acid grade)	Traces	
Water	Balance	
		Human, Inhalation LCLo 1300ppm/30 M
		Rabbit, Oral LD_{50} 900 mg/kg
		Rat, Oral (20°Be') LD_{50} 700 mg/kg
		Rabbit, Skin (20°Be') LD_{50} >5g/kg, 24 H-C

*Current OSHA PEL and ACGIH (1983) TLV Ceiling Level.

SECTION III. PHYSICAL DATA	18°Be'	20°Be'	22°Be'	23°Be'
Weight % HCl	27.9	31.5	35.2	37.1
Boiling pt, 1 atm, deg F	208	182	144	123
Freezing point, deg F (approx)	-43	-63	-86	-101
Specific gravity, 60/60 F	1.142	1.162	1.179	1.189
Vap. Press., 25C, HCl/Total, mm Hg	∿7/15	∿25/33	∿87/92	∿186/190

All materials are completely water soluble with ∿100% volatiles and pH <1.

Appearance & Odor: Clear, colorless to lt. yellow, fuming* liquid with a pungent, irritating odor. 1-5 ppm HCl detected by smell; 5-10 ppm is disagreeable.

*Higher conc. tend to be fuming liquids at room temperature.

SECTION IV. FIRE AND EXPLOSION DATA			Lower	Upper
Flash Point and Method	Autoignition Temp.	Flammability Limits in Air		
N/A	N/A	N/A	-	-

Extinguishing media: Select that suitable for surrounding fire. Use a water spray to cool fire exposed containers to prevent rupture.

Nonflammable, but acid can react with many metals, such as iron, to produce flammable hydrogen gas. (Flammable conc. may accumulate inside metal equipment.) Neutralize acid with limestone, slaked lime or soda ash to minimize formation of potentially explosive hydrogen gas.

Firefighters should use full protective clothing and self-contained breathing apparatus when this material is involved in a fire situation.

SECTION V. REACTIVITY DATA

This material is stable when properly contained and handled. It is a strong mineral acid and is, thus, highly reactive with materials such as metals, metal oxides, hydroxides, amines, carbonates and other alkaline materials. It is highly corrosive to many materials; it must have proper containment for handling and storage.

It liberates significant levels of HCl gas by vapor pressure at room temperature when concentrated and large amounts of HCl when heated.

Reaction with most metals will produce flammable hydrogen gas.

Incompatible with materials such as cyanides, sulfides, sulfites and formaldehyde (may release HCN, H_2S, SO_2, bischloromethyl ether, respectively).

SECTION VI. HEALTH HAZARD INFORMATION

TLV 5 ppm Ceiling Level (as HCl)

Aqueous HCl and its vapors are strong irritants of the eyes, mucous membranes, and skin. Severity of eye injury from splashes [from irritation to severe burns] depends on quantity, conc. and duration of contact. Excessive acute exposure to HCl vapors/mists promptly irritates the upper respiratory tract and can result in coughing, burning of the throat, choking sensation and, if inhaled deeply, pulmonary edema. Prolonged or repeated low level exposure may cause teeth erosion. Skin exposure can cause burns; repeated or prolonged exposure to dilute soln. may cause dermatitis. Ingestion can cause severe burns and possible laryngeal spasm. FIRST AID:

Eye Contact: Contact physician! Immediately flush with running water for 15 min. including under eyelids.

Skin Contact: Flush affected area well with water. Remove grossly contaminated clothing under safety shower. Get medical help if large skin area contacted or if irritation persists.

Inhalation: Remove to fresh air. Restore and/or support breathing as needed. Use O_2 therapy for coughing, difficult breathing. Get medical help. Keep warm and at rest.

Ingestion: If victim is conscious, give 2-3 glasses of water, then milk of magnesia or limewater. Contact physician! Do not induce vomiting!

SECTION VII. SPILL, LEAK, AND DISPOSAL PROCEDURES

Report large spills to safety personnel. Evacuation may be needed; keep upwind. Remove sources of ignition if H_2 is a hazard. Provide optimum ventilation. Those involved in clean-up of large spills must use full protective clothing, boots, and self-contained breathing apparatus.

Small spills and residues can be covered with excess of a mixture of soda ash and slaked lime to neutralize, and the slurry picked up for landfill burial or flushed with much water.

Contain large spills. Collect or flush with water to holding area for neutralization. Do not flush directly to sewer or surface waters.

DISPOSAL: Dispose of acid via licensed contractor or neutralize with limestone, soda ash or slaked lime. Flushing to sewer depends on allowable neutral salt concentrations in effluent water. Follow Federal, State and Local regulations. Consider use of waste acid to neutralize alkaline wastes. EPA (CWA) RQ is 5000 lb. (40 CFR 117)

SECTION VIII. SPECIAL PROTECTION INFORMATION

Provide adequate exhaust ventilation to meet TLV requirements. Face velocity of hoods should exceed 100 lfm. Use approved respirator or self-contained breathing apparatus for emergency or non-routine conditions with full facepiece above 50 ppm.

Those handling hydrochloric acid should use protective clothing and equipment to prevent body contact with the liquid. Use rubber gloves or gauntlets, apron, boots, long sleeved shirt, body suit, etc. Use chemical safety goggles and/or face shield for eye protection against splashing of acid.

An eyewash station, washing facilities, and safety shower must be readily available to areas of use and handling.

SECTION IX. SPECIAL PRECAUTIONS AND COMMENTS

Store closed containers out of direct sunlight, in a clean, cool, open or well-ventilated area, away from oxidizing agents, away from alkaline material and sources of heat. Area should have acid resistant floor and approved drainage. Protect containers from physical damage. Use nonsparking tools in areas around tanks and pipes where hydrogen might be generated.

Use with good ventilation. Avoid inhalation of HCl vapors. Odor of HCl gives adequate warning for a prompt voluntary withdrawal from excessive exposure. Do not get in eyes or on skin or clothing. Wash thoroughly after handling.

Provide emergency neutralization materials and equipment near storage and use areas.

DOT Classification: CORROSIVE MATERIAL I.D. No. UN1789 Label: CORROSIVE
IMO Class 8

DATA SOURCE(S) CODE: 1-12,14-16,27,31,34,37,38,47-49

— 1729 HTH CHLORINE TABLETS —

REPORT NUMBER: 703 VAN WATERS & ROGERS INC.
MSDS NO: PG0122 MATERIAL SAFETY DATA SHEET
EFFECTIVE DATE: 06/21/93 VERSION: 002

PRODUCT: CALCIUM HYPOCHLORITE TABLETS

ORDER NO: 110925
PROD NO : 232147

UNICHEM INTERNATIONAL
707 NORTH LEECH
P.O.BOX 1499

HOBBS ,NM 88240

VAN WATERS & ROGERS INC. , SUBSIDIARY OF UNIVAR (206)889-3400
5100 CARILLON POINT , KIRKLAND , WA 98033

---------- EMERGENCY ASSISTANCE ----------

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800)424-9300

---------- FOR PRODUCT AND SALES INFORMATION ----------

CONTACT YOUR LOCAL VAN WATERS & ROGERS BRANCH OFFICE AT
VW&R ODESSA 915-366-3243 ODESSA , TX

PRODUCT NAME:
CALCIUM HYPOCHLORITE TABLETS

MSDS #: PG0122

- - CALCIUM HYPOCHLORITE TABLETS

DATE: 06/16/93
EDITION: 004
TRADE NAME: CALCIUM HYPOCHLORITE TABLETS
CHEM NAME/SYN: CAL HYPO, PITTABS, REPAK

CHEMICAL FAMILY: HYPOCHLORITE
FORMULA: CA(OCL)2
CAS NUMBER: 007778-54-3
D.O.T. SHIPPING NAME: CALCIUM HYPOCHLORITE, HYDRATED
D.O.T. HAZARD CLASS: 5.1 (OXIDIZER)
SUBSIDIARY RISK: N/A
U.N. NUMBER: UN2880
PACKING GROUP: II
REPORTABLE QUANTITY: 10 LBS/4.5 KG
D.O.T. DESCRIPTION: CALCIUM HYPOCHLORITE, HYDRATED, CLASS 5.1, UN2880, PACKING GROUP II, RQ, IMDG CODE PAGE 5138.

EPORT NUMBER: 703 VAN WATERS & ROGERS INC. PAGE: 002
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JCT: CALCIUM HYPOCHLORITE TABLETS

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PROD NO : 232147

SECTION 1 - PHYSICAL DATA

OILING POINT @ 760 MM HG: DECOMPOSES @ 180 C
APOR DENSITY (AIR=1): N/A
PECIFIC GRAVITY (H2O=1): N/A
H OF SOLUTIONS: ALKALINE
REEZING/MELTING POINT: N/A
OLUBILITY (WEIGHT % IN WATER): 217 G/L @ 27 C

ULK DENSITY: N/A
OLUME % VOLATILE: N/A
APOR PRESSURE: N/A
VAPORATION RATE: N/A
EAT OF SOLUTION: SLIGHTLY EXOTHERMIC
PPEARANCE AND ODOR:
WHITE TABLETS WITH SLIGHT CHLORINE ODOR

SECTION 2 - INGREDIENTS

ATERIAL	PERCENT
CALCIUM HYPOCHLORITE (65% AVAILABLE CHLORINE)	65
INERT (INCLUDES 5.5 - 10% MOISTURE)	35

SECTION 3 - FIRE/EXPLOSION HAZARD DATA

LASH POINT (METHOD USED):
NONE

LAMMABLE LIMITS IN AIR (% BY VOLUME)
LEL: N/A
UEL: N/A

XTINGUISHING MEDIA:
WATER ONLY! SMOTHERING INEFFECTIVE-PRODUCT SUPPLIES OWN OXYGEN

PECIAL FIRE FIGHTING PROCEDURES:
FIRE FIGHTERS MUST WEAR NIOSH/MSHA APPROVED, PRESSURE DEMAND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACE PIECE FOR POSSIBLE EXPOSURE TO HAZARDOUS GASES.

UAL FIRE AND EXPLOSION HAZARDS:
DECOMPOSES AT 180 C RELEASING OXYGEN GAS; CONTAINERS MAY RUPTURE.

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PROD NO : 232147

SECTION 4 - HEALTH HAZARD DATA

TOXICITY DATA:

LC50 INHALATION:	(RAT) NO MORTALITY @ 3.5 MG/L (1 HR)
LD50 DERMAL:	(RABBIT) >1000 MG/KG
SKIN/EYE IRRITATION:	SEE SECTION 5
LD50 INGESTION:	SEE SECTION 5
FISH,LC50 (LETHAL CONCENTRATION):	TLM 96 HR.: 10-1 PPM

CLASSIFICATION:

INHALATION:	IRRITATING
SKIN:	SLIGHTLY TOXIC
SKIN/EYE:	CORROSIVE
INGESTION:	SLIGHTLY TOXIC
AQUATIC:	HIGHLY TOXIC

SECTION 5 - EFFECTS OF OVEREXPOSURE

IS CHEMICAL LISTED AS A CARCINOGEN OR POTENTIAL CARCINOGEN?
NTP - NO IARC - NO OSHA - NO

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
NONE KNOWN

PERMISSIBLE EXPOSURE LIMITS:
NONE ESTABLISHED BY OSHA OR ACGIH FOR THIS PRODUCT.

PPG INTERNAL PERMISSIBLE EXPOSURE LIMIT (IPEL): 1 MG/CU.M., 8-HOUR TWA (TIME WEIGHTED AVERAGE); 2 MG/CU.M. STEL (SHORT-TERM EXPOSURE LIMIT).

ACUTE:

INHALATION: INHALATION OF CALCIUM HYPOCHLORITE DUST AND DEPOSITION OF PARTICLES IN THE RESPIRATORY TRACT CAN LEAD TO IRRITATION OF THE TISSUE AND CAUSE A VARIETY OF EFFECTS. THESE EFFECTS ARE DEPENDENT ON CONCENTRATION AND INCLUDE: UPPER RESPIRATORY TRACT IRRITATION, NASAL CONGESTION, COUGHING, SORE THROAT, LARYNGITIS AND SHORTNESS OF BREATH. IN OPERATIONS WHERE THERE ARE HIGH CONCENTRATIONS OF RESPIRABLE PARTICULATES, PULMONARY EDEMA (FLUID IN THE LUNG) MAY BE PRODUCED. IF NOT TREATED IMMEDIATELY, PULMONARY EDEMA CAN BE LIFE THREATENING. SINCE THIS PRODUCT IS IN TABLET FORM, PARTICLES OF RESPIRABLE SIZE ARE NOT GENERALLY ENCOUNTERED.

EYE/SKIN: CALCIUM HYPOCHLORITE IS CORROSIVE TO THE EYES. CONTACT OF CALCIUM HYPOCHLORITE DUST WITH THE EYES, EVEN A MINUTE AMOUNT FOR A SHORT DURATION, CAN CAUSE SEVERE IRRITATION AND EVEN BLINDNESS. CONTACT WITH THE SKIN MAY CAUSE SEVERE IRRITATION, BURNS, OR TISSUE DESTRUCTION.

IN STUDIES UTILIZING RABBITS, THE SKIN IRRITATION SCORE WAS 8/8 AND THE EYE IRRITATION SCORE WAS 98.5/110. THE CLASSIFICATION FOR BOTH OF THESE IS CORROSIVE.

INGESTION: CALCIUM HYPOCHLORITE, IF SWALLOWED, CAUSES SEVERE BURNS TO THE DIGESTIVE TRACT AND CAN BE FATAL.

CHRONIC:
GENOTOXICITY: CALCIUM HYPOCHLORITE PRODUCED POSITIVE RESPONSES IN IN-VITRO ASSAYS USING BACTERIAL SYSTEMS (THE AMES TEST) AND CHROMOSOMAL ABERRATIONS IN CHINESE HAMSTER FIBROBLASTS. IN A WHOLE ANIMAL EXPERIMENT (MOUSE MICRONUCLEUS TEST), EXPOSURES RANGING FROM 20 TO 160 MG/KG PRODUCED NO COMPOUND RELATED CHROMOSOMAL ABNORMALITIES.

CARCINOGENISIS: ALTHOUGH NO STUDY HAS BEEN CONDUCTED WITH CALCIUM HYPOCHLORITE, THE CARCINOGENIC POTENTIAL OF SODIUM HYPOCHLORITE WAS STUDIED IN F344 RATS. AFTER 104 WEEKS OF DRINKING WATER CONTAINING UP TO 2000 PPM SODIUM HYPOCHLORITE, THERE WAS NO EVIDENCE THAT THIS CHEMICAL PRODUCED ANY CARCINOGENIC RESPONSE. IN ADDITION, THIS EXPOSURE DID NOT RESULT IN ANY ADVERSE EFFECTS IN BLOOD, CLINICAL CHEMISTRY, OR OTHER TARGET ORGANS.

ONE OF THE MAJOR USES OF CALCIUM HYPOCHLORITE IS AS A SOURCE OF CHLORINE FOR WATER SANITIZATION IN DRINKING AND RECREATIONAL WATER. STUDIES HAVE BEEN CONDUCTED TO DETERMINE THE LONG-TERM EFFECTS OF CHLORINATED DRINKING WATER. SEVEN GENERATIONS OF RATS WERE GIVEN 100 PPM CHLORINE IN THEIR DRINKING WATER. NO DIFFERENCE IN FERTILITY, GROWTH, BLOOD PARAMETERS, OR SPECIFIC ORGAN TOXICITY WAS OBSERVED BETWEEN CONTROL AND EXPOSED ANIMALS. TWO SEPARATE ANIMAL STUDIES CONDUCTED BY DIFFERENT GOVERNMENT AGENCIES DETERMINED THAT THE CHLORINATION OF MUNICIPAL DRINKING WATER DID NOT RESULT IN TOXICITY TO THE DEVELOPING MOUSE FETUS.

SAFE HANDLING OF THIS MATERIAL ON A LONG-TERM BASIS SHOULD EMPHASIZE MINIMIZING REPEATED ACUTE EXPOSURES.

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PREFERABLY MOUTH-TO-MOUTH. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN.

EYE OR SKIN CONTACT:
FLUSH WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. FOR EYE CONTACT, GET IMMEDIATE MEDICAL ATTENTION. IF SKIN IRRITATION OCCURS, GET MEDICAL ATTENTION.

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IF CONSCIOUS, DRINK LARGE QUANTITIES OF WATER AND ANY COMMON COOKING (VEGETABLE) OIL, IF AVAILABLE. DO NOT INDUCE VOMITING. TAKE IMMEDIATELY TO A HOSPITAL OR PHYSICIAN. IF UNCONSCIOUS, OR IN CONVULSIONS, TAKE IMMEDIATELY TO A HOSPITAL. DO NOT ATTEMPT TO INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

NOTES TO PHYSICIAN (INCLUDING ANTIDOTES):
TREAT SYMPTOMATICALLY.

SECTION 6 - REACTIVITY DATA

STABILITY:
UNSTABLE
CONDITIONS TO AVOID:
CONTAMINATION OR EXCESSIVE HEAT ABOVE 177 C

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR
CONDITIONS TO AVOID: NONE-WILL NOT POLYMERIZE

INCOMPATIBILITY (MATERIALS TO AVOID):
ACIDS, COMBUSTIBLE MATERIALS, ORGANICS, REDUCING AGENTS

HAZARDOUS DECOMPOSITION PRODUCTS:
ACIDS OR AMMONIA CONTAMINATION WILL RELEASE TOXIC GASES. EXCESSIVE HEAT WILL CAUSE DECOMPOSITION RESULTING IN THE RELEASE OF OXYGEN AND CHLORINE GAS.

SECTION 7 - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS SPILLED OR RELEASED:
NOTE: USE EXTREME CAUTION IN HANDLING SPILLED MATERIAL. CONTAMINATION WITH ORGANIC OR COMBUSTIBLE MATERIAL MAY CAUSE FIRE OR VIOLENT DECOMPOSITION. IF FIRE OR DECOMPOSITION OCCURS IN AREA OF SPILL, IMMEDIATELY DOUSE WITH PLENTY OF WATER. OTHERWISE, SWEEP UP ALL VISIBLE MATERIAL USING A CLEAN, DRY SHOVEL AND BROOM AND DISSOLVE MATERIAL IN WATER. DISPOSE OF WASTE MATERIAL AS

MATERIAL SAFETY DATA SHEET

Product Name: UNICHEM 1304

Section: 01 PRODUCT IDENTIFICATION

UNICHEM
A DIVISION OF BJ SERVICES CO.
707 N. LEECH
HOBBS, NM 88241-1499

Emergency Telephone 505-393-7751
Previous Version Date 9/21/93
Date Prepared 10/01/96
Version: 0000003

Product Name: UNICHEM 1304

Chemical Description:
Proprietary cooling water treatment blend

Section: 02 HAZARDOUS INGREDIENTS

Component Name	CAS#	% Range
potassium hydroxide	01310-58-3	< 15%

Section: 03 PHYSICAL DATA

Freezing Point: 5 Deg.F.
Boiling Point, 760 mm Hg: 212 Deg.F
Specific Gravity(H2O=1) : 1.340 Solubility in water: Soluble
Appearance and Odor: Clear, amber liquid; sweet odor.

Section: 04 FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method): None

Extinguishing Media

This material is non-combustible. If this material is involved in a fire, use an extinguishing agent appropriate to surrounding materials. Water spray may be used to cool containers of this material exposed to a fire. Fire extinguishing materials should be collected for determination of proper disposal.

Special Fire Fighting Procedures

Fire fighters should wear self-contained breathing apparatus with a full facepiece operated in the pressure-demand or positive-pressure mode.

Unusual Fire and Explosion Hazards

May release toxic or corrosive material if container is destroyed in a fire.

Section: 05 HEALTH HAZARD DATA

Effects of Overexposure

Eye Contact: vapors, liquid and mists are corrosive to the

Product Name: UNICHEM 1304

Section: 05 HEALTH HAZARD DATA CONTINUED

eyes. Brief contact of the vapors will be cause irritation while brief contact of the liquid or mists will cause damage the eyes. Prolonged contact may cause permanent eye injury which may be followed by blindness.

Skin Contact: vapors, mists and liquid are corrosive to the skin. Vapors will irritate the skin and liquid will burn the skin. Prolonged liquid contact will burn or destroy surrounding tissue and death may accompany burns which extend over large portions of the body. Some skin absorption may occur.

Inhalation: vapors and mists are corrosive to the nose, throat, and mucous membranes. Bronchitis, pulmonary edema and chemical pneumonitis may occur. Irritation, coughing, chest pain, difficulty in breathing, headache and nausea may occur with brief exposure while prolonged exposure may result in more severe irritation and tissue damage. Breathing high concentrations may result in death.

Ingestion: vapors, mists and liquid are corrosive to the mouth and throat. Swallowing the liquid burns the tissues, causes severe abdominal pain, nausea, vomiting and collapse. Swallowing large quantities can cause death.

Chronic Effects of Exposure: may result in area of destruction of skin tissue or primary irritant dermatitis. Similarly, inhalation of vapors or mists may cause varying degrees of damage to the affected tissues and also increasing susceptibility to respiratory illness.

Emergency and First Aid Procedures

SKIN

Wash with soap and water. Remove contaminated clothing and launder contaminated clothing before reuse. Get medical attention if redness or irritation develops.

EYES

Flush eyes immediately with large amounts of water for at least 15 minutes. Lift lower and upper lids occasionally. Get medical attention.

INHALATION

Remove victim to fresh air. Give artificial respiration if not breathing. If breathing is difficult, administer oxygen. Keep person warm, quiet and get medical attention.

INGESTION

Call a physician immediately. Give victim a glass of water. Do NOT induce vomiting unless instructed by a physician or poison control center. Never give anything by mouth to an unconscious person.

Product Name: UNICHEM 1304

Section: 06 REACTIVITY DATA

Stable (Y=Yes/N=No): Y

Stability -- Conditions to Avoid

None known.

Incompatibility (Materials to Avoid)

Strong oxidizing agents and strong acids.

Hazardous Decomposition Products

Smoke, carbon dioxide, carbon monoxide, oxides of nitrogen.

Hazardous Polymerization May Occur(Y=Yes/N=No): N

Hazardous Polymerization -- Conditions to Avoid

None

Section: 07 SPILL OR LEAK PROCEDURES

Steps to be Taken if Material is Released or Spilled

Persons not wearing suitable personal protective equipment should be excluded from area of spill until clean-up has been completed. Shut off source of spill if possible to do so without hazard. Prevent material from entering sewers or watercourses. Provide adequate ventilation. Contain spilled material with sand or earth. Recovered undamaged or minimally contaminated material for reuse or reclamation. Place all collected material and spill absorbents into DOT approved containers.
Advise authorities. If this product is an EPA hazardous substance (see Section 10), notify the U.S.EPA or the National Response Center. Additional notification pursuant to SARA Section 302/304 (40 CFR 355) may also be required.

Waste Disposal Method

Treatment, storage, transportation and disposal must be in accordance with EPA or State regulations under authority of the Resource Conservation and Recovery Act (40 CFR 260-271).

Section: 08 SPECIAL PROTECTIVE INFORMATION

Respiratory Protection

If a respirator is determined to be necessary, respirators approved by NIOSH and MSHA and selected for the hazard by qualified persons shall be used. Conditions unique to the workplace may allow air purifying devices selected for the contaminate(s) of concern, or require supplied air or self-contained breathing apparatus. Engineering or administrative controls should be implemented to reduce exposures.

Ventilation

Product Name: UNICHEM 1304

Section: 08 SPECIAL PROTECTIVE INFORMATION CONTINUED

The use of mechanical dilution ventilation is recommended whenever this product is used in confined spaces, is heated above ambient temperatures or is agitated. When applicable, sufficient local ventilation should be provided to maintain employee exposures below safe working limits (TWA's).

Protective Gloves

Neoprene, nitrile, polyvinyl alcohol (PVA), polyvinyl chloride (PVC)

Eye Protection

Chemical splash goggles or face shield in compliance with OSHA regulations is advised; however OSHA regulations also permits safety glasses under certain conditions. The use of contact lenses is not recommended.

Other Protective Equipment

Eye wash and safety shower

Section: 09 SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing

Avoid contact with eyes, skin or clothing. Avoid breathing vapors or mist.

Other Precautions

Containers of this material may be hazardous when emptied. Since emptied containers retain residues (vapor, liquid, or solid), all hazard precautions given in this data sheet must be observed. Do not transfer to improperly marked container. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Containers should not be washed out or used for other purposes.
FOR INDUSTRIAL USE ONLY

Section: 10 REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act Of 1986(SARA) Title III

Section 302/304-Extremely Hazardous Substances (40 CFR 355)

SARA requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). These values are subject to change and the regulations should be consulted to verify current statutory requirements.

Components present in this product at a level which could require reporting under the statute are:

Component Name	RQ	TPQ	% Range
NONE			

Product Name: UNICHEM 1304

Section: 10 REGULATORY INFORMATION CONTINUED

Section 311/312 Chemical Inventory Reporting Requirements (40 CFR 370)

The Superfund Amendments and Reauthorization Act (SARA) may require submission of reports (chemical list, MSDS, Tier I & Tier II) to the State Emergency Response Commission, Local Emergency Response Committee and the local fire department. The SARA physical and health hazards related to this product are:

X Acute Health Hazard — _ Sudden Release of Pressure — _ Fire
X Chronic Health Hazard — _ Reactive

Section 313-List of Toxic Chemicals (40 CFR 372)

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 372). This information should be included in all MSDSs that are copied and distributed for this material.

Component Name	CAS #	% Range
NONE		

CERCLA, 40 CFR 261 AND 302

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center 1-800-424-8802 of any release of a Hazardous Substances equal to or greater than the reportable quantities (RQs) listed in 40CFR 302.4. Values are given in pounds for the component and not the mixture, if applicable. (These values are subject to change and the regulations should be consulted to verify current statutory levels.)

Component Name	CAS #	CERCLA RQ
potassium hydroxide	01310-58-3	1000

OSHA Exposure Limits

Component Name
potassium hydroxide

Ceiling MG/M3 2.0

National Fire Protection Agency

2 Health — 0 Fire
0 Reactive — ALK Other

Department of Transportation Shipping Information

Proper Shipping Name: Corrosive liquids, n.o.s.
Hazard Class: 8 Identification: UN1760
Packaging Group: PG II
Contains: potassium hydroxide
Hazardous Substance RQ: 6700# Emergency Response Guide Number: 154
Labels: Corrosive

Product Name: UNICHEM 1304

Section: 10 REGULATORY INFORMATION **CONTINUED**

Toxic Substances Control Act (TSCA), 40 CFR 261

This product, or components if product is a mixture, is/are listed on the Toxic Substance Control Act (TSCA) inventory.

- -

Section 10 information is to remain attached to the material safety data sheet for this product.

- -

While UNICHEM believes that the above data is correct, UNICHEM expressly disclaims liability for any loss or injury arising out of the use of this information or the use of any materials designated.

- -

END OF MSDS

MATERIAL SAFETY DATA SHEET
CHEMICAL ID: 239940 MSDS ID: 239940
PRODUCT NAME: Ansul AR-33-D Recharge
FACILITY: 581000 East Vacuum Liquids Recovery P

ANSUL FIRE PROTECTION
ANSUL(R) MARINETTE, WI 54143-2542

MATERIAL SAFETY DATA SHEET

ANSUL AR-33-D RECHARGE

QUICK IDENTIFIER (In Plant Common Name)

Manufacturer's Name: ANSUL FIRE PROTECTION, WORMALD U.S., INC.	Emergency Telephone No.: (715) 735-7411
Address: One Stanton Street Marinette, WI 54143-2542	Other Information Calls: Same
Prepared By: Safety and Health Department	Date Prepared: June 1, 1986

SECTION 1 -- IDENTITY

Common Name: (used on label) (Trade Name and Synonyms) Ansul AR-33-Recharge	CAS No.: N/A
Chemical Name: N/A This is a mixture	Chemical Family: Mixture
Formula: N/A	

SECTION 2 -- INGREDIENTS

PART A -- HAZARDOUS INGREDIENTS

Principal Hazardous Component(s) (chemical and common name(s)):	%	CAS No.	ACGIH TLV	Acute Toxicity Data
Diethylene Glycol Monobutyl Ether (Butyl Carbitol)	10.0	112-34-5	NDA	Oral LD50 (rat) 4120 mg/kg Dermal LD50 (rat) 6560 mg/kg

PART B -- OTHER INGREDIENTS

Other Component(s) (chemical and common name(s))	%	CAS No.	Acute Toxicity Data
Dowicide A	0.006	132-27-4	NDA
Proprietary mixture of hydrocarbon surfactants, fluorosurfactants, inorganic salts, high molecular weight polysaccaride not otherwise specified; and water.	89.9	N/A	NDA

SECTION 3 -- PHYSICAL AND CHEMICAL CHARACTERISTICS (Fire and Explosion Data)

Boiling Point:		Specific Gravity (H2O=1):	Vapor Pressure (mm Hg):
99 C		1.003	Not Determined
Percent Volatile by Volume (%):	**Vapor Density (Air=1):**	**Evaporation Rate (Butyl Acetate=1):**	
Approx. 95	Less than 1	0.37	
Solubility in Water:		**Reactivity in Water:**	
100%		Unreactive	

Appearance and Odor: Straw colored gelled liquid, mild sweet odor.

Flash Point:	Flammable Limits in Air % by Volume:	Extinguisher Media:	Auto-Ignition Temperature:
None to boiling	N/A	N/A	N/A

Special Fire Fighting Procedures: N/A THIS IS AN EXTINGUISHING AGENT

Unusual Fire and Explosion Hazards: None

SECTION 4 -- PHYSICAL HAZARDS

Stability:	Unstable ¢ | Stable ¢X|	Conditions to Avoid: N/A
Incompatibility (Materials to Avoid):	Reactive metals, electrically energized equipment, any materials reactive with water.	
Hazardous Decomposition Products:	None known.	
Hazardous Polymerization:	May Occur ¢ | Will Not Occur ¢X|	Conditions to Avoid: N/A

ORIGINAL DOCUMENT - END OF PAGE 1

SECTION 5 -- HEALTH HAZARDS

Threshold Limit Value:	None established by ACGIH or OSHA.	
Routes of Entry: Eye Contact:	May cause mild transient irritation.	
Skin Contact:	May cause mild transient irritation.	
Inhalation:	Inhalation is not anticipated to be a problem.	
Ingestion:	Irritating to mucous membranes. Large oral doses could produce narcosis.	
Signs and Symptoms	Acute Overexposure:	Irritation of the eyes, skin and mucous membranes.
Chronic Overexposure:	Delayed kidney injury, possible liver damage.	

Medical Conditions Generally Aggravated by Exposure:	Diseases of the kidney and liver.

Chemical Listed as Carcinogen or Potential:

National Toxicology Program:	Yes ¢ | No ¢X|	I.A.R.C. Monographs:	Yes ¢ | No ¢X|	OSHA:	Yes ¢ | No ¢X|

SECTION 6 -- EMERGENCY AND FIRST AID PROCEDURES

Eye Contact:	Flush with large amounts of water; if irritation persists, seek Medical attention.
Skin Contact:	Wash with soap and water; if irritation persists, seek Medical attention.
Inhalation:	Remove victim to fresh air. Seek Medical attention if discomfort continues.
Ingestion:	If patient is conscious, give large amounts of water and induce vomiting. Seek Medical help.

SECTION 7 - SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type):	Not normally necessary.

Ventilation:	Local Exhaust: N/A	Mechanical (General):	Recommended
Protective Gloves:	N/A	Eye Protection:	Chemical goggles recommended

Other Protective Clothing or Equipment:	Eye wash and safety showers are good safety practice.

SECTION 8 -- SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage:	Store in original container. Note incompatibility information in Section 4.
Other Precautions:	Do not mix agents. Avoid skin and eye contact. Avoid ingestion.

Steps to be Taken in Case Material is Released or Spilled:	Rinse floor thoroughly with water as material is slippery. Prevent material from reaching sewers or waterways to avoid nuisance foaming.

Waste Disposal Methods:	Dispose of in compliance with local, state, and federal regulations.

N/A = Not Applicable NDA = No Data Available

ORIGINAL DOCUMENT - END OF PAGE 2

**** END OF MATERIAL SAFETY DATA SHEET FOR: Ansul AR-33-D Recharge ****

MATERIAL SAFETY DATA SHEET

(Approved by U.S. Department of Labor as "essentially similar" to Form LSB-00S-4)

EXXON CHEMICAL AMERICAS - P.O. BOX 3272, HOUSTON, TEXAS 77001
A Division of EXXON CHEMICAL COMPANY, A Division of EXXON CORPORATION

SECTION I - IDENTIFICATION OF PRODUCT

MANUFACTURER'S NAME	EMERGENCY TELEPHONE NO.
EXXON CHEMICAL AMERICAS	713-870-6000

ADDRESS (Number, Street, City, State and ZIP Code)

P.O. BOX 3272, HOUSTON, TEXAS 77001

TRADE NAME	CHEMICAL NAME
COREXIT 7669 Antifoam	Not applicable; blend of materials
CHEMICAL FAMILY	CHEMICAL FORMULA
Glycol Surfactant	Not applicable; blend of materials

SECTION II - HAZARDOUS COMPONENTS OF MIXTURES

The precise composition of this product is proprietary information. A more detailed disclosure will be provided by Exxon Medical or Industrial Hygiene personnel to qualified Medical or Industrial Hygiene personnel as privileged information upon request in case of need for specific treatment.

Oxyalkylated glycol.

SECTION III - TYPICAL PHYSICAL DATA

APPEARANCE AND ODOR	SPECIFIC GRAVITY
Clear yellow to dark brown liquid; bland	1.006 @ 60 /60 F (15.5/15.5 C)
BOILING POINT (F)	PERCENT VOLATILE (BY VOLUME)
Decomposes	*-Negligible
VAPOR PRESSURE	EVAPORATION RATE (n-BUTYL ACETATE = 1)
<5 mm Hg @ 100 F/38 C	>0.5

VAPOR DENSITY (AIR 1)

1

SOLUBILITY IN WATER

Insoluble

*-Components with B.P. Equal to or less than 212 F./100 C

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method)	FLAMMABLE LIMITS (PERCENT BY VOLUME)	Lel	Uel
>210 F/99 C (SETACC - ASTM D3278)		None	None

FIRE EXTINGUISHING MEDIA

Extinguish preferentially with dry chemical, foam, waterspray or water fog.

SPECIAL FIRE FIGHTING PROCEDURES

Use waterspray to cool fire-exposed surfaces and to protect personnel.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Respiratory protection required for fire-fighting personnel.

HAZARDOUS PRODUCTS OF COMBUSTION

SMOKE, FUMES, CARBON DIOXIDE, CARBON MONOXIDE

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of our knowledge and belief, accurate and reliable as of the date complied. However, no representation, warranty or guarantee is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer any warranty against patent infringement.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

COREXIT 7669 Antifoam Vapor Concentration is negligible at workroom temperature.

EFFECTS OF OVEREXPOSURE

ACUTE May cause skin and eye irritation. Vapors irritant to respiratory passages.

CHRONIC Prolonged or repeated skin contact may cause irritation.

EMERGENCY AND FIRST AID PROCEDURES

Flush eyes with plenty of water until irritation subsides. Wash skin with soap and water. Remove to fresh air. If not breathing, apply artificial respiration and CALL A PHYSICIAN.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID Not Applicable
	STABLE	X	

INCOMPATIBILITY (MATERIALS TO AVOID FOR PURPOSES OF TRANSPORT, HANDLING & STORAGE ONLY)

Strong Oxidizing Agents. May dissolve some plastics or rubber.

HAZARDOUS DECOMPOSITION PRODUCTS

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Keep public away. Shut off source, if possible to do so safely. Advise authorities if substance has entered a watercourse, or sewer, or has contaminated soil or vegetation.

WASTE DISPOSAL (INSURE CONFORMITY WITH LOCAL DISPOSAL REGULATIONS)

Contain spilled liquid with sand or earth. Recover by pumping or with suitable absorbent. Consult an expert on disposal of recovered material.

SECTION VIII - PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

Use approved respiratory protection such as air-supplied mask if used in enclosed spaces.

VENTILATION	LOCAL EXHAUST Usually not needed in open unconfined areas.	SPECIAL
	MECHANICAL (General) Explosion-proof ventilation equipment.	OTHER

PROTECTIVE GLOVES	EYE PROTECTION
Chemically-resistant gloves.	Chemical splash goggles.

OTHER PROTECTIVE EQUIPMENT

SECTION IX - HANDLING AND STORAGE PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Keep container closed when not in use. Keep away from heat, sparks, and open flames. Do not store near flame, heat, or strong oxidants.

OTHER PRECAUTIONS

None

DATE OF ISSUE SEP 23 1976 APPROVED BY: _____

¢X| NEW ¢ | REVISED: SUPERSEDES TITLE: Director of Industrial Hygiene

**** END OF MATERIAL SAFETY DATA SHEET FOR: Corexit 7669 Antifoam ****

MATERIAL SAFETY DATA SHEET
CHEMICAL ID: 025150 MSDS ID: 025130
PRODUCT NAME: Crude Oils, Sweet
FACILITY: 581000 East Vacuum Liquids Recovery P

CRUDE OILS-DESALTED, SWEET, SOUR

Material Safety Data Sheet

March 31, 1990

PHILLIPS 66 COMPANY
A Division of Phillips Petroleum Company
Bartlesville, Oklahoma 74004

PHONE NUMBERS
Emergency: (918) 661-8118
General MSDS Information: (918) 661-8327
For Additional MSDSs: (918) 661-5952

A. PRODUCT IDENTIFICATION

Synonyms: Separator Crude, Field Crude
Chemical Name: Mixture
Chemical Family: Hydrocarbons
Chemical Formula: Mixture
CAS Reg. No.: Mixture
Product No.: Not Established

Product and/or Components Entered on EPA's TSCA Inventory: YES

This product has been commercially introduced into U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals in Commerce; hence, it is subject to all applicable provisions and restrictions under TSCA 40 CFR, section 721 and 723.250.

B. HAZARDOUS COMPONENTS

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV
n-Butane and lighter	NA	0-7.7	800 ppm*	800 ppm*
Gasoline, including	8006-61-9	10.8-80	300 ppm	300 ppm
Toluene	108-88-3	< 10	100 ppm	100 ppm
Ethyl Benzene	100-41-4	< 2	100 ppm	100 ppm
p-Xylene	106-42-3	< 3	100 ppm	100 ppm
m-Xylene	108-38-3	< 6	100 ppm	100 ppm
o-Xylene	95-47-6	< 3	100 ppm	100 ppm
1,2,4-Trimethyl Benzene	95-63-6	< 3	25 ppm	25 ppm
Kerosene	8008-20-6	3.9-23.4	NE	NE
Gas Oil	Various	5.8-35.6	NE	NE
Topped Crude	Various	5.6-61.8	NE	NE
Benzene	71-43-2	0-1.0	1 ppm**	10 ppm
PNA (Polynuclear Aromatics)	Various	0.3-4.1	0.2 mg/m3***	0.2 mg/m3***
Hydrogen Sulfide	7783-06-4	0-0.0014	10 ppm	10 ppm

Continued on page 2.

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* For n-Butane
** Operations exempted by the Benzene Standard, 24 CFR 1910.1028, will have a 10 ppm 8 hour TWA.
*** As coal tar pitch volatiles

C. PERSONAL PROTECTION INFORMATION

Ventilation:	Use adequate ventilation to control below recommended exposure levels. Monitoring of hydrogen sulfide air concentrations should be maintained.
Respiratory Protection:	For concentrations exceeding the recommended exposure level, use NIOSH/MSHA approved air purifying respirator. In case of spill or leak resulting in unknown concentration, use NIOSH/MSHA approved supplied air respirator. If conditions immediately dangerous to life or health (IDLH) exist, use NIOSH/MSHA approved self-contained breathing apparatus (SCBA).
Eye Protection:	Use safety glasses with side shields.
Skin Protection:	Wear polyvinyl alcohol or Buna-N gloves. Use full-body, long sleeved garments to prevent excessive skin contact.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. HANDLING AND STORAGE PRECAUTIONS

Do not get in eyes, on skin, or on clothing. Do not breathe vapors. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Wash thoroughly after handling. Immediately remove and launder contaminated clothing before reuse.

Store in well-ventilated area away from sources of ignition. Bond and ground during liquid transfer. Provide means of controlling leaks and spills. Keep containers closed.

E. REACTIVITY DATA

Stability: Stable

Conditions to Avoid:	Not Applicable
Incompatibility (Materials to Avoid):	Oxygen and strong oxidizing agents
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid:	Not Applicable
Hazardous Decomposition Products:	Carbon and sulfur oxides and hydrogen sulfide formed when burned

F. HEALTH HAZARD DATA

RECOMMENDED EXPOSURE LIMITS:

See Section B.

ACUTE EFFECTS OF OVEREXPOSURE:

Eye: May cause irritation of the eyes.

Skin: Prolonged contact may result in dermal irritation.

Inhalation: May cause irritation to the nose, throat and upper respiratory tract. Headache, nausea, weakness, sedation, unconsciousness and chemical pneumonitis are possible with high vapor concentrations.

Ingestion: May cause gastrointestinal upset, nausea, vomiting and narcosis. May be aspirated into the lungs if swallowed resulting in pulmonary edema and chemical pneumonitis.

SUBCHRONIC AND CHRONIC EFFECTS OF OVEREXPOSURE:

Skin painting studies in mice have indicated a moderate carcinogenic potential for crude oil.

Benzene has been designated as a carcinogen by NTP, IARC, and OSHA. Benzene may produce blood changes which include reduced platelets, reduced red blood cells, reduced white blood cells, aplastic anemia, leukemia and erythroleukemia. Fetal death has been produced in laboratory animals. Chromosome changes were produced in humans and mutation changes occurred in cells of other organisms.

PNA's are designated carcinogens by IARC, NTP and OSHA. Kidney and lung tumors have been reported in animals and man with repeated PNA exposures. Stillbirths, mutagenesis and liver damage have been reported in laboratory animals exposed to PNA's.

OTHER HEALTH EFFECTS:

Sublethal concentrations of crude oil have been shown to be reversibly toxic to marine organisms.

Hydrogen sulfide may accumulate in concentrations sufficient to produce mucous membrane irritation, pulmonary edema, or even respiratory arrest.

HEALTH HAZARD CATEGORIES:

	Animal	Human		Animal	Human
Known Carcinogen	_X_	_X_	Toxic	___	___
Suspect Carcinogen	___	___	Corrosive	___	___
Mutagen	_X_	___	Irritant	___	___
Teratogen	_X_	___	Target Organ Toxin	_X_	_X_
Allergic Sensitizer	___	___			
Highly Toxic	___	___			

Specify - Lungs-Aspiration Hazard; Blood Toxin; Reproductive & Liver Toxin-Animal; Kidney & Lung Toxin

FIRST AID AND EMERGENCY PROCEDURES:

Eye: Flush eyes with running water for at least fifteen minutes. If irritation develops, seek medical attention.

Skin: Wash with soap and water. If irritation develops, seek medical attention.

Inhalation: Promptly remove from exposure. If breathing becomes shallow, give oxygen. If breathing ceases, administer artificial respiration followed by oxygen. If illness or adverse symptoms develop, seek medical attention.

Ingestion: Do not induce vomiting. Seek immediate medical assistance.

Note to Physician: Gastric lavage using a cuffed endotracheal tube may be performed at your discretion.

G. PHYSICAL DATA

Appearance: Tan to black liquid
Odor: Mild to Pungent
Boiling Point: IBP is 0F; EP is 1100F (-18 to 593C)
Vapor Pressure: Range 1 to 10 Reid Vapor Pressure
Vapor Density (Air = 1): 2.1 is typical

Solubility in Water: Slight
Specific Gravity (H2O = 1): 0.8 to 1; 0.86 is typical
Percent Volatile by Volume: <1 to 50; 15-25 is typical
Evaporation Rate (Butyl Acetate = 1): <1
Viscosity: Not Established

H. FIRE AND EXPLOSION DATA

Flash Point (Method Used): <100F to >300F (<38C to >149C)(Estimated)
Flammable Limits (% by Volume in Air): LEL - Not Established
UEL - Not Established

Fire Extinguishing Media: Dry chemical, foam or carbon dioxide (CO2)

Special Fire Fighting Procedures: Evacuate area of all unnecessary personnel. Wear appropriate safety equipment for fire conditions including NIOSH/MSHA approved self-contained breathing apparatus (SCBA). Water fog or spray may be used to cool exposed equipment and containers. Shut off source if possible.

Fire and Explosion Hazards: Carbon oxides, hydrogen sulfide, and sulfur oxides formed when burned. Highly flammable vapors which are heavier than air may accumulate in low areas and/or spread along ground away from handling site. Flash back along vapor trail is possible.

I. SPILL, LEAK AND DISPOSAL PROCEDURES

Precautions Required if Material is Released or Spilled:
Evacuate area of all unnecessary personnel. Contact the Environmental Coordinator to ensure applicable air, water, solid waste and spill reporting requirements are met. Wear protective equipment and/or garments specified in Section C, if exposure conditions warrant. Shut off source, if possible, and contain spill. Protect from ignition.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):
Incinerate or place in other RCRA permitted waste management facility.

J. DOT TRANSPORTATION

Not regulated by DOT if flash point is >= 200F
Shipping Name: Crude Oil, Petroleum if flash point <200F
Hazard Class: Flammable Liquid if flash point <100F; Combustible Liquid if flash point 100 to <200F
ID Number: UN 1267
Marking: Crude Oil, Petroleum and UN 1267 on small containers when flash point is <100F; 1267 on bulk containers when flash point is <200F; none required on small containers when flash point is 100 to <200F.
Label: Flammable liquid when flash point is <100F; None required when flash point is 100 or higher.
Placard: Flammable when flash point is <100F; Flammable or Combustible when flash point is 100 to <200F.
Hazardous Substance/RQ: Not Applicable
Shipping Description: Crude Oil, Petroleum, Flammable Liquid, UN 1267 (if flash point is <100F); Crude Oil, Petroleum, Combustible Liquid, UN 1267 (if flash point is 100F to <200F).
Packaging References: 49 CFR 173.119 and 173.118(a)

K. RCRA CLASSIFICATION - UNADULTERATED PRODUCT AS A WASTE

Ignitable (D001)

L. PROTECTION REQUIRED FOR WORK ON CONTAMINATED EQUIPMENT

Contact immediate supervisor for specific instructions before work is initiated. Wear protective equipment and/or garments described in Section C if exposure conditions warrant.

M. HAZARD CLASSIFICATION

_X_ This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

_X_ Combustible Liquid	___ Flammable Aerosol	___ Oxidizer
___ Compressed Gas	___ Explosive	___ Pyrophoric
___ Flammable Gas	_X_ Health Hazard (Section F)	___ Unstable
_X_ Flammable Liquid	___ Organic Peroxide	___ Water Reactive
___ Flammable Solid		

___ Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. ADDITIONAL COMMENTS

This product contains the following chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. (See Section B).

Benzene
Toluene
Ethylbenzene
p-Xylene
m-Xylene
o-Xylene
1,2,4-Trimethylbenzene

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Crude Oils-Desalted, Sweet, Sour (US025130)

**** END OF MATERIAL SAFETY DATA SHEET FOR: Crude Oils, Sweet ****

CO2 TO REINJECTION

Material Safety Data Sheet

November 15, 1991

PHILLIPS PETROLEUM COMPANY
Bartlesville, Oklahoma 74004

PHONE NUMBERS
Emergency: (918) 661-8118
General MSDS Information: (918) 661-8327
For Additional MSDSs: (918) 661-5952

A. PRODUCT IDENTIFICATION

Synonyms: Not Establish
Chemical Name: Mixture
Chemical Family: Mixture
Chemical Formula: Mixture
CAS Reg. No.: Mixture
Product No.: Not Established

Product and/or Components Entered on EPA's TSCA Inventory: YES

This product is in U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals; hence, it is subject to all applicable provisions and restrictions of 40 CFR, section 721 and 723.250.

B. COMPONENTS

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV
Methane	74-82-8	2-5	NE Simple Asphyxiant	
Ethane	74-84-0	5-9	NE Simple Asphyxiant	
Nitrogen	7727-37-9	1-4	NE	NE
Hydrogen Sulfide	7783-06-4	0-3	10 ppm	10 ppm
Carbon Dioxide	124-38-9	85-90	10000 ppm	5000 ppm

C. PERSONAL PROTECTION INFORMATION

Ventilation: Use adequate ventilation to control exposure below recommended levels.

Respiratory Protection: For concentrations exceeding the recommended level, use NIOSH/MSHA approved air purifying respirator. If conditions immediately dangerous to life or health exist, use NIOSH/MSHA self-contained breathing apparatus (SCBA).

Eye Protection: Use chemical goggles.

Skin Protection: No special garments required. Avoid unnecessary skin contamination with material.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. HANDLING AND STORAGE PRECAUTIONS

Do not get in eyes, on skin or on clothing. Do not breathe vapors. Wash thoroughly after handling. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Launder contaminated clothing before reuse.

Store in a cool, well-ventilated area. Protect from sources of ignition. Keep containers closed.

E. REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	Not Established
Incompatibility (Materials to Avoid):	Oxygen and strong oxidizing materials
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid:	Not Established
Hazardous Decomposition Products:	Carbon oxides and various hydrocarbons formed when burned. Sulfur oxides if hydrogen sulfide is present.

F. HEALTH HAZARD DATA

RECOMMENDED EXPOSURE LIMITS:

See Section B.

ACUTE EFFECTS OF OVEREXPOSURE:

Eye: May cause irritation.

Skin: May cause slight irritation.

Inhalation: May cause nausea, diarrhea, loss of appetite, dizziness, disorientation, headahce, excitation, rapid respiration, drowsiness, labored breathing, anesthesia and other central nervous system effects. Hydrogen sulfide may cause lung paralysis and asphyxiation. Extreme overexposure may cause rapid unconsciousness and respiratory arrest.

Ingestion: Not Applicable.

SUBCHRONIC AND CHRONIC EFFECTS OF OVEREXPOSURE:

Carbon dioxide exposure may cause acidosis and imbalance of electrolytes in the blood. Hydrogen sulfide may cause nerve damage.

OTHER HEALTH EFFECTS:

In high concentrations the odor of hydrogen sulfide may not be recognized due to paralysis of the sense of smell.

HEALTH HAZARD CATEGORIES:

	Animal	Human		Animal	Human
Known Carcinogen	___	___	Toxic	_X_	___
Suspect Carcinogen	___	___	Corrosive	___	___
Mutagen	___	___	Irritant	___	___
Teratogen	___	___	Target Organ Toxin	_X_	_X_
Allergic Sensitizer	___	___	Specify - Nerve Toxin; Blood Toxin		
Highly Toxic	___	___	Lung-Simple Asphyxiant		

FIRST AID AND EMERGENCY PROCEDURES:

Eye: Flush eyes with running water for at least fifteen minutes. If irritation develops, seek medical attention.

Skin: Flush skin with water for fifteen minutes. If illness or adverse symptoms develop, seek medical attention.

Inhalation: Immediately remove from exposure. If breathing is difficult, give oxygen and seek medical attention. If breathing ceases, administer artificial respiration followed by oxygen. Additional First Aid and Emergency Procedures for inhalation continued below.

Ingestion: Not Applicable.

Prompt medical attention is mandatory in all cases of overexposure

to hydrogen sulfide. Rescue personnel should be equipped with NIOSH/MSHA approved self-contained breathing apparatus (SCBA). Rescue Personnel should recognize the hazards of overexposure due to olfactory fatigue. The use of rescue equipment which might contain ignition sources or cause static discharges should be avoided.

Nitrite treatment as medical therapy has been used in persons overexposed to hydrogen sulfide, but the benefits of this treatment is still considered by some to be of questionable usefulness.

Therapy can only be undertaken by qualified emergency medical personnel.

Treatment should be initiated with inhalation of Amyl nitrite for fifteen to thirty seconds of each minute until 10 ml of a 3% solution of sodium nitrite can be injected intravenously at a rate of 2.5 to 5 ml per minute. Sodium nitrite injections may be repeated if necessary.

G. PHYSICAL DATA

Appearance:	Colorless Gas
Odor:	Mild, rotten egg odor if hydrogen sulfide is present.
Boiling Point:	-285F (-161C)(Estimate)
Vapor Pressure:	Not Applicable
Vapor Density (Air = 1):	0.8 (Estimate)
Solubility in Water:	Negligible
Specific Gravity (H2O = 1):	0.5 (Estimate)
Percent Volatile by Volume:	Not Applicable
Evaporation Rate (Butyl Acetate = 1):	Not Applicable
Viscosity:	Not Applicable

H. FIRE AND EXPLOSION DATA

Flash Point (Method Used):	-292F (-180C) (Estimate)
Flammable Limits (% by Volume in Air):	LEL - 5 UEL - 15.8
Fire Extinguishing Media:	Dry chemical, foam or carbon dioxide (CO2)
Special Fire Fighting Procedures:	Stop flow of gas. If possible, let fire burn until flow of gas can be shut off. Evacuate area of all unnecessary personnel. Wear appropriate safety equipment for fire conditions including NIOSH/MSHA self-contained breathing

apparatus (SCBA). Water fog or spray may be used to cool exposed equipment and containers.

Fire and Explosion Hazards: Very dangerous when exposed to heat or flame. Containers may explode violently in the heat of a fire. Vapors may travel to a source of ignition and flash back. If hydrogen sulfide is present, respiratory equipment specified above must be used. Heated containers may rupture violently and suddenly without warning due to vessel over-pressure (BLEVE). Fragmentation of the container should be anticipated. If flame is against the container, withdraw immediately on hearing a rising sound, if venting increases in volume or intensity, or if there is discoloration of the tank due to fire.

I. SPILL, LEAK AND DISPOSAL PROCEDURES

Precautions Required if Material is Released or Spilled:
Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments described in Section C as conditions warrant. Shut off source. Protect from sources of ignition. Vapors are explosive. Ventilate area.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):
Incinerate or otherwise manage at a RCRA permitted waste management facility.

J. DOT TRANSPORTATION

Shipping Name:	Compressed gases, flammable, n.o.s. (contains Carbon dioxide and Ethane)
Hazard Class:	2.1 (Flammable gas)
ID Number:	UN 1954
Packing Group:	Not Applicable
Marking:	Compressed gases, flammable, n.o.s. (contains Carbon dioxide and Ethane), UN 1954, RQ*

Label: Flammable gas
Placard: Flammable gas/1954
Hazardous Substance/RQ: Hydrogen sulfide/100#
Shipping Description: Compressed gases, flammable, n.o.s. (contains Carbon dioxide and Ethane), 2.1 (Flammable gas), UN 1954, RQ*
Packaging References: 49 CFR 173.302, 173.304, 173.306, 173.244

* Enter the letters "RQ" and the name of the hazardous substance as shown only if the hazardous substance is present in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) shown for the hazardous substance.

K. RCRA CLASSIFICATION - UNADULTERATED PRODUCT AS A WASTE

Ignitable (D001)

Prior to disposal, consult your Environmental contact to determine if TCLP (Toxicity Characteristic Leaching Procedure, EPA Test Method 1311) is required. Reference 40 CFR Part 261.

L. PROTECTION REQUIRED FOR WORK ON CONTAMINATED EQUIPMENT

Contact immediate supervisor for specific instructions before work is initiated. Wear protective equipment and/or clothing described in Section C if exposure conditions warrant.

M. HAZARD CLASSIFICATION

_X_ This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

___ Combustible Liquid	___ Flammable Aerosol	___ Oxidizer
___ Compressed Gas	___ Explosive	___ Pyrophoric
_X_ Flammable Gas	_X_ Health Hazard (Section F)	___ Unstable
___ Flammable Liquid	___ Organic Peroxide	___ Water Reactive
___ Flammable Solid		

___ Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. ADDITIONAL COMMENTS

SARA 313

As of the preparation date, this product did not contain a

chemical or chemicals 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.

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CO2 to Reinjection (US374760)

**** END OF MATERIAL SAFETY DATA SHEET FOR: CO2 to Reinjection ****

ECLIPSE(TM) "F" NATURAL GAS ENGINE OIL (ALL GRADES)

Material Safety Data Sheet

June 30, 1993

PHILLIPS 66 COMPANY
A Division of Phillips Petroleum Company
Bartlesville, Oklahoma 74004

PHONE NUMBERS
Emergency: (918) 661-8118
Technical Service: 1-800-766-0050
For Additional MSDSs: (918) 661-5974

A. PRODUCT IDENTIFICATION

Synonyms: SAE grade 20W-40, 30, 30/40, HDG Gas engine motor oil
Chemical Name: Mixture
Chemical Family: Hydrocarbon
Chemical Formula: Mixture
CAS Reg. No.: Mixture
Product No.: 45640, 45900

Product and/or Components Entered on EPA's TSCA Inventory: YES

This product is in U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals; hence, it may be subject to applicable TSCA provisions and restrictions.

B. COMPONENTS

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV

This product does not meet the definition of a hazardous material given in 29 CFR Part 1910.1200(OSHA). Information on this form is furnished as a customer service.

C. PERSONAL PROTECTION INFORMATION

Ventilation: Use adequate ventilation to control exposure below recommended levels.

Respiratory Protection: Not generally required. For concentrations exceeding the recommended exposure level, use NIOSH/MSHA approved air purifying respirator.

Eye Protection: Use safety glasses with side shields. For splash protection use chemical goggles and face shield.

Skin Protection: Use protective garments to prevent skin contact.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. HANDLING AND STORAGE PRECAUTIONS

Avoid contact with eyes, skin or clothing. Avoid breathing vapors, mist, fume or dust. Use with adequate ventilation. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Wash thoroughly after handling. Launder contaminated clothing before reuse. If pressure injected under the skin, can cause gangrene if not treated.

Store in closed containers. Store in well-ventilated area.

E. REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	Not Applicable
Incompatibility (Materials to Avoid):	Oxygen and strong oxidizing agents.
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid:	Not Applicable
Hazardous Decomposition Products:	Carbon oxides and various hydrocarbons formed when burned.

F. HEALTH HAZARD DATA

RECOMMENDED EXPOSURE LIMITS:

OSHA PEL and ACGIH TLV for oil mists is 5 mg/m3.

ACUTE EFFECTS OF OVEREXPOSURE:

Eye: Mild irritation.

Skin: Practically non-toxic by skin absorption. Mild irritation with prolonged or repeated contact.

Inhalation: None expected.

Ingestion: Practically non-toxic.

SUBCHRONIC AND CHRONIC EFFECTS OF OVEREXPOSURE:

No known applicable information.

OTHER HEALTH EFFECTS:

Pressurized injection of product under the skin can lead to seriously inflammed tissue. If left untreated injury can be gangrenous.

Prolonged and repeated exposure to oil mist poses a risk of pulmonary disease such as lung inflammation. This condition usually causes no symptoms.

Continuous skin contact with used motor oils has caused skin cancer in laboratory animals. Avoid prolonged skin contact with used motor oil.

HEALTH HAZARD CATEGORIES:

	Animal	Human		Animal	Human
Known Carcinogen	___	___	Toxic	___	___
Suspect Carcinogen	___	___	Corrosive	___	___
Mutagen	___	___	Irritant	___	___
Teratogen	___	___	Target Organ Toxin	___	___
Allergic Sensitizer	___	___	Specify - No known applicable information.		
Highly Toxic	___	___			

FIRST AID AND EMERGENCY PROCEDURES:

Eye: Flush eyes with running water. If irritation or adverse symptoms develop, seek medical attention.

Skin: Wash skin with soap and water. If irritation or adverse symptoms develop, seek medical attention.

Inhalation: Remove from exposure. If illness or adverse symptoms develop, seek medical attention.

Ingestion: If illness or adverse symptoms develop, seek medical attention.

Note to Physician: For injection injuries, immediate medical treatment is required. Physicians may call the emergency

number (918) 661-8118.

G. PHYSICAL DATA

Appearance:	Colorless to dark liquid
Odor:	Mild
Boiling Point:	> 600F (> 316C)
Vapor Pressure:	<1 mm Hg @ 68F (20C)
Vapor Density (Air = 1):	> 1 g/ml
Solubility in Water:	Negligible
Specific Gravity (H2O = 1):	0.875 - 0.89 @ 60F (16C)
Percent Volatile by Volume:	Negligible
Evaporation Rate (= 1):	Negligible
Viscosity:	115 - 135 cSt @ 104F (40C)

H. FIRE AND EXPLOSION DATA

Flash Point (Method Used):	> 392F (> 200C)(COC, ASTM D92)
Flammable Limits (% by Volume in Air):	LEL - Not Established UEL - Not Established
Fire Extinguishing Media:	Dry chemical, foam or carbon dioxide (CO2)
Special Fire Fighting Procedures:	Evacuate area of all unnecessary personnel. Shut off source, if possible. Use NIOSH/MSHA approved self-contained breathing apparatus and other protective equipment and/or garments described in Section C if conditions warrant. Water fog or spray may be used to cool exposed containers and equipment.
Fire and Explosion Hazards:	Carbon oxides and various hydrocarbons formed when burned.

I. SPILL, LEAK AND DISPOSAL PROCEDURES

Precautions Required if Material is Released or Spilled:
Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Shut off source, if possible and contain spill. Keep out of water sources and sewers. Absorb in dry, inert material. Transfer to disposal drums.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):
Incinerate or otherwise manage at a permitted waste management

facility.

J. DOT TRANSPORTATION

Shipping Name:	Not Regulated
Hazard Class:	Not Regulated
ID Number:	Not Regulated
Packing Group:	Not Regulated
Marking:	Not Regulated
Label:	Not Regulated
Placard:	Not Regulated
Hazardous Substance/RQ:	Not Regulated
Shipping Description:	Not Regulated
Packaging References:	Not Regulated

K. RCRA CLASSIFICATION - UNADULTERATED PRODUCT AS A WASTE

Prior to disposal, consult your Environmental contact to determine if TCLP (Toxicity Characteristic Leaching Procedure, EPA Test Method 1311) is required. Reference 40 CFR Part 261.

L. PROTECTION REQUIRED FOR WORK ON CONTAMINATED EQUIPMENT

Contact immediate supervisor for specific instructions before work is initiated. Wear protective equipment and/or garments described in Section C if exposure conditions warrant.

M. HAZARD CLASSIFICATION

___ This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

___ Combustible Liquid	___ Flammable Aerosol	___ Oxidizer
___ Compressed Gas	___ Explosive	___ Pyrophoric
___ Flammable Gas	___ Health Hazard (Section F)	___ Unstable
___ Flammable Liquid	___ Organic Peroxide	___ Water Reactive
___ Flammable Solid		

_X_ Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. ADDITIONAL COMMENTS

SARA 313

As of the preparation date, this product did not contain a chemical or chemicals 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.

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Eclipse(TM) "F" Natural Gas Engine Oil (All Grades)(US036740)

**** END OF MATERIAL SAFETY DATA SHEET FOR: Eclipse(TM) "F" Natural ****

HECTOR(R) OIL (ALL GRADES)

Material Safety Data Sheet

June 30, 1993

PHILLIPS 66 COMPANY
A Division of Phillips Petroleum Company
Bartlesville, Oklahoma 74004

PHONE NUMBERS
Emergency: (918) 661-8118
Technical Service: 1-800-766-0050
For Additional MSDSs: (918) 661-5974

A. PRODUCT IDENTIFICATION

Synonyms: Steam cylinder oil, ISO VG 180S, 460S, 630S
Chemical Name: Mixture
Chemical Family: Hydrocarbon
Chemical Formula: Mixture
CAS Reg. No.: Mixture
Product No.: 80710, 80730, 80750

Product and/or Components Entered on EPA's TSCA Inventory: YES

This product is in U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals; hence, it may be subject to applicable TSCA provisions and restrictions.

B. COMPONENTS

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV

This product does not meet the definition of a hazardous material given in 29 CFR Part 1910.1200(OSHA). Information on this form is furnished as a customer service.

C. PERSONAL PROTECTION INFORMATION

Ventilation: Use adequate ventilation to control exposure below recommended levels.

Respiratory Protection: Not generally required. For concentrations exceeding the recommended exposure level, use NIOSH/MSHA approved air purifying respirator.

Eye Protection: Use safety glasses with side shields. For splash protection use chemical goggles and face shield.

Skin Protection: Use protective garments to prevent skin contact.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. HANDLING AND STORAGE PRECAUTIONS

Avoid contact with eyes, skin or clothing. Avoid breathing vapors, mist, fume or dust. Use with adequate ventilation. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Wash thoroughly after handling. Launder contaminated clothing before reuse. If pressure injected under the skin, can cause gangrene if not treated.

Store in closed containers. Store in well-ventilated area.

E. REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	Not Applicable
Incompatibility (Materials to Avoid):	Oxygen and strong oxidizing agents.
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid:	Not Applicable
Hazardous Decomposition Products:	Carbon oxides and various hydrocarbons formed when burned.

F. HEALTH HAZARD DATA

RECOMMENDED EXPOSURE LIMITS:

OSHA PEL and ACGIH TLV for oil mists is 5 mg/m3.

ACUTE EFFECTS OF OVEREXPOSURE:

Eye: Mild irritation.

Skin: Practically non-toxic by skin absorption. Mild irritation with prolonged or repeated contact.

Inhalation: None expected.

Ingestion: Practically non-toxic.

SUBCHRONIC AND CHRONIC EFFECTS OF OVEREXPOSURE:

No known applicable information.

OTHER HEALTH EFFECTS:

Pressurized injection of product under the skin can lead to seriously inflammed tissue. If left untreated injury can be gangrenous.

Prolonged and repeated exposure to oil mist poses a risk of pulmonary disease such as lung inflammation. This condition usually causes no symptoms.

Continuous skin contact with used motor oils has caused skin cancer in laboratory animals. Avoid prolonged skin contact with used motor oil.

HEALTH HAZARD CATEGORIES:

	Animal	Human		Animal	Human
Known Carcinogen	___	___	Toxic	___	___
Suspect Carcinogen	___	___	Corrosive	___	___
Mutagen	___	___	Irritant	___	___
Teratogen	___	___	Target Organ Toxin	___	___
Allergic Sensitizer	___	___	Specify - No known applicable information.		
Highly Toxic	___	___			

FIRST AID AND EMERGENCY PROCEDURES:

Eye: Flush eyes with running water. If irritation or adverse symptoms develop, seek medical attention.

Skin: Wash skin with soap and water. If irritation or adverse symptoms develop, seek medical attention.

Inhalation: Remove from exposure. If illness or adverse symptoms develop, seek medical attention.

Ingestion: If illness or adverse symptoms develop, seek medical attention.

Note to Physician: For injection injuries, immediate medical treatment is required. Physicians may call the emergency number (918) 661-8118.

G. PHYSICAL DATA

Appearance:	Colorless to dark liquid
Odor:	Mild
Boiling Point:	> 600F (> 316C)
Vapor Pressure:	<1 mm Hg @ 68F (20C)
Vapor Density (Air = 1):	> 1
Solubility in Water:	Negligible
Specific Gravity (H2O = 1):	0.89 - 0.905 @ 60F (16C)
Percent Volatile by Volume:	Negligible
Evaporation Rate (= 1):	Negligible
Viscosity:	175 - 720 cs @ 104F (40C)

H. FIRE AND EXPLOSION DATA

Flash Point (Method Used):	>536F (>280C)(COC, ASTM D92)
Flammable Limits (% by Volume in Air):	LEL - Not Established UEL - Not Established
Fire Extinguishing Media:	Dry chemical, foam or carbon dioxide (CO2)
Special Fire Fighting Procedures:	Evacuate area of all unnecessary personnel. Shut off source, if possible. Use NIOSH/MSHA approved self-contained breathing apparatus and other protective equipment and/or garments described in Section C if conditions warrant. Water fog or spray may be used to cool exposed containers and equipment.
Fire and Explosion Hazards:	Carbon oxides and various hydrocarbons formed when burned.

I. SPILL, LEAK AND DISPOSAL PROCEDURES

Precautions Required if Material is Released or Spilled:
Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Shut off source, if possible and contain spill. Keep out of water sources and sewers. Absorb in dry, inert material. Transfer to disposal drums.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):
Incinerate or otherwise manage at a permitted waste management facility.

J. DOT TRANSPORTATION

Shipping Name:	Not Regulated
Hazard Class:	Not Regulated
ID Number:	Not Regulated
Packing Group:	Not Regulated
Marking:	Not Regulated
Label:	Not Regulated
Placard:	Not Regulated
Hazardous Substance/RQ:	Not Regulated
Shipping Description:	Not Regulated
Packaging References:	Not Regulated

K. RCRA CLASSIFICATION - UNADULTERATED PRODUCT AS A WASTE

Prior to disposal, consult your Environmental contact to determine if TCLP (Toxicity Characteristic Leaching Procedure, EPA Test Method 1311) is required. Reference 40 CFR Part 261.

L. PROTECTION REQUIRED FOR WORK ON CONTAMINATED EQUIPMENT

Contact immediate supervisor for specific instructions before work is initiated. Wear protective equipment and/or garments described in Section C if exposure conditions warrant.

M. HAZARD CLASSIFICATION

___ This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

___ Combustible Liquid	___ Flammable Aerosol	___ Oxidizer
___ Compressed Gas	___ Explosive	___ Pyrophoric
___ Flammable Gas	___ Health Hazard (Section F)	___ Unstable
___ Flammable Liquid	___ Organic Peroxide	___ Water Reactive
___ Flammable Solid		

_X_ Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. ADDITIONAL COMMENTS

SARA 313

As of the preparation date, this product did not contain a chemical or chemicals 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.

Phillips Petroleum Company (references to Phillips Petroleum Company or Phillips includes it's divisions, affilitates and subsidiaries) believes that the information contained herein (including data and statements) is accurate as of the date hereof. NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE AS CONCERNS THE INFORMATION HEREIN PROVIDED. The information provided herein relates only to the specific product designated and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use of the product and information referred to herein are beyond the control of Phillips, Phillips expressly disclaims any and all liability as to any results obtained or arising from any use of the product or such information. No statement made herein shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents.

Hector(R) Oil (All Grades) (US036770)

**** END OF MATERIAL SAFETY DATA SHEET FOR: Hector(R) Oil (All Grad ****

MAGNUS(R) OIL (ALL GRADES)

Material Safety Data Sheet

June 30, 1993

PHILLIPS 66 COMPANY
A Division of Phillips Petroleum Company
Bartlesville, Oklahoma 74004

PHONE NUMBERS
Emergency: (918) 661-8118
Technical Service: 1-800-766-0050
For Additional MSDSs: (918) 661-5974

A. PRODUCT IDENTIFICATION

Synonyms: Industrial oil, ISO VG 22, 32, 46, 68, 100, 150, 220, 320
Chemical Name: Mixture
Chemical Family: Hydrocarbon
Chemical Formula: Mixture
CAS Reg. No.: Mixture
Product No.: 81220, 81230, 81240, 81250, 81260, 81270, 81280, 81290

Product and/or Components Entered on EPA's TSCA Inventory: YES

This product is in U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals; hence, it may be subject to applicable TSCA provisions and restrictions.

B. COMPONENTS

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV

This product does not meet the definition of a hazardous material given in 29 CFR Part 1910.1200(OSHA). Information on this form is furnished as a customer service.

C. PERSONAL PROTECTION INFORMATION

Ventilation: Use adequate ventilation to control exposure below recommended levels.

Respiratory Protection: Not generally required. For concentrations exceeding the recommended exposure level, use NIOSH/MSHA approved air purifying respirator.

Eye Protection: Use safety glasses with side shields. For splash protection use chemical goggles and face shield.

Skin Protection: Use protective garments to prevent skin contact.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. HANDLING AND STORAGE PRECAUTIONS

Avoid contact with eyes, skin or clothing. Avoid breathing vapors, mist, fume or dust. Use with adequate ventilation. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Wash thoroughly after handling. Launder contaminated clothing before reuse. If pressure injected under the skin, can cause gangrene if not treated.

Store in closed containers. Store in well-ventilated area.

E. REACTIVITY DATA

Stability: Stable
Conditions to Avoid: Not Applicable
Incompatibility (Materials to Avoid): Oxygen and strong oxidizing agents.

Hazardous Polymerization: Will Not Occur
Conditions to Avoid: Not Applicable
Hazardous Decomposition Products: Carbon oxides and various hydrocarbons formed when burned.

F. HEALTH HAZARD DATA

RECOMMENDED EXPOSURE LIMITS:

OSHA PEL and ACGIH TLV for oil mists is 5 mg/m3.

ACUTE EFFECTS OF OVEREXPOSURE:

Eye: Mild irritation.

Skin: Practically non-toxic by skin absorption. Mild irritation with prolonged or repeated contact.

Inhalation: None expected.

Ingestion: Practically non-toxic.

SUBCHRONIC AND CHRONIC EFFECTS OF OVEREXPOSURE:

No known applicable information.

OTHER HEALTH EFFECTS:

Pressurized injection of product under the skin can lead to seriously inflammed tissue. If left untreated injury can be gangrenous.

Prolonged and repeated exposure to oil mist poses a risk of pulmonary disease such as lung inflammation. This condition usually causes no symptoms.

Continuous skin contact with used motor oils has caused skin cancer in laboratory animals. Avoid prolonged skin contact with used motor oil.

HEALTH HAZARD CATEGORIES:

	Animal	Human		Animal	Human
Known Carcinogen	___	___	Toxic	___	___
Suspect Carcinogen	___	___	Corrosive	___	___
Mutagen	___	___	Irritant	___	___
Teratogen	___	___	Target Organ Toxin	___	___
Allergic Sensitizer	___	___	Specify - No known applicable information.		
Highly Toxic	___	___			

FIRST AID AND EMERGENCY PROCEDURES:

Eye: Flush eyes with running water. If irritation or adverse symptoms develop, seek medical attention.

Skin: Wash skin with soap and water. If irritation or adverse symptoms develop, seek medical attention.

Inhalation: Remove from exposure. If illness or adverse symptoms develop, seek medical attention.

Ingestion: If illness or adverse symptoms develop, seek medical attention.

Note to Physician: For injection injuries, immediate medical treatment is required. Physicians may call the emergency number (918) 661-8118.

G. PHYSICAL DATA

Appearance:	Colorless to dark liquid
Odor:	Mild
Boiling Point:	> 600F (> 316C)
Vapor Pressure:	< 1 mm Hg @ 68F (20C)
Vapor Density (Air = 1):	> 1
Solubility in Water:	Negligible
Specific Gravity (H2O = 1):	0.86 - 0.89 @ 60F (16C)
Percent Volatile by Volume:	Negligible
Evaporation Rate (= 1):	Negligible
Viscosity:	20 - 330 cSt @ 104F (40C)

H. FIRE AND EXPLOSION DATA

Flash Point (Method Used):	> 385F (> 195C)(COC, ASTM D92)
Flammable Limits (% by Volume in Air):	LEL - Not Established UEL - Not Established
Fire Extinguishing Media:	Dry chemical, foam or carbon dioxide (CO2)
Special Fire Fighting Procedures:	Evacuate area of all unnecessary personnel. Shut off source, if possible. Use NIOSH/MSHA approved self-contained breathing apparatus and other protective equipment and/or garments described in Section C if conditions warrant. Water fog or spray may be used to cool exposed containers and equipment.
Fire and Explosion Hazards:	Carbon oxides and various hydrocarbons formed when burned.

I. SPILL, LEAK AND DISPOSAL PROCEDURES

Precautions Required if Material is Released or Spilled:
Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Shut off source, if possible and contain spill. Keep out of water sources and sewers. Absorb in dry, inert material. Transfer to disposal drums.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):
Incinerate or otherwise manage at a permitted waste management facility.

J. DOT TRANSPORTATION

Shipping Name:	Not Regulated
Hazard Class:	Not Regulated
ID Number:	Not Regulated
Packing Group:	Not Regulated
Marking:	Not Regulated
Label:	Not Regulated
Placard:	Not Regulated
Hazardous Substance/RQ:	Not Regulated
Shipping Description:	Not Regulated
Packaging References:	Not Regulated

K. RCRA CLASSIFICATION - UNADULTERATED PRODUCT AS A WASTE

Prior to disposal, consult your Environmental contact to determine if TCLP (Toxicity Characteristic Leaching Procedure, EPA Test Method 1311) is required. Reference 40 CFR Part 261.

L. PROTECTION REQUIRED FOR WORK ON CONTAMINATED EQUIPMENT

Contact immediate supervisor for specific instructions before work is initiated. Wear protective equipment and/or garments described in Section C if exposure conditions warrant.

M. HAZARD CLASSIFICATION

___ This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

___ Combustible Liquid	___ Flammable Aerosol	___ Oxidizer
___ Compressed Gas	___ Explosive	___ Pyrophoric
___ Flammable Gas	___ Health Hazard (Section F)	___ Unstable
___ Flammable Liquid	___ Organic Peroxide	___ Water Reactive
___ Flammable Solid		

_X_ Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. ADDITIONAL COMMENTS

SARA 313

As of the preparation date, this product did not contain a chemical or chemicals subject to the reporting requirements of

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Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Phillips Petroleum Company (references to Phillips Petroleum Company or Phillips includes it's divisions, affilitates and subsidiaries) believes that the information contained herein (including data and statements) is accurate as of the date hereof. NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE AS CONCERNS THE INFORMATION HEREIN PROVIDED. The information provided herein relates only to the specific product designated and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use of the product and information referred to herein are beyond the control of Phillips, Phillips expressly disclaims any and all liability as to any results obtained or arising from any use of the product or such information. No statement made herein shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents.

Magnus(R) Oil (All Grades) (US036800)

**** END OF MATERIAL SAFETY DATA SHEET FOR: Magnus(R) Oil (All Grad ****

MATERIAL SAFETY DATA SHEET

MSDS No. HCR001423

METHANOL

Rev. Date 03/06/92

LYONDELL PETROCHEMICAL COMPANY
1221 MCKINNEY AVENUE, SUITE 1600
P.O. BOX 3646
HOUSTON, TEXAS 77253-3646

IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product.
This product is considered a hazardous substance under the OSHA Hazard Communication Rule.

I. General

Trade Name	METHANOL
Other Names	METHYL ALCOHOL (MEETS ASTM D-1152 SPECIFICATIONS); WOOD ALCOHOL; WOOD NAPHTHA; CARBINOL; COLUMBIAN SPIRITS; MANHATTAN SPIRITS.
Chemical Family	ALIPHATIC ALCOHOL
Generic Name	METHANOL
CAS No.	67-56-1
Company ID No.	E000142300

Telephone Numbers
EMERGENCY
800/424-9300 CHEMTREC
800/245-4532 HOT LINE
CUSTOMER SERVICE
713/652-7200 INFO ONLY

DOT Hazardous Materials Proper Shipping Name
METHANOL OR METHYL ALCOHOL (RQ-5000/2270

DOT Hazard Class
3 (FLAMMABLE LIQUID, POISON)

UN/NA ID No.
UN 1230

II. DANGER — Summary of Hazards

EXTREMELY FLAMMABLE! OSHA/NFPA CLASS-IB FLAMMABLE LIQUID
KEEP AWAY FROM HEAT, SPARKS, AND FLAME. KEEP CONTAINERS CLOSED.
POISON-CLASS B. HARMFUL OR FATAL IF SWALLOWED OR ABSORBED THROUGH THE SKIN! INGESTION OF ONE TO FOUR OUNCES CAN CAUSE IRREVERSIBLE INJURY TO THE NERVOUS SYSTEM, BLINDNESS, OR DEATH. IT CANNOT BE MADE NON-POISONOUS.
CAUSES EYE AND RESPIRATORY SYSTEM IRRITATION AND MAY CAUSE SKIN IRRITATION! AVOID LIQUID, MIST, OR VAPOR CONTACT. WEAR PROPER PROTECTIVE CLOTHING. WASH THOROUGHLY AFTER HANDLING. (SEE SECTION V. AND "SUPPLEMENT").

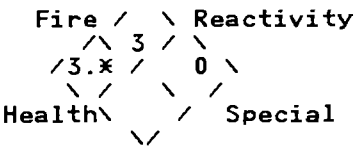
MAY BE HARMFUL IF INHALED! MAY CAUSE INTERNAL ORGAN DAMAGE! AVOID BREATHING VAPORS. USE ONLY WITH ADEQUATE VENTILATION. VAPOR INHALATION OR LIQUID PENETRATION OF THE SKIN CAN CAUSE CENTRAL NERVOUS SYSTEM (CNS) DEPRESSION. PROLONGED OR REPEATED HIGH INHALATION EXPOSURE MAY CAUSE OPTIC NERVE DAMAGE, PULMONARY AND/OR CEREBRAL EDEMA, LIVER AND/OR KIDNEY DAMAGE, COMA, RESPIRATORY FAILURE, AND EVEN DEATH.

III. Fire and Explosion

Flash Point (Method)	Autoignition Temperature (Method)	Flammable Limits (% Vol. in Air) At Normal Atmospheric Temperature and Pressure
AP 53 F (D-56)	AP 725 F (E-659)	Lower AP 6.0
SEE "FIRE & EXPLOSION HAZARDS"	BASED UPON NFPA "METHANOL"	Upper AP 36.5 BASED UPON NFPA "METHANOL"

Fire and Explosion Hazards	EXTREMELY FLAMMABLE! THIS MATERIAL RELEASES VAPORS AT OR BELOW AMBIENT TEMPERATURES. WHEN MIXED WITH AIR IN CERTAIN PROPORTIONS AND EXPOSED TO AN IGNITION SOURCE. THESE VAPORS CAN BURN IN THE OPEN OR EXPLODE IN CONFINED SPACES. BEING HEAVIER THAN AIR, FLAMMABLE VAPORS MAY TRAVEL LONG DISTANCES ALONG THE GROUND BEFORE REACHING A POINT OF IGNITION AND FLASHING BACK.
Extinguishing Media	ALCOHOL TYPE FOAM DRY CHEMICAL CO2 HALON FOAM WATERSPRAY WATER FOG, WATERSPRAY, AND FOAM CAN COOL THE FIRE, BUT PROBABLY WILL NOT ACHIEVE EXTINGUISHMENT.
Special Firefighting Procedures	MIXTURES WITH WATER CONTAINING MORE THAN 21 VOL.% METHANOL ARE FLAMMABLE. DIKE UP FIRE CONTROL WATER FOR LATER DISPOSAL; DO NOT SCATTER THE MATERIAL. METHANOL FIRES MAY NOT BE VISIBLE TO THE NAKED EYE. DO NOT ENTER ANY CONFINED/ENCLOSED FIRE SPACE WITHOUT PROPER PROTECTIVE EQUIPMENT, INCLUDING SELF-CONTAINED BREATHING APPARATUS. WATER COOL FLAME-EXPOSED CONTAINERS FROM THE SIDE UNTIL WELL AFTER THE FIRE IS OUT. EVACUATE IMMEDIATELY IF THERE IS A RISING SOUND OF VENTING SAFETY DEVICES OR TANK DISCOLORIZATION.

HAZARD RATING:
4 = Extreme 3=High
2 = Moderate
1 = Slight
0 = Insignificant



SEQ: 14 ***FOR "DISCLAIMER OF LIABILITY," SEE THE STATEMENT ON PAGE 4***

ORIGINAL DOCUMENT - END OF PAGE 1

IV. Health Hazards

Summary of Acute Hazards	LIQUID, MIST OR VAPORS CAN CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION AND CNS DEPRESSION. ASPIRATION INTO THE LUNGS WILL CAUSE CHEMICAL PNEUMONIA.

ROUTE OF EXPOSURE	SIGNS AND SYMPTOMS	Primary Route(s)
Inhalation	SHORT-TERM EXPOSURE TO HIGH LEVELS OF VAPOR MAY CAUSE CNS DEPRESSION. SYMPTOMS INCLUDE NAUSEA, DROWSINESS, VERTIGO, FATIGUE, CONVULSIONS, UNCONSCIOUSNESS AND DEATH, DEPENDING ON EXPOSURE DURATION. (SEE "SUMMARY" BELOW.)	¢X¦
Eye Contact	EYE IRRITATION MAY OCCUR UPON SHORT-TERM EXPOSURE, INCLUDING A BURNING SENSATION, TEARING, REDNESS, OR SWELLING. UPON DIRECT CONTACT WITH LIQUID, CONJUNCTIVITIS AND CORNEAL BURNS MAY OCCUR.	¢X¦
Skin Absorption	UPON PROLONGED OR REPEATED CONTACT, ABSORPTION THROUGH THE SKIN MAY OCCUR AND PRODUCE TOXIC EFFECTS SIMILAR TO THOSE RESULTING FROM INHALATION EXPOSURE. (SEE "SUMMARY OF CHRONIC HAZARDS" BOX BELOW.)	¢X¦
Skin Irritation	SKIN IRRITATION OR MORE SERIOUS DISORDERS MAY OCCUR UPON PROLONGED AND REPEATED CONTACT DUE TO SKIN DEFATTING.	¢X¦
Ingestion	SWALLOWING ONLY 1 TO 4 OUNCES HAS BEEN REPORTED TO CAUSE DEATH OR SERIOUS IRREVERSIBLE INJURY SUCH AS BLINDNESS. METHANOL METABOLISM CAUSES SYSTEMIC ACIDOSIS RESULTING IN DAMAGE TO THE OPTIC NERVE. SYMPTOMS MAY BE DELAYED.	¢X¦

Summary of Chronic Hazards and Special Health Effects	METHANOL IS SLOWLY ELIMINATED FROM THE BODY, HENCE REPEATED EXPOSURES MAY RESULT IN TOXIC LEVELS IN THE BLOOD AND TISSUES. IN LIMITED ANIMAL STUDIES, WHERE METHANOL WAS GIVEN ORALLY OR APPLIED TO THE SKIN, THERE HAS BEEN NO EVIDENCE OF CARCINOGENIC POTENTIAL. METHANOL HAS BEEN REPORTED TO CAUSE BIRTH DEFECTS IN RATS EXPOSED TO VERY HIGH CONCENTRATIONS (20,000 PPM). PERSONNEL WITH PRE-EXISTING CNS DISEASE, SKIN DISORDERS, IMPAIRED LIVER OR KIDNEY FUNCTION, OR CHRONIC RESPIRATORY DISEASES SHOULD AVOID EXPOSURE.

V. Protective Equipment and Other Control Measures

Respiratory	DO NOT USE AIR-PURIFYING RESPIRATOR. ONLY NIOSH/MSHA APPROVED SUPPLIED AIR OR SELF-CONTAINED BREATHING APPARATUS OPERATED IN POSITIVE PRESSURE MODE ARE SATISFACTORY. IF EXPOSURE CAN EXCEED THE PEL/TLV.
Eye	EYE PROTECTION SUCH AS CHEMICAL SPLASH GOGGLES AND/OR FACE SHIELD MUST BE WORN WHEN POSSIBILITY EXISTS FOR EYE CONTACT

	DUE TO SPLASHING OR SPRAYING LIQUID, AIRBORNE PARTICLES, OR VAPOR. CONTACT LENSES SHOULD NOT BE WORN.
Skin	WHEN SKIN CONTACT IS POSSIBLE, PROTECTIVE CLOTHING INCLUDING GLOVES, APRON, SLEEVES, BOOTS, HEAD AND FACE PROTECTION SHOULD BE WORN. THIS EQUIPMENT MUST BE CLEANED THOROUGHLY AFTER EACH USE.
Engineering Controls	GENERAL ROOM OR LOCAL EXHAUST VENTILATION IS USUALLY REQUIRED TO MEET EXPOSURE STANDARD(S).
Other Hygienic and Work Practices	EMERGENCY EYE WASH FOUNTAINS AND SAFETY SHOWERS SHOULD BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE. USE GOOD PERSONAL HYGIENE PRACTICES. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING/WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTY OF SOAP AND WATER.

VI. Occupational Exposure Limits

Substance	Source	Date	Type	Value/Units	Time
METHYL ALCOHOL (METHANOL) - SKIN	OSHA	1989	PEL	200 PPM	8 HRS
METHYL ALCOHOL - SKIN	ACGIH	1991	TLV	200 PPM	8 HRS
			STEL	250 PPM	15 MIN

ORIGINAL DOCUMENT - END OF PAGE 2

VII. Emergency and First Aid

Inhalation	IMMEDIATELY REMOVE FROM CONTAMINATED AREA TO FRESH AIR. KEEP INDIVIDUAL QUIET. FOR RESPIRATORY DISTRESS, GIVE AIR OR OXYGEN AND/OR ADMINISTER CARDIOPULMONARY RESUSCITATION (CPR). OBTAIN EMERGENCY MEDICAL ATTENTION.
Eye Contact	IMMEDIATELY FLUSH EYES WITH PLENTY OF CLEAN LOW-PRESSURE WATER FOR AT LEAST 15 MINUTES. RETRACT EYELIDS OFTEN. OBTAIN EMERGENCY MEDICAL ATTENTION.
Skin Contact	IMMEDIATELY REMOVE CONTAMINATED CLOTHING. WASH AFFECTED SKIN THOROUGHLY WITH SOAP AND WATER. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION. WASH CLOTHING BEFORE REUSE; WASH OR DISCARD CONTAMINATED LEATHER SHOES/GLOVES.
	SEE EMERGENCY MEDICAL TREATMENT PROCEDURES AND SECTION XI.

Ingestion	"GENERAL COMMENTS"
Emergency Medical Treatment Procedures	METHANOL INGESTION IS LIFE-THREATENING. IF SWALLOWED AND CONSCIOUS, DRINK TWO GLASSES OF WATER AND INDUCE VOMITING BY FINGER DOWN THE THROAT OR WITH SYRUP OF IPECAC. FOLLOW EMESIS WITH TWO TEASPOONS OF BAKING SODA IN WATER. SYMTPOM ONSET MAY BE DELAYED. ETHANOL THERAPY MAY BE INDICATED. SEE SECTION XI. "GENERAL COMMENTS" FOR ADDITIONAL INFORMATION.

VIII. Spill and Disposal

Precautions if Material is Spilled or Released	EXTREMELY FLAMMABLE LIQUID! RELEASE CAUSES AN IMMEDIATE FIRE/EXPLOSION HAZARD. REMOVE ALL IGNITION SOURCES AND SAFELY STOP FLOW OF SPILL. REMOVE ALL NON-ESSENTIAL PERSONNEL. USE PROPER PROTECTIVE EQUIPMENT. CONTAIN OR PREVENT FLOW TO SEWERS OR PUBLIC WATERS. BLANKET WITH AN APPROPRIATE FOAM. RESTRICT WATER USE FOR CLEANUP. IN URBAN AREAS, CLEANUP ASAP. IN NATURAL ENVIRONMENTS, SEEK ADVICE FROM ECOLOGISTS. THIS MATERIAL IS WATER-SOLUBLE AND MAY BIODEGRADE. COMPLY WITH ALL APPLICABLE LAWS. SPILLS MAY NEED TO BE REPORTED TO THE NATIONAL RESPONSE CENTER (800/424-8802). SPILLED MATERIAL AND ANY CONTAMINATED WATER OR SOIL MAY BE HAZARDOUS TO HUMAN OR OTHER LIFE.
Waste Disposal Methods	FOR LARGE SPILLS, MAXIMIZE PRODUCT RECOVERY FOR REUSE OR RECYCLING. FREE LIQUID MAY BE COLLECTED USING EXPLOSION-PROOF DIESEL OR VACUUM PUMPS. FOR SMALL SPILLS, TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT. USE REGISTERED TRANSPORTERS TO MOVE CONTAMINATED PRODUCT/SOIL/WATER IN D.O.T.-APPROVED CONTAINERS. DISPOSE OF MATERIALS AT A LICENSED FACILITY PERMITTED TO HANDLE RCRA/OSHA "HAZARDOUS WASTES". INCINERATION IS THE RECOMMENDED DISPOSAL METHOD. BURN CONCENTRATED LIQUID IN SYSTEMS COMPATIBLE WITH WATER SOLUBLE WASTES. AVOID FLAMEOUTS. BIODEGRADATION MAY BE USED ON DILUTE AQUEOUS WASTE. ASSURE EMISSIONS AND EFFLUENT COMPLY WITH APPLICABLE LAWS.

IX. Components (This may not be a complete list of components)

Component Name	CAS No.	Carcinogen##		Composition amount (Wt.) (See Qualification on Page 4)
METHANOL (METHYL ALCOHOL)	67-56-1	N/AP	GT	99.9 PERCENT

Compositions given are typical values, not specifications.

**Listed By: 1 = NTP, 2 = IARC, 3 = OSHA, 4 = Other

ORIGINAL DOCUMENT - END OF PAGE 3

X. Physical and Chemical Data

Boiling Point (At 760.0 mm Hg)	Viscosity Units, Temp. (Method)	Dry Point
AP 148 F	AP 1 CPS AT 30 C (D-445)	N/AP
Freezing Point	**Vapor Pressure**	**Volatile Characteristics**
AP -144 F	(MM HG AT 68 F) AP 96	APPRECIABLE
Specific Gravity (H2O =1 at 39.2 F)	**Vapor Sp. Gr. (Air = 1.0 at 60-90 F)**	**Solubility in Water**	**pH**
AP 0.79	AP 1.1	COMPLETE	N/AP
Hazardous Polymerization	**Other Chemical Reactivity**	**Stability**
NOT EXPECTED TO OCCUR	METHANOL FORMS AN AZEOTROPE WITH WATER.	STABLE

Other Physical and Chemical Properties	MOLECULAR WEIGHT - 32.04; WATER CONTENT = LT 0.05 WT.% (ASTM D-1364); EVAPORATION RATE = 5.9 (IF N-BUTYL ACETATE = 1.0).
Appearance and Odor	CLEAR, COLORLESS LIQUID; FAINT, CHARACTERISTIC ALCOHOL ODOR; ODOR THRESHOLD = 55 PPM IN AIR; ODOR IS NOT A GOOD INDICATOR OF EXPOSURE LEVEL.
Conditions to Avoid	HEAT, SPARKS, OPEN FLAME, AND OXIDIZING CONDITIONS.
Materials to Avoid	STRONG OXIDIZING AGENTS; ALUMINUM, ZINC (GALVANIZED), OR ANY OTHER REACTIVE METAL WHICH WILL DISPLACE HYDROGEN; CERTAIN FORMS OF PLASTICS; AND RUBBER OR RUBBER-BASED COATINGS. ALUMINUM MAY FORM AN OXIDE SCALE ON PROLONGED CONTACT.
Hazardous Decomposition Products	EXCESSIVE HEATING AND/OR INCOMPLETE COMBUSTION WILL GENERATE HIGHLY POISONOUS CARBON MONOXIDE AND PERHAPS OTHER TOXIC VAPORS SUCH AS FORMALDEHYDE.

XI. Additional Precautions

STORE AND TRANSPORT IN ACCORDANCE WITH ALL APPLICABLE LAWS. KEEP AWAY FROM HEAT, SPARKS AND OPEN FLAME! KEEP CONTAINERS CLOSED AND PLAINLY LABELED! GROUND ALL DRUMS AND TRANSFER VESSELS WHEN HANDLING. USE ONLY WITH ADEQUATE VENTILATION!

Handling, Storage and Decontamination Procedures	AVOID BREATHING VAPORS. STORE SAMPLES IN A COOL (LT 80 F.), WELL VENTILATED PLACE. THE STORAGE AREA AND VENTILATION EQUIPMENT SHOULD COMPLY WITH NFPA STANDARDS OF CLASS-IA/B FLAMMABLE LIQUIDS AND NEC REQUIREMENTS. "PETROLEUM DISTILLATE"-16 CFR 1500.14(B)(3). USE SPECIAL FEDERAL LABELING IF INTENDED, OR PACKAGED FOR USE IN THE HOUSEHOLD OR BY CHILDREN. DO NOT USE THIS MATERIAL AS A CLEANING SOLVENT. ISOLATE, VENT, DRAIN, WASH AND PURGE SYSTEMS OR EQUIPMENT BEFORE ANY REPAIR OR MAINTENANCE. REMOVE ALL IGNITION SOURCES. CHECK ATMOSPHERE FOR OXYGEN DEFICIENCIES AND EXPLOSIVITY. USE ADEQUATE PERSONAL PROTECTIVE EQUIPMENT (SEE SECTION V.) AND OBSERVE PRECAUTIONS PERTAINING TO CONFINED SPACE ENTRY.
General Comments	INGESTION OF THIS PRODUCT, EVEN IN SMALL AMOUNTS, CAN CAUSE BLINDNESS AND DEATH. ONSET OF SYMPTOMS MAY BE DELAYED FOR 18-24 HOURS. TREATMENT PRIOR TO ONSET OF SYMPTOMS MAY BE LIFE-SAVING. METHANOL IS RAPIDLY ABSORBED, SO INDUCE VOMITING ASAP (WITHIN 30 MINUTES OF INGESTION) TO BE MOST EFFECTIVE. ETHANOL INHIBITS FORMATION OF TOXIC METABOLITES. IF INDICATED, START WITH A LOADING DOSE OF 7.6-10 ML/KG OF BODY WEIGHT OF 10% ETOH IN D5W OVER 30-60 MINUTES; MAINTENANCE DOSE OF 1.4 ML/KG TO ACHIEVE 100-130 MG/DL BLOOD ETOH LEVEL DURING ETHANOL THERAPY. (IF CHARCOAL IS ADMINISTERED, ETHANOL SHOULD BE ADMINISTERED INTRAVENOUSLY AND NOT ORALLY.) MAINTAIN CONTACT WITH THE POISON CONTROL CENTER DURING ALL ASPECTS OF THE DIAGNOSIS AND TREATMENT. REFER TO A.P.I.'S PUBLICATION 4524 ENTITLED "CLINICAL TOXICOLOGY OF THE ACUTE INGESTION OF METHANOL/HYDROCARBON BLENDS" FOR ADDITIONAL INFORMATION REGARDING MEDICAL MONITORING AND TREATMENT. SOME OF THE INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE MIXTURE ITSELF.

- - - NOTE - - - Qualifications:

EQ = Equal
LT = Less Than
GT = Greater Than
AP = Approximately
UK = Unknown
TR = Trace
N/P = No Applicable Information Found
N/AP = Not Applicable
N/DA - No Data Available

Disclaimer of Liability

The information in this MSDS was obtained from sources which we believe are reliable. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, REGARDING ITS CORRECTNESS.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM

LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT.

This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

ORIGINAL DOCUMENT - END OF PAGE 4

XII. Regulatory Information

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA), TITLE III

SECTION 311/312 HAZARD CATEGORIES

IMMEDIATE (ACUTE) HEALTH HAZARD DELAYED (CHRONIC) HEALTH HAZARD
FIRE HAZARD

SECTION 313

THIS PRODUCT CONTAINS THE FOLLOWING CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III, SECTION 313 AND 40 CFR 372:

METHANOL (METHYL ALCOHOL)

TOXIC SUBSTANCES CONTROL ACT (TSCA)

ALL COMPONENTS OF THIS PRODUCT ARE LISTED ON THE TSCA INVENTORY.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA)

THIS PRODUCT CONTAINS THE FOLLOWING CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF CERCLA:

	REPORTABLE QUANTITY (RQ), LBS
METHANOL (METHYL ALCOHOL)	5000#/2270KG

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986 - PROPOSITION 65

THIS PRODUCT CONTAINS THE FOLLOWING CHEMICAL(S) LISTED BY THE STATE OF CALIFORNIA AS "KNOWN TO THE STATE TO CAUSE REPRODUCTIVE TOXICITY":

ETHANOL

ORIGINAL DOCUMENT - END OF PAGE 5

XIII. Label Information

Manufacturer: LYONDELL PETROCHEMICAL COMPANY
1221 MCKINNEY AVENUE, SUITE 1600
P.O. BOX 3646
HOUSTON, TEXAS 77253-3646

Telephone Numbers
EMERGENCY
800/424-9300 CHEMTREC
215/245-4532 HOT LINE
CUSTOMER SERVICE

713/652-7200 INFO ONLY

Use Statement: FOR INDUSTRIAL USE ONLY
KEEP OUT OF REACH OF CHILDREN

Signal Word: DANGER

Physical Hazards:

EXTREMELY FLAMMABLE
CORROSIVE TO SOME METALS

Health Hazards:

HIGH INGESTION HAZARD
MAY DAMAGE THE OPTIC NERVE
INHALATION HAZARD
PROLONGED EXPOSURE MAY DAMAGE THE LUNGS & LIVER
MAY CAUSE KIDNEY DAMAGE
HIGH SKIN CONTACT HAZARD
SEVERE EYE IRRITANT
SKIN IRRITANT - DEFATTING ACTION
MUCOUS MEMBRANE IRRITANT
MAY CAUSE LONG-TERM ADVERSE HEALTH EFFECTS

Precautionary Measures: DO NOT HANDLE NEAR HEAT, SPARKS, OR OPEN FLAME.
SPILL/LEAK CAN CAUSE FIRE/EXPLOSION.
KEEP CONTAINER CLOSED WHEN NOT IN USE.
DO NOT CONTACT WITH OXIDIZABLE MATERIALS.
USE ONLY WITH ADEQUATE VENTILATION/PERSONAL PROTECTION.
AVOID PROLONGED OR REPEATED BREATHING OF VAPOR.
AVOID CONTACT WITH EYES, SKIN, AND CLOTHING.
WASH THOROUGHLY AFTER HANDLING.
PREVENT CONTACT WITH FOOD, CHEWING, OR SMOKING MATERIALS.
DO NOT TASTE/SWALLOW.

DOT Information: UN/NA ID Number - UN 1230
Hazard Class - 3 (FLAMMABLE LIQUID, POISON)
Proper Shipping - METHANOL OR METHYL ALCOHOL (RQ-5000/2270)

Instructions: In case of fire, use-
ALCOHOL TYPE FOAM
DRY CHEMICAL
CO2
HALON
FOAM
WATERSPRAY

First Aid -Inhalation: IMMEDIATELY REMOVE FROM CONTAMINATED AREA TO FRESH AIR. KEEP INDIVIDUAL QUIET. FOR RESPIRATORY DISTRESS, GIVE AIR OR OXYGEN AND/OR ADMINISTER CARDIOPULMONARY RESUSCITATION (CPR). OBTAIN EMERGENCY MEDICAL ATTENTION.

-Eye Contact: IMMEDIATELY FLUSH EYES WITH PLETNY OF CLEAN LOW-PRESSURE WATER FOR AT LEAST 15 MINUTES. RETRACT EYELIDS OFTEN. OBTAIN EMERGENCY MEDICAL ATTENTION.

-Skin Contact: IMMEDIATELY REMOVE CONTAMINATED CLOTHING. WASH AFFECTED SKIN THOROUGHLY WITH SOAP AND WATER. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION. WASH CLOTHING BEFORE REUSE; WASH OR DISCARD CONTAMINATED LEATHER SHOES/GLOVES.

-Ingestion: SEE EMERGENCY MEDICAL TREATMENT PROCEDURES AND

SECTION XI. "GENERAL COMMENTS".

In case of spill,	EXTREMELY FLAMMABLE LIQUID! RELEASE CAUSES AN IMMEDIATE FIRE/EXPLOSION HAZARD. REMOVE ALL IGNITION SOURCES AND SAFELY STOP FLOW OF SPILL. REMOVE ALL NON-ESSENTIAL PERSONNEL. USE PROPER PROTECTIVE EQUIPMENT. CONTAIN OR PREVENT FLOW TO SEWERS OR PUBLIC WATERS. BLANKET WITH AN APPROPRIATE FOAM. RESTRICT WATER USE FOR CLEAN-UP. IN URBAN AREAS, CLEANUP ASAP. IN NATURAL ENVIRONMENTS, SEEK ADVICE FROM ECOLOGISTS. THIS MATERIAL IS WATER-SOLUBLE AND MAY BIODEGRADE. COMPLY WITH ALL APPLICABLE LAWS. SPILLS MAY NEED TO BE REPORTED TO THE NATIONAL RESPONSE CENTER (800/424-8802). SPILLED MATERIAL AND ANY CONTAMINATED WATER OR SOIL MAY BE HAZARDOUS TO HUMAN OR OTHER LIFE.
Protective Equipment	
-Respiratory	DO NOT USE AIR-PURIFYING RESPIRATOR. ONLY NIOSH/MSHA APPROVED SUPPLIED AIR OR SELF-CONTAINED BREATHING APPARATUS OPERATED IN POSITIVE PRESSURE MODE.
-Eye	EYE PROTECTION SUCH AS CHEMICAL SPLASH GOGGLES AND/OR FACE SHIELD MUST BE WORN WHEN POSSIBILITY EXISTS FOR EYE CONTACT DUE TO SPLASHING OR SPRAYING.
-Skin	WHEN SKIN CONTACT IS POSSIBLE, PROTECTIVE CLOTHING INCLUDING GLOVES, APRON, SLEEVES, BOOTS, HEAD AND FACE PROTECTION SHOULD BE WORN.

Label No.: DBHCR001423 Revision No. 003 Date: 03/06/92
Issue No. 003 Date: 03/06/92

ORIGINAL DOCUMENT - END OF PAGE 6

**** END OF MATERIAL SAFETY DATA SHEET FOR: Methanol ****

NATURAL GAS

Material Safety Data Sheet

March 31, 1995

PHILLIPS PETROLEUM COMPANY
Bartlesville, Oklahoma 74004

PHONE NUMBERS
Emergency: (918) 661-8118
General MSDS Information: (918) 661-8327
For Additional MSDSs: (918) 661-5952

A. PRODUCT IDENTIFICATION

Synonyms: Residue gas; Raw gas
Chemical Name: Natural gas
Chemical Family: Mixture
Chemical Formula: Mixture
CAS Reg. No.: 8006-14-2
Product No.: Not Established

Product and/or Components Entered on EPA's TSCA Inventory: YES

This product is in U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals; hence, it may be subject to applicable TSCA provisions and restrictions.

B. COMPONENTS

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV
Methane	74-82-8	60-95	NE	Simple Asphyxiant
Ethane	74-84-0	2-15	NE	Simple Asphyxiant
Propane	74-98-6	1-10	1000 ppm	Simple Asphyxiant
Butane	109-97-8	0-4	800 ppm	800 ppm
Isobutane	75-28-5	0-4	NE	NE
Nitrogen	7727-37-9	0-15	NE	NE
Carbon dioxide	124-38-9	0-5	10000 ppm	5000 ppm
Pentanes plus, includes	Various	0-8	NE	NE
Pentane	109-66-0	NE	600 ppm	600 ppm
Isopentane	78-78-4	NE	NE	NE
Hexane	110-54-3	NE	50 ppm	50 ppm
Isohexane	107-83-5	NE	500 ppm	500 ppm
Hydrogen sulfide	7783-06-4	0-30	10 ppm	10 ppm

Normal composition ranges are shown. Exceptions may occur which would invalidate data on this form.

C. PERSONAL PROTECTION INFORMATION

Ventilation:	Use adequate ventilation to control exposure below recommended levels.
Respiratory Protection:	For concentrations exceeding the recommended level, use NIOSH/MSHA approved air purifying respirator. If conditions immediately dangerous to life or health exist, use NIOSH/MSHA self contained breathing apparatus (SCBA).
Eye Protection:	Use chemical goggles.
Skin Protection:	No special garments required. Avoid unnecessary skin contamination with material.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. HANDLING AND STORAGE PRECAUTIONS

Proper personal protective equipment must be used when handling this chemical. Do not get in eyes, on skin or on clothing. Do not breathe vapor, mist, fume or dust. May be harmful. Wash thoroughly after handling. Launder contaminated clothing before reuse. Use only with adequate ventilation.

Store in tightly closed container. Store in well-ventilated area. Keep away from heat, sparks and flame. Bond and ground during transfer.

E. REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	Not Established
Incompatibility (Materials to Avoid):	Oxygen and strong oxidizing materials
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid:	Not Established
Hazardous Decomposition Products:	Carbon oxides and various hydrocarbons formed when burned. Sulfur oxides may be formed if hydrogen sulfide is present.

F. HEALTH HAZARD DATA

RECOMMENDED EXPOSURE LIMITS:

See Section B.

ACUTE EFFECTS OF OVEREXPOSURE:

Eye: May cause irritation including pain, blurred vision, redness, tearing and superficial corneal turbidity.

Skin: May cause slight irritation.

Inhalation: Toxic by this route of exposure. May cause nausea, diarrhea, loss of appetite, dizziness, disorientation, headache, excitation, rapid respiration, drowsiness, labored breathing, anesthesia and other central nervous system effects. Hydrogen sulfide may cause lung paralysis and asphyxiation. Extreme overexposure may cause rapid unconsciousness and respiratory arrest.

Ingestion: Not Applicable.

SUBCHRONIC AND CHRONIC EFFECTS OF OVEREXPOSURE:

Exposure to 1000 ppm propane for eight hours a day, five days a week, for approximately two weeks produced no abnormal reactions, including cardiac, pulmonary, and neurologic functions in humans.

Chronic high level n-hexane exposure damages the nervous system initially producing a lack of feeling in the extremities and possibly progressing to a more severe nerve damage.

Inhalation of high levels (1000 and 5000 ppm) of n-hexane has produced testicular damage in rats. Mice exposed to the same dose levels showed no testicular effects.

Carbon dioxide exposure may cause acidosis and imbalance of electrolytes in the blood.

OTHER HEALTH EFFECTS:

A Toxicity Study Summary for Methane, Pure Grade, is available upon request.

The odor of hydrogen sulfide may not be recognized after prolonged inhalation due to paralysis of the sense of smell. Effects from

inhaling the fume may lead to chronic bronchitis, respiratory irritation, increased loss of pulmonary function, and tearing of the eyes.

HEALTH HAZARD CATEGORIES:

	Animal	Human		Animal	Human
Known Carcinogen	___	___	Toxic	_X_	___
Suspect Carcinogen	___	___	Corrosive	___	___
Mutagen	___	___	Irritant	___	___
Teratogen	___	___	Target Organ Toxin	_X_	_X_
Allergic Sensitizer	___	___	Specify - Nerve Toxin; Blood Toxin		
Highly Toxic	___	___	Lung-Simple Asphyxiant		

FIRST AID AND EMERGENCY PROCEDURES:

Eye: Flush eyes with running water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.

Skin: Wash skin with soap and water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.

Inhalation: Immediately remove from exposure. If breathing is difficult, give oxygen. If breathing ceases, administer artificial respiration followed by oxygen. Seek immediate medical attention.

Ingestion: If illness or adverse symptoms develop, seek medical attention.

G. PHYSICAL DATA

Appearance:	Colorless gas
Odor:	Mild to rotten egg odor, if hydrogen sulfide is present.
Boiling Point:	-285F (-161C)(Estimate)
Vapor Pressure:	Not Applicable
Vapor Density (Air = 1):	0.8 (Estimate)
Solubility in Water:	Negligible
Specific Gravity (H2O = 1):	0.5 (Estimate)
Percent Volatile by Volume:	Not Applicable
Evaporation Rate (Butyl Acetate = 1):	Not Applicable
Viscosity:	Not Applicable

H. FIRE AND EXPLOSION DATA

Flash Point (Method Used):	-292F (-180C) (Estimate)
Flammable Limits (% by Volume in Air):	LEL - 5 UEL - 15.8
Fire Extinguishing Media:	Dry chemical, foam or carbon dioxide (CO2)
Special Fire Fighting Procedures:	Stop flow of gas. If possible, let fire burn until flow of gas can be shut off. Evacuate area of all unnecessary personnel. Wear appropriate safety equipment for fire conditions including NIOSH/MSHA self-contained breathing apparatus (SCBA) and protective equipment and garments described in Section C. Water fog or spray may be used to cool exposed equipment and containers.
Fire and Explosion Hazards:	Very dangerous when exposed to heat or flame. Containers may explode violently in the heat of a fire. Vapors may travel to a source of ignition and flash back. If hydrogen sulfide is present, respiratory equipment specified above must be used.

I. SPILL, LEAK AND DISPOSAL PROCEDURES

Precautions Required if Material is Released or Spilled:
Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Shut off source, if possible and contain spill. Protect from ignition. Keep out of water sources and sewers. Absorb in a dry, inert material (sand, clay, etc). Transfer to disposal drums using non-sparking equipment.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):
Incinerate or place in permitted waste management facility.

J. DOT TRANSPORTATION

Shipping Name: Natural gas, compressed
Hazard Class: 2.1 (Flammable gas)

ID Number: UN 1971
Packing Group: Not Applicable
Marking: Natural gas, compressed/UN 1971
Label: Flammable gas
Placard: Flammable gas/1971
Hazardous Substance/RQ: Not Applicable
Shipping Description: Natural gas, compressed, 2.1 (Flammable gas), UN 1971
Packaging References: 49 CFR 173.302 and 173.306

K. RCRA CLASSIFICATION - UNADULTERATED PRODUCT AS A WASTE

Ignitable (D001)

Prior to disposal, consult your environmental contact to determine if TCLP (Toxicity Characteristic Leaching Procedure, EPA Test Method 1311) is required. Reference 40 CFR Part 261.

L. PROTECTION REQUIRED FOR WORK ON CONTAMINATED EQUIPMENT

Contact immediate supervisor for specific instructions before work is initiated. Wear protective equipment and/or garments described in Section C if conditions warrant.

M. HAZARD CLASSIFICATION

_X_ This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

___ Combustible Liquid	___ Flammable Aerosol	___ Oxidizer
_X_ Compressed Gas	___ Explosive	___ Pyrophoric
_X_ Flammable Gas	_X_ Health Hazard (Section F)	___ Unstable
___ Flammable Liquid	___ Organic Peroxide	___ Water Reactive
___ Flammable Solid		

___ Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. ADDITIONAL COMMENTS

SARA 313

This product contains the following chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. (See Section B).

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n-Hexane

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Natural Gas (US001960)

**** END OF MATERIAL SAFETY DATA SHEET FOR: Natural Gas ****

NATURAL GAS LIQUIDS

Material Safety Data Sheet

June 30, 1992

GPM GAS CORPORATION
Bartlesville, Oklahoma 74004

PHONE NUMBERS
Emergency: (918) 661-8118
General MSDS Information: (918) 661-8327
For Additional MSDSs: (918) 661-5952

A. PRODUCT IDENTIFICATION

Synonyms: NGL's; Raw product
Chemical Name: Natural gas liquids
Chemical Family: Mixture
Chemical Formula: Mixture
CAS Reg. No.: 64741-48-6
Product No.: Not Established

Product and/or Components Entered on EPA's TSCA Inventory: YES

This product is in U.S. commerce, and is listed in the Toxic Substances Control Act (TSCA) Inventory of Chemicals; hence, it may be subject to applicable TSCA provisions and restrictions.

B. COMPONENTS

Ingredients	CAS Number	% By Wt.	OSHA PEL	ACGIH TLV
Nitrogen	7727-37-9	0-5	NE	Simple Asphyxiant
Carbon dioxide	124-38-9	0-5	10000 ppm	5000 ppm
Hydrogen sulfide	7783-06-4	0-10	10 ppm	10 ppm
Methane	74-82-8	0-30	NE	Simple Asphyxiant
Ethane	74-84-0	1-80	NE	Simple Asphyxiant
Propane	74-98-6	1-80	1000 ppm	Simple Asphyxiant
Isobutane	75-28-5	0-40	NE	NE
n-Butane	106-97-8	0-40	800 ppm	800 ppm
Isopentane	78-78-4	0-25	NE	NE
Pentane	109-66-0	0-25	600 ppm	600 ppm
Isohexane	107-83-5	0-40	500 ppm	500 ppm
Hexane	110-54-3	0-60	50 ppm	50 ppm

Normal composition ranges are shown. Exceptions may occur which would invalidate data on this form.

C. PERSONAL PROTECTION INFORMATION

Ventilation:	Use adequate ventilation to control exposure below recommended levels.
Respiratory Protection:	Not generally required. In case of spill or leak resulting in unknown concentration, use NIOSH/MSHA approved supplied air respirator.
Eye Protection:	Use safety glasses with side shields.
Skin Protection:	No special garments required. Avoid unnecessary skin contamination with material.

NOTE: Personal protection information shown in Section C is based upon general information as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.

D. HANDLING AND STORAGE PRECAUTIONS

Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist, fume or dust. May be harmful. Proper personal protective equipment must be used when handling this chemical. Launder contaminated clothing before reuse. Wash thoroughly after handling. Use only with adequate ventilation. Do not get liquified gas into eyes, on skin, or on clothing. May cause freeze burns upon direct contact.

Store in a well-ventilated area. Store in tightly closed container. Keep away from heat, sparks, and flames. Bond and ground during transfer.

E. REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	Not Applicable
Incompatibility (Materials to Avoid):	Oxygen and strong oxidizing materials
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid:	Not Applicable
Hazardous Decomposition Products:	Carbon oxides and various hydrocarbons formed when burned. Sulfur oxides may be formed if hydrogen sulfide is present.

F. HEALTH HAZARD DATA

RECOMMENDED EXPOSURE LIMITS:

See Section B.

ACUTE EFFECTS OF OVEREXPOSURE:

Eye: May cause irritation including pain, blurred vision, redness, tearing and superficial corneal turbidity.

Skin: May cause slight irritation. Extreme exposure may produce discoloration, muscle weakness, breathing difficulties and other central nervous system effects. Direct contact with liquefied gas may cause freeze-burns.

Inhalation: Toxic by this route of exposure. May cause nausea, diarrhea, loss of appetite, dizziness, disorientation, headache, excitation, rapid respiration, drowsiness, labored breathing, anesthesia and other central nervous system effects. May cause lung paralysis and asphyxiation. Extreme overexposure may cause rapid unconsciousness and respiratory arrest.

Ingestion: Liquefied gas may cause freeze-burns to mucous membranes and central nervous system depression.

SUBCHRONIC AND CHRONIC EFFECTS OF OVEREXPOSURE:

Human volunteers exposed repeatedly to isobutane at 500 ppm for one minute to eight hours per day, five days per week for four weeks exhibited no cardiac, pulmonary, or other functional abnormalities.

Laboratory animals have exhibited a higher degree of narcosis when exposed to both butane and butylene (additive effect), than the degree of narcosis exhibited following exposure to butane or butylene alone.

Chronic high level n-hexane exposure damages the nervous system initially producing a lack of feeling in the extremities and possibly progressing to a more severe nerve damage.

Inhalation of high levels (1000 and 5000 ppm) of n-hexane has produced testicular damage in rats. Mice exposed to the same dose levels showed no testicular effects.

Carbon dioxide exposure may cause acidosis and imbalance of

electrolytes in the blood.

OTHER HEALTH EFFECTS:

The odor of hydrogen sulfide may not be recognized after prolonged inhalation due to paralysis of the sense of smell. Effects from inhaling the fume may lead to chronic bronchitis, respiratory irritation, increased loss of pulmonary function, and tearing of the eyes.

Propane was not mutagenic in the AMES assay.

2-Methylpentane has produced kidney damage in male rats only in subchronic oral laboratory studies. No comparable kidney injury has been reported in humans. When 2-methylpentane was given to rats orally for eight days, it impaired the function of the peripheral nerves. However, the severity of the effect was less than that of n-hexane, a known neurotoxicant.

Isopentane did not produce kidney damage in a subchronic oral laboratory study or in a subchronic inhalation exposure to 4500 ppm and 1000 ppm of a 50/50 mixture of isobutane and isopentane.

HEALTH HAZARD CATEGORIES:

	Animal	Human		Animal	Human
Known Carcinogen	___	___	Toxic	_X_	___
Suspect Carcinogen	___	___	Corrosive	___	___
Mutagen	___	___	Irritant	___	___
Teratogen	___	___	Target Organ Toxin	_X_	_X_
Allergic Sensitizer	___	___	Specify - Nerve Toxin;		
Highly Toxic	___	___	Freeze Burn Hazard;		
			Lung-Simple Asphyxiant		

FIRST AID AND EMERGENCY PROCEDURES:

NOTE: For freeze burns, immediately flush effected area with tap water for at least fifteen minutes, seek immediate medical attention.

Eye: Flush eyes with running water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.

Skin: Wash skin with soap and water for at least fifteen minutes. If irritation or adverse symptoms develop, seek medical attention.

Inhalation: Immediately remove from exposure. If breathing is difficult, give oxygen. If breathing ceases, administer artificial respiration followed by oxygen. Seek immediate medical attention.

Ingestion: Give two glasses of water and induce vomiting, only if subject is conscious. Seek medical attention.

G. PHYSICAL DATA

Appearance:	Colorless liquefied gas
Odor:	Rotten egg odor if hydrogen sulfide is present.
Boiling Point:	Not Established
Vapor Pressure:	Not Established
Vapor Density (Air = 1):	>1
Solubility in Water:	Negligible
Specific Gravity (H2O = 1):	0.5-0.7 (Estimated)
Percent Volatile by Volume:	100
Evaporation Rate (Butyl Acetate = 1):	>1
Viscosity:	Not Established

H. FIRE AND EXPLOSION DATA

Flash Point (Method Used):	<-100F (<-73C)(Estimated)
Flammable Limits (% by Volume in Air):	LEL - Not Established UEL - Not Established
Fire Extinguishing Media:	Dry chemical, foam or carbon dioxide (CO2)
Special Fire Fighting Procedures:	Evacuate area of all unnecessary personnel. Use NIOSH/MSHA approved self-contained breathing apparatus and other protective equipment and/or garments described in Section C if conditions warrant. Shut off source, if possible. Water fog or spray may be used to cool exposed equipment and containers Allow fire to burn until gas flow is shut off, if possible.
Fire and Explosion Hazards:	Carbon oxides and possibly sulfur oxides formed when burned.

Highly flammable vapors which are heavier than air may accumulate in low areas and/or spread along ground away from handling site. Heated containers may rupture violently and suddenly without warning due to vessel over-pressure (BLEVE). Fragmentation of the container should be anticipated. If flame is against the container, withdraw immediately on hearing a rising sound, if venting increases in volume or intensity, or if there is discoloration of the tank due to fire.

I. SPILL, LEAK AND DISPOSAL PROCEDURES

Precautions Required if Material is Released or Spilled:
Evacuate area of all unnecessary personnel. Wear protective equipment and/or garments described in Section C if exposure conditions warrant. Shut off source, if possible. Protect from ignition. Ventilate area thoroughly.

Waste Disposal (Insure Conformity with all Applicable Disposal Regulations):
Incinerate or otherwise manage at a RCRA permitted waste management facility.

J. DOT TRANSPORTATION

Shipping Name:	Hydrocarbon gases mixtures, liquefied, n.o.s. (Ethane and Propane)
Hazard Class:	2.1 (Flammable gas)
ID Number:	UN 1965
Packing Group:	Not applicable
Marking:	Hydrocarbon gases mixtures, liquefied, n.o.s. (Ethane and Propane), UN 1965, RQ*
Label:	Flammable gas
Placard:	Flammable gas/1965
Hazardous Substance/RQ:	Hydrogen sulfide/100#
Shipping Description:	Hydrocarbon gas mixtures, liquefied, n.o.s. (Ethane and Propane), 2.1 (Flammable gas), UN 1965, RQ*
Packaging References:	49 CFR 173.304, 173.306, 173.314, 173.315

K. RCRA CLASSIFICATION - UNADULTERATED PRODUCT AS A WASTE

Ignitable (D001)

Prior to disposal, consult your Environmental contact to determine if TCLP (Toxicity Characteristic Leaching Procedure, EPA Test Method 1311) is required. Reference 40 CFR Part 261.

L. PROTECTION REQUIRED FOR WORK ON CONTAMINATED EQUIPMENT

Contact immediate supervisor for specific instructions before work is initiated. Wear protective equipment and/or garments described in Section C if exposure conditions warrant.

M. HAZARD CLASSIFICATION

_X_ This product meets the following hazard definition(s) as defined by the Occupational Safety and Health Hazard Communication Standard (29 CFR Section 1910.1200):

___ Combustible Liquid	___ Flammable Aerosol	___ Oxidizer
_X_ Compressed Gas	___ Explosive	___ Pyrophoric
_X_ Flammable Gas	_X_ Health Hazard (Section F)	___ Unstable
___ Flammable Liquid	___ Organic Peroxide	___ Water Reactive
___ Flammable Solid		

___ Based on information presently available, this product does not meet any of the hazard definitions of 29 CFR Section 1910.1200.

N. ADDITIONAL COMMENTS

SARA 313

As of the preparation date, this product did not contain a chemical or chemicals 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.

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Natural Gas Liquids (US404230)

**** END OF MATERIAL SAFETY DATA SHEET FOR: Natural Gas Liquids ****

AMOCO (R) MATERIAL SAFETY DATA SHEET

PHILUBE SMP GEAR OIL SAE 80W-90

MSDS NO: 02003047

MANUFACTURER/SUPPLIER:
Amoco Oil Company
200 East Randolph Drive
Chicago, Illinois 60601

EMERGENCY HEALTH INFORMATION: (800) 447-8735
EMERGENCY SPILL INFORMATION: (800) 424-9300
OTHER PRODUCT SAFETY INFORMATION: (312) 856-3907

IMPORTANT COMPONENTS: Solvent refined paraffinic petroleum oil (CAS 64741-88-4).
Solvent refined residuum (CAS 64742-01-4).
No exposure limit(s) established.

WARNING STATEMENT: Warning! Causes eye and skin irritation.

HMIS/NFPA CODES: (HEALTH; 2) (FLAMMABILITY; 1) (REACTIVITY; 0)

APPEARANCE AND ODOR: Oily liquid.

HEALTH HAZARD INFORMATION

EYE

EFFECT: Causes eye irritation.

FIRST AID: Immediately flush eyes with plenty of water for at least 15 minutes, then get prompt medical attention.

PROTECTION: Do not get in eyes. Wear chemical goggles.

SKIN

EFFECT: Causes skin irritation.

FIRST AID: Wash exposed skin with soap and water. Remove contaminated clothing and thoroughly clean and dry before reuse. Get medical attention if irritation develops.

PROTECTION: Do not get on skin or clothing. Wear protective clothing and gloves.

INHALATION

EFFECT: No significant health hazards identified.

FIRST AID: If adverse effects occur, remove to uncontaminated area. Get medical attention.

PROTECTION: None required; however, use of adequate ventilation is good industrial practice.

INGESTION

EFFECT: Expected to be relatively non-toxic.

FIRST AID: If a large amount is swallowed, induce vomiting. Get medical attention.

ORIGINAL DOCUMENT - END OF PAGE 1

FIRE AND EXPLOSION INFORMATION

FLASHPOINT: 329 F, (COC)

EXTINGUISHING MEDIA: Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, halogenated agents, foam, steam) or water fog.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

REACTIVITY INFORMATION

DANGEROUS REACTIONS: None identified.

HAZARDOUS DECOMPOSITION: Polymerization will not occur.

STABILITY: Stable.

CHEMICAL AND PHYSICAL PROPERTIES

SOLUBILITY IN WATER: Negligible, below 0.1%.

SPECIFIC GRAVITY (WATER = 1): 0.89

VISCOSITY: 70-80 SUS @ 210 F VISCOSITY INDEX: 90 minimum

POUR POINT: -10 F Maximum

STORAGE AND ENVIRONMENTAL PROTECTION

STORAGE REQUIREMENTS: No special requirements.

SPILLS AND LEAKS: Treat as an oil spill. Contain and remove by mechanical means.

WASTE DISPOSAL: Disposal must be in accordance with applicable federal, state, or local regulations. Enclosed-controlled incineration is recommended unless directed otherwise by appli-

cable ordinances.

SPECIAL PRECAUTIONS: Avoid strong oxidizers.

TOXICOLOGICAL INFORMATION

Specific toxicity tests have not been conducted on this product. Our hazard evaluation is based on information from similar products, the ingredients, technical literature and/or professional experience.

No component of this product is identified as a carcinogen by NTP, IARC or OSHA.

REGULATORY INFORMATION

CERCLA REPORTABLE QUANTITY:
This product is not reportable under 40 CFR Part 302.4.

DOT PROPER SHIPPING NAME: Not regulated.

OSHA HAZARD COMMUNICATION STANDARD: Irritant.

ORIGINAL DOCUMENT - END OF PAGE 2

RCRA STATUS:
This product is not subject to the 40 CFR Part 268.30 land ban on the disposal of certain hazardous wastes.

SARA STATUS:
This product is regulated under the following section(s) of SARA Title III, 42 USC 9601. Spills or releases of the product may be reportable as determined by the information given below:

SECTIONS 311 AND 312 OF SARA AND 40 CFR PART 370:
This product is defined as hazardous by OSHA under 29 CFR Part 1910.1200(d).

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

ISSUE INFORMATION

BY:

Gerald I. Bresnick
Director, Product Safety

ISSUED: August 14, 1989
SUPERSEDES: February 10, 1989

This material safety data sheet and the information it contains is offered to you in good faith as accurate. We have reviewed any information contained in this data sheet which we received from sources outside our company. We believe that information to be correct but cannot guarantee its accuracy or completeness. Health and safety precautions in this data sheet may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. No statement made in this data sheet shall be construed as a permission or recommendation for the use of any product in a manner that might infringe existing patents. No warranty is made, either express or implied.

ORIGINAL DOCUMENT - END OF PAGE 3

**** END OF MATERIAL SAFETY DATA SHEET FOR: Philube SMP Gear Oil SA ****

MATERIAL SAFETY DATA SHEET
CHEMICAL ID: 001644 MSDS ID: 001644
PRODUCT NAME: Sulfuric Acid
FACILITY: 581000 East Vacuum Liquids Recovery P

ASARCO — SULFURIC ACID — MATERIAL SAFETY DATA SHEET 14605

A. PRODUCT/COMPANY IDENTIFICATION

TRADE NAME (COMMON NAME OR SYNONYM)	ASARCO PRODUCT CODE #
Sulfuric Acid, Oil of Vitriol	1860

CHEMICAL NAME	FORMULA	MOLECULAR WEIGHT
Sulfuric Acid	H2SO4	98.08

ADDRESS (No., STREET, CITY, STATE AND ZIP CODE)
ASARCO Incorporated
180 Maiden Lane
New York, New York 10038 Phone: 212-510-2000

CONTACT	PHONE NUMBER		ISSUED DATE	REVISED DATE
			1/7/83	12/8/94
General Information-				
Department of Environmental Sciences	DAY	801-262-2459		
	NIGHT	801-561-3044		
First Aid Information-(Medical Dept.)		415-457-0383		
Transportation Emergencies-CHEMTREC		800-424-9300		

B. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL OR COMPONENT	C.A.S.#	WT. %	PERMISSIBLE AIR CONC. (mg/cu.m.)	
			OSHA	ACGIH
Sulfuric Acid	7664-93-9	93-99	1.0	1.0

C. HAZARDS IDENTIFICATION

PRIMARY ROUTES OF ENTRY		
INGESTION	INHALATION	SKIN
{X}	{X}	{ }

CARCINOGENICITY
The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as carcinogenic to humans. This classification does not apply to sulfuric acid or sulfuric acid solutions.
Warning: This product contains a chemical known to the state of California to cause

cancer.

ACUTE OVEREXPOSURE (SYMPTOMS AND EFFECTS)
1. Inhalation of fumes or mists can cause irritation or corrosive burns to the upper respiratory system. Lung irritation and pulmonary edema can occur.
2. Ingestion can cause irritation and corrosive burns to throat, mouth, and stomach. Can be fatal if swallowed.
3. Causes severe burns or irritation on skin contact.
4. Liquid contact with the eyes can cause irritation, corneal burns, and blindness. Mist contact may irritate or burn.

CHRONIC OVEREXPOSURE (SYMPTOMS AND EFFECTS)
Long term exposure to high levels of acid fumes may cause erosion of teeth followed by jaw necrosis, bronchial irritation, coughing, and bronchial pneumonia, or gastrointestinal disturbances.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED
Acute and chronic respiratory diseases.

D. FIRST AID MEASURES

Inhalation: Remove from exposure; place individual under care of a physician.
Ingestion: Drink large amounts of water (or milk, if available) to dilute the acid. DO NOT INDUCE VOMITING!
Skin or Eye: Immediately flush with plenty of water for at least 15 minutes. Remove contaminated clothing. GET PROMPT MEDICAL ATTENTION!

E. FIRE FIGHTING MEASURES

FLASH POINT	AUTO IGNITION TEMPERATURE	FLAMMABLE LIMITS IN AIR (% BY VOL.)
Not Applicable	Not Applicable	Not Applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS	FIRE EXTINGUISHING AGENTS RECOMMENDED	FIRE EXTINGUISHING AGENTS TO AVOID
Flammable and explosive hydrogen gas can be generated inside metal drums and storage tanks. Concentrated acid can ignite combustible materials on contact. Acid plus active metal can also form explosive concentrations of hydrogen.	If involved in a fire, use water spray; avoid spraying water into containers. If only a small amount of combustibles is present, smother fire with dry chemical.	Direct stream of water may cause spattering.

SPECIAL FIRE FIGHTING PRECAUTIONS
Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing if involved in fire. At high temperatures, sulfuric acid or

sulfur trioxide mists can be released from vented or ruptured containers. If water is added to concentrated sulfuric acid, violent spattering can occur and considerable heat may be evolved.

ORIGINAL DOCUMENT - END OF PAGE 1

F. RELEASE MEASURES

SPILLS OR LEAKS
Dilute small spills or leaks cautiously with plenty of water. Neutralize with alkali such as soda ash or lime. Adequate ventilation is required for soda ash due to release of CO2 gas. No smoking in spill area. Major spills must be handled by a predetermined plan. Diking with soda ash is recommended. Attempt to keep out of sewer.

G. HANDLING AND STORAGE

NORMAL HANDLING
Do not get in eyes, on skin, or on clothing. Do not breathe vapor or mists. Use protective equipment as outlined in Section H. Do not add water to acid. When diluting, always add acid to water cautiously and with agitation. Use with adequate ventilation.

STORAGE
Protect from physical damage. Store in cool, well-ventilated area away from combustibles and reactive chemicals. Keep out of sun and away from heat. Keep containers in upright position. No smoking in storage areas.

H. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS
Adequate ventilation to maintain mist below permissible exposure limits. Packaging, unloading areas, or open processing equipment may require mechanical ventilation.

PERSONAL HYGIENE
Avoid inhalation or ingestion. Practice good housekeeping and personal hygiene procedures. Wash thoroughly before eating or smoking. Do not wear contaminated clothing home.

SPECIAL: PRECAUTIONS/PROCEDURES/LABEL INSTRUCTIONS
Loosen closures carefully.
NFPA Classification: 3H, 0F, 2R, W

LABEL SIGNAL WORD: DANGER

RESPIRATORY PROTECTION
Where airborne exposures may exceed OSHA/ACGIH permissible air concentrations, the minimum respiratory protection recommended is a negative

EYES AND FACE
Chemical goggles or fac shield required.

pressure air purifying respirator with cartridges that are NIOSH/MSHA approved against dusts and mists having a TWA not less than 0.05 mg/cu.m.

OTHER CLOTHING AND EQUIPMENT
Rubber gloves and apron or equivalent required when handling sulfuric acid. Full protective clothing recommended when handling large quantities of sulfuric acid.

I. PHYSICAL/CHEMICAL PROPERTIES

MATERIAL IS (AT NORMAL CONDITIONS)	APPEARANCE AND ODOR
Liquid	Oily, colorless to slightly yellow, clear to turbid liquid. Odor threshold is 1 mg/cu.m.

MELTING POINT (DEGREES C)	BOILING POINT (DEGREES C)	SPECIFIC GRAVITY (H2O=1)	VAPOR DENSITY (AIR=1)
93.19% at -29 C, 98% at -1 C	276-281	1.835-1.844	Not Applicable

SOLUBILITY IN WATER (% BY WEIGHT)	pH	VAPOR PRESSURE (mm Hg)	EVAPORATION RATE
Complete	1% solution: pH = 0.9	90%=0.005 at 20 C 95%=0.0015 at 35 C	Not Applicable

J. STABILITY AND REACTIVITY

STABILITY	CONDITIONS TO AVOID
Stable	Not Applicable

INCOMPATIBILITY (MATERIALS TO AVOID)
Sulfuric acid is not flammable but highly reactive and capable of igniting finely divided combustible materials on contact. Reacts violently with water and organic materials with evolution of heat. Extremely hazardous in contact with many materials, particularly carbides, chlorates, fulminates, nitrates, picrates, powdered metals and other combustible materials. Attacks many metals releasing hydrogen. Examples of common inorganic chemicals that should be avoided include: sodium carbonate, sodium hydroxide, elemental sodium, potassium permanganate, ammonium hydroxide, and potassium chlorate. Common organic chemicals that have been reported as being incompatible with sulfuric acid include: ethylene glycol, aniline, and ethylene diamine.

HAZARDOUS DECOMPOSITION PRODUCTS	HAZARDOUS POLYMERIZATION	CONDITIONS TO AVOID
Sulfur Trioxide Mist	Will not occur	Not Applicable

K. TOXICOLOGICAL INFORMATION

LD50 (SPECIES, ROUTE)	LC50 (SPECIES)	MUTAGENICITY
Sulfuric Acid: 2140 mg/kg (rat, oral)	Sulfuric Acid: 510 mg/cu.m./2hrs. (rat)	Not available

L. ECOLOGICAL

ECOTOXICITY	ENVIRONMENTAL FATE
Not available	Not available

ORIGINAL DOCUMENT - END OF PAGE 2

M. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHODS (DISPOSER MUST COMPLY WITH FEDERAL, STATE AND LOCAL DISPOSAL OR DISCHARGE LAWS)
If hazardous under 40 CFR 261, Subparts B and C, material must be treated or disposed in a facility meeting the requirements of 40 CFR 264 or 265. If non-hazardous, material should be disposed in a facility meeting the requirements of 40 CFR 257.
EPA Hazardous Waste Number: D002 (corrosive)

RCRA STATUS OF UNUSED MATERIAL — 40 CFR 261

If discarded in unaltered form, material should be tested to determine if it must be classified as a hazardous waste for disposal purposes. Under specific circumstances, application can be made to the EPA Administrator to have a particular waste desginated non-hazardous.

N. TRANSPORT

DOT REGULATION AND ID (OR PIN) NUMBER
Sulfuric acid is regulated as a corrosive material with an identification number of UN1830.

O. REGULATORY INFORMATION

WHMIS CLASSIFICATION, SARA REGULATION AND OTHER INFORMATION
WHMIS classifies this material as Class C, D1A, and E.
TSCA Status.....: On TSCA Inventory
Regulated under SARA Title III:
  Sect. 302.....: Sulfuric Acid
  Sect. 311/312.....: Immediate and Delayed
  Sect. 313 Chemicals...: Sulfuric Acid

CERCLA Reportable Quantity.....: 1000 pounds for Sulfuric Acid.

P. REFERENCES

PERMISSIBLE CONCENTRATION REFERENCES
OSHA regulations for airborne contaminants 29 CFR 1910.1000 and 1018;
ACGIH Threshold Limit Values for Chemical Substances.

HAZARD INFORMATION REFERENCES

Documentation of the Threshold Limit Values, 6th Ed., ACGIH
Patty's Industrial Hygiene and Toxicology, Vol. 2A. 3rd Rev. Ed., Handbook of Toxic and Hazardous Chemicals; Sittig, Marshall; 1981
NFPA Fire Protection Guide on Hazardous Materials, 10th Ed.
TOMES Plus Database; Micromedex, Inc., Vol. 17, 1993
DATATOX Database; Spectrum Research, Inc., Version 2.0, 1992

GENERAL
Handbook of Chemistry and Physics, 57th Ed., 1976-77, Weast, R.C. Editor, CRC Inc.

Q. ADDITIONAL INFORMATION

INFORMATION (HAZARDS, PRECAUTIONS, FIRST AID, ETC.) IS ABBREVIATED. MORE DETAILED INFORMATION IS CONTAINED IN REFERENCES FOUND IN SECTION P.
Additional Information Contact: ASARCO Incorporated
Sulfuric Acid Sales Department
P.O. Box 5747
Tucson, AZ 85703-0747
800-433-2243

ORIGINAL DOCUMENT - END OF PAGE 3

**** END OF MATERIAL SAFETY DATA SHEET FOR: Sulfuric Acid ****

MATERIAL SAFETY DATA SHEET
TRIETHYLENE GLYCOL

1 HMIS HEALTH
1 HMIS FLAMMABILITY
0 HMIS REACTIVITY
B HMIS PERSONAL PROTECTION

SECTION I - IDENTIFICATION

DISTRIBUTED BY..... COASTAL CHEMICAL COMPANY, INC
P.O. BOX 820
ABBEVILLE, LA 70511-0820
(318) 893-3862
EMERGENCY PHONE NUMBER..... (318) 893-3862 OR CHEMTREC (800) 424-9300
EFFECTIVE DATE..... 02/26/90
MANUFACTURER'S NAME..... UNION CARBIDE
DOW CHEMICAL
TEXACO
OXY-PETROCHEMICAL

TRADE NAME..... TRIETHYLENE GLYCOL
CHEMICAL FAMILY..... POLYETHYLENE GLYCOL
CAS NUMBER..... 112-27-6
CHEMICAL FORMULA..... C6H1404

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENTS	%	TLV (Units)	PROD. CAS #
TRIETHYLENE GLYCOL	99	None Established	112-27-6

SECTION III - PHYSICAL DATA

FREEZING POINT (F)..... -7 Deg. C., 19 Deg. F.
VAPOR PRESSURE (mm Hg)..... <1 mm
VAPOR DENSITY (Air=1)..... 5.2, air = 1
SOLUBILITY IN H2O..... Completely soluble in all proportions
APPEARANCE/ODOR..... Clear, colorless, viscous liquid with slight odor.
SPECIFIC GRAVITY (H2O=1)..... 1.1. @ 77 Deg. F., 25/25 Deg.C
PH..... N/D

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT..... 350 Deg. F.
LOWER FLAME LIMIT..... 0.9
HIGHER FLAME LIMIT..... 9.2
EXTINGUISH MEDIA..... Use water fog or spray, Alcohol Foam, Dry

Powder, Carbon Dioxide (CO2).

UNUSUAL FIRE HAZARD..... Containers may explode from internal pressure if confined to fire. Coal with water. Keep unnecessary people away. Approach fire from upwind side. Avoid breathing smoke, fumes, mist or vapors on the downwind side.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE..... Recommended 5 MG/M3 based on oil mist.

ROUTES OF ENTRY	INHALATION?	SKIN?	INGESTION?
	Irritant	Mild irritant	Irritant

HEALTH HAZARDS..... ACUTE: Vapors or liquid may be irritating to skin, eyes, or mucous membranes. Avoid inhalation or skin/eye contact.

CARCINOGENICITY	NPT?	IARC MONOGRAPHS?	OSHA REGULATED?
NO	NO	NO	NO

OVER EXPOSURE EFFECTS..... Skin irritation develops slowly after contact. Eye irritation develops immediately upon contact.

FIRST AID PROCEDURES..... In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. If swallowed, do not induce vomiting, get immediate medical attention. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Get medical attention.

SECTION VI - REACTIVITY DATA

CHEMICAL STABILITY..... Product is stable

CONDITIONS TO AVOID..... Heat may cause internal pressure which could rupture container.

INCOMPATIBLE MATERIALS..... Oxidizers or Oxidizing Materials.

DECOMPOSITION PRODUCTS..... From fire: Smoke. Carbon dioxide, & Carbon Monoxide.

HAZARDOUS POLYMERIZATION..... Will not occur

POLYMERIZATION AVOID..... None

SECTION VII - SPILL OR LEAK PROCEDURE

FOR SPILL..... In case of spillage, absorb with inert material and dispose of in accordance with

applicable regulations

WASTE DISPOSAL METHOD..... Industrial Waste. Follow Federal, State and Local laws.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION..... When ventilation is not adequate, use of NIOSH approved organic vapor gas cartridge respirator is recommended.
VENTILATION..... Required in closed areas
MECHANICAL EXHAUST..... Required in closed areas
LOCAL EXHAUST..... Desired
PROTECTIVE GLOVES..... Wear impervious gloves
EYE PROTECTION..... Use chemical goggles or full face shield.

OTHER PROTECTIVE EQUIPMENT..... Chemical type apron recommended

SECTION IX - SPECIAL HANDLING

HANDLING AND STORAGE..... Store away from oxidizers or materials bearing a yellow "DOT" label. Keep out of sun and away from heat. Clean up leaks immediately to prevent soil or water contamination.
PRECAUTIONARY MEASURES..... Avoid contact with skin, eyes, and clothing. After handling this product, wash hands before eating, drinking, or smoking. If contact occurs, remove contaminated clothing. If needed, take first aid action shown in Section V. Use with adequate ventilation.
HAZARD CLASS..... NON HAZARDOUS
DOT SHIPPING NAME..... CHEMICALS, NOS
REPORTABLE QUANTITY (RQ)..... None
UN NUMBER..... None
NA #..... None
PACKAGING SIZE..... N/A

SECTION X - REGULATORY

EPA ACUTE..... YES
EPA CHRONIC..... NO
EPA IGNITABILITY..... NO
EPA REACTIVITY..... NO
EPA SUDDEN RELEASE OF PRESSURE..... NO

CERCLA RQ VALUE..... None

SARA TPQ..... None

SARA RQ..... None
SECTION 313..... No

EPA HAZARD WASTE #..... None
CLEAN AIR..... Yes Section 111
CLEAN WATER..... No

FOOT NOTES N/A - not applicable N/D - no data available
< - means less than > - means greater than
App. - approximate Est. - estimated

PREPARED BY:..... Glen White, S.I.S., 817-560-4631
REVISED DATE..... 02/26/90

**** END OF MATERIAL SAFETY DATA SHEET FOR: Triethylene Glycol ****

M A T E R I A L S A F E T Y D A T A S H E E T

Product Name: UNICHEM 7125

Section: 01 PRODUCT IDENTIFICATION

UNICHEM INTERNATIONAL INC.
P.O. BOX 1499
707 N. LEECH
HOBBS
NM 88241-1499

Emergency Telephone 505-393-7751
Previous Version Date 1/16/92
Date Prepared 9/21/93
Version: 0000002

Product Name: UNICHEM 7125

Chemical Description:
Proprietary Corrosion Inhibitor

Section: 02 HAZARDOUS INGREDIENTS

Component Name	CAS#	% Range
aromatic hydrocarbon solvent		< 80%
trimethyl benzenes	25551-13-7	< 20%
xylene	01330-20-7	< 10%
cumene	00098-82-8	< 5%
naphthalene	00091-20-3	< 5%

Section: 03 PHYSICAL DATA

Freezing Point: - 70 Deg. F.
Boiling Point, 760 mm Hg: init 300 Deg. F
Specific Gravity (H2O=1): 0.908 Solubility in water: Dispersible
Appearance and Odor: Brown liquid; aromatic odor.

Section: 04 FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method): 108 Deg. F TCC

Extinguishing Media

CO2, dry chemical, water spray or fog, or foam. Use water to keep containers cool. Isolate "fuel" supply from fire. Contain fire fighting liquids for proper disposal.

Special Fire Fighting Procedures

Do not enter confined fire space without proper personal protective equipment incuding NIOSH approved self-contained breathing apparatus with full face-

piece operated in the positive pressure demand mode. Do not inject a solid stream of water or foam into hot, burning pools; this may cause splattering and increase fire intensity. Evacuate personnel to a safe area. Keep unnecessary people away.

Unusual Fire and Explosion Hazards

This material is combustible and under certain conditions may release vapors that pose a severe fire hazard. These vapors may travel along the ground or be moved by

ORIGINAL DOCUMENT - END OF PAGE 1

ventilation and ignited by pilot lights, other flames, sparks, heaters, smoking, electrical motors, static discharge, or other ignition sources at locations distant from material handling point. Containers may explode from internal pressure if confined to a fire. Keep unnecessary people away.

Section: 05 HEALTH HAZARD DATA

Effects of Overexposure

Eye Contact: may cause irritation or eye damage if not promptly removed.
Skin Contact: prolonged or repeated skin contact may cause irritation or dermatitis.
Inhalation: excessive or prolonged exposure to vapors may cause irritation to the eyes and the respiratory tract, may cause headaches, dizziness, nausea, drowsiness, convulsions or loss of consciousness, are anesthetic, and may have other central nervous system effects.
Ingestion: may cause irritation or burning sensation to the mouth, throat and stomach. Possible pneumonia if vomited.

Emergency and First Aid Procedures

SKIN

Wash with soap and water. Remove contaminated clothing and launder contaminated clothing before reuse. Get medical attention if redness or irritation develops.

EYES

Flush eyes immediately with large amounts of water for at least 15 minutes. Lift lower and upper lids occasionally. Get medical attention.

INHALATION

Remove victim to fresh air. Give artificial respiration if not breathing. If breathing is difficult, administer oxygen. Keep person warm, quiet and get medical attention.

INGESTION

Call a physician immediately. Give victim a glass of water. Do NOT induce vomiting unless instructed by a physician or poison control center. Never give anything by mouth to an unconscious person.

Section: 06 REACTIVITY DATA

Stable (Y=Yes/N=No): Y

ORIGINAL DOCUMENT - END OF PAGE 2

Stability -- Conditions to Avoid

None known.

Incompatibility (Materials to Avoid)

Avoid contact with strong oxidizing agents, strong alkalies, and strong mineral acids.

Hazardous Decomposition Products

Smoke, carbon dioxide, carbon monoxide, oxides of nitrogen.

Hazardous Polymerization May Occur (Y=Yes/N=No): N

Hazardous Polymerization -- Conditions to Avoid

None

Section: 07 SPILL OR LEAK PROCEDURES

Steps to be Taken if Material is Released or Spilled

Eliminate sources of ignition. Persons not wearing suitable personal protective equipment should be excluded from area of spill until clean-up has been completed. Shut off source of spill if possible to do so without hazard. Prevent material from entering sewers or watercourses. Provide adequate ventilation. Contain spilled materials with sand or earth. Recover undamaged or minimally contaminated material for reuse or reclamation. Place all collected material and spill absorbents into DOT approved containers.
Advise authorities. If this product is an EPA hazardous substance (see Section 10), notify the U.S. EPA and/or the National Response Center. Additional notification pursuant to SARA Section 302/304 (40 CFR 355) may also be required.

Waste Disposal Method

Treatment, storage, transportation and disposal must be in accordance with

EPA or State regulations under authority of the Resource Conservation and Recovery Act (40 CFR 260-271).

Section: 08 SPECIAL PROTECTIVE INFORMATION

Respiratory Protection

If workplace exposure limit(s) of product or any component is exceeded, an NIOSH/MSHA approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators (negative pressure organic vapor type) under specified conditions. Engineering or administrative controls should be implemented to reduce exposure.

Ventilation

The use of mechanical dilution ventilation is recommended

ORIGINAL DOCUMENT - END OF PAGE 3

whenever this product is used in confined spaces, is heated above ambient temperatures or is agitated. When applicable, sufficient local ventilation should be provided to maintain employee exposures below safe working limits (TWA's).

Protective Gloves

Neoprene, nitrile, polyvinyl alcohol (PVA), polyvinyl chloride (PVC)

Eye Protection

Chemical splash goggles or face shield in compliance with OSHA regulations is advised; however OSHA regulations also permits safety glasses under certain conditions. The use of contact lenses is not recommended.

Other Protective Equipment

Eye wash and safety shower

Section: 09 SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing

Avoid contact with eyes, skin or clothing. Avoid breathing vapors or mist. Keep away from heat, sparks, and open flames and never use a cutting torch on or near container (even empty) or explosion may result. Vapors may travel to areas away from the work site and ignite.

Other Precautions

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all

hazard precautions given in the data sheet must be observed. Do not transfer to improperly marked container. Do not use pressure to empty container. Do not cut, heat, weld, or expose containers to flame or other sources of ignition. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Containers should be grounded and bonded to receiving container(s) when being emptied. Containers should not be washed out and used for other purposes.
FOR INDUSTRIAL USE ONLY

Section: 10 REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act Of 1986(SARA) Title III

Section 302/304-Extremely Hazardous Substances (40 CFR 355)

SARA requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). These values are subject to change and the

ORIGINAL DOCUMENT - END OF PAGE 4

regulations should be consulted to verify current statutory requirements.
Components present in this product at a level which could require reporting under the statute are:

Component Name	RQ	TPQ	% Range
NONE			

Section 311/312 Chemical Inventory Reporting Requirements (40 CFR 370)

The Superfund Amendments are Reauthorization Act (SARA) may require submission of reports (chemical list, MSDS, Tier I & Tier II) to the State Emergency Response Commission, Local Emergency Response Committee and the local fire department.
The SARA physical and health hazards related to this product are:

X Acute Health Hazard	Sudden Release of Pressure	X Fire
X Chronic Health Hazard	Reactive	

Section 313-List of Toxic Chemicals (40 CFR 372)

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 372). This information should be included in all MSDSs that are copied and distributed for this material.

Component Name	CAS #	% Range
xylene	01330-20-7	< 10%
cumene	00098-82-8	< 5%
naphthalene	00091-20-3	< 5%

CERCLA, 40 CFR 261 AND 302

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center 1-800-424-8802 of any release of a Hazardous Substances equal to or greater than the reportable quantities (RQs) listed in 40CFR 302.4. Values are given in pounds for the component and not the mixture, if applicable. (These values are subject to change and the regulations should be consulted to verify current statutory levels.)

Component Name	CAS #	CERCLA RQ
xylene	00107-15-3	1000
cumene	00098-82-8	5000
naphthalene	00091-20-3	100

OSHA Exposure Limits

Component Name

trimethyl benzenes
TWA ppm: 25.0 TWA MG/M3: 125.0

xylene
TWA ppm: 100.0 TWA MG/M3: 435.0 STEL ppm: 150.0 STEL MG/M3: 655.0

ORIGINAL DOCUMENT - END OF PAGE 5

cumene
TWA ppm: 50.0 TWA MG/M3: 245.0 Skin: X

naphthalene
TWA ppm: 10.0 TWA MG/M3: 50.0 STEL ppm: 15.0 STEL MG/M3: 75.0

National Fire Protection Agency

2 Health — 1 Fire —

0 Reactive — Other —

Department of Transportation Shipping Information

Proper Shipping Name: Flammable liquids, n.o.s.
Hazard Class: 3 Identification: UN1993
Packaging Group: PG III
Contains: naphthalene, xylene
Hazardous Substance RQ: 2000# Emergency Response Guide Number: 27
Labels: Flammable liquid

Toxic Substances Control Act (TSCA), 40 CFR 261

This product (or components if product is a mixture) is in compliance with TSCA.

- -

Section 10 information is to remain attached to the material safety data sheet for this product.

- -

While UNICHEM INTERNATIONAL believes that the above data is correct, UNICHEM INTERNATIONAL expressly disclaims liability for any loss or injury arising out of the use of this information or the use of any materials designated.

- -

END OF MSDS

ORIGINAL DOCUMENT - END OF PAGE 6

**** END OF MATERIAL SAFETY DATA SHEET FOR: Unichem 7125 ****

M A T E R I A L S A F E T Y D A T A S H E E T

Product Name: UNICHEM 9850

Section: 01 PRODUCT IDENTIFICATION

UNICHEM INTERNATIONAL INC.
P.O. BOX 1499
707 N. LEECH
HOBBS, NM 88241-1499

Emergency Telephone 505-393-7751
Previous Version Date 9/21/93
Date Prepared 9/28/93
Version: 0000003

Product Name: UNICHEM 9850

Chemical Description:
Proprietary Antifoam Blend

Section: 02 HAZARDOUS INGREDIENTS

Component Name	CAS#	% Range
NONE		

Section: 03 PHYSICAL DATA

Freezing Point: 32 Deg. F.
Boiling Point, 760 mm Hg: 212 Deg. F.
Specific Gravity (H2O=1): 0.990 Solubility in water: Soluble
Appearance and Odor: White, opaque liquid; characteristic odor

Section: 04 FIRE AND EXPLOSION HAZARD DATA

Flash Point (Test Method): 600 Deg. F. TCC

Extinguishing Media

This material is non-combustible. If this material is involved in a fire, use an extinguishing agent appropriate to surrounding materials. Water spray may be used to cool containers of this material exposed to a fire. Fire extinguishing materials should be collected for determination of proper disposal.

Special Fire Fighting Procedures

Fire fighters should wear self-contained breathing apparatus with a full facepiece operated in the pressure-demand or positive-pressure mode.

Unusual Fire and Explosion Hazards

None

Section: 05 HEALTH HAZARD DATA

Effects of Overexposure

Eye Contact: liquid may cause minor irritation.
Skin Contact: no irritation expected under normal

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conditions.
Inhalation: not expected to present a hazard under normal conditions.
Ingestion: may cause gastrointestinal upset and nausea.

Emergency and First Aid Procedures

SKIN

Wash with soap and water. Remove contaminated clothing and launder contaminated clothing before reuse. Get medical attention if redness or irritation develops.

EYES

Flush eyes immediately with large amounts of water for at least 15 minutes. Lift lower and upper lids occasionally. Get medical attention.

INHALATION

Remove victim to fresh air. Give artificial respiration if not breathing. If breathing is difficult, administer oxygen. Keep person warm, quiet and get medical attention.

INGESTION

Call a physician immediately. Give victim a glass of water. Do NOT induce vomiting unless instructed by a physician or poison control center. Never give anything by mouth to an unconscious person.

Section: 06 REACTIVITY DATA

Stable (Y=Yes/N=No): Y

Stability -- Conditions to Avoid

None known.

Incompatibility (Materials to Avoid)

Strong alkalies and acids.

Hazardous Decomposition Products

Thermal decomposition or burning may produce carbon dioxide and/or carbon monoxide and oxides of silicon.

Hazardous Polymerization May Occur (Y=Yes/N=No): N

Hazardous Polymerization -- Conditions to Avoid

None

Section: 07 SPILL OR LEAK PROCEDURES

Steps to be Taken if Material is Released or Spilled

Wipe up with a cloth or paper (small quantity); or absorb

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unrecoverable product with inert material such as clay, sand or vermiculite, and put into containers for disposal.

Waste Disposal Method

Treatment, storage, transportation and disposal must be in accordance with EPA or State regulations under authority of the Resource Conservation and Recovery Act (40 CFR 260-271).

Section: 08 SPECIAL PROTECTIVE INFORMATION

Respiratory Protection

Use a dust/mist mask if spray or mist is present.

Ventilation

Good general mechanical ventilation recommended.

Protective Gloves

Neoprene, nitrile, polyvinyl alcohol (PVA), polyvinyl chloride (PVC)

Eye Protection

Chemical splash goggles or face shield in compliance with OSHA regulations is advised; however OSHA regulations also permits safety glasses under certain conditions. The use of contact lenses is not recommended.

Other Protective Equipment

Eye wash and safety shower

Section: 09 SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storing

Avoid contact with eyes, skin or clothing. Avoid breathing vapors or mist.

Other Precautions

Containers of this material may be hazardous when emptied. Since emptied containers retain residues (vapor, liquid, or solid), all hazard precautions given in the data sheet must be observed. Do not transfer to improperly marked container. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling. Containers should not be washed out or used for other purposes.
FOR INDUSTRIAL USE ONLY

Section: 10 REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act Of 1986 (SARA) Title III

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Section 302/304-Extremely Hazardous Substances (40 CFR 355)

SARA requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). These values are subject to change and the regulations should be consulted to verify current statutory requirements.

Components present in this product at a level which could require reporting under the statute are:

Component Name	RQ	TPQ	% Range
NONE			

Section 311/312 Chemical Inventory Reporting Requirements (40 CFR 370)

The Superfund Amendments and Reauthorization Act (SARA) may require submission of reports (chemical list, MSDS, Tier I and Tier II) to the State Emergency Response Commission, Local Emergency Response Committee and the local fire department. The SARA physical and health hazards related to this product are:

X	Acute Health Hazard		Sudden Release of Pressure		Fire
	Chronic Health Hazard		Reactive		

Section 313-List of Toxic Chemicals (40 CFR 372)

This product contains the following toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40 CFR 372). This information should be included in all MSDSs that are copied and distributed for this material.

Component Name	CAS #	% Range
NONE		

CERCLA, 40 CFR 261 AND 302

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center 1-800-424-8802 of any release of a Hazardous Substances equal to or greater than the reportable quantities (RQs) listed in 40CFR 302.4. Values are given in pounds for the component and not the mixture, if applicable. (These values are subject to change and the regulations should be consulted to verify current statutory levels.)

Component Name	CAS #	CERCLA RQ
NONE		

OSHA Exposure Limits

Component Name
NONE

National Fire Protection Agency

1	Health	0	Fire
0	Reactive		Other

ORIGINAL DOCUMENT - END OF PAGE 4

Department of Transportation Shipping Information

Proper Shipping Name: Nonregulated material
Hazardous Substance RQ: *NONE* Emergency Response Guide Number: 31
Labels: None

Toxic Substances Control Act (TSCA), 40 CFR 261

This product (or components if product is a mixture) is in compliance with TSCA.

Section 10 information is to remain attached to the material safety data

sheet for this product.
- -
While UNICHEM INTERNATIONAL believes that the above data is correct, UNICHEM INERNATIONAL expressly disclaims liability for any loss of injury arising out of the use of this information or the use of any materials designated.
- -
END OF MSDS

ORIGINAL DOCUMENT - END OF PAGE 5

**** END OF MATERIAL SAFETY DATA SHEET FOR: Unichem 9850 ****

MATERIAL SAFETY DATA SHEET
CHEMICAL ID: 640640 MSDS ID: 640640
PRODUCT NAME: Helium, Compressed Gas

TG05116 TRI-GAS, INC.
MATERIAL SAFETY DATA SHEET

TRI-GAS, INC. EMERGENCY CONTACT:

4545 FULLER DRIVE CHEMTREC: 1-800-424-9300
SUITE 200
IRVING, TX 75038
(214) 650-1700

SUBSTANCE IDENTIFICATION

CAS-NUMBER 7440-59-7

SUBSTANCE: HELIUM, COMPRESSED GAS

TRADE NAMES/SYNONYMS:
HELIUM GAS; HELIUM COMPRESED; HELIUM-4; ATOMIC HELIUM; STCC 4904540; UN 1046; HE

CHEMICAL FAMILY:
INORGANIC GAS

MOLECULAR FORMULA: HE

MOLECULAR WEIGHT: 4.0026

CERCLA RATINGS (SCALE 0-3): HEALTH=U FIRE=0 REACTIVITY=0
PERSISTENCE=0
NFPA RATINGS (SCALE 0-4): HEALTH=U FIRE=0 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: HELIUM PERCENT: 100.0
CAS# 7440-59-7

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
NO OCCUPATIONAL EXPOSURE LIMITS ESTABLISHED BY OSHA, ACGIH, OR NIOSH.

PHYSICAL DATA

DESCRIPTION: ODORLESS, COLORLESS, TASTELESS INERT GAS.

BOILING POINT: -452 F (-269 C)

MELTING POINT: -458 F (-272 C) @ 19760 MMHG (26 ATM)

SPECIFIC GRAVITY: 1.785 G/L @ 0 C VAPOR PRESSURE: 1719MMHG @ -196 C

SOLUBILITY IN WATER: 0.94% @ 0 C VAPOR DENSITY: 0.138

SOLVENT SOLUBILITY: INSOLUBLE IN ALCOHOL

VISCOSITY: 0.02012 CPS @ 26.8 C

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FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
NEGLIGIBLE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

CYLINDER MAY EXPLODE IN HEAT OF FIRE.

FIRE FIGHTING MEDIA:
DRY CHEMICAL OR CARBON DIOXIDE
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FIRE FIGHTING:
MOVE CONTAINER FROM FIRE AREA IF POSSIBLE. STAY AWAY FROM STORAGE TANK ENDS. COOL FIRE-EXPOSED CONTAINERS WITH WATER FROM THE SIDE UNTIL WELL AFTER THE FIRE IS OUT. WITHDRAW IMMEDIATELY IF RISING SOUND FROM VENTING SAFETY DEVICE OR ANY DISCOLORATION OF STORAGE TANK FROM FIRE.
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5, GUIDE PAGE 12).

USE AGENTS SUITABLE FOR TYPE OF FIRE. COOL CONTAINERS WITH FLOODING AMOUNTS OF WATER, APPLY FROM AS FAR A DISTANCE AS POSSIBLE.

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49 CFR 172.101:
NONFLAMMABLE GAS

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49 CFR 172.101 AND SUBPART E:
NONFLAMMABLE GAS

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: 49 CFR 173.302 AND 49 CFR 173.314
EXCEPTIONS: 49 CFR 173.306

TOXICITY

HELIUM:
CARCINOGEN STATUS: NONE.
ACUTE TOXICITY LEVEL: NO DATA AVAILABLE
TARGET EFFECTS: SIMPLE ASPHYXIANT.

HEALTH EFFECTS AND FIRST AID

INHALATION:
HELIUM:
INHALATION OF MIXTURES OF HELIUM AND OXYGEN MAY CAUSE DISTORTED SPEECH, INCREASED LOSS OF BODY HEAT, AND GAS EMBOLI AT THE JUNCTION OF SKIN AND SUBCUTANEOUS FAT OR BODY FAT AND BLOOD VESSELS. SEE INFORMATION ON SIMPLE ASPHYXIANTS.

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SIMPLE ASPHYXIANTS:
ACUTE EXPOSURE- THE SYMPTOMS OF ASPHYXIA DEPEND ON THE RAPIDITY WITH WHICH THE OXYGEN DEFICIENCY DEVELOPS AND HOW LONG IT CONTINUES. IN SUDDEN ACUTE ASPHYXIA, UNCONSCIOUSNESS MAY BE IMMEDIATE. WITH SLOW DEVELOPMENT THERE MAY BE RAPID RESPIRATION AND PULSE, AIR HUNGER, DIZZINESS, REDUCED AWARENESS, TIGHTNESS IN THE HEAD, TINGLING SENSATIONS, INCOORDINATION, FAULTY JUDGMENT, EMOTIONAL INSTABILITY, AND RAPID FATIGUE. AS THE ASPHYXIA PROGRESSES, NAUSEA, VOMITING, COLLAPSE, UNCONSCIOUSNESS, CONVULSIONS, DEEP COMA AND DEATH ARE POSSIBLE.
CHRONIC EXPOSURE - NO DATA AVAILABLE.

FIRST AID-REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. MAINTAIN AIRWAY AND BLOOD PRESSURE AND ADMINISTER OXYGEN IF AVAILABLE. KEEP AFFECTED PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. ADMINISTRATION OF OXYGEN SHOULD BE PERFORMED BY QUALIFIED PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
HELIUM:
ACUTE EXPOSURE - NO ADVERSE EFFECTS HAVE BEEN REPORTED FROM THE GAS. DUE TO RAPID EVAPORATION, THE LIQUID MAY CAUSE FROSTBITE WITH REDNESS, TINGLING AND PAIN OR NUMBNESS. IN MORE SEVERE CASES, THE SKIN MAY BECOME HARD AND WHITE AND DEVELOP BLISTERS.
CHRONIC EXPOSURE - NO DATA AVAILABLE.

FIRST AID - IT IS UNLIKELY THAT EMERGENCY TREATMENT WILL BE REQUIRED.
IF ADVERSE EFFECTS OCCUR, GET MEDICAL ATTENTION.
IN CASE OF FROSTBITE, WARM AFFECTED SKIN IN WARM WATER AT A TEMPERATURE OF 107 F. IF WARM WATER IS NOT AVAILABLE OR IMPRACTICAL TO USE, GENTLY WRAP AFFECTED PART IN BLANKETS. ENCOURAGE VICTIM TO EXERCISE AFFECTED PART WHILE IT IS BEING WARMED. ALLOW CIRCULATION TO RETURN NATURALLY. GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT:
HELIUM:
ACUTE EXPOSURE - NO ADVERSE EFFECTS HAVE BEEN REPORTED FROM THE GAS. DUE TO RAPID EVAPORATION, THE LIQUID MAY CAUSE FROSTBITE WITH REDNESS, PAIN AND BLURRED VISION.
CHRONIC EXPOSURE - NO DATA AVAILABLE.

FIRST AID - IT IS UNLIKELY THAT CONTACT WITH THE GAS FORM WILL REQUIRE EMERGENCY TREATMENT. IF CONTACT WITH LIQUEFIED OR COMPRESSED GAS OCCURES, WASH WITH LARGE AMOUNTS OF WARM WATER UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
HELIUM:
ACUTE EXPOSURE - INGESTION OF A GAS IS UNLIKELY. IF THE LIQUID IS SWALLOWED, FROSTBITE DAMAGE TO THE LIPS, MOUTH AND MUCOUS MEMBRANES MAY OCCUR.
CHRONIC EXPOSURE - NO DATA AVAILABLE.

FIRST AID - IT IS UNLIKELY THAT EMERGENCY TREATMENT WILL BE REQUIRED. IF ADVERSE EFFECTS OCCUR, TREAT SYMPTOMATICALLY AND SUPPORTIVELY AND

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GET MEDICAL ATTENTION.

ANTIDOTE:
NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY

REACTIVITY:
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:
HELIUM
NO DATA AVAILABLE.

DECOMPOSITION:
NONE HAZARDOUS

POLYMERIZATION:
HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

STORAGE AND DISPOSAL

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. FOR ASSISTANCE, CONTACT THE DISTRICT DIRECTOR OF THE ENVIRONMENTAL PROTECTION AGENCY.

** STORAGE **

STORE IN ACCORDANCE WITH 29 CFR 1910.101.

CONDITIONS TO AVOID

DO NOT PERMIT PHYSICAL DAMAGE OR OVERHEATING OF CONTAINERS. CONTENTS ARE UNDER PRESSURE CONTAINERS MAY RUPTURE VIOLENTLY AND TRAVEL A CONSIDERABLE DISTANCE.

SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:
STOP LEAK IF YOU CAN DO IT WITHOUT RISK. KEEP UNNECESSARY PEOPLE AWAY; ISOLATE AREA AND DENY ENTRY.

PROTECTIVE EQUIPMENT

VENTILATION:
PROVIDE GENERAL DILUTION VENTILATION.

RESPIRATOR:
THE FOLLOWING RESPIRATORS ARE RECOMMENDED BASED ON INFORMATION FOUND IN THE PHYSICAL DATA, TOXICITY AND HEALTH EFFECTS SECTIONS. THEY ARE RANKED IN ORDER FROM MINIMUM TO MAXIMUM RESPIRATORY PROTECTION.

THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS

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FOUND IN THE WORK PLACE, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH ADMINISTRATION (NIOSH-MSHA).

ANY SUPPLIED-AIR RESPIRATOR OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

ANY SELF-CONTAINED BREATHING APPARATUS.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN

PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

SUPPLIED-AIR RESPIRATOR WITH FULL FACEPIECE AND OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

CLOTHING:
FOR THE GAS FORM, PROTECTIVE CLOTHING NOT REQUIRED.
IF CONTACT WITH THE LIQUID FORM IS POSSIBLE, EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE CLOTHING AND EQUIPMENT TO PREVENT SKIN FROM FREEZING.

GLOVES:
WEAR FULL PROTECTIVE, COLD INSULATING GLOVES.

EYE PROTECTION:
FOR THE GAS FORM EYE PROTECTION IS NOT REQUIRED BUT RECOMMENDED. WHERE THERE IS ANY POSSIBILITY OF CONTACT WITH THE LIQUID FORM, EMPLOYEE MUST WEAR SPLASH-PROOF SAFETY GOGGLES AND A FACESHIELD TO PREVENT CONTACT WITH THIS SUBSTANCE. CONTACT LENSES SHOULD NOT BE WORN.

EMERGENCY WASH FACILITIES:
WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES AND/OR SKIN MAY BE EXPOSED TO THE LIQUID FORM OF THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN AND QUICK DRENCH SHOWER WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

AUTHORIZED: TRI-GAS, INC. NO DISTRIBUTION EXCEPT AS REQUIRED BY LAW
DATE: 4/15/93 REVISION DATE: 4/15/93

- ADDITIONAL INFORMATION -

TRI-GAS MAKES NO WARRANTIES, GUARANTEES OR REPRESENTATIONS OF ANY KIND OR NATURE WITH RESPECT TO THE PRODUCT OR THIS DATA, EITHER EXPRESSED OR IMPLIED, AND WHETHER ARISING BY LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF PERSONAL INJURY, PROPERTY OR OTHER DAMAGES OF ANY NATURE WHATSOEVER, WHETHER SPECIAL, INDIRECT, CONSEQUENTIAL OR COMPENSATORY, DIRECTLY OR INDIRECTLY RESULTING FROM THE PUBLICATION, USE OR RELIANCE UPON THIS DATA*

ORIGINAL DOCUMENT - END OF PAGE 5

**** END OF MATERIAL SAFETY DATA SHEET FOR: Helium, Compressed Gas ****

MATERIAL SAFETY DATA SHEET
CHEMICAL ID: 640630 MSDS ID: 640630
PRODUCT NAME: Nitrogen, Compressed Gas

TG05123 TRI-GAS, INC.
MATERIAL SAFETY DATA SHEET

TRI-GAS, INC. EMERGENCY CONTACT:

4545 FULLER DRIVE CHEMTREC: 1-800-424-9300
SUITE 200
IRVING, TX 75038
(214) 650-1700

SUBSTANCE IDENTIFICATION

CAS-NUMBER 7727-37-9

SUBSTANCE: NITROGEN, COMPRESSED GAS

TRADE NAMES/SYNONYMS:
DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; STCC 4904565; UN 1066; N2

CHEMICAL FAMILY:
INORGANIC GAS

MOLECULAR FORMULA: N2

MOLECULAR WEIGHT: 28.0134

CERCLA RATINGS (SCALE 0-3): HEALTH=U FIRE=0 REACTIVITY=0
PERSISTENCE=0
NFPA RATINGS (SCALE 0-4): HEALTH=U FIRE=0 REACTIVITY=0

COMPONENTS AND CONTAMINANTS

COMPONENT: HELIUM PERCENT: 100.0
CAS# 7727-37-9

OTHER CONTAMINANTS: NONE

EXPOSURE LIMITS:
NO OCCUPATIONAL EXPOSURE LIMITS ESTABLISHED BY OSHA, ACGIH, OR NIOSH.

PHYSICAL DATA

DESCRIPTION: ODORLESS, COLORLESS, TASTELESS INERT GAS.

BOILING POINT: -321 F (-196 C) MELTING POINT: -346 F (-210 C)

SPECIFIC GRAVITY: 1.2506 G/L VOLATILITY: 100%

VAPOR PRESSURE: 760 MMHG @ -196 C SOLUBILITY IN WATER: 3.5% @ 17 C

VAPOR DENSITY: 0.967

SOLVENT SOLUBILITY: SOLUBLE IN LIQUID AMMONIA; SLIGHTLY SOLUBLE IN ALCOHOL

VISCOSITY: 0.01787 CPS @ 27 C

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FIRE AND EXPLOSION DATA

FIRE AND EXPLOSION HAZARD:
NEGLIGIBLE FIRE HAZARD WHEN EXPOSED TO HEAT OR FLAME.

CYLINDER MAY EXPLODE IN HEAT OF FIRE.

FIRE FIGHTING MEDIA:
DRY CHEMICAL OR CARBON DIOXIDE
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5).

FIRE FIGHTING:
MOVE CONTAINER FROM FIRE AREA IF POSSIBLE. STAY AWAY FROM STORAGE TANK ENDS. COOL FIRE-EXPOSED CONTAINERS WITH WATER FROM THE SIDE UNTIL WELL AFTER THE FIRE IS OUT. WITHDRAW IMMEDIATELY IF RISING SOUND FROM VENTING SAFETY DEVICE OR ANY DISCOLORATION OF STORAGE TANK FROM FIRE.
(1990 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.5, GUIDE PAGE 12).

EXTINGUISH USING AGENT SUITABLE FOR TYPE OF SURROUNDING FIRE. COOL CONTAINERS WITH FLOODING QUANTITIES OF WATER FROM AS FAR A DISTANCE AS POSSIBLE.

TRANSPORTATION DATA

DEPARTMENT OF TRANSPORTATION HAZARD CLASSIFICATION 49 CFR 172.101:
NONFLAMMABLE GAS

DEPARTMENT OF TRANSPORTATION LABELING REQUIREMENTS 49 CFR 172.101 AND SUBPART E:
NONFLAMMABLE GAS

DEPARTMENT OF TRANSPORTATION PACKAGING REQUIREMENTS: 49 CFR 173.304 AND 49 CFR 173.314
EXCEPTIONS: 49 CFR 173.306

TOXICITY

NITROGEN:
CARCINOGEN STATUS: NONE.
ACUTE TOXICITY LEVEL: NO DATA AVAILABLE
TARGET EFFECTS: SIMPLE ASPHYXIANT.

HEALTH EFFECTS AND FIRST AID

INHALATION:
NITROGEN:
SEE INFORMATION ON SIMPLE ASPHYXIANT. NITROGEN INHALED UNDER INCREASED ATMOSPHERIC PRESSURE, (>1.5 ATMOSPHERES), MAY DISSOLVE IN THE FAT-CONTAINING BRAIN CELLS, AND ACT AS AN ANESTHETIC, CAUSING NARCOSIS. PERSONS WHO HAVE BEEN EXPOSED TO INCREASED PRESSURE FOR A TIME AND WHO ARE SUDDENLY RELEASED FROM THE PRESSURE MAY DEVELOP DECOMPRESSION SICKNESS.

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REPEATED EXPOSURE, WITHOUT COMPLETE DECOMPRESSION, MAY RESULT IN COMPRESSION SICKNESS.

SIMPLE ASPHYXIANTS:
ACUTE EXPOSURE- THE SYMPTOMS OF ASPHYXIA DEPEND ON THE RAPIDITY WITH WHICH THE OXYGEN DEFICIENCY DEVELOPS AND HOW LONG IT CONTINUES. IN SUDDEN ACUTE ASPHYXIA, UNCONSCIOUSNESS MAY BE IMMEDIATE. WITH SLOW DEVELOPMENT THERE MAY BE RAPID RESPIRATION AND PULSE, AIR HUNGER, DIZZINESS, REDUCED AWARENESS, TIGHTNESS IN THE HEAD, TINGLING SENSATIONS, INCOORDINATION, FAULTY JUDGMENT, EMOTIONAL INSTABILITY, AND RAPID FATIGUE. AS THE ASPHYXIA PROGRESSES, NAUSEA, VOMITING, COLLAPSE, UNCONSCIOUSNESS, CONVULSIONS, DEEP COMA AND DEATH ARE POSSIBLE.
CHRONIC EXPOSURE - NO DATA AVAILABLE.

FIRST AID-REMOVE FROM EXPOSURE AREA TO FRESH AIR IMMEDIATELY. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. MAINTAIN AIRWAY AND BLOOD PRESSURE AND ADMINISTER OXYGEN IF AVAILABLE. KEEP AFFECTED PERSON WARM AND AT REST. TREAT SYMPTOMATICALLY AND SUPPORTIVELY. ADMINISTRATION OF OXYGEN SHOULD BE PERFORMED BY QUALIFIED PERSONNEL. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
NITROGEN:
ACUTE EXPOSURE - NO ADVERSE EFFECTS HAVE BEEN REPORTED FROM THE GAS. DUE TO RAPID EVAPORATION, THE LIQUID MAY CAUSE FROSTBITE WITH REDNESS, TINGLING AND PAIN OR NUMBNESS. IN MORE SEVERE CASES, THE SKIN MAY BECOME HARD AND WHITE AND DEVELOP BLISTERS.
CHRONIC EXPOSURE - NO ADVERSE EFFECTS HAVE BEEN REPORTED.

FIRST AID - IT IS UNLIKELY THAT EMERGENCY TREATMENT WILL BE REQUIRED.
IF ADVERSE EFFECTS OCCUR, GET MEDICAL ATTENTION.
IN CASE OF FROSTBITE, WARM AFFECTED SKIN IN WARM WATER AT A TEMPERATURE OF 107 F. IF WARM WATER IS NOT AVAILABLE OR IMPRACTICAL TO USE, GENTLY WRAP AFFECTED PART IN BLANKETS. ENCOURAGE VICTIM TO EXERCISE AFFECTED PART WHILE IT IS BEING WARMED. ALLOW CIRCULATION TO RETURN NATURALLY. GET MEDICAL ATTENTION IMMEDIATELY.

EYE CONTACT:
NITROGEN:
ACUTE EXPOSURE - MAY CAUSE IRRITATION IF SPRAYED DIRECTLY INTO THE EYES. DUE TO RAPID EVAPORATION, THE LIQUID MAY CAUSE FROSTBITE WITH REDNESS, PAIN AND BLURRED VISION.
CHRONIC EXPOSURE - NO ADVERSE EFFECTS HAVE BEEN REPORTED.

FIRST AID - IMMEDIATELY WASH THE EYES WITH LARGE AMOUNTS OF WATER, OCCASIONALLY LIFTING UPPER AND LOWER LIDS, UNTIL NO EVIDENCE OF CHEMICAL REMAINS (APPROXIMATELY 15-20 MINUTES). IF FROSTBITE IS PRESENT, WARM WATER MAY BE PREFERRED. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
NITROGEN:
ACUTE EXPOSURE - INGESTION OF A GAS IS UNLIKELY. IF THE LIQUID IS SWALLOWED, FROSTBITE DAMAGE TO THE LIPS, MOUTH AND MUCOUS MEMBRANES MAY OCCUR.
CHRONIC EXPOSURE - NO DATA AVAILABLE.

ORIGINAL DOCUMENT - END OF PAGE 3

FIRST AID - IT IS UNLIKELY THAT EMERGENCY TREATMENT WILL BE REQUIRED.
IF ADVERSE EFFECTS OCCUR, TREAT SYMPTOMATICALLY AND SUPPORTIVELY AND GET MEDICAL ATTENTION.

ANTIDOTE:
NO SPECIFIC ANTIDOTE. TREAT SYMPTOMATICALLY AND SUPPORTIVELY.

REACTIVITY

REACTIVITY:
STABLE UNDER NORMAL TEMPERATURES AND PRESSURES.

INCOMPATIBILITIES:
NITROGEN:
LITHIUM: MAY IGNITE IN THE GAS.
MAGNESIUM: VIOLENT REACTION WITH THE LIQUID ON IGNITION.
NEODYMIUM: VIGOROUS REACTION.
OZONE: MIXTURES OF THE GASES MAY BE EXPLOSIVE
TITANIUM: WILL BURN IN NITROGEN ATMOSPHERE.

DECOMPOSITION:
THERMAL DECOMPOSITION PRODUCTS MAY INCLUDE TOXIC OXIDES OF NITROGEN.

POLYMERIZATION:
HAZARDOUS POLYMERIZATION HAS NOT BEEN REPORTED TO OCCUR UNDER NORMAL TEMPERATURES AND PRESSURES.

STORAGE AND DISPOSAL

OBSERVE ALL FEDERAL, STATE AND LOCAL REGULATIONS WHEN STORING OR DISPOSING OF THIS SUBSTANCE. FOR ASSISTANCE, CONTACT THE DISTRICT DIRECTOR OF THE ENVIRONMENTAL PROTECTION AGENCY.

** STORAGE **

STORE IN ACCORDANCE WITH 29 CFR 1910.101.

STORE AWAY FROM INCOMPATIBLE SUBSTANCES.

CONDITIONS TO AVOID

DO NOT PERMIT PHYSICAL DAMAGE OR OVERHEATING OF CONTAINERS. CONTENTS ARE UNDER PRESSURE CONTAINERS MAY RUPTURE VIOLENTLY AND TRAVEL A CONSIDERABLE DISTANCE.

SPILL AND LEAK PROCEDURES

OCCUPATIONAL SPILL:
STOP LEAK IF YOU CAN DO IT WITHOUT RISK. KEEP UNNECESSARY PEOPLE AWAY; ISOLATE AREA AND DENY ENTRY.

PROTECTIVE EQUIPMENT

ORIGINAL DOCUMENT - END OF PAGE 4

VENTILATION:
PROVIDE GENERAL DILUTION VENTILATION.

RESPIRATOR:
THE FOLLOWING RESPIRATORS ARE RECOMMENDED BASED ON INFORMATION FOUND IN THE PHYSICAL DATA, TOXICITY AND HEALTH EFFECTS SECTIONS. THEY ARE RANKED IN ORDER FROM MINIMUM TO MAXIMUM RESPIRATORY PROTECTION.

THE SPECIFIC RESPIRATOR SELECTED MUST BE BASED ON CONTAMINATION LEVELS FOUND IN THE WORK PLACE, MUST NOT EXCEED THE WORKING LIMITS OF THE RESPIRATOR AND BE JOINTLY APPROVED BY THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH AND THE MINE SAFETY AND HEALTH

ADMINISTRATION (NIOSH-MSHA).

ANY SUPPLIED-AIR RESPIRATOR OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

ANY SELF-CONTAINED BREATHING APPARATUS.

FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:

SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

SUPPLIED-AIR RESPIRATOR WITH FULL FACEPIECE AND OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE IN COMBINATION WITH AN AUXILIARY SELF-CONTAINED BREATHING APPARATUS OPERATED IN PRESSURE-DEMAND OR OTHER POSITIVE PRESSURE MODE.

CLOTHING:
FOR THE GAS FORM, PROTECTIVE CLOTHING NOT REQUIRED.
IF CONTACT WITH THE LIQUID FORM IS POSSIBLE, EMPLOYEE MUST WEAR APPROPRIATE PROTECTIVE CLOTHING AND EQUIPMENT TO PREVENT SKIN FROM FREEZING.

GLOVES:
WEAR FULL PROTECTIVE, COLD INSULATING GLOVES.

EYE PROTECTION:
FOR THE GAS FORM EYE PROTECTION IS NOT REQUIRED BUT RECOMMENDED.
WHERE THERE IS ANY POSSIBILITY OF CONTACT WITH THE LIQUID FORM, EMPLOYEE MUST WEAR SPLASH-PROOF SAFETY GOGGLES AND A FACESHIELD TO PREVENT CONTACT WITH THIS SUBSTANCE. CONTACT LENSES SHOULD NOT BE WORN.

EMERGENCY WASH FACILITIES:
WHERE THERE IS ANY POSSIBILITY THAT AN EMPLOYEE'S EYES AND/OR SKIN MAY BE EXPOSED TO THE LIQUID FORM OF THIS SUBSTANCE, THE EMPLOYER SHOULD PROVIDE AN EYE WASH FOUNTAIN AND QUICK DRENCH SHOWER WITHIN THE IMMEDIATE WORK AREA FOR EMERGENCY USE.

AUTHORIZED: TRI-GAS, INC. NO DISTRIBUTION EXCEPT AS REQUIRED BY LAW
DATE: 4/15/93 REVISION DATE: 4/15/93

- ADDITIONAL INFORMATION -

TRI-GAS MAKES NO WARRANTIES, GUARANTEES OR REPRESENTATIONS OF ANY KIND OR NATURE WITH RESPECT TO THE PRODUCT OR THIS DATA, EITHER EXPRESSED OR IMPLIED, AND WHETHER ARISING BY LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF PERSONAL INJURY, PROPERTY OR OTHER DAMAGES OF ANY NATURE

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WHATSOEVER, WHETHER SPECIAL, INDIRECT, CONSEQUENTIAL OR COMPENSATORY, DIRECTLY OR INDIRECTLY RESULTING FROM THE PUBLICATION, USE OR RELIANCE UPON THIS DATA*

ORIGINAL DOCUMENT - END OF PAGE 6

**** END OF MATERIAL SAFETY DATA SHEET FOR: Nitrogen, Compressed Ga ****

MATERIAL SAFETY DATA SHEET
CHEMICAL ID: 636260 MSDS ID: 636260
PRODUCT NAME: Oxygen

MATERIAL SAFETY DATA SHEET

OXYGEN GAS:	OXYGEN-REFRIGERATED LIQUID
NFPA RATING	NFPA RATING
FLAMMABILITY = 0	FLAMMABILITY = 0
HEALTH = 0	HEALTH = 3
REACTIVITY = 0	REACTIVITY = 0
OTHER = OX	OTHER = OX

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

PART I What is the material and what do I need to know in an emergency?

1. PRODUCT IDENTIFICATION

CHEMICAL NAME: CLASS:	OXYGEN O2 OXYGEN O2, REFRIGERATED LIQUID Document Number: P-0043
PRODUCT USE:	For general analytical/synthetic chemical uses.
SUPPLIER/MANUFACTURER'S NAME:/ADDRESS:	AIRGAS, INC. Five Radnor Corporate Center Suite 550 100 Matsonford Road Radnor, PA 19087
EMERGENCY PHONE:	CHEMTREC: 1-800-424-9300 International:202-483-7616
BUSINESS PHONE:	1-610-687-5253
DATE OF PREPARATION:	May 20, 1996
FIRST REVISION:	October 31, 1996

2. COMPOSITION AND INFORMATION ON INGREDIENTS

CHEMICAL NAME:			Oxygen			
CAS#:			7782-44-7			
Mode %:			99.8%			
		EXPOSURE	LIMITS IN AIR			
TLV	STEL	PEL	STEL	IDLH	OTHER	
ppm	ppm	ppm	ppm	ppm		

There are no specific exposure limits for Oxygen. Oxygen levels should be maintained above 19.5% and below 23.5%

Maximum Impurities:	<0.2% (2000 ppm)

None of the trace impurities in this mixture contribute significantly

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to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalents standards.

NE = Not Established C = Ceiling Limit
See Section 16 for Definitions of Terms Used.

NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

ORIGINAL DOCUMENT - END OF PAGE

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3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: Oxygen is a colorless, odorless gas, or a colorless, cryogenic liquid. The main health hazard associated with releases of this gas is it's powerful oxidizing power. In high oxygen content atmospheres, common combustible materials can become highly flammable. The cryogenic liquid will rapidly boil to the gas at standard temperatures and pressures. The liquefied gas can cause frostbite to any contaminated tissue. Emergency responders must practice extreme caution when approaching oxygen releases because of the extreme fire potential.

OXYGEN GAS
HAZARDOUS MATERIAL INFORMATION SYSTEM

HEALTH (BLUE) = 0
FLAMMABILITY (RED) = 0
REACTIVITY (YELLOW) = 0
PROTECTIVE EQUIPMENT = B
  EYES: GLASSES/GOGGLES
  RESPIRATORY: SEE SECTION 8
  HANDS: GLOVES
  BODY: SEE SECTION 8
 (For routine industrial applications)

LIQUID OXYGEN
HAZARDOUS MATERIAL INFORMATION SYSTEM

HEALTH (BLUE) = 3
FLAMMABILITY (RED) = 0
REACTIVITY (YELLOW) = 0
PROTECTIVE EQUIPMENT = X
  EYES: GLASSES/GOGGLES
  RESPIRATORY: SEE SECTION 8
  HANDS: GLOVES
  BODY: SEE SECTION 8
 (For routine industrial applications)

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of over-exposure for this gas are by inhalation and skin contact.

INHALATION: High concentrations of this gas can cause an oxygen-rich environment. Individuals breathing such an atmosphere may experience symptoms which include nausea, dizziness, bronchial-irritation, hypothermia, increased depth of respiration, bradycardia, pulmonary discomfort, peripheral vasoconstriction, amblyopia (loss of vision), seizures, or death.

Exposure levels to pure oxygen which have produced symptoms described above are summarized in the following table.

DURATION OF EXPOSURE	PRESSURE OF OXYGEN
5 hours	Sea level
3 hours	3 atmospheres
30 minutes	4 atmospheres
5 minutes	7 atmospheres

Pure oxygen at 1/3 atmospheric pressure can be inhaled for weeks without symptoms. Inhalation of pure oxygen for up to 16 hours per day for many days and 65% oxygen in air for extended periods does not cause symptoms of oxygen toxicity.

OTHER POTENTIAL HEALTH EFFECTS: Contact of the skin or eyes with cryogenic liquid or rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside. Ingestion and absorption through the skin are not considered significant routes of entry of oxygen into the body.

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HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Over-exposure to Oxygen may cause the following health effects:

ACUTE: The most significant hazard associated with this gas is inhalation of oxygen-rich atmospheres. Symptoms of an over-exposure to oxygen include nausea, dizziness, bronchial irritation, hypothermia , increased depth of respiration, bradycardia, pulmonary discomfort, peripheral vasoconstriction, loss of vision, seizures, or death. Contact with cryogenic liquid or rapidly expanding gases(which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after contact with liquid can quickly subside. Low oxygen environments cannot be caused by this product.

CHRONIC: There are currently no known adverse health effects associated with chronic exposure to this mixture.

PART II (What should I do if a hazardous situation occurs?

4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, self-contained Breathing Apparatus Personal Protective equipment (and fire retardant clothing, if appropriate) should be worn to protect against high oxygen content or super-heated gases in the event of fire.

Remove victim(s) to fresh air, as quickly as possible. Trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Supplemental oxygen is not normally appropriate. Victims tend to recover rapidly, when removed from the hypoxic exposure.

In case of frostbite, place the frostbitten part in warm water. DO NOT USE HOT WATER. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected are in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s). Medical care providers should refer to Section 11 of this MSDS for additional information.

5. FIRE-FIGHTING MEASURES

OXYGEN GAS	LIQUID OXYGEN
NFPA RATING	NFPA RATING
FLAMMABILITY = 0	FLAMMABILITY = 0
HEALTH = 0	HEALTH = 3
REACTIVITY = 0	REACTIVITY = 0
OTHER = OX	OTHER = OX

FLASH POINT, (method): Not applicable.

AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %):
  Lower (LEL): Not applicable
  Upper (UEL): Not applicable

-- ORIGINAL DOCUMENT - END OF PAGE

FIRE EXTINGUISHING MATERIALS: Non-flammable, inert gas. Use extinguishing media appropriate for surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Oxygen does not burn; however, cylinders, when involved in fire, may rupture or burst in the heat of the fire. Oxygen will support and accelerate combustion. Common combustible materials will burn readily in elevated oxygen environments. Direct water onto vessels to keep the vessels cool. Shut-off the flow of oxygen or move vessels from fire area if it can be done safely. Withdraw from the area in case of rising sounds from venting safety devices or any discoloration of vessels due to fire.

Water Spray: YES Carbon Dioxide: YES Foam: YES
Halon: YES Dry Chemical: YES Other: Any "ABC" Class.

RESPONSE TO FIRE INVOLVING CRYOGEN: Cryogenic oxygen may contribute to the ignition of any combustible material, including asphalt and wood. Extreme caution must be used when cryogenic oxygen storage vessels are involved in a fire. Cryogenic liquids can be particularly dangerous during fires because of their potential to rapidly freeze water. Careless use of water may cause heavy icing. Furthermore, relatively warm water greatly increases the evaporation rate of Oxygen. If large concentrations of Oxygen gas are present, the water vapor in the surrounding air will condense, creating a dense fog that may make it difficult to find fire exits or equipment. Liquid Oxygen, when exposed to the atmosphere, will produce a cloud of ice/fog in the air upon its release.

Explosion Sensitivity to Mechanical Impact: Not Sensitive.
Explosion Sensitivity to Static Discharge: Not Sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Structural fire-fighters must wear Self-Contained Breathing Apparatus and full protective equipment.

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6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a release, clear the affected area, protect people, and respond with trained personnel. Minimum Personal Protective Equipment should be Level B: fire protective clothing, mechanically-resistant, fire protective gloves and Self-Contained Breathing Apparatus. In general, DO NOT ENTER AN AREA IF THE OXYGEN CONTACT EXCEEDS 23.5%. USE VENTILATION TO REDUCE THE OXYGEN LEVELS. Locate and seal the source of the leaking gas. Protect personnel attempting the shut-off with waterspray. Allow the gas to dissipate. Monitor the surrounding area for oxygen levels. The atmosphere must have at least 19.5 percent and less than 23.5% oxygen before personnel can be allowed in the area without self-contained

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Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in-place or remove it to a safe area and allow the gas to be released there.

RESPONSE TO CRYOGENIC RELEASE: Clear the affected area and allow the liquid to evaporate and the gas to dissipate. After the gas is formed, follow the instructions provided in the previous paragraph. If the area must be entered by emergency personnel, SCBA, Keviar gloves, and appropriate foot and leg protection and fire protective clothing must be worn.

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PART III (How can I prevent hazardous situations from occurring?

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7. HANDLING AND STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting this product IN YOU. Do not eat or drink while handling chemicals. Be aware of any signs of dizziness or fatigue; exposures to concentrations of this gas which may cause extreme fire hazards which could occur without any significant warning symptoms.

STORAGE AND HANDLING PRACTICES: Cylinders should be stored in dry, well-ventilated areas away from sources of heat. Compressed gases can present significant safety hazards. Store containers away from heavily trafficked areas and emergency exits. Post "No Smoking or Open Flames" signs in storage or use areas.

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SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: Protect cylinders against physical damage. Store in cool, dry, well-ventilated, fireproof area, away from flammable materials and corrosive atmospheres. Store away from heat and ignition sources and out of direct sunlight. Do not store near elevators, corridors or loading docks. Do not allow area where cylinders are stored to exceed 52 deg C (125 deg F). Use only storage containers and equipment (pipes, valves, fittings to relieve pressure, etc.) designed for the storage of Oxygen. Do not store containers where they can come into contact with moisture.

Cylinders should be stored upright and be firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting.

Keep Dewar flasks of liquid oxygen covered with loose fitting cap. This prevents air or moisture from entering the container, yet allows pressure to escape. Use only the stopper or plug supplied with the container. Ensure that ice does not form in the neck of flasks. If the neck of Dewar flask is blocked by ice or "frozen" air, follow owner's

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instruction for removing it. A plugged Dewar or storage flask may develop sufficient pressure to cause catastrophic failure. Ice can also cause pressure release valves to fail. Never tamper with pressure relief devices in valves and cylinders. The temperature of Liquid Oxygen is sufficiently cold to condense and freeze most gases. Consequently, there is a danger of pipes or vents becoming plugged. Liquid Oxygen should therefore be stored and handled under positive pressure in a closed system to prevent the infiltration and solidification of air or other gases. The following rules are applicable to situations in which cylinders are being used.:

Before Use: Move cylinders with a suitable hand-truck. Do not drag, slide or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap, if provided, in-place until cylinder is ready for use.

During Use: Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Use check valve or trap in discharge line to prevent hazardous backflow into the cylinder. Do not use oils or grease on gas-handling fittings or equipment.

After Use: Close main cylinder valve. Replace valve protection cap, if provided. Mark empty cylinders "EMPTY".

NOTE: Use only DOT or ASME code containers. Earth-ground and bond all lines and equipment associated with this product. Close valve after each use and when empty. Cylinders must not be recharged except by or with the consent of owner. For additional information refer to the Compressed Gas Association Pamphlet P-1, Safe Handling of Compressed Gases in Containers. For cryogenic liquids, refer to CGA P-12, Safe Handling of Cryogenic Liquids. Additionally, refer to CGA Bulletins G-4.3, "Commodity Specification for Oxygen", and G-4.1 "Cleaning Equipment for Oxygen Service".

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Purge gas handling equipment with inert gas (i.e. Nitrogen) before attempting repairs. Always use product in areas where adequate ventilation is provided.

TANK CAR SHIPMENTS: Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car owner's recommendations and all established on-site safety procedures. Appropriate personal protective equipment must be used during tank car operations (see Section 8). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level and wheels must be locked or blocked prior to loading or unloading. Tank car

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(for loading) or storage tank (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be clean and free of incompatible chemicals, prior to connection to the tank car or vessel. Valves and hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel. Refrigerated Liquid Oxygen is capable of causing the ignition of asphalt. Transfers should be performed on concrete surfaces.

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8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation. Local exhaust ventilation is preferred, because it prevents Oxygen dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the level of oxygen.

RESPIRATORY PROTECTION: Maintain oxygen levels above 19.5% and below 23.5 in the workplace. Use supplied air respiratory protection if oxygen levels are below 19.5% or during emergency response to a release of this product. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards. DO NOT ENTER AN AREA IF THE OXYGEN CONTENT EXCEEDS 23.5%.

EYE PROTECTION: Safety glasses. Face-shields must be worn when using cryogenic Oxygen.

HAND PROTECTION: Wear mechanically-resistant gloves when handling cylinders of this product. Use low-temperature protective gloves (i.e. Kevlar) when working with containers of Liquid Oxygen.

BODY PROTECTION: Use body protection appropriate for task. Transfer of large quantities under pressure may require protective equipment appropriate to protect employees from splashes of liquefied product, as well provide sufficient insulation from extreme cold.

VAPOR DENSITY: 11.309 kg/m3
SPECIFIC GRAVITY(air=1): 1.105
SOLUBILITY IN WATER:4.9% (v/v @ 0 deg C)
VAPOR PRESSURE(psia): N/A
EXPANSION RATIO: 861 (cryogenic liquid)
COEFFICIENT WATER/OIL DISTRIBUTION: 0.65
EVAPORATION RATE(nBuAc=1): N/A
FREEZING POINT: -218.8 deg C; -361.8 deg F

BOILING POINT(deg F @ 1 atmos): -297.4 deg F, -183.0 deg C
pH: N/A
ODOR THRESHOLD: N/A. Odorless.
SPECIFIC VOLUME (ft3/lb): 12.1

APPEARANCE AND COLOR: This product is a colorless, odorless gas or a colorless and odorless, cryogenic liquid.

HOW TO DETECT THIS SUBSTANCE(warning properties): There are no unusual warning properties associated with a release of this product. A release of the Refrigerated Liquid will be obvious as a result of the fog of atmosphere moisture which condenses in the vicinity of the release. An oxygen monitor can be used to detect oxygen levels.

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10. STABILITY AND REACTIVITY

STABILITY: Normally stable.
DECOMPOSITION PRODUCTS: None.
MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Oxygen is incompatible with combustible and flammable materials, chlorinated hydrocarbons, hydrazine, reduced boron compounds, ethers, phosphine, phosphorous tribromide, phosphorous trioxide, tetrafluorethylene, and compounds which readily form peroxides. The Refrigerated Liquid will cause asphalt to ignite.
HAZARDOUS POLYMERIZATION: Will not occur.
CONDITIONS TO AVOID: Avoid contact with incompatible materials. Cylinders exposed to high temperatures or direct flame can rupture or burst.

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PART IV (Is there any other useful information about this material?

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11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: Oxygen is the vital element in the atmosphere in which we live and breathe. The atmosphere contains approximately 21% oxygen. Breathing higher concentrations could lead to oxygen toxicity and pneumonia. Breathing lower oxygen concentrations could lead to hypoxia. The following toxicity data are for oxygen:

Cytogenetic Analysis (hamster lung) 80 pph
TCLo (inhalation-woman) 12 pph for 10 minutes. Teratogenic effects.
TCLo (inhalation-human) 100 pph for 14 hours. Pulmonary effects.

SUSPECTED CANCER AGENT: Oxygen is not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, IARC; therefore it is not considered to be, nor suspected to be a cancer-causing agent by these agencies.

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IRRITANCY OF PRODUCT: Contact with rapidly-expanding gases or the

refrigerated liquid can cause frostbite and damage to exposed skin and eyes.
SENSITIZATION OF PRODUCT: Oxygen is not a sensitizer.
REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this product and its components on the human reproductive system.

Mutagenicity: This product is not expected to cause mutagenic effects in humans.
Embryotoxicity: This product is not expected to cause embryotoxic effects in humans.
Teratogenicity: This product is not expected to cause teratogenic effects in humans.
Reproductive Toxicity: This product is not expected to cause adverse reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material(DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing respiratory conditions may be aggravated by over-exposure to this product.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and reduce over-exposure. Symptoms of over-exposure usually are relieved quickly. Immediate sedation and anticonvulsive therapy should be provided, as needed.
BIOLOGICAL EXPOSURE INDICES(BEIs): Currently, Biological Exposure Indices (Beis) are not applicable for this compound.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: Oxygen occurs naturally in the atmosphere. The gas will be dissipated rapidly in well-ventilated areas.
EFFECT OF MATERIAL ON PLANTS OR ANIMALS: No adverse effect is anticipated to occur to animal or plant-life, except for frost produced in the presence of rapidly expanding gases.
EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence is currently available on this product's effects on aquatic life.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to AirGas. Do not dispose of

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locally.

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14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

For Oxygen Gas:

PROPER SHIPPING NAME:	Oxygen, compressed
HAZARD CLASS NUMBER AND DESCRIPTION:	2.2(Non-Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1072
PACKING GROUP:	Non applicable.
DOT LABEL(S) REQUIRED:	Non-Flammable Gas, Oxidizer

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 122

For Oxygen Liquid:

PROPER SHIPPING NAME:	Oxygen, refrigerated liquid
HAZARD CLASS NUMBER AND DESCRIPTION:	2.2(Non-Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1073
PACKING GROUP:	Not applicable.
DOT LABEL(S) REQUIRED:	Non-Flammable Gas, Oxidizer

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 122
MARINE POLLUTANT: Oxygen is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

ORIGINAL DOCUMENT - END OF PAGE

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the following information for the preparation of Canadian Shipments.

For Oxygen Gas:

PROPER SHIPPING NAME:	Oxygen, compressed
HAZARD CLASS NUMBER AND DESCRIPTION:	2.2(Non-Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1072
PACKING GROUP:	Non applicable.
DOT LABEL(S) REQUIRED:	Non-Flammable Gas, Oxidizer

CANUTEC EMERGENCY RESPONSE GUIDE NUMBER: 11

For Liquefied Oxygen:

PROPER SHIPPING NAME:	Oxygen, refrigerated
HAZARD CLASS NUMBER AND DESCRIPTION:	2.2(Non-Flammable Gas)5.1 (Oxidizer)
UN IDENTIFICATION NUMBER:	UN 1073
PACKING GROUP:	Not applicable.
DOT LABEL(S) REQUIRED:	Non-Flammable Gas, Oxidizer

CANUTEC EMERGENCY RESPONSE GUIDE NUMBER: 11
SPECIAL PROVISION: 102; Emergency Reponse Assistance Planning requirements of Sections 7.16-7.19 must be met for quantities exceeding 3,000 kg or liters, net per tank.

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15. REGULATORY INFORMATION

SARA REPORTING REQUIREMENTS: This product is subject to the reporting requirements of Sections 302,304 and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

COMPONENT	SARA 302	SARA 304	SARA 313
Oxygen	NO	NO	NO

SARA Threshold Planning Quantity: N/A

TSCA INVENTORY STATUS: Oxygen is listed on the TSCA Inventory.

CERCLA REPORTABLE QUANTITIES(RQ): N/A

OTHER FEDERAL REGULATIONS: N/A

CALIFORNIA PROPOSITION 65: Oxygen is not on the California Proposition 65 lists.

STATE REGULATORY INFORMATION: Oxygen is covered under the following specific State regulations:

Alaska - Designated Toxic and Hazardous Substances: No
California - Permissible Exposure Limits for Chemical Contaminants: No
Florida - Substance List: Oxygen.
Illinois - Toxic Substance List: No
Kansas - Section 302/313 List: No
Massachusetts - Substance List: Oxygen
Minnesota - List of Hazardous Substances: No
Missouri - Employer Information/Toxic Substance List: No
New Jersey - Right To Know Hazardous Substance List: Oxygen.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: No
Pennsylvania - Hazardous Substance List: Oxygen.
Rhode Island - Hazardous Substance List: Oxygen.
Texas - Hazardous Substance List: No
West Virginia - Hazardous Substance List: No
Wisconsin - Toxic and Hazardous Substances: No

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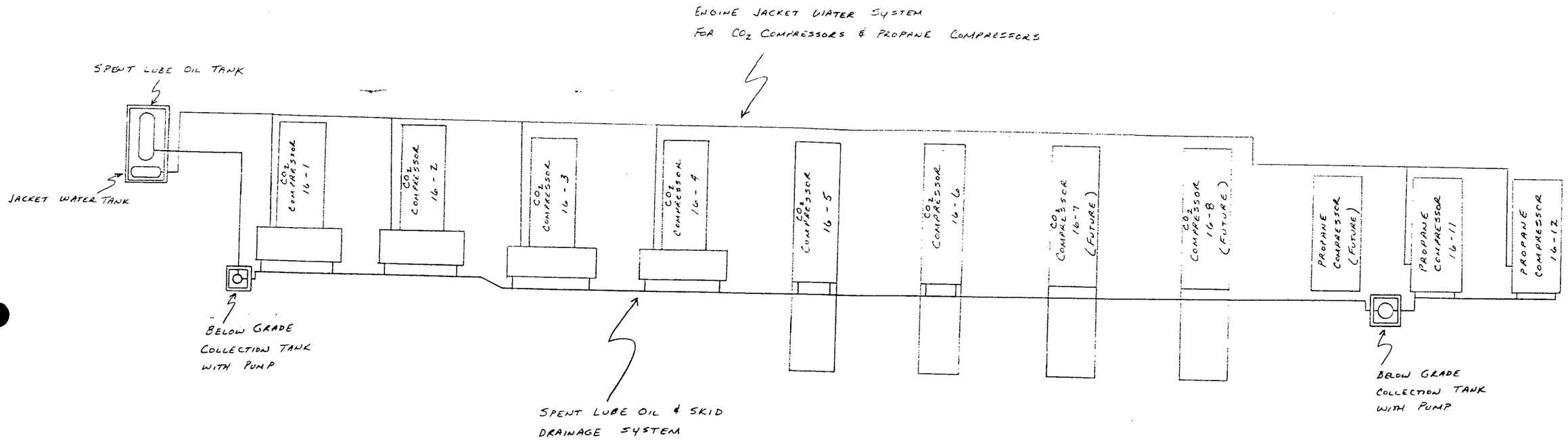
**** END OF MATERIAL SAFETY DATA SHEET FOR: Oxygen ****

ATTACHMENT 4

EVLRP DRAIN SYSTEM


ENGINE JACKET WATER SYSTEM
FOR CO_2 COMPRESSORS & PROPANE COMPRESSORS
SPENT LUBE OIL TANK
JACKET WATER TANK
CO_2 COMPRESSOR 16-1
CO_2 COMPRESSOR 16-2
CO_2 COMPRESSOR 16-3
CO_2 COMPRESSOR 16-4
CO_2 COMPRESSOR 16-5
CO_2 COMPRESSOR 16-6
CO_2 COMPRESSOR 16-7 (FUTURE)
CO_2 COMPRESSOR 16-8 (FUTURE)
PROPANE COMPRESSOR (FUTURE)
PROPANE COMPRESSOR 16-11
PROPANE COMPRESSOR 16-12
BELOW GRADE COLLECTION TANK WITH PUMP
SPENT LUBE OIL & SKID DRAINAGE SYSTEM
BELOW GRADE COLLECTION TANK WITH PUMP

ATTACHMENT 5

PERMITTING CORRESPONDENCE FOR OVERFLOW PIT

PHILLIPS 66 NATURAL GAS COMPANY
A SUBSIDIARY OF PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

May 10, 1988

Permitting Correspondence
Emergency Overflow Pit
East Vacuum Central Tank Battery

Mr. David Boyer
Environmental Bureau Chief
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Boyer:

Attached, per your request, is a copy of the correspondence regarding the permitting of the lined emergency overflow pit at our East Vacuum Central Tank Battery.

If you should have any questions regarding this information, please contact me at (915) 367-1316.

Very truly yours,

Michael D. Ford

Michael D. Ford
Environmental Analyst

MDF

Attachments

N O T E G R A M

March 8, 1979

To: J. W. Maharg
(r) W. W. Allen

From: R. L. Loper

Subject: East Vacuum Grayburg-San Andres Unit -
Emergency Overflow Pit

Joe Woodson and I met with Mr. Les Clements, field representative of the New Mexico Oil Conservation Division, yesterday, February 27, 1979 in Hobbs. We discussed our proposed emergency overflow pit at the Central Tank Battery and showed Mr. Clements the general tank battery layout and pit construction drawings. Mr. Clements stated that we could proceed with construction of the pit as planned and no application or permit will be required. They will expect the pit to be lined and will not allow it to hold produced water on a continuous basis.

Mr. Clements asked that he be kept advised of construction status and stated that he or another representative would probably visit the construction site from time to time. More out of curiosity than for inspection.

We touched upon the question of handling salt water flow during our drilling program. Mr. Clements' position was that he (New Mexico Oil Conservation Division) should be advised immediately we encounter a salt water flow, day or night. He further indicated that construction of a temporary, lined holding pit for containment of the water flow would be acceptable provided the Oil Conservation Division had been notified and that the rancher was aware of the problem and agreed to the pit. Mr. Clements' had no problem with our using the emergency overflow pit (if completed) for holding salt water on an emergency basis.

/hb

cc: J. O. Woodson
T. L. Surratt
C. A. Benson
(r) F. C. Schuman

T		June 1, 1979	—	DBull 5/24

SEND COPIES TO _____ EST. _____ EXTRA COPIES P.O. ACKD. _____

USED FOR Pit Liner - EVGSAU CTB, Emergency Overflow Pit

ADDITIONAL INFO. RUSH THIS ORDER! We must do this work immediately to keep sand from blowing out of pit.

PURCHASE ORDER

No. 9 — 606099 — T

VENDOR
Koto-Lee Inc
9225 Katy Freeway Suit 326
Houston 77024

SHOW OUR ORDER NO. AND CONSIGNEE ADDRESS ON ALL SHIPPING PAPERS AND TAGS

DATE 6/6/79

CHARGE PURCHASER - Roselina L 328

PHILLIPS PETROLEUM COMPANY
Purchasing
BARTLESVILLE, OKLAHOMA 74004

AND MAIL TO COMPANY SHOWN BELOW SEPARATE ITEMIZED AND EXTENDED VOICE IN TRIPLICATE FOR EACH SHIPMENT, SHOWING ABOVE ORDER NO. INCLUDING PREFIX AND SUFFIX.

SHIP TO
Phillips Petroleum Company
c/o T. L. Surratt
EVGSAU Central Tank Battery
Buckeye, New Mexico
Phone: (505) 393-3573

6-12

VIA: ☐ 1. Uninsured Parcel Post if Package(s) meets Postal Regulations; otherwise Motor Freight & Motor Express prepaid.
☐ 2. MOTOR FREIGHT _____ RAIL FREIGHT _____ OTHER _____

ROUTE Delivered

F.O.B. DEST. — ORIG. _____

REFER ALL INQUIRIES TO: (IF NO ADDRESS IS SHOWN BELOW, SEND INQUIRIES TO PURCHASING)

RL Lipar

CHARGE TO AFE # P-2160

RFE NO. ←

INVOICES, PACKING LISTS AND TAGS SHOULD SHOW CHARGE AND IF APPLICABLE PHILLIPS STOCK NUMBER ↓

ITEM NO.	QUANTITY	DESCRIPTION
1	1	Fibre Line Pit Liner installed at East Vacuum Grayburg-San Andres Unit Emergency overflow pit near Buckeye, New Mexico. - see drawings attached. Pad-100 Sh M-4-1 & Pad-101 Sh MP-10-0
		Vendor shall: 1) Manufacture the Fibre-line sheets.
		2) Deliver lining, materials, and supplies to job site.
		3) Complete installation of the lining.
		4) Double line the 4' x 4' x 2' concrete sump and seal to the outlet pipe.
		5) Seal the inlet pipe to the liner.
		6) Shape and refill anchor ditch for sealing purposes—Phillips will dig ditch, and fill and pack ditch after installation of liner.
		7) Be required only to hand rake sand pad if necessary. Sand pad shall otherwise be installed and maintained by Phillips.

6 ORDERING DIVISION COPY

FORM 3502 1-77

99500

DIST. P.O. REQ'D.

MAIL INFO.

PURCHASE ORDER

No. — 606099 —

VENDOR

DATE 2-3-92

CHARGE AND MAIL TO COMPANY SHOWN BELOW SEPARATE ITEMIZED AND EXTENDED INVOICE IN TRIPLICATE FOR EACH SHIPMENT, SHOWING ABOVE ORDER NO INCLUDING PREFIX AND SUFFIX.

SHOW OUR ORDER NO. AND CONSIGNEE ADDRESS ON ALL SHIPPING PAPERS AND TAGS

PURCHASER -

PHILLIPS PETROLEUM COMPANY
Purchasing
BARTLESVILLE, OKLAHOMA 74004

SHIP TO

SHIP BY

VIA: ☐ 1. PREPAID UNINSURED-LIMITED PARCEL SERVICE OR PARCEL POST IF PACKAGE(S) MEETS REGULATIONS, OTHERWISE, THE LEAST EXPENSIVE OF MOTOR FREIGHT OR EXPRESS
☐ 2. MOTOR FREIGHT _____ RAIL FREIGHT _____ OTHER _____

ROUTE

F.O.B. DEST. _____ ORIG.

REFER ALL INQUIRIES TO: (IF NO ADDRESS IS SHOWN BELOW, SEND INQUIRIES TO PURCHASING)

CHARGE TO

RFE NO.

INVOICES, PACKING LISTS AND TAGS SHOULD SHOW CHARGE AND IF APPLICABLE PHILLIPS STOCK NUMBER

ITEM NO.	QUANTITY	DESCRIPTION
		8) Apply Gel coat on installed lining approximately 20 feet down the berm, around circumference of pit.
		9) Check seams with 17,000 volt holiday detector as well as visually inspect entire liner and shall unconditionally guarantee materials and workmanship in liner for a period of not less than ten (10) years from date of completion of work.

6 ORDERING DIVISION COPY

FORM 3503

REFERENCE NO.

EST. _____ EXTRA COPIES P.O. RECD. _____

ONAL INFO. _____

PURCHASE ORDER

No. — 606099 —

VENDOR

SHOW OUR ORDER NO. AND CONSIGNEE ADDRESS ON ALL SHIPPING PAPERS AND TAGS

DATE 2.3.13 p.c.

CHARGE PURCHASER -

AND MAIL TO COMPANY SHOWN BELOW SEPARATE ITEMIZED AND EXTENDED INVOICE IN TRIPLICATE FOR EACH SHIPMENT, SHOWING ABOVE ORDER NO. INCLUDING PREFIX AND SUFFIX.

PHILLIPS PETROLEUM COMPANY
Purchasing
BARTLESVILLE, OKLAHOMA 74004

SHIP TO

SHIP BY _____

VIA: ☐ 1. PREPAID UNINSURED-LIMITED PARCEL SERVICE OR PARCEL POST IF PACKAGE(S) MEETS REGULATIONS. OTHERWISE, THE LEAST EXPENSIVE OF MOTOR FREIGHT OR EXPRESS.
☐ 2. MOTOR FREIGHT _____ RAIL FREIGHT _____ OTHER _____

ROUTE _____

F.O.B. DEST. _____ ORIG. _____

REFER ALL INQUIRIES TO: (IF NO ADDRESS IS SHOWN BELOW, SEND INQUIRIES TO PURCHASING)

CHARGE TO

RFE NO.

INVOICES, PACKING LISTS AND TAGS SHOULD SHOW CHARGE AND IF APPLICABLE PHILLIPS STOCK NUMBER

ITEM NO.	QUANTITY	DESCRIPTION
		NOTE: In reference to Kote-Line's bid attached per conversation Schuman/Jarrell 5-16-79:
		1. Deduct $1500 if Phillips digs anchor ditch.
		2. Kote-Line will gel coat at least 20 feet down berm at no extra charge.
		3. Kote-Line will use 17,000 volt holiday detector on seams in field, and will visually inspect and spot check sheets in plant with holiday detector.
		4. Kote-Line's bid is for a lump sum of $1.225/ft^2, with the total cost estimated for a 100,000 ft^2 pit.
		5. The pit is already constructed.
		Lining .750 sq ft
		Tube & Equip .400 sq ft
		Installation with .075 sq ft.

6 ORDERING DIVISION COPY

FORM 3503

EST. EXTRA COPIES P.O. ABOVE

FOR

ADDITIONAL INFO.

PURCHASE ORDER

VENDOR

KOTE-LINE, INC.

SHOW OUR ORDER NO. AND CONSIGNEE ADDRESS ON ALL SHIPPING PAPERS AND TAGS

No. [illegible]

PAGE 1 OF 4

DATE 6/7/79

CHARGE AND MAIL TO COMPANY SHOWN BELOW SEPARATE ITEMIZED AND EXTENDED INVOICE IN TRIPLICATE FOR EACH SHIPMENT, SHOWING ABOVE ORDER NO. INCLUDING PREFIX AND SUFFIX.

PURCHASER -

PHILLIPS PETROLEUM COMPANY
Purchasing
BARTLESVILLE, OKLAHOMA 74004

SHIP TO

PHILLIPS PETROLEUM COMPANY

REFER ALL INQUIRIES TO: (IF NO ADDRESS IS SHOWN BELOW, SEND INQUIRIES TO PURCHASING)

SHIP BY

VIA: ☐ 1. PREPAID UNINSURED UNITED PARCEL SERVICE OR PARCEL POST IF PACKAGE(S) MEETS REGULATIONS, OTHERWISE, THE LEAST EXPENSIVE OF MOTOR FREIGHT OR EXPRESS

☐ 2. MOTOR FREIGHT _____ RAIL FREIGHT _____ OTHER _____

ROUTE

F.O.B. DEST. _____ ORIG. _____

CHARGE TO

RFE NO.

INVOICES, PACKING LISTS AND TAGS SHOULD SHOW CHARGE AND IF APPLICABLE PHILLIPS STOCK NUMBER

ITEM NO.	QUANTITY	DESCRIPTION

THIS ORDER EXPRESSLY LIMITS ACCEPTANCE TO THE TERMS STATED HEREIN. PURCHASER OBJECTS TO ANY ADDITIONAL OR DIFFERENT TERMS OF SELLER.

ATTACHED FORM 6741 IS MADE PART OF THIS P.O. COMPLIANCE WITH ALL CONDITIONS THEREIN IS NECESSARY.

7 ORDERING DIVISION COPY

FORM 3503

KOTE LINE inc.

713 · 465-7545 9225 Katy Freeway Suite 325 Houston, Texas 77024
915 · 563-0576 12101 East Highway 80 P.O. Box 4595 Odessa, Texas 79760

May 15,1979

Phillips Petroleum Co.
4001 Penbrook
Odessa, Texas 79762

RE: Pit Lining
East Vacuum Grayberg-San Andres Unit
Lea County, New Mexico

Attn: Mr. Fred Schuman

Gentlemen:

Subject to your acceptance, Kote-Line, Inc., offeres to perform the following:

To furnish labor, equipment, and materials to manufacture,deliver and install one (1) "FIBRE-LINE" pit lining in your overflow pit with dimensions of 290' X 290' X 9' loacted near Buckeye, New Mexico.

Manufacture and Deliver

100,000 $Ft.^2$	@ \$.750/$Ft.^2$		\$75,000.

Install

Labor and Equipment	@ \$.400/$Ft.^2$	\$40,000.	
Materials	@ \$.075/$Ft.^2$	\$ 7,500.	
Total	@ \$.475/$Ft.^2$		\$47,500.
LUMP SUM BID:	\$1.225/$Ft.^2$		\$122,500.

State sales taxes are in addition to the base price.

The invoicing will be for the actual amount of lining material installed. Invoices will be issued when the liner material is received at the job site. Progress invoicing is normally done for the installation of the lining.

THE BASE PRICE INCLUDES:

1. Manufacturing of "FIBRE-LINE sheets.
2. Delivery of the lining, materials, and supplies to the job site.
3. Complete installation of the lining.
4. Double lining the 4' X 4' X 2' concrete sump and sealing to the outlet pipe.
5. Sealing the inlet pipe to the liner.

6. Digging and shaping of the anchor ditch.
7. Refilling the anchor ditch only for sealing purposes. The dirt contractor must fill and pack the ditch and level the dike.
8. Hand raking only of the sand pad or receiving surface. The sand pand must be maintained by the dirt contractor.
9. Per Diem and travel expenses will be the responsibility of Kote-Line, Inc.
10. Cleaning job site.

The pit is to be prepared by your dirt contractor. Kote-Line, Inc. will furnish a Supervisor during the final stages of the dirt work to see that the finished surface is satisfactory to receive the liner. Usually the sand pad is installed directly before the liner is layed. If additonal dirt work other than the final hand raking is done, it will be invoiced as per our labor and equipment rate schedule.

Manufacturing can commence within ten (10) days after notification and installation can commence the following week. Four weeks maximum should be allowed for installing the lining. At present we have over 100,000 square feet of lining in stock. We should be able to start the job immediately.

The "FIBRE-LINE" FRP lining is guaranteed against defects in material and workmanship for a period of ten (10) years. A written warranty is delivered at the completion of the job.

If further information is required for the acceptance of this bid, please advise.

Sincerely,

KOTE-LINE, INC.

Hal K. Jarrell

Hal K. Jarrell
President

HKJ/lp
enc.

KOTE LINE inc.

713 - 465-7545 9225 Katy Freeway Suite 325 Houston, Texas 77024
915 - 563-0576 12101 East Highway 80 P.O. Box 4595 Odessa, Texas 79760

PHILLIPS PETROLEUM COMPANY

LEA COUNTY, NEW MEXICO FACILITY

PIT LINING SPECIFICATION

REFERENCE DRAWINGS: Pond Layout and Cross Sections, Drawing No. PED-100.

I. SCOPE OF WORK

Furnish and install one "FIBRE-LINE", fiberglass reinforced plastic pond lining at the Lea County, New Mexico Facility.

II. GENERAL

1. The liner fabricator will furnish all supervision, insurance, labor, equipment, hand tools and materials for manufacturing and to provide complete installation of the lining.

2. Surfaces to be lined shall be smooth and free of all sharp rocks and objects, vegetation, stubble, etc., which could damage liner or prevent it from laying smoothly. An authorized representative of the fabricator shall certify in writing that the surface on which the lining is to be placed is acceptable. No installation of lining shall commence until this certificate is furnished. It shall be the responsibility of the dirt contractor to keep the receiving surface in the accepted condition until complete installation of the lining is accomplished.

III. MANUFACTURING

1. Polyester resin shall be a Kote-Line, Inc. flexible Iso with wax additive.

2. The lining material shall be 65 mils minimum thickness FRP sheets. The construction shall be a layer of 90# kraft paper and a layer of 1½ oz. fiberglass mat saturated with resin.

3. The sheet size shall be 10' x 50'.

4. The finished sheet shall be free of holes, blemishes, delaminations, or other defects.

5. All sheets shall be 100% visually inspected by the fabricator during fabrication and any defects marked at the plant for field repair.

IV. SHIPPING

1. The sheets shall be rolled into bundles with a one foot (1') minimum core diameter and secured with four (4) strips of banding straps.

V. INSTALLATION

1. Liner sheets are to be rolled out, cut and positioned, overlapped 3" to 4", stapled and/or riveted and the seams sandblasted.

2. Catalyzed resin shall be applied to the sandblasted seam, a layer of 6" wide 2 oz. fiberglass mat positioned, a second layer of resin applied and rolled out with paint rollers to finish out the seam.

3. The liner shall be anchored in the ground a minimum of one foot (1') at the top of each slope. The anchor ditch is to be dug and shaped by Kote-Line.

4. No fiberglass or sandblasted areas shall be left exposed either in the fabricated sheet or in the field seam.

5. Inspection of the installed lining shall be performed. All defects shall be repaired by solvent cleaning or sandblasting, then applying additional fiberglass mat and resin.

VI. GEL COATING

1. Not required.

VII. SAFETY

1. The fabricator shall instruct the installation crew of the hazards of installation, such as handling sheets in high winds, applying and handling resins and solvents, fire hazards, and walking on wet sheeted slopes. Soft rubber shoes are best for walking on the liner. Work gloves shall be worn while handling the sheets. Plastic gloves shall be worn while handling liquid resin and catalyst.

VIII. QUALITY OF WORKMANSHIP

1. All joints and seals upon completion of work shall be tightly bonded. Upon completion of the installation of the liners, the fabricator shall remove all trash, waste material and equipment. The work areas shall be left in a neat and acceptable condition.

IX. ACCEPTANCE OF INSTALLATION

1. No leakage will be allowed. If any leakage occurs prior to final acceptance, the fabricator shall make the necessary repairs in accordance with procedures under this specification. If the inspection indicates no leakage and all other parts of installation are satisfactory, the liner will be accepted.

X. WARRANTY

1. The installed "FIBRE-LINE" liner is guaranteed against defects in material and workmanship for a period of ten (10) years.

XI. COMPLIANCE WITH GOVERNMENT REGULATIONS:

The "FIBRE-LINE" Liner shall:

1. Have a permeability less than or equal to 10^{-7} cm./sec.

2. Be used which are expected to last 25% longer than the expected time of facility usage.

3. Be placed on a stable base.

4. Satisfactorily resist attack from ozone, ultraviolet rays, soil bacteria and fungus.

5. Have ample weather resistance to withstand the stress of freezing and thawing.

6. Have adequate tensile strength to elongate sufficiently and withstand the stress of installation or use of machinery or equipment.

7. Resist laceration, abrasion and puncture from any matter that may be contained in the fluids it will hold.

8. Be of uniform thickness, free of thin spots, cracks, tears, blisters and foreign particles.

9. Be easily repaired.

KOTE LINE inc.

713 · 465-7545 9225 Katy Freeway Suite 325 Houston, Texas 77024
915 · 563-0576 12101 East Highway 80 P.O. Box 4595 Odessa, Texas 79760

WARRANTY

To: Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

Date:

Invoice No.:

Covering: 1 - 100,000 Ft^2 FIBRE-LINE" Pond Lining installed in your overflow pit located in Lea County, New Mexico.

Kote-Line, Inc. does hereby unconditionally guarantee the materials used in lining the above overflow pit and the workmanship in applying said materials for a period of ten (10) years from the above date of completion of said work.

TERMS & CONDITIONS

Upon notification of our main office listed above, in the event that this lining should fail during the warranty period we will repair the lining using the same type and kind of FRP lining as originally installed at no extra charge to the customer.

This warranty does not cover acts of God, changes in chemical compositions of the inlet fluids, or any other circumstances which are beyond the control of the contractor.

Validated: _____ By: _____

Date Hal K. Jarrell, President

EMERGENCY CATCH BASIN
(ORDINARY COMPACTION)

ABSORBTION TANK
CONCRETE BLOCKS
SEE SHEET NO M-11-0

1000 GAL PRECAST CONCRETE
SEPTIC TANK. SEE SHEET NO. M-1-2

FLOAT & LEADOUT

VERTICAL CAN PUMP

FLOAT & LEADOUT

FLOAT & LEADOUT

SUCTION

INLET

LINED OVERFLOW PIT (SEE SHEET NO. MP-5-1)
(ORDINARY COMPACTION)

4" HYDRAULIC OPERATED GATE VALVE WITH LIMIT SWITCH FOR REMOTE INDICATION

4" HYDRAULIC OPERATED GATE VALVE WITH LIMIT SWITCH FOR REMOTE INDICATION

4" HYDRAULIC OPERATED GATE VALVE WITH LIMIT SWITCH FOR REMOTE INDICATION

SEE SHEET NO MP-E-1

SEE SHEET NO MP-E-1

SEE SHEET NO MP-E-1

REF. ONLY

NO.	REVISION	BY CHKD.	DATE APP'D.
1	OVERFLOW PIT SPEC CHANGED SEPTIC SYST. CHANGED	RJ	12/20/39

FOR BIDS
FOR APPR.
FOR CONST.
DESIGN RJ 11/39
DRAWN
CHECKED
APP'D

BARTLESVILLE, OKLAHOMA

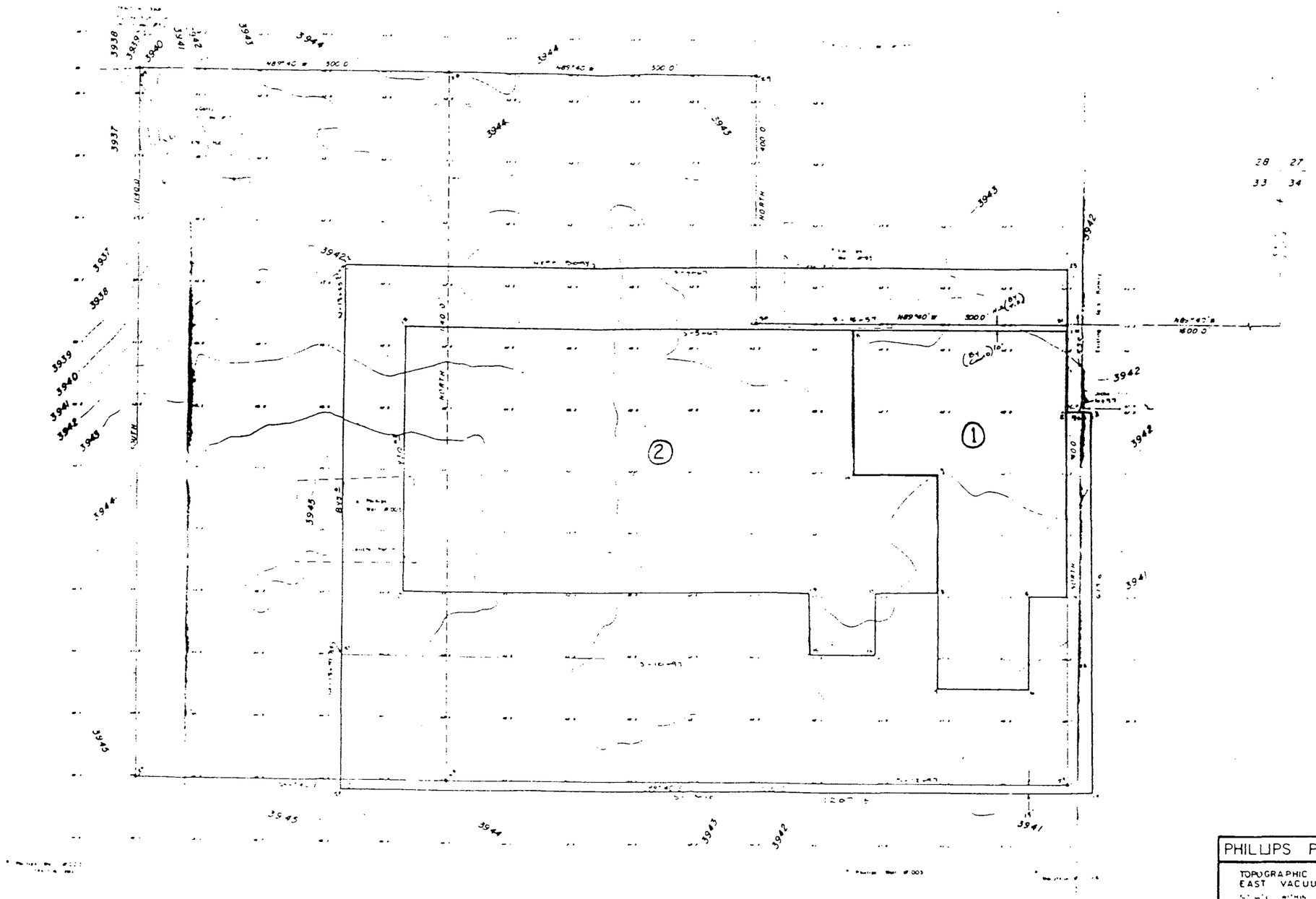
CATCH BASIN & OVERFLOW PIT
CENTRAL TANK BATTERY

SWT DIVISION WATER & POLLUTION UNIT LEA Co. N.M.

APE NO. P-2160
SCALE 1" = 20'
DWG NO. PED-100
SH NO. MP-4-1

ATTACHMENT 6

TOPOGRAPHIC MAP



PHILLIPS PETROLEUM COMPANY

TOPOGRAPHIC SURVEY OF PROPOSED
EAST VACUUM CO_2 PLANT SITE

SITUATE WITHIN SECTION 33 TOWNSHIP 17 SOUTH,
RANGE 35 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO

JOHN WEST ENGINEERING CO
CONSULTANTS
HOBBS NEW MEXICO