Check Sheet

Company Name: Starr Enterprise
Permit Number: AC29-160652, -160654, 057044-AC-00
PSD Number:
Permit Engineer:

Application:

- [x] Initial Application
  - [x] Incompleteness Letters
  - [x] Responses
  - [ ] Waiver of Department Action
  - [ ] Department Response
  - [x] Other

Cross References:

- [ ]
- [ ]
- [ ]

Intent:

- [x] Intent to ~~Issue~~ Deny Denied
- [ ] Notice of Intent to Issue
- [ ] Technical Evaluation
- [x] BACT or LAER Determination
- [ ] Unsigned Permit

  Correspondence with:
  - [ ] EPA
  - [ ] Park Services
  - [ ] Other
- [ ] Proof of Publication
  - [ ] Petitions - (Related to extensions, hearings, etc.)
  - [ ] Waiver of Department Action
  - [ ] Other

Final Determination:

- [ ] Final Determination
- [ ] Signed Permit
- [x] BACT or LAER Determination
  - [ ] Other

Post Permit Correspondence:

- [ ] Extensions/Amendments/Modifications
- [ ] Other

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Royce a. Bartee
Area Operations Mgr.
Star Enterprise
3300 W Esplanade Ave, S.
Suite 301
Metaire, Louisiana

4a. Article Number
Z 127 633 155

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

5. Signature (Addressee)
Susan K. Knoll

6. Signature (Agent)

7. Date of Delivery
1/29/96

8. Addressee's Address (Only if requested and fee is paid)

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

PS Form **3811**, December 1991 ☆U.S. GPO: 1993—352-714 **DOMESTIC RETURN RECEIPT**

Z 127 633 155

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Royce Bartee
Street and No. Star Enterprise
P.O., State and ZIP Code Metaire, Louisiana

Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date 1-25-96	

AC 29-160652
09-160654

PS Form **3800**, March 1993

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

State of Florida
Department of Environmental Protection
Notice of Permit(s) Denial

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

In the matter of an Application for Permits by:

DEP File Nos. AC 29-160652
AC 29-160654

Royce A. Bartee
Area Operations Manager
Star Enterprise
3300 W. Esplanade Avenue, South
Suite 301
Metaire, Louisiana 70002
_____/

The applicant, Star Enterprise applied on February 10, 1989 to the Environmental Protection Commission of Hillsborough County and to the Department of Environmental Protection in Tampa for permits to construct 3 storage tanks and a truck loading rack in Tampa. The application package was later forwarded to the Department's Bureau of Air Regulation in Tallahassee.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes (F.S.), and Chapter 62-210, Florida Administrative Code (F.A.C.). The Department has determined that air construction permits are required for the proposed work.

The Department hereby denies the permits for the following reasons:

1. The applicant did not supply the information requested in the Department's April 4, 1990 letter that is needed to process the application.

2. The applicant did not submit the plan and schedule to complete this project that was requested in the Department's June 7, 1990, August 30, 1990, August 22, 1991 and June 14, 1995 letters.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties

listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information;

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;
(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;
(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;
(d) A statement of the material facts disputed by Petitioner, if any;
(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;
(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and,
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this intent in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

This notice constitutes final agency action unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 62-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time this Notice will not be effective until further Order of the Department.

Any party to this Notice of Permit Denial has the right to seek judicial review pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and by filing a copy with the appropriate.

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Howard L. Rhodes, Director
Division of Air Resources
Management
2600 Blair Stone Road
Tallahassee, Florida 32399-2400
(904)488-0114

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this **NOTICE OF PERMIT DENIAL** and all copies were mailed by certified mail before the close of business on 1-25-96 to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT
FILED, on this date, pursuant to §120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk 1-25-96 Date

Copies furnished to:

J. Campbell, EPCHC
B. Thomas, SWD

Florida Department of
Environmental Protection

Memorandum

TO: Howard L. Rhodes

THRU: C. H. Fancy
A. A. Linero

From: Teresa Heron

Date: January 19, 1996

Subject: Denial of Permits
Star Enterprise - Tampa Terminal

Attached for your approval and signature is a Notice of Permit Denial for a tank farm facility. The permits are being denied because the applicant failed to respond to a letter requesting additional information, and failed to respond in writing to a letter requesting the status of the project.

I recommend the permits be denied.

Attachment

CHF/th/t

ENVIRONMENTAL PROTECTION COMMISSION
HILLSBOROUGH COUNTY

ADMINISTRATIVE OFFICES, LEGAL & WATER MANAGEMENT DIVISION
1900 - 9TH AVENUE
TAMPA, FLORIDA 33605
TELEPHONE (813) 272-5960
FAX (813) 272-5157

AIR MANAGEMENT DIVISION
TELEPHONE (813) 272-5530

WASTE MANAGEMENT DIVISION
TELEPHONE (813) 272-5788

WETLANDS MANAGEMENT DIVISION
TELEPHONE (813) 272-7104

RECEIVED
AUG 3 1995
Bureau of
Air Regulation

July 31, 1995

Mr A.A. Linero, P.E.
Administrator
New Source Review Section
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Rd.
Tallahassee, Fl 32399-2400

Re: Star Enterprise AC29-160652 and AC29-160654

Dear Mr Linero:

We received a copy of a letter, via DEP SW District, from Star Enterprises dated 7/12/95 which cited the above permits and a letter dated 6/14/95. In that letter, Star Enterprises indicated plans to obtain a permit. At present, the only thing we have on file is a retired permit (AC29-164513 - Air Stripper). Can we get a copy of the permits and any applicable coorspondence? Additionally, should we be delegated this facility?

I'd appreciate any guidance you can give me. If you'd like to call, I'm at suncom 543-5530 or 813-272-5530.

Sincerely,

Kathleen H. Boyette
Air Permitting Specialist

StarEnterprise

3300 W. Esplanade Ave., S
Suite 301
Metairie, LA 70002
504-831-5100
504-831-5115 (FAX)

July 12, 1995

Mr. A. A. Linero, P.E.
Administrator
New Source Review Section
Department of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Reference: Star Enterprise - Tampa Terminal
AC 29-160652 and AC 29-160654

Dear Mr. Linero:

Concerning your letter of June 14, 1995, to Mr. Robert E. Harkrider, a former employee of Star Enterprise, we at this time have plans to pursue obtaining a permit for this project and would like to hold the request open until December 31, 1995.

Sincerely,

Royce Bartee

Royce A. Bartee
Area Operations Manager

RAB/jr
cc: B Thomas, SWD

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Robert E Harkrider
Area Operations Mgr
Star Enterprise
PO Box 945140
Maitland Fl
32794-5140

MAITLAND, FL JUN 19 1996 USPS

4a. Article Number
Z 311 902 900

4b. Service Type
☒ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
6-21 TO

5. Signature (Addressee)

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)

CEIPT

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

Z 311 902 900

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

PS Form 3800, March 1993

Sent to: Robert Harkrider	
Street and No. Star Enterprise	
P.O. State and ZIP Code Maitland Fl	
Postage	
Certified Fee	$
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date Tampa Terminal AC29-160652 160654	

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

June 14, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert E. Harkrider
Area Operations Manager
Star Enterprise
Post Office Box 945140
Maitland, Florida 32794-5140

Dear Mr. Harkrider:

Re: Star Enterprise - Tampa Terminal
AC 29-160652 and AC 29-160654

The Department has not heard from you concerning the above referenced project since your August 29, 1991, letter. Please let us know if you plan to pursue obtaining a permit for this project. If you do not respond to this letter within 30 days of receipt of it, the Department will assume you have changed your plans and will deny your request for the permit.

In addition, you should be advised that if your project has changed substantially, the Department may require a new processing fee when it is submitted. If you have any questions, please call Teresa Heron at (904)488-1344.

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review Section

CHF/TH/t

K. file

Department of Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

February 6, 1995

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert E. Harkrider
Area Operations Manager
Star Enterprise
Post Office Box 945140
Maitland, Florida 32794-5140

Dear Mr. Harkrider:

Re: Star Enterprise - Tampa Terminal
AC 29-160652 and AC 29-160654

The Department has not heard from you concerning the above referenced project since your August 29, 1991, letter. Please let us know if you plan to pursue obtaining a permit for this project. If you do not respond to this letter within 30 days of receipt of it, the Department will assume you have changed your plans and will deny your request for the permit.

In addition, you should be advised that if your project has changed substantially, the Department may require a new processing fee when it is submitted. If you have any questions, please call Teresa Heron at (904)488-1344.

Sincerely,

A. A. Linero, P.E.
Administrator
New Source Review Section

CHF/TH/t

StarEnterprise

P O Box 945140 (32794-5140)
555 Winderley Pl (32751)
Maitland FL
407 875 7600

August 29, 1991

Mr. C. H. Fancy, P.E.
Chief, Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

Re: Star Enterprise - Tampa Terminal
AC 29-160652 and AC 29-160654

In response to your letter of August 22nd, we do plan to pursue obtaining a permit for this project.

Since our last correspondence we have continued to negotiate with the two companies to form a joint venture which includes the facilities at the Tampa Terminal. While we are closer to finalization of an agreement there are still several obstacles in the path.

At this moment it appears quite likely that the facilities for the joint venture will be quite different than those originally submitted, but until the negotiations are finalized this is still unknown.

We will advise your office as soon as the contracts are signed or negotiations cease. Your indulgence until these matters can be resolved will be appreciated.

Sincerely,

R. E. Harkrider

R. E. Harkrider
Area Manager Operations

cc
WCW
file

cc: J. Kerson
CHP/BA/PL

CERTIFIED

P 521 770 337

MAIL

MAITLAND AUG29'91 FL

U.S.POSTAGE ≈ 3.65

StarEnterprise

P O Box 945140
Maitland FL 32794 5140
555 Winderley Pl
Suite 420
Maitland FL
32751 8003

Mr. C. H. Fancy, P.E.
Chief, Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

P 832 538 937

Certified Mail Receipt

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Robert Harkins	
Street & No. Star Enterprise	
P.O., State & ZIP Code P.O. BOX 945140	
Postage Maitland	$ F1
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Address of Delivery	
TOTAL Postage & Fees	$
Postmark or Date 8-23-91	

AC 29-160652
29-160654

PS Form **3800**, June 1990

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Lawton Chiles, Governor

Carol M. Browner, Secretary

August 22, 1991

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Robert E. Harkrider
Area Operations Manager
Star Enterprise
Post Office Box 945140
Maitland, Florida 32794-5140

Dear Mr. Harkrider:

Re: Star Enterprise - Tampa Terminal
AC 29-160652 and AC 29-160654

The Department has not heard from you concerning the above referenced project since your November 29, 1990, letter. Please let us know if you plan to pursue obtaining a permit for this project. If you do not respond to this letter within 30 days of receipt of it, the Department will assume you have changed your plans and will deny your request for the permit.

In addition, you should be advised that if your project has changed substantially, the Department may require a new processing fee when it is submitted. If you have any questions, please feel free to call me at 904-488-1344.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/TH/plm

StarEnterprise

P O Box 5140
555 Winderley Place
Maitland FL 32751 8003
407 660-8000

November 29, 1990

Mr. C. H. Fancy, P.E.
Chief, Bureau of Air Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Fancy:

In reference to prior correspondence and particularly your letter of August 30, 1990, for the past several months Star Enterprise has been discussing with two other companies the possibility of forming a joint venture which includes our terminaling facilities at Tampa.

We do intend to proceed with the project, but until these present discussions are formalized by contract, depicting all of the responsibilities of the individual partners, the additional facilities that will be required, etc. we will not be in a position to furnish to your department the information necessary to secure the air permit at this time. Conceivably the facilities that will be agreed upon for the new joint venture will be quite different than those originally submitted.

We will keep you advised of our progress in this endeavor. Your indulgence until these matters can be resolved will be appreciated.

Sincerely,

R. E. Harkrider

R. E. Harkrider
Area Operations Manager

BEST AVAILABLE COPY

FEDERAL EXPRESS [redacted]

QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE TRACKING NUMBER

7941229951

250H 7941229951

[redacted]

Date 11-29-90

RECIPIENT'S COPY

1 From (Your Name) Please Print: R. E. HARRIDER
Your Phone Number (Very Important): ( )
Company: STAR ENTERPRISE
Department/Floor No.
Street Address: 555 WINDERLEY PL STE 420
City: MAITLAND
State: FL
ZIP Required: 32751

2 To (Recipient's Name) Please Print: C. H FANCY
Recipient's Phone Number (Very Important): ( )
Company: FL DEPT OF ENV REGULATION
Department/Floor No.
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip ® Codes.): 2600 BLAIR STONE ROAD
City: TALLAHASSEE
State: FL
ZIP Required: 32399

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City
State
ZIP Required

3 PAYMENT 1 ☐ Bill Sender 2 ☐ Bill Recipient's FedEx Acct. No. 3 ☐ Bill 3rd Party FedEx Acct. No. 4 ☐ Bill Credit Card
5 ☐ Cash [redacted]

4 SERVICES (Check only one box)

Priority Overnight Service (Delivery by next business morning†)
- 11 ☐ YOUR PACKAGING
- 16 ☐ FEDEX LETTER *
- 12 ☐ FEDEX PAK *
- 13 ☐ FEDEX BOX
- 14 ☐ FEDEX TUBE

Standard Overnight Service (Delivery by next business afternoon†)
- 51 ☐
- 56 ☒ FEDEX LETTER *
- 52 ☐ FEDEX PAK *
- 53 ☐ FEDEX BOX
- 54 ☐ FEDEX TUBE

Economy Service (formerly Standard Air) (Delivery by second business day†)
- 30 ☐ ECONOMY SERVICE

Heavyweight Service (for Extra Large or any package over 150 lbs.)
- 70 ☐ HEAVYWEIGHT **
- 80 ☐ DEFERRED HEAVYWEIGHT **

† Delivery commitment may be later in some areas.
*Declared Value Limit $100.
**Call for delivery schedule.

DELIVERY AND SPECIAL HANDLING
- 1 ☐ HOLD FOR PICK-UP (Fill in Box H)
- 2 ☒ DELIVER WEEKDAY
- 3 DELIVER SATURDAY (Extra charge) (Not available to all locations) ☐
- 4 ☐ DANGEROUS GOODS (Extra charge) (CSS not available for Dangerous Goods Shipments)
- 5 ☐ CONSTANT SURVEILLANCE SVC. (CSS) (Extra charge) (Release Signature Not Applicable)
- 6 ☐ DRY ICE ______ Lbs.
- 7 ☐ OTHER SPECIAL SERVICE
- 8 ☐
- 9 ☐ SATURDAY PICK-UP (Extra charge)
- 10 ☐
- 11 ☐ DESCRIPTION
- 12 ☐ HOLIDAY DELIVERY (If offered) (Extra charge)

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE	OVER SIZE
Total	Total	Total	

DIM SHIPMENT (Heavyweight Services Only)
☐ ______ lbs.

Received At
1 ☐ Regular Stop 3 ☐ Drop Box
4 ☐ B.S.C.
2 ☐ On-Call Stop 5 ☐ Station

FedEx Emp. No.

Emp. No. | Date
☐ Cash Received
☐ Return Shipment
☐ Third Party ☐ Chg. To Del. ☐ Chg. To Hold
Street Address
City State Zip
Received By:
X
Date/Time Received | FedEx Employee Number

5 Release Signature:
Date/Time

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 11/89
PART #119501 FXEM 5/90
FORMAT #014

014

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary

August 30, 1990

Mr. Robert E. Harkrider
Area Operations Manager
Star Enterprise
Post Office Box 945140
Maitland, FL 32794-5140

Dear Mr. Harkrider:

This is in response to your letter of August 21 regarding the permit application for the joint venture between Star Enterprise and Citgo. Based upon your letter, the Department will give you until December 1, 1990 to provide us with Star Enterprise's intent to proceed with the project. Please be advised that the Secretary of the Department of Environmental Regulation requested that all programs decide whether to allow applications with no activity for 90 days or more to continue to be inactive or to begin notice to leading to denial. Consequently, we are not allowed to leave permit applications inactive for an indefinite period of time. Please advise me in writing by December 1 as to your intent to proceed with, or withdraw this application.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/kt

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor | Dale Twachtmann, Secretary | John Shearer, Assistant Secretary

June 7, 1990

Mr. J. E. Brenman, P.E.
J.E. Brenman Consulting Engineers, Inc.
1801 University Drive
Coral Springs, Florida 33071-6078

Dear Mr. Brenman:

We received you May 24 letter requesting the Star Enterprise application be held in abeyance. While there is no legal time limit that an application may remain inactive, the Department's policy is to notify the applicant after 90 days of inactivity that their permit may be denied for lack of response. If after 30 days there is still no response, the permit is denied.

We recognize that there are sometimes unusual situations which justify holding an application open for an extended period of time. I encourage you to write to me as soon as possible explaining your client's circumstances and, if possible, estimating the length of time needed to prepare a response to our April 4 letter. At that time, I will be better able to advise you on this matter. If you have any questions, please feel free to call me at (904)488-1344.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/kt

JEB J.E. Brenman Consulting Engineers, Inc.
Civil • Environmental • Sanitary

MAY 24, 1990

FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

ATTENTION: MR. C. H. FANCY, P.E.
CHIEF BUREAU OF AIR REGULATION

REFERENCE: STAR ENTERPRISE
AIR APPLICATION FOR TAMPA TERMINAL
FDER LETTER DATED 4/4/90

DEAR MR. FANCY:

ON BEHALF OF STAR ENTERPRISE, I HAVE BEEN ASKED TO NOTIFY YOU THAT THE REFERENCED PROJECT HAS BEEN PLACED ON HOLD FOR AN UNDETERMINED PERIOD OF TIME. WE REQUEST THAT THE APPLICATIONS BE PLACED IN A PENDING FILE FOR REVIEW AT A FUTURE DATE.

WE WOULD APPRECIATE YOUR ADVICE WITH REGARD TO THE LENGTH OF TIME THE APPLICATION CAN BE HELD WITHOUT REQUIRING THE RESUBMITTAL OF THE DOCUMENTS OR THE PERMIT FEES.

VERY TRULY YOURS,

J. E. BRENMAN CONSULTING ENGINEERS, INC.

J. E. BRENMAN, P.E.
PRESIDENT

JEB/LP

CC: BOB HARKRIDER

1801 University Drive • Coral Springs, Florida 33071-6078 • (305) 752-7117

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:

Mr. W. C. Wilmington
Manager of Operations
Star Enterprise
P. O. Box 5140
Maitland, FL 32751-8003

4. Article Number
P 052 482 235

Type of Service:
- ☐ Registered
- ☐ Insured
- ☒ Certified
- ☐ COD
- ☐ Express Mail
- ☐ Return Receipt for Merchandise

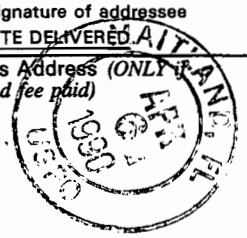
Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X

7. Date of Delivery

8. Addressee's Address *(ONLY if requested and fee paid)*



PS Form **3811**, Mar. 1988 * U.S.G.P.O. 1988-212-865 **DOMESTIC RETURN RECEIPT**

P 052 482 235

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Mr. W. C. Wilmington, Star	
Street and No. P. O. Box 5140 Enterprise	
P.O., State and ZIP Code Maitland, FL 32751-8003	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date Mailed: 4-4-90 Permit: AC 29-160652 & -654	

PS Form 3800, June 1985

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

April 4, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. W. C. Wilmington
Manager of Operations
Star Enterprise
P. O. Box 5140
Maitland, Florida 32751-8003

Dear Mr. Wilmington:

Re: Star Enterprise Air Application Forms

The Department has reviewed the additional information for permits to construct nine (9) new storage tanks, a loading rack, and a vapor combustor unit at the Star Enterprise facility in Hillsborough County, Florida. We still need additional information to continue processing these applications. Please complete the applications by supplying the information requested below:

General Information

Pages 2 and 4 (letter of February 28, 1990) list a loading volume of 507,053,736 gal/yr and 153,000,000 gal/yr, respectively. Which one is correct? Please clarify.

In the attachments (FDER-1, EPC-2) to your February 28, 1990, letter, you list the following tanks as part of the Star Enterprise tank farm. These tanks are also listed in item 5 of your June 30, 1989, letter, as not having construction permits. The tanks identification numbers are as follows:

21290 (diesel)	7145 (lube oil products)
7148 (additive)	7146 (lube oil products)
6818 (asphalt)	7147 (lube oil products)
6819 (asphalt)	7164 (fire)
6820 (asphalt)	7165 (waste)
7162 (asphalt)	27382 (asphalt)
7164 (asphalt)	29448 (asphalt)
29449 (asphalt)	29450 (asphalt)

Please submit the dates on which construction, reconstruction, or modification of these tanks took place (whichever is applicable). Who was the previous owner of these tanks? Submit an air construction application form that will encompass all of these tanks. In addition, submit the construction design data for the new storage vessels identified as T-50A and T-50B.

Rule Applicability

Attached is a copy of sections of F.A.C. Rule 17-2.510, New Source Review for Nonattainment Areas. The rule requires "committed offset" [refer to F.A.C. Rule 17-2.510(4)(b) and (c)], as a condition to any construction permit issued for this facility. Therefore, it is required that CITGO provide the Department with a letter confirming its intent to provide the "offsets" to Star Enterprise. Regarding new source allowance availability, be advised that EPA does not recognize our new source allowance (Table 510-1). It is to your advantage to quantify all of the CITGO air emissions sources in order to have the highest offsets. Basically, the committed offsets must equal or exceed the increase of VOC emissions from the new facility or modification.

Should you have any questions or wish to set up a meeting, please call Bill Thomas (Rule 17-2.510 requirements) or Teresa Heron (application status), or write to me at the above address.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/plm

cc: T. Heron
B. Andreas
C. Holladay
B. Thomas, SW Dist.
J. Campbell, EPCHC
M. Aronson, EPA
C. Shaver, NPS

JEB J.E. Brenman Consulting Engineers, Inc.
Engineers • Land Surveyors

February 28, 1990

State of Florida
Department of Environmental Resources
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

ATTENTION: Mr. C. H. Fancy, Chief
Bureau of Air Regulation

REFERENCE: Star Enterprise/CITGO Joints Venture
Tampa Terminal
FDER Letter January 18, 1990

Dear Mr. Fancy:

We have reviewed the contents of your referenced letter with the Joint Venture parties and offer the following responses:

- There is a discrepancy between the tanks identification numbers listed in the Marathon Oil FDER Permit No. AO29-138645 and the tanks listed in your response No. 23 of your letter dated October 31, 1989. Which is correct?

The numbers presented in the response to question 23 (page 8, October 31, 1989 letter) are Star Enterprise tank reference numbers. The Marathon permit utilizes the Marathon numbering convention. The correlation between the references is shown in Table 1-0:

Table 1-0
Star Enterprise/Marathon

Tank Reference Number Correlations

Star Enterprise	Marathon
6816	38-25
7522	11-30
25556	13-27
25766	43-28
25767	43-21
25881	27-23
29534	17-32
29535	33-29
29596	24-24
29597	33-26
30775	17-31
30903	54-22

1801 University Drive • Coral Springs, Florida 33071-6078
Telephone (305) 752-7117 • Fax (305) 753-7743

Only those tanks listed above and noted in the Marathon permit by an asterisk are owned by Star Enterprise, all other tanks are owned by Marathon. For reference please refer to Exhibit FDER-1 which includes a excerpt from the Marathon permit which shows the listing of the applicable tanks.

• A separate application is needed for the vapor combustor unit. Please submit one with the appropriate application fee.

A separate application for construction of vapor combustor is attached. Per our discussion with Teresa Heron, the previously submitted fee of $5,000.00 is understood to cover the application fee for the Vapor Combustor.

• What are the potential and actual emission for the loading rack itself?

Using the basis presented in AP-42 the calculation of potential (PE) and actual emissions (AE) utilize the following equations:

$$PE = \frac{12.46*S*P*M}{°R * hrs/yr * 1000} * \text{Volume Loaded} \qquad \text{(Equ. 1)}$$

$$AE = PE * \text{Operating Efficiency} \qquad \text{(Equ. 2)}$$

Substituting the following values into Equ. 2,

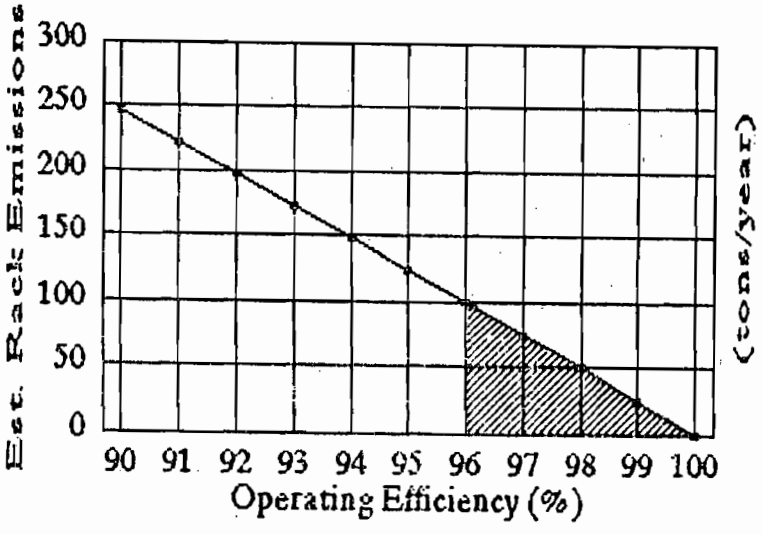
S = 1.0
P = 6.4 psia
M = 66 lb/lb-mole
Volume Loaded = 507,053,736 gal/yr.

Potential Emissions = 564.2 lbs/hr
= 2470 tons/yr

The operating efficiency of the vapor combustor is estimated to be approximately 96%. The actual value of AE at an operating efficiency of 96% is approximately 100 tons/year. Variations in AE as a function of operating efficiency is included in Graph 1-0. Utilizing previous experience and manufacturers information the Vapor Combustion system will operate within the hatched efficiency range.

Graph 1-0

Loading Rack Emissions
vs
Vapor Combustor Operating Efficiency



• Does the proposed LAER apply to the new sources or to the whole facility?

LAER applies only to the new sources. For definition purposes new sources are the following:

- Vehicle loading Rack
- Vapor combustion system
- Three new petroleum storage tanks
- Two new petroleum additive storage tanks
- Four new Asphalt storage tanks

• Exhibit EPC-6 (your letter of October 31, 1989), shows the location of the storage tanks and emissions sources at the Star Enterprise facility. Do the tanks not labeled under the Marathon permit belong to CITGO? If so, submit the operating permit for all of the CITGO tanks.

Tanks shown on Exhibit EPC-6 which are not included in the Marathon operating permit are owned by Star Enterprise. These are tanks which are grandfathered for the purpose of the DRI, and are currently out of service. The CITGO Terminal is located approximately 3,000 feet south of the Star Enterprise Terminal.

Our permit application dated November 4, 1989 includes all tanks shown on Table EPC-1, which is included as Exhibit FDER-2.

• F . A. C. Rule 17-2.510(4)(d) a. states: The committed offsets/ new source allowance must equal or exceed the increase of VOC or NOx emissions from the new facility or modification. Therefore, if your facility is subject to NSR for nonattainment areas (F.A.C. Rule 17-2.510), the proposed offset of 40 TPY may not be adequate. Please refer to Rule 17-2.510.

Calculating the quantity of pre-development Air Emissions for the Star Enterprise Terminal is difficult since Star's loading is done through the shared Marathon Oil Co. loading rack. Using yearly loading volume estimates of 153,000,000 gallons for Star Enterprise and 162,500,000 for CITGO; total preconstruction tanks emissions are approximately 40 and 50 tons per year. If we assume under the same preconstruction scenario a 95% operating efficiency for the vapor control systems, the total yearly terminal rack emissions are approximately 80 tons. The presented preconstruction basis results in total air emissions for both terminals of 190 tons per year.

Using the estimates of post construction air emissions which are included in Exhibit FDER-1, the total yearly terminal emissions will be 140 tons.

> Recognizing that the CITGO terminal, post construction, will be shut down, and that the associated yearly emissions from this terminal is approximately 90 tons we credited the venture with approximately 40% of the total 90 tons (40 tons). It should be noted that this is an arbitrary basis and may be increased to compensate for actual post construction loading activities.
>
> We believe that the above discussion meets the intent of Rule 17-2.510.

In your review please note that post construction, the Star Enterprise Terminal will result in a net decrease in Volatile Organic Emissions within the Hookers Point Area.

We trust that the above information is adequate for your staff to continue with the processing of the Air Emissions Construction Permit(s). Should further questions arise pertaining to our applications, or should you believe a meeting to be beneficial, please let us know.

Very truly yours,

J. E. BRENMAN CONSULTING ENGINEERS, INC.

JEBrenman

J. E. Brenman, P.E.
President

JEB/lp
cc: I. Heron
B. Thomas, SW Dist.
J. Campbell, EPC HC
W. Aronson, EPA
C. Shaver, NPS
C. Holladay
B. Andrews

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHEAST FLORIDA DISTRICT
1900 SOUTH CONGRESS AVENUE
WEST PALM BEACH, FLORIDA 33406

BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY
J. SCOTT BENYON
DISTRICT MANAGER

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: BULK GASOLINE TERMINAL [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: STAR ENTERPRISE (FORMERLY KNOWN AS TEXACO) COUNTY: HILLSBOROUGH

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) VAPOR COMBUSTOR

SOURCE LOCATION: Street 519 19TH STREET City TAMPA

UTM: East 358.2 KM North 3092.3 KM

Latitude 27 ° 56 ' 49 "N Longitude 82 ° 26 ' 24 "W

APPLICANT NAME AND TITLE: W.C. WILMINGTON - MANAGER OPERATIONS

APPLICANT ADDRESS: 555 WINDERLEY PLACE, SUITE 420, MAITLAND CENTER, PO BOX 5140 MAITLAND, FL 32751-8003

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of STAR ENTERPRISE

I certify that the statements made in this application for a CONSTRUCTION permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: Wray Wilmington

W.C. WILMINGTON - MANAGER OPERATIONS
Name and Title (Please Type)

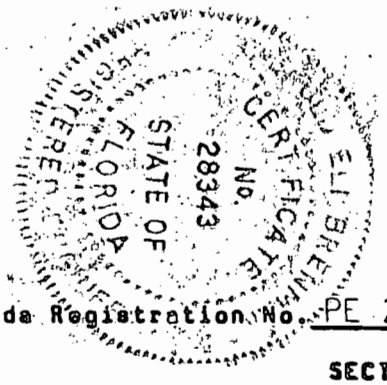
Date: 2/23/90 Telephone No. 407-660-8000

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.



Signed J.E. Brenman

J.E. BRENMAN, P.E.
Name (Please Type)

J.E. BRENMAN CONSULTING ENGINEERS, INC.
Company Name (Please Type)

1801 UNIVERSITY DRIVE, CORAL SPRINGS, FL 33071-6078
Mailing Address (Please Type)

Florida Registration No. PE 28343 Date: 2/28/90 Telephone No. 305-752-7117

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

INSTALLATION OF TWO (2) VAPOR COMBUSTOR SYSTEMS. THE SYSTEM IS EXPECTED TO BE IN FULL COMPLIANCE WITH OPERATING PERMIT.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction APRIL, 1990 Completion of Construction APRIL, 1991

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

VAPOR COMBUSTOR SYSTEM: $200,000

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

TWELVE (12) TANKS OWNED BY STAR ENTERPRISE ARE CURRENTLY LEASED TO MARATHON OIL AND ARE PERMITTED UNDER FDER PERMIT NO. A029-138645

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr_____; if seasonal, describe: NA

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? YES

   a. If yes, has "offset" been applied? YES

   b. If yes, has "Lowest Achievable Emission Rate" been applied? YES

   c. If yes, list non-attainment pollutants. OZONE (VOC)

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. NO

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. NO

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? YES

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? NO

   a. If yes, for what pollutants?_____

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

After recalculating the loading volumes and resulting emissions levels from the facility we are of the opinion that neither the requirements of Reasonably Available Control Technology (RACT) nor Best Available Control Technology (BACT) apply to this source. Technically, the Star Enterprise facility is a minor source located within a non-attainment area for Ozone which will undergo a major modification. Our understanding from discussions with Bill Thomas of the Florida Department of Environmental Regulation in Tallahassee is that the following Three (3) stipulations must be met:

1.) Lowest Achievable Emissions Rate (LAER) based technology will be applicable.
2.) Offsets are required for emissions levels beyond 100 tons per year.
3.) Statewide compliance for multi-source facilities must be achieved.

The Star Enterprise DRI/ADA meets all of the stipulated criteria. The proposed control technology - Vapor Combustion is considered to be state of the art for control of Bulk Terminal Emissions. Through the closing of the CITGO terminal an offset equal to approximately 40 tons per year will be applied to the Joint Venture Terminal. The CITGO terminal is currently a minor emissions source which can theoretically emit up to a maximum of 100 tons per year. Star Enterprise operates Two terminals in Florida, Tampa and Port Everglades, both meet all applicable Air Emissions criteria.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

N/A

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): _____

2. Product Weight (lbs/hr): _____

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1,5]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4,5] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/yr	T/yr	
VOC	32.10	140.59	35 MG/L	22.83	4.9×10^6	2470	
			OF				
			GASOLINE				
			LOADED THRU				
			LOADING RACK				

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from MAXIMUM operating rate and applicable standard; USING 8760 HOURS/YEAR OF OPERATION.

[4] Emission, if source operated without control (See Section V, Item 3).

5 SEE SUPPLEMENTAL PAGES 1 - 5 EXHIBIT FDER-1/EPC-2, PGS 1-5 AND JEBCEI LETTER TO FDER FEB 28, 1990.

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
JOHN ZINK CO.	VOC	96% (MIN)	N/A	(1)
MODEL GV-ZTOF				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
PROPANE	10 SCFH	21 SCFH	0.05

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: PROPANE IS A CLEAN FUEL

Percent Sulfur: NEGLIGIBLE Percent Ash: NEGLIGIBLE

Density: 1.52 SG lbs/gal Typical Percent Nitrogen: N/A

Heat Capacity: 21,513 BTU/lb 91,065 BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

ONCE EVERY SIX MONTHS (APPROX)±75 GALLONS OF ETHYLENE GLYCOL BASED ANTIFREEZE USED AS THE LIQUID SEAL WILL BE CHANGED. HANDLING AND DISPOSAL OF THIS MATERIAL WILL BE DONE IN FULL ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

(1) PERFORMANCE GUARANTEE STATED BY VENDOR PROVIDES THAT VOC EMISSIONS WILL NOT EXCEED 35MG/L OF PRODUCT LOADED. GUARANTEE STATEMENT ATTACHED AS EXHIBIT FDER-2.

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 50' O.A.H. ft. Stack Diameter: 9'0" ft.

Gas Flow Rate: 56,023 ACFM 56,023 DSCFM Gas Exit Temperature: 1800 °F.

Water Vapor Content: 14.4 (EST) % Velocity: 71.6 FPS

SECTION IV: INCINERATOR INFORMATION

NOT APPLICABLE

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Deacription of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wke/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

_____

_____

_____

_____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

_____

_____

_____

_____

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.

Star Enterprise/CITGO Joint Venture
Vapor Combustor Operating Permit Application

February 6, 1990

Supplemental Requirements - Section V.

Item No.	Disposition
1	Not required as part of our application.
2	The basis of the emission estimates are the applicable sections of "Compilation of Air Pollution Emission Factors, Volume I: Stationary Point Source and Area Sources", Fourth Edition (AP-42). The calculation of Terminal Loading Losses utilize the following equations:

Controlled Through Vapor Combustor (Tons/Yr)

$$L_L = 12.46 * S * P * M * (1 - Eff/100) * Q_L / T / 2000 \quad \text{Equ1}$$

Loading Rack Potential Emissions (TPY)

$$L_L = 12.46 * S * P * M * Q_L / T / 2000 \quad \text{Equ2}$$

The symbols are as specified in AP-42, the parameters are defined in "Star Enterprise/CITGO...Calculation of Storage Volumes & Air Emissions."

3	The basis of calculating Potential Emissions is provided in AP-42 and utilizes the above Equ 2.
4	Our letter of June 30, 1989 provides information with regard to the Vapor Combustor - Air Pollution Control Device. Page 3 of that letter notifies the Department that Corporate policy requires that vendor selection be based upon competitive bidding, for this reason specific details and drawing of the control device is unavailable. It is our intent to select the control equipment to match the information provided. As an independent confirmation to source performance we suggest review of the US EPA Flare Efficiency Study available under EPA-600/2-83-052. The work was performed by an independent contractor under EPA Contract 68-023541-6.

5 The operating efficiency of the Vapor Combustor is based upon the performance guarantee provided by the vendor. Meeting this performance guarantee will be a requirement of the project bid package. The performance guarantee is based upon applicable sections of the Standards of Performance for Bulk Gasoline Terminals (40 CFR 60 - Subpart XX).

6 A flow diagram of the loading rack vapor control facility is attached as Exhibit FDER-5 (EPC-4).

7 A plot plan of the facility (USGS Topo map) showing the location of the establishment and points of airborne emissions is attached as Exhibit FDER-6 EPC-5).

8 A plot plan of the facility showing the location of the storage tanks and emissions sources is attached as Exhibit FDER-7 (EPC-6).

9 Upon notice by the Department any balance due will be forwarded. Please refer to Page 2, Paragraph 2, of JEBCEI letter dated February 6, 1990.

10 Not applicable

Supplementing this is careful sizing of the burners combined with vapor minimum flow control to keep the gas velocity above the flame propagation speed of the gas being burned making flashback unlikely to occur.

If the above measures fail, a labyrinth type flame arrestor is provided with a temperature switch mounted near the surface of the element to detect heat increase. A temperature switch reacts to the temperature input causing a valve upstream of the flame arrestor to close, eliminating the fuel source and extinguishing the fire.

The final safety device is the liquid seal with special internals for use with gases in the stoichiometric range. The John Zink Liquid Seal properly maintained and operated has been proven 100% effective in stopping a flame front, providing assurance that no fire can reach the terminal from the combustor burners.

The unit is designed to be fully automatic, responding to a signal from the truck rack to start the air blower and light the pilot. The start-up sequence consists of a short air purge using the air-assist blower to purge the ZTOF stack of any combustibles prior to pilot ignition. This brief air purge is followed by automatic electronic ignition of the pilot.

After the pilot ignition is proven by the flame scanner, a "ready" signal is sent to the loading pumps to allow loading to begin. The system will automatically shut down 15 minutes after the last truck has loaded. The system will remain in the standby mode waiting for the next truck.

B. EQUIPMENT DESCRIPTION

The following items comprise the Terminal Combustion System.

Item No. 1

One (1) 9'0" O.D. X 50' O.A.H. self supported ZTOF natural draft combustion stack.

Seven (7) proprietary John Zink Antiflashback Burners are provided on the mentioned gas inlets.

Rain deflector to be located at the top circumference of the combustor to protect the refractory.

One (1) Pre-mix pilot with ignitor designed to utilize propane or natural gas.

One (1) set of lifting lugs

Two (2) emission test ports per code of federal regulations

Structural design and fabrication is in accordance with AISC.

Welding is per AWS-D1.1 No testing or x-ray is included.

Material: Carbon steel except stainless steel burners.

Refractory:
a) 1" thick 2600°F, ceramic fiber blanket hot face.
b) 1" thick 2300°F, ceramic fiber blanket cold face.
c) Ceramic fiber to be installed with 310 S.S. pins and keepers on 6" centers
d) Ceramic fiber to be coated with rigidizing agent

Item No. 2 - Combustion Air Blower

One (1) Tube-Axial Air Blower complete with 2 hp, 480 volt, TEAO motor. Motor starter is provided on control panel.

Item No. 3 - Controls

One (1) John Zink GV-ZTOF Combustion Control Package installed in a NEMA 4 weatherproof control panel.

The control system includes the following:

1. Self-Inspirating Automatic Pilot ignition system complete with:

   a. Fuel gas pressure regulator
   b. Air inspirator
   c. Pilot gas block valve
   d. Pilot gas solenoid valve
   e. Pressure gauge for pilot gas
   f. Strainer for pilot gas

2. Two (2) waste vapor burner control pressure switches. (Dwyer Model 1950)

3. Control panel indicating lights and shutdowns.

   a. Low liquid seal level (red light-shutdown)
   b. Pilot failure (red light-shutdown)
   c. Power on (white light)
   d. High temperature on flame arrestors (red light-shutdown)
   e. Blower failure (red light-shutdown)
   f. Pilot power (green light)
   g. Remote emergency/sump tank high level (red light-shutdown)

4. One (1) liquid level gauge glass

5. One (1) Liquid Level switch

6. Two (2) high temperature switches (one for each flame arrestor element).

7. GE Series One Programmable controller

8. Space heaters inside control panel and actuator cover.

9. One (1) ultraviolet flame detector for pilot flame detection.

10. Two (2) electrically operated butterfly burner block valves with electric actuators. These valves stay closed until vapor combustor unit is operational, pilot is proven, truck ground signal is reached at VCU and vapor flow rate to unit is sufficient to create minimum pressure in vapor header.

Item No. 4, Liquid Seal Drum

One (1) John Zink patented 36" diameter X approximately 6' TT, vertical Liquid Seal Drum.

The Liquid Seal is utilized to provide positive pressure on the combustion gas relief header and to be a positive flame arrestor in the event a flashback occurs. The drum has specially designed internals to insure a steady flow of gases to the combustor tip thus increasing the maximum smokeless capacity of the combustor with the minimum amount of supplemental energy. The liquid seal's proprietary internals also decrease the noise caused by uneven combustion at the combustor.

The following connections are included.

One (1) 10" ANSI class 150 lb. RF gas inlet
One (1) 10" ANSI class 150 lb. RF gas outlet
One (1) 1" NPT drain connections
Two (2) 2" NPT level connection
Two (2) 3/4" NPT level gauge
One (1) 1" NPT Liquid Fill
One (1) 8" ANSI class 150 lb. RF inspection opening
One (1) 3/4" NPT hydrocarbon skimmer drain

Design pressure is 50 PSIG.

The Liquid Seal Drum is designed and fabricated per ASME. Welding is per ASME. No code stamp is provided.

Item No. 5 - Flame Arrestor

Two (2) Groth Model 7618-11 Flame Arrestors are provided in each waste vapor lines. Each flame arrestor has a connection for a temperature switch mounted on the hot face.

Item No. 6 - Structural Skid

Structural skid to hold liquid seal, control panel, staging valves and flame arrestors. All piping required between skid and combustor have been provided for customer field installation.

Item No. 7 - Unit Testing

The control system will be given a functional test in manufacturer's shop to check safety shutdowns. The following minimum check out shall be performed:

a. Natural gas connected to pilot fuel train to check pilot operation.
b. Liquid seal to be filled with water to check low level switch.
c. Pressure switches to be preset.
d. All safety shutdowns to be checked.
e. Start signal to be given to unit to simulate field operation.

Unit Weight: 30,000 pounds

Paint:
A. No paint required on stainless steel surface
B. Paint to be applied to exterior carbon steel surface only unless otherwise noted.
C. Exterior carbon steel surface preparation per SSPC-SP6-63 and prime coat with Devoe Napko 5Z self cure inorganic zinc (2½ Mil D.F.T)

C. UTILITY REQUIREMENTS

1.	Pilot	21 SCFH Propane @ 4 PSIG or 54 SCFH of Natural Gas @ 7 PSIG
2.	Electrical	
	a. Control panel . . .	110V/1ph/60 Hertz
	b. Air Blower.	2 HP/460/3 ph/60 Hertz
3.	Instrument Air.	None
4.	Assist Gas	None

D. ADVANTAGES AND SPECIAL FEATURES

The John Zink Hydrocarbon Vapor Combustion System has a number of advantages and features which set it apart from other vapor combustion equipment. These factors need to be carefully taken into consideration when evaluating combustors manufactured by others which, while on the surface may appear to be similar, are often substantially inferior and of poor quality and design. Some of these features that are incorporated into the John Zink Vapor Combustion System design are listed as follows:

1. Recognized by the U.S. EPA, along with Carbon Adsorption-Absorption vapor recovery, as the best demonstrated technologies for emission control at petroleum product bulk terminals.

2. Meets Federal EPA hydrocarbon vapor emission standards.

3. Superior safety design is included in all John Zink Vapor Combustion Systems. This is of utmost importance in product terminal applications where the combustion unit is required to burn vapors which often are composed of air-hydrocarbon vapor mixtures that can support combustion without any additional air or fuel. In this situation, improperly designed vapor combustion systems may lead to flame flashbacks from the combustion unit to the loading terminal via the vapor header. This obviously could be very dangerous and must be avoided.

   To assure a safe design, John Zink Company provides four levels of flashback protection and prevention:

   a. Anti-flashback Burners
   b. Burner Velocity Control
   c. Labyrinth Flame Arrestor with High-temperature Sensor shutdown
   d. ASME Coded Liquid Seal

   Other manufacturers often leave out some or all of these protective features, sometimes including them but at a substantial extra cost.

4. Also included are new improved anti-flashback burners designed and developed by John Zink Company which incorporate the same flashback design features that are used in the design of flame arrestors. The burners provide excellent combustion efficiency and flashback protection, even when required to operate at extreme turndown ratios.

5. Burner velocity controls using pressure sensors, motor operated valves, and multiple burner staging (when required) to maintain burner vapor velocity above the flame propagation speed are provided as an additional flashback prevention measure.

6. Labyrinth-type flame arrestor with temperature sensor is provided on each burner stage to stop a flashback. Furthermore, a temperature sensor is provided on the burner side of each flame arrestor which quickly detects a flashback and automatically causes a system shutdown.

7. A liquid seal drum is provided as a back-up safety device. The John Zink patented liquid seal with special internals has proven 100% effective in stopping a flame front, providing assurance that no fire can reach the terminal from the combustion unit. Unlike smaller, cheaper, competitive units, John Zink liquid seals are designed per ASME code with sufficient pressure rating to fully contain an explosion.

8. Automatic system monitoring is provided as a standard on each system to assure proper and safe operation. The annunciation panel simplifies troubleshooting by continuously monitoring normal operating functions and all fault-related shutdowns. The John Zink Annunciation Panel contains individual first out bullet type fault and run lights mounted on the face of the panel for easy visual observation from a distance. Some competitors have been known to forego this feature in an effort to reduce cost.

9. John Zink Vapor Combustors have solid state control logic which provides superior reliability and greater flexibility for infield changes to accommodate future operational requirements. Light indicators and plug-in I/O modules, dramatically simplify troubleshooting procedures.

10. Air-assisted smokeless combustion is provided as standard on both LH and ZTOF-type designs. A forced-draft air blower is incorporated in the design to provide partial combustion air and sufficient mixing energy to assure smokeless combustion. The air-assist blower, in addition to smoke suppression, significantly reduces thermal radiation and shortens the flame length. The forced air flow cools the burner tips which, in turn, increases burner life and helps to prevent potential flashbacks. Competitive equipment without the air assist feature is much more likely to experience smoking and visible flames escaping the combustion unit.

11. Energy efficient pilots are provided on each John Zink Vapor Combustion System. These automatic ignition pilots are designed for minimum gas requirements and maximum stability. They have been proven in wind speeds over 100 mph. Each pilot is equipped with a continuous flame monitor to assure combustion of waste vapor.

12. John Zink utilizes 2 layers of refractory held in place by 310 SS pins and keepers on 6" centers and the refractory is sprayed with a rigidizing agent. Most competitive units use a less dense and/or thinner refractory with cheaper pins and keepers spaced at greater distances with no rigidizer. The bottom line is that the John Zink refractory is installed to last and to protect the steel shell.

13. John Zink offers an assembled and tested unit. John Zink doesn't send a box of parts for the customer to build his own combustor.

14. John Zink uses stainless steel tubing for pressure sensing lines, not copper.

15. John Zink units are sandblasted and primed with inorganic zinc. Other units are often only hand cleaned and primed with red oxide.

16. John Zink provides the customer a detailed operating and maintenance manual. This compares to some vendors who say give us a call if you have problems. The manual includes the following sections:

    I. Introduction
    II. Safety
    III. System Description
    IV. Design Basis and Performance Summary
    V. Initial Preparation and Start-up Procedures
    VI. Troubleshooting Guide
    VII. Preventative Maintenance
    VIII. Control Logic Program
    IX. System Drawings
    X. Complete Set of Specification Sheet and Manufacturer's Literature on Components

17. All John Zink ZTOF combustion stacks have two connections for emission testing. These connections are offered as a standard on all John Zink Units. Connections are installed to meet the emission testing requirements of the U.S. Environmental Protection Agency for bulk gasoline loading terminals (40 CFG 60, Subpart XX).

Refer to Attachments A and B to this proposal for additional pricing information.

E. Notes

1. It is required to install equipment in non hazardous location.

2. John Zink Company standard domestic shipping preparations are provided.

3. Owner is responsible for installation and winterization of the unit, including, but not limited to:
   a. Off loading and connecting piping and electrical
   b. Foundations
   c. Gylcol/water mixture in liquid seal.
   d. Minor reassembly of components removed for shipping

4. Three (3) operating manuals are included in selling price.

5. This unit is offered with ceramic fiber in lieu of castable refractory, curing is not required with the ceramic fiber blanket.

6. Customer is responsible for the following field wiring and conduit from the control panel to:
   a. Ignition transformer and pilot
   b. Flame scanner
   c. Blower motor

7. A job schedule will be provided within 14 days from placement of order. This schedule will include the following minimum information:
   a. Engineering
   b. Issue of drawings
   c. Procurement
   d. Fabrication
   e. Testing
   f. Shipping

F. The following information is provided to assist you in completing your permit application:

1. Type of Control Device: John Zink Enclosed Flame Hydrocarbon Vapor Combustion Unit.

2. Model GV-ZTOF-10,800-2

3. Design to combust hydrocarbon vapors displaced from loading gasoline into bulk transport trucks at a maximum rate of 1,443 ACFM (equivalent to a maximum truck fill rate of 10,800 gpm)

G. Emissions from Control Device

VOC: Guarantee: 35 mg/liter of product loaded
(.292 lb/1,000 gal.)
CO: Typical: 10 mg/liter (.0835 lbs/1,000 gal.)
NO_X: Typical: 2 mg/liter (.0167 lbs/1,000 gal.)

Annual or hourly emission rates can be calculated by multiplying above rates by the annual and hourly product loading volumes.

VOC emission guarantee from combustor is based on:

(a) Combustion unit being operated per recommended manufacturer's instructions at conditions as specified in the "Design Basis" of the proposal.

(b) VOC's are considered to be those hydrocarbons normally found in gasoline vapors displaced when transports are loaded (excluding ethane and methane). A typical analysis taken from the U.S. E.P.A. publication EPA-450/2-77-026 is as follows:

Component	Vol%
Air	50.1
Propane	0.6
Iso-butane	2.9
Butene	3.2
N-Butane	17.4
Iso-Pentane	7.7
Pentene	5.1
N-Pentane	2.0
Hexane	3.0

(c) Calculation of hydrocarbon emissions from the vapor combustion system will be determined by appropriate and generally accepted sampling and analyzing techniques per requirements of the U. S. Environmental Protection Agency for bulk gasoline loading terminals (40 CRF 60, Subpart XX). Emissions are to be averaged over a 6 hour test period.

(d) John Zink Company is responsible only for those VOC emissions that pass through the combustion system and is not responsible for those emissions that may occur from the loading rack or from the vapor collection system due to improper truck or pipe sealing techniques.

Typical CO and NOx emission values are averages taken from several tests and are not guaranteed maximums.

7. Emission stack geometry and flow characteristics:

Stack Height:	50'
Stack Diameter:	9'
Max. Stack Flue Flowrate:	56,023 SCFM
Max. Exit Gas Temperature:	1800°F
Max. Velocity:	71.6 FPS

8. Fuels Used: None except for 54 SCFH natural gas used for pilot. Natural gas heating value is approximately 1009 BTU/SCF. Once ignited by pilot the gasoline vapor has sufficient heating value to sustain its own combustion without the necessity of adding any additional fuel.

9. Liquid or solid waste generated by control device: None except periodic (approximately every 6 months) changeout of ethylene glycol based antifreeze used in liquid seal drum (approximately 75 gallons).

10. Process flow diagram and description: Attached is a preliminary flow diagram and a written description of the vapor control device.

DESCRIPTION OF JOHN ZINK TERMINAL VAPOR COMBUSTION SYSTEM OPERATION

The system typically contains a combustion unit (LH or ZTOF), special anti-flashback burners(s), automatic ignition pilot with continuous monitor, motor operated vapor block valve(s), flame arrestor(s), air-assist blower, liquid seal, piping, instrumentation and master control panel packaged as a complete assembly ready for convenient field installation.

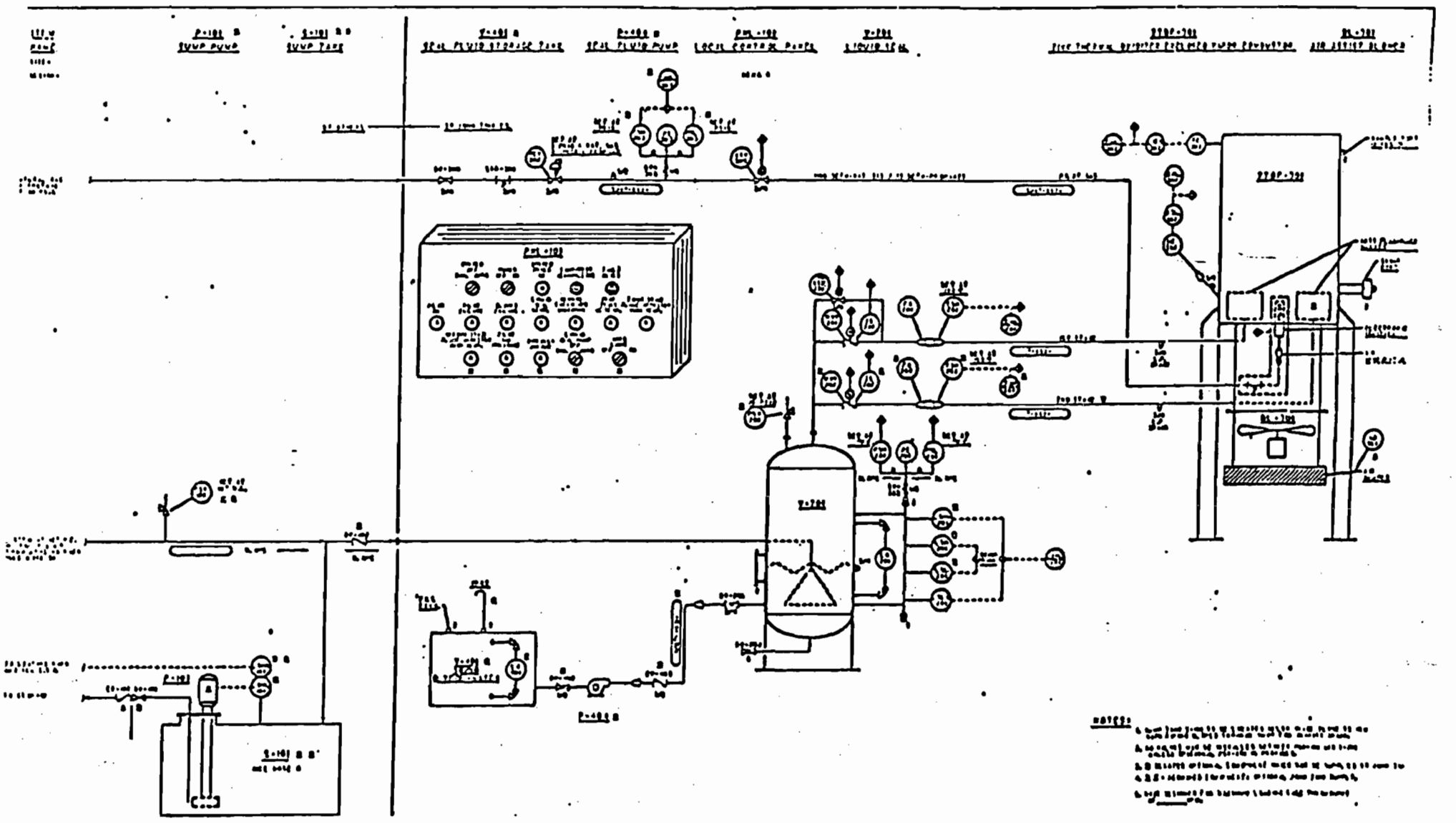
Typically, until loading occurs at the transport loading rack, the vapor combustion system is in a standby mode with no pilot flame, the vapor block valve is closed, and the air-assist blower is off. Automatic start-up of the vapor combustion system is initiated by an electrical signal from the loading rack that product loading will occur shortly.

The start-up sequence consists of a short air purge using the air-assist blower to purge the LH air plenum or the ZTOF stack of any combustibles prior to pilot ignition. This brief air purge is followed by automatic electronic ignition of the pilot. After pilot ignition, product loading begins at the loading rack and an air-vapor mixture begins to flow from the transports being loaded to the vapor combustion system.

Flow through the vapor combustion system first consists of the air-vapor mixture from the loading rack bubbling through a liquid seal (typically water or water/antifreeze). As soon as sufficient flow is available, it will be detected by the pressure monitoring controls which will automatically open the vapor block valve allowing the air vapor mixture to flow through the flame arrestor to the burner, where the combustible vapors are ignited by the pilot and burned. The air-assist blower provides partial combustion air and mixing energy to the burner tips to assure smokeless combustion.

As the loading operation at the loading rack is completed, vapor flow to the combustion system decreases. The pressure monitoring system closes the vapor block valve when the vapor flow is insufficient to maintain minimum burner velocity. The pilot and air-assist blower remain on for a brief time period after loading is complete. If no further loading occurs, the combustion unit will shut down in the standby mode to await automatic re-start as described.

For applications involving high turndown requirements, multiple burners and staging valves are normally provided to assure excellent combustion efficiency and maintain minimum burner velocities.



C. Performance Guarantee

John Zink Company guarantees the VOC emissions from the proposed Vapor Combustion Unit not to exceed 35 milligrams per liter of product loaded.

VOC emission guarantee from combustor is based on:

(a) Combustion unit being operated per recommended manufacturer's instructions at conditions as specified in the "Design Basis" of the proposal.

(b) VOC's are considered to be those hydrocarbons normally found in gasoline vapors displaced when transports are loaded (excluding ethane and methane). A typical analysis taken from the U.S. E.P.A. publication EPA-450/2-77-026 is as follows:

Component	Vol%
Air	58.1
Propane	0.6
Iso-butane	2.9
Butene	3.2
N-Butane	17.4
Iso-Pentane	7.7
Pentene	5.1
N-Pentane	2.0
Hexane	3.0

(c) Calculation of hydrocarbon emissions from the vapor combustion system will be determined by appropriate and generally accepted sampling and analyzing techniques per requirements of the U. S. Environmental Protection Agency for bulk gasoline loading terminals (40 CRF 60, Subpart XX). Emissions are to be averaged over a 6 hour test period.

(d) John Zink Company is responsible only for those VOC emissions that pass through the combustion system and is not responsible for those emissions that may occur from the loading rack or from the vapor collection system due to improper truck or pipe sealing techniques.

PROPRIETARY - TO BE MAINTAINED IN CONFIDENCE

A. PROCESS DESCRIPTION

The John Zink Company has reviewed your operating criteria and is pleased to propose, for your consideration, an automated John Zink GV-ZTOF Natural Draft, Air Assisted, Total Enclosed Vapor Combustor.

John Zink combustors have been extensively tested by the United States Environmental Protection Agency and were chosen by the USEPA on which to base their emissions and operating standards. We do not believe any other manufacturer's combustors have passed USEPA tests.

The system is designed on the following conditions:

Ambient Temperatures:	0°F to 100°F
Minimum Truck Loading Rate:	600 GPM
Maximum Truck Loading Rate:	10,800 GPM
Minimum Vapor Flow Rate to Combustor:	80 SCFM
Maximum Vapor Flow Rate to Combustor:	1,443 SCFM
Maximum Hydrocarbon (Measured as Propane) Concentration:	60 Vol%
Maximum Pressure Drop through Unit:	12" W.C.

The John Zink Series GV-ZTOF Smokeless, Total Enclosed, Natural Draft, Air Assisted Combustor is a custom designed integrated waste vapor combustor. The combustor is specially designed for the conditions given. Any modification to these design criteria should be related to John Zink Company to insure the performance of the combustor.

The proposed GV-ZTOF combustor includes a self supporting vertical ceramic refractory lined cylindrical carbon steel shell within which combustion is complete. There are no visible flames and noise levels are minimal. Internal risers deliver the waste vapor to the patented burners. The air for smoke suppression is supplied by the surrounding plenum. One continuous pilot provides an ignition source to safely combust the waste vapor.

The safety design of a vapor combustion unit in this application is of utmost importance since it receives an air/hydrocarbon vapor mixture which can often times be in the explosive range. The John Zink Vapor Combustion Unit features several unique safety controls. The first feature is the automatic air purge of the combustion stack with air, utilizing the air blower. The second feature is the proprietary anti-flashback burners used. The design of these burners minimizes flashback potential.

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.		25766	25767	25881	29535	29596	29597	30903	T-01A	T-01B
Stored Product		<----------GASOLINE---------->								
Dia, ft.		80	80	80	70	60	70	90	130	130
Hgt, ft.		48	48	48	48	48	48	48	48	48
Tank Capacity										
,gals x 10^3		1734.6	1785.0	1138.2	1369.2	1012.2	1373.4	2125.2	4725.0	4725.0
,bbls x 10^3		41.3	42.5	27.1	32.6	24.1	32.7	50.6	112.5	112.5
BASE PERIOD	20.46	35,490			28,014	20,710	28,100		96,674	96,674
----------	18.06		32,237	20,556				38,381		
Average Turnover Factor	7.87									
vs	5.96									
M gallon Terminal Thruput	4.64									
	40.00									
Average Turnover Factor	40.00									
vs	36.00	62,446	64,260	40,975	49,291	36,439	49,442	76,507	170,100	170,100
M gallon Terminal Thruput	6.50									
	4.75									
Estimated Deliveries Thru - PIPELINE		20,607	21,206	13,522	16,266	12,025	16,316	25,247	56,133	56,133
Estimated Deliveries Thru -LOADING RACK		41,839	43,054	27,453	33,025	24,414	33,126	51,260	113,967	113,967
-MISCELLANEOUS		0	0	0	0	0	0	0	0	0
TOTAL (M gals/year)		62,446	64,260	40,975	49,291	36,439	49,442	76,507	170,100	170,100
Roof Type										
Tank Constant - Ks		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE										
SEAL CONSTANT - Ks		6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Mc		0	0	0	0	0	0	0	0	0
- Fc		1	1	1	1	1	1	1	1	1
- Ff		250	250	250	250	200	250	285	285	285
- Kc		1	1	1	1	1	1	1	1	1
- Kn										
- Ld		0	0	0	0	0	0	0	0	0
- ll										
- ^T										
- Fp										
- OC										
Vapor Pressure Factor - P		0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Miscellaneous Data										
temp - F		82	82	82	82	82	82	82	82	82
amb. pres. - psia		14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph		8	8	8	8	8	8	8	8	8
true vapor pressure, - psia		6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
density, - lbs/gal		6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
RVP, - psia		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
molecular weight, - MW		66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
true vapor pressure, - psia										
density, - lbs/gal										
molecular weight, - MW										
PRODUCT THROUGHPUT										
gals/yr x 10^6		62.45	64.26	40.98	49.29	36.44	49.44	76.51	170.10	170.10
tons/yr x 10^3		190.46	195.99	124.97	150.34	111.14	150.80	233.35	518.81	518.81
bbls/yr x 10^4		148.68	153.00	97.56	117.36	86.76	117.72	182.16	405.00	405.00
PRODUCT LOSSES, - lbs/yr										
breathing		0	0	0	0	0	0	0	0	0
deck fitting		0	0	0	0	0	0	0	0	0
rim seal		4952.64	4952.64	4952.64	4333.56	3714.48	4333.56	5571.72	8048.04	8048.04
withdrawal		160.36	165.02	105.22	144.66	124.77	145.11	174.64	268.81	268.81
deck		2310.00	2310.00	2310.00	2310.00	1848.00	2310.00	2633.40	2633.40	2633.40
TOTAL TANK FARM LOSSES, lbs/yr		7423.00	7427.66	7367.86	6788.22	5687.25	6788.67	8379.76	10950.25	10950.25
, lbs/hr		0.85	0.85	0.84	0.77	0.65	0.77	0.96	1.25	1.25
, tns/yr		3.71	3.71	3.68	3.39	2.84	3.39	4.19	5.48	5.48
, lb/day		20.34	20.35	20.19	18.60	15.58	18.60	22.96	30.00	30.00

EXHIBIT (EXHI

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	6814	7518	7522	21290	29534	30775	6816	25556	T-05A
Stored Product	(----------DIESEL----------)					AV-GAS	(----BONDED AVJET----)		
Dia, ft.	115	30	48	10	50	70	95	49	125
Hgt, ft.	30	35	35	30	48	51	31	43	48
Tank Capacity									
,gals x 10^3	2343.6	184.8	470.4	17.3	701.4	693.0	1600.2	541.8	4200.0
,bbls x 10^3	55.8	4.4	11.2	0.41	16.7	16.5	38.1	12.9	100.0
BASE PERIOD									
Average Turnover Factor vs M gallon Terminal Thruput	18,444	1,454	3,702	0	5,520	3,216	9,537	3,229	25,032
Average Turnover Factor vs M gallon Terminal Thruput	84,370	6,653	16,934	346	25,250	24,948	57,607	19,505	151,200
Estimated Deliveries Thru -	17,718	1,397	3,556	0	5,303	0	57,607	19,505	151,200
Estimated Deliveries Thru -LOAD	66,652	5,256	13,378	0	19,948	24,948	0	0	0
-MISC	0	0	0	346	0	0	0	0	0
TOTAL (M gal	84,370	6,653	16,934	346	25,250	24,948	57,607	19,505	151,200
Roof Type									
Tank Constant - Ks	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE									
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Nc	0	0	0	0	0	0	0	0	0
- Fc	1	1	1	1	1	1	1	1	1
- Ff	300	150	150	150	150	285	150	150	150
- Kc	1	1	1	1	1	1	1	1	1
- Kn									
- Ld	0	0	0	0	0	0	0	0	0
- H									
- ^T									
- Fp									
- OC									
Vapor Pressure Factor - P	0.0096	0.0096	0.00022	0.00022	0.00022	0.14	0.0096	0.0096	0.0096
Miscellaneous Data									
temp - F	83	83	83	83	83	82	83	83	83
amb. pres. - psia	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph	8	8	8	8	8	8	8	8	8
true vapor pressure, - psia						6.4			
density, - lbs/gal						6.1			
RVP, - psia						10.0			
molecular weight, - MW						66.0			
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128	0.0128		0.0128	0.0128	0.0128
density, - lbs/gal	7.1	7.1	7.1	7.1	7.1		7.1	7.1	7.1
molecular weight, - MW	130	130	130	130	130		130	130	130
PRODUCT THROUGHPUT									
gals/yr x 10^6	84.37	6.65	16.93	0.35	25.25	24.95	57.61	19.50	151.20
tons/yr x 10^3	299.51	23.62	60.12	1.23	89.64	76.09	204.51	69.24	536.76
bbls/yr x 10^4	200.88	15.84	40.32	0.82	60.12	59.40	137.16	46.44	360.00
PRODUCT LOSSES, - lbs/yr									
breathing	0	0	0	0	0	0	0	0	0
deck fitting	0	0	0	0	0	0	0	0	0
rim seal	961.58	250.85	9.20	1.92	9.58	4333.56	794.35	409.72	1045.20
withdrawal	175.43	53.03	84.36	8.28	120.76	73.22	145.00	95.18	289.24
deck	374.40	187.20	4.29	4.29	4.29	2633.40	187.20	187.20	187.20
TOTAL TANK FARM LOSSES, lbs/yr	1511.41	491.07	97.85	14.48	134.63	7040.18	1126.55	692.10	1521.64
, lbs/hr	0.17	0.06	0.01	0.00	0.02	0.80	0.13	0.08	0.17
, tns/yr	0.76	0.25	0.05	0.01	0.07	3.52	0.56	0.35	0.76
, lb/day	4.14	1.35	0.27	0.04	0.37	19.29	3.09	1.90	4.17

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	6818	6819	6820	7162	7174	27382	29448	29449	29450	T-06A	T-06B	T-06C	T-06D
Stored Product	<--------					ASPHALT							-------->
Dia, ft.	52	29	29	52	52	35	35	35	35	15	15	24	60
Hgt, ft.	31	30	30	30	35	40	40	40	40	24	24	24	40
Tank Capacity													
,gals x 10^3	478.8	142.8	142.8	487.2	554.4	289.8	289.8	289.8	285.6	33.6	33.6	79.8	840.0
,bbls x 10^3	11.4	3.4	3.4	11.6	13.2	6.9	6.9	6.9	6.8	0.8	0.8	1.9	20.0
BASE PERIOD													
Average Turnover Factor vs M gallon Terminal Thruput	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Turnover Factor vs M gallon Terminal Thruput	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
Estimated Deliveries Thru -	0	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Deliveries Thru -LOAD	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
-MISC	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL (M gal	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
Roof Type													
Tank Constant - Ks	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE													
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Nc	0	0	0	0	0	0	0	0	0	0	0	0	0
- Fc	1	1	1	1	1	1	1	1	1	1	1	1	1
- Ff	300	150	150	150	300	150	150	150	300	150	300	150	150
- Kc	1	1	1	1	1	1	1	1	1	1	1	1	1
- Kn													
- Ld	0	0	0	0	0	0	0	0	0	0	0	0	0
- H													
- ^T													
- Fp													
- OC													
Vapor Pressure Factor - P	0.0096	0.0096	0.0002	0.0002	0.0096	0.0096	0.0002	0.0002	0.0096	0.0096	0.0096	0.0096	0.0096
Miscellaneous Data													
temp - F	240	240	120	240	240	240	240	240	240	120	100	300	240
amb. pres. - psia	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph	8	8	8	8	8	8	8	8	8	8	8	8	8
true vapor pressure, - psia													
density, - lbs/gal													
RVP, - psia													
molecular weight, - MW													
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128
density, - lbs/gal	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
molecular weight, - MW	200	200	200	200	200	200	200	200	200	200	200	200	200
PRODUCT THROUGHPUT													
gals/yr x 10^6	3.11	0.93	0.93	3.17	3.60	1.88	1.88	1.88	1.86	0.22	0.22	0.52	5.46
tons/yr x 10^3	12.45	3.71	3.71	12.67	14.41	7.53	7.53	7.53	7.43	0.87	0.87	2.07	21.84
bbls/yr x 10^4	7.41	2.21	2.21	7.54	8.58	4.49	4.49	4.49	4.42	0.52	0.52	1.23	13.00
PRODUCT LOSSES, - lbs/yr													
breathing	0	0	0	0	0	0	0	0	0	0	0	0	0
deck fitting	0	0	0	0	0	0	0	0	0	0	0	0	0
rim seal	668.93	373.06	8.55	15.33	668.93	450.24	10.32	10.32	450.24	192.96	192.96	308.74	771.84
withdrawal	16.13	8.62	8.62	16.41	18.67	14.50	14.50	14.50	14.29	3.92	3.92	5.82	24.52
deck	552.96	552.96	3.17	12.67	552.96	552.96	12.67	12.67	552.96	138.24	96.00	864.00	552.96
TOTAL TANK FARM LOSSES, lbs/yr	1238.01	934.64	20.34	44.41	1240.56	1017.70	37.49	37.49	1017.49	335.12	292.88	1178.56	1349.32
, lbs/hr	0.14	0.11	0.00	0.01	0.14	0.12	0.00	0.00	0.12	0.04	0.03	0.13	0.15
, tns/yr	0.62	0.47	0.01	0.02	0.62	0.51	0.02	0.02	0.51	0.17	0.15	0.59	0.67
, lb/day	3.39	2.56	0.06	0.12	3.40	2.79	0.10	0.10	2.79	0.92	0.80	3.23	3.70

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	7145	7146	7147	7148	7164	7165
Stored Product	<--LUBE OIL PRODUCTS-->			ADDITIVE	FIRE	WASTE
Dia, ft.	19	19	19	19	29	29
Hgt, ft.	30	30	30	30	30	30
Tank Capacity						
,gals x 10^3	63.0	63.0	63.0	63.0	142.8	142.8
,bbls x 10^3	1.50	1.50	1.50	1.50	3.40	3.40
BASE PERIOD						
Average Turnover Factor vs M gallon Terminal Thruput	0	0	0	0	0	0
Average Turnover Factor vs M gallon Terminal Thruput	299	299	299	2,025	0	0
Estimated Deliveries Thru -	0	0	0	1,012	0	0
Estimated Deliveries Thru -LOAD	0	0	0	1,012	0	0
-MISC	299	299	299	0	0	0
TOTAL (M gal	299	299	299	2,025	0	0
Roof Type						
Tank Constant - Ks	1.1	1.1	1.1	1.1		
SEAL TYPE						
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7		
- Nc	0	0	0	0		
- Fc	1	1	1	1		
- Ff	300	300	300	300		
- Kc	1	1	1	1		
- Kn						
- Ld	0	0	0	0		
- H						
- T						
- Fp						
- OC						
Vapor Pressure Factor - P	0.0096	0.0096	0.0096	0.0096		
Miscellaneous Data						
temp - F	100	100	100	100		
amb. pres. - psia	14.7	14.7	14.7	14.7		
wind velocity - mph	8	8	8	8		
true vapor pressure, - psia						
density, - lbs/gal						
RVP, - psia						
molecular weight, - MW						
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128		
density, - lbs/gal	8.0	8.0	8.0	8.0		
molecular weight, - MW	200	200	200	200		
PRODUCT THROUGHPUT						
gals/yr x 10^6	0.30	0.30	0.30	2.02		
tons/yr x 10^3	1.20	1.20	1.20	8.10		
bbls/yr x 10^4	0.71	0.71	0.71	4.82		
PRODUCT LOSSES, - lbs/yr						
breathing	0	0	0	0		
deck fitting	0	0	0	0		
rim seal	244.42	244.42	244.42	244.42		
withdrawal	4.24	4.24	4.24	28.71		
deck	96.00	96.00	96.00	96.00		
TOTAL TANK FARM LOSSES, lbs/yr	344.66	344.66	344.66	369.13		
, lbs/hr	0.04	0.04	0.04	0.04		
, tns/yr	0.17	0.17	0.17	0.18		
, lb/day	0.94	0.94	0.94	1.01		

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Terminal Throughput Data
&
Air Emissions Calculations

Vapor Recovery System Calculations Exclude
- 27,973,512 gals of Diesel Fuels Shipped Thru Pipelines.
- 228,312,000 gals of BONDED AVJET Shipped Thru Pipelines.
- 237,455,064 gals of GASOLINE Shipped Thru Pipelines.
- 897,750 gals of Lube Oil
- 346,000 gals of Onsite Diesel Fuel
- 1,012,422 gals of ADDITIVE PACKAGES SHIPPED OFF SITE.

Total Excluded Fuel Products	495,996,828
Total Terminal Fuel Products	1,108,052,844
Total Terminal Asphalt Products	25,662,000
Misc. Products (Additives, Lube Oil, on site Diesel Fuel)	1,243,830
	638,961,846 gals

SITE LOADING RACK BREAKDOWNS

Additives	1,012,422
Asphalt	25,662,000
Diesel	105,233,688
Gasoline & Avgas	507,053,736
	638,961,846 gallons

ESTIMATED EMISSIONS
at
PROJECT BUILDOUT

	Potential Emissions		Controlled Emissions	
	lbs/hr	tons/yr	lbs/hr	tons/yr
Storage Tanks	11	47	11	47
Vapor Recovery	564	2,471	21	93
TOTAL	575	2,518	32	141

Notes:
1.) Calculated operating efficiency is basis upon UNCONTROLLED EMISSIONS of 35 mg/l per gallon loaded.
2.) Published data for Vapor Combustion units show operational efficiencies of between 95-99%.
3.) Communications with John Zink Company stated that anticipated efficiencies will be between 96-99%.
4.) Calculated CONTROLLED EMISSIONS were based upon the more conservative 96% efficiency.
5.) Calculations are based upon US EPA Document AP-42, Chapter 4.4 - Transportation & Marketing of Petroleum Liquids.
6.) The Calculated Operating Efficiency is based upon an emission level of 35 mg/l when operating at the stated Loading Rack Volumes.
7.) Emissions for storage tanks is based upon the summation of the TOTAL TANK FARM LOSSES calculated on pages 1 - 4.
8.) The formulas used to calculate lbs/hr of CONTROLLED EMISSIONS: 12.46 * S * P * M * (1 - EFF/100) * LOADED VOLUME / DEG R / 8760 / 1000
lbs/hr of POTENTIAL EMISSIONS: 12.46 * S * P * M * LOADED VOLUME / DEG R / 8760 / 1000

Tank Number	Dia x Hgt	Roof Type (1)	Shell Type (2)	Capacity Gallons	Capacity Barrels	Year Erect	Prod (3) Pres	Prod (3) Future
T-01A	130 X 48	CIF	W	4,725,000	112,500	NEW	NEW	RUG
T-01B	130 X 48	CIF	W	4,725,000	112,500	NEW	NEW	RUG
T-05A	125 X 48	C	W	4,200,000	100,000	NEW	NEW	BA
T-06A	15 X 24	C	W	31,500	750	NEW	NEW	PGAC
T-06B	15 X 24	C	W	31,500	750	NEW	NEW	PGAC
T-06C	24 X 24	C	W	79,800	1,900	NEW	NEW	PGAC
T-06D	60 X 40	C	W	840,000	20,000	NEW	NEW	PGAC
T-50A	10 x 24	C	W	12,000	285	NEW	NEW	AD
T-50B	10 x 24	C	W	12,000	286	NEW	NEW	AD
6814	95 X 30	C	RIV	2,343,432	55,796	1919	NIS	DL
6816 *	95 X 31	C	w	1,599,108	38,074	1920	BA	BA
6818	52 X 31	C	W	478,800	11,400	1922	NIS	PGAC
6819	29 X 30	C	W	142,800	3,400	1925	NIS	PGAC
6820	29 X 30	C	W	142,800	3,400	1925	NIS	PGAC
7145	19 X 30	C	W	62,916	1,498	1924	NIS	F-LO
7146	19 X 30	C	W	64,008	1,524	1924	NIS	F-LO
7147	19 X 30	C	W	62,916	1,498	1924	NIS	F-LO
7148	19 X 30	C	W	62,916	1,498	1924	NIS	AD
7152	52 X 30	C	W	485,982	11,571	1926	NIS	PGAC
7164	29 X 30	C	W	144,060	3,430	1927	NIS	FW
7165	29 X 30	C	W	144,900	3,450	1927	WW	WW
7174	52 X 35	C	W	554,610	13,205	1927	NIS	PGAC
7519	30 X 35	C	w	184,380	4,390	1940	NIS	DL
7522 *	48 X 35	C	W	471,072	11,216	1941	DL	DL
21290	10 X 30	C	W	17,220	410	---	DL	DL
25556 *	49 X 42	C	W	541,758	12,899	1952	DL	BA
25766 *	80 x 48	CIF	W	1,734,012	41,286	1959	GAS	PUG
25767 *	80 X 48	CIF	W	1,785,588	42,514	1954	GAS	UPS
25881 *	70 X 40	CIF	W	1,137,906	27,093	1954	GAS	UPG
27380	12 X 30	C	W	25,200	600	1956	NIS	TBR
27381	12 X 30	C	W	25,200	600	1956	NIS	TBR
27382	35 X 40	C	W	288,036	6,858	1956	NIS	PGAC
29446	15 X 32	C	W	42,252	1,006	1958	NIS	TBR
29447	16 X 32	C	W	42,210	1,005	1958	NIS	TBR
29448	35 X 40	C	W	288,036	6,858	1958	NIS	PGAC
29449	35 X 40	C	W	288,036	6,858	1958	NIS	PGAC
29450	35 X 40	C	W	287,700	6,850	1958	NIS	PGAC
29534 *	50 X 48	C	W	702,408	16,724	1959	DL	DL
29535 *	70 X 48	CIF	W	1,370,796	32,638	1959	GAS	PUG
29596 *	60 X 48	CIF	W	1,012,746	24,113	1960	GAS	PUG
29597 *	70 X 48	CIF	W	1,373,736	32,708	1960	GAS	PUG
30775 *	50 X 48	CIF	W	693,588	16,514	1963	AG	AG
30903 *	90 X 48	CIF	W	2,126,754	50,637	1965	GAS	UPG

UNKNWN ASPHALT STORAGE TANK REMOVED FROM SITE AFTER 1972.

Legend

Construction

- C - Cone Roof
- CIF - Cone Roof with Internal Floater
- RIV - Rivited Steel Tank
- W - Welded Steel Plates
- w - Rivited Steel Tank with Welded Rivits

Product (3)

- AD - Product Additive
- AG - Aviation Gas (AVGAS)
- BA - Bonded Avjet
- DL - Diesel Fuel
- PUG - Premium Unleaded Gas
- RUG - Regular Unleaded Gas
- UPG - Unleaded Plus Gas
- PGAC - Paving Grade Asphalt Cement
- F-LO - Future Lube Oil
- FW - Foam Water Storage
- WW - Wastewater Storage
- TBR - To Be Removed
- NIS - Not In Service

NOTES:

1.) Tanks T-01A, T-01B, T-05A and 30903 share a common containment Area. NFPA 30 requires that the area contain 100% of the largest tank volume. After correcting for the tankage in place the area will contain approximately 120% of the NFPA required volume.
2.) The PGAC tanks and tanks 6816 and 25556 share a common containment area which meets the NFPA containment criteria.
3.) All other Tanks and Containments are vested and therefore exempt from review under the ADA.
4.) New containments will comply with 40 CFR part 112.
5.) Product allocations are subject to change within guidelines set by HC EPC/FDER.
6.) *Star Enterprise tanks leased to Marathon Oil.

(EXHIBIT EPC-1)

ERMITTEE:
Marathon Petroleum Company

Permit No.: AO29-138645
Project: Petroleum Storage Tank Farm

	55-14	External Floater	SU Gasoline	55,000
	80-15	External Floater	L Gasoline	80,000
	80-16	External Floater	L Gasoline	80,000
	80-17	External Floater	UL Gasoline	80,000
	80-18	External Floater	UL Gasoline	80,000
	80-19	Cone w/Internal Floater	UL Gasoline	80,000
	T-5	Cone	Slop	500
	-	Cone	Gasoline Additive	8,000
	-	Cone	Gasoline Additive	8,000
	-	Cone	Gasoline Additive	8,000
25767	*43-21	Cone w/Internal Floater	#2 Diesel Fuel	43,000
30903	*54-22	Cone w/Internal Floater	UL Gasoline	54,000
25881	*27-23	Cone w/Internal Floater	UL Gasoline	27,000
29596	*24-24	Cone w/Internal Floater	SU Gasoline	24,000
6816	*38-25	Cone	#2 Diesel Fuel	38,000
29597	*33-26	Cone w/Internal Floater	SU Gasoline	33,000
25556	*13-27	Cone	#2 Diesel Fuel	13,000
25766	*43-28	Cone w/Internal Floater	L Gasoline	43,000
29535	*33-29	Cone w/Internal Floater	L Gasoline	33,000
7522	*11-30	Cone	#2 Diesel Fuel	11,000
30775	*17-31	Cone w/Internal Floater	Avgas	17,000
29534	*17-32	Cone	#2 Diesel Fuel	17,000

*Tanks leased from Texaco

Location: 425 South 20th Street, Tampa

UTM:17-359.5E 3091.7N NEDS NO: 0080 Point ID: 02

Replaces Permit No.: AO29-60567

ITEM	P-101	S-101	TOF-301	BL-301
NAME	SUMP PUMP	SUMP TANK	ENCLOSED VAPOR COMBUSTOR	AIR ASSIST BLOWER

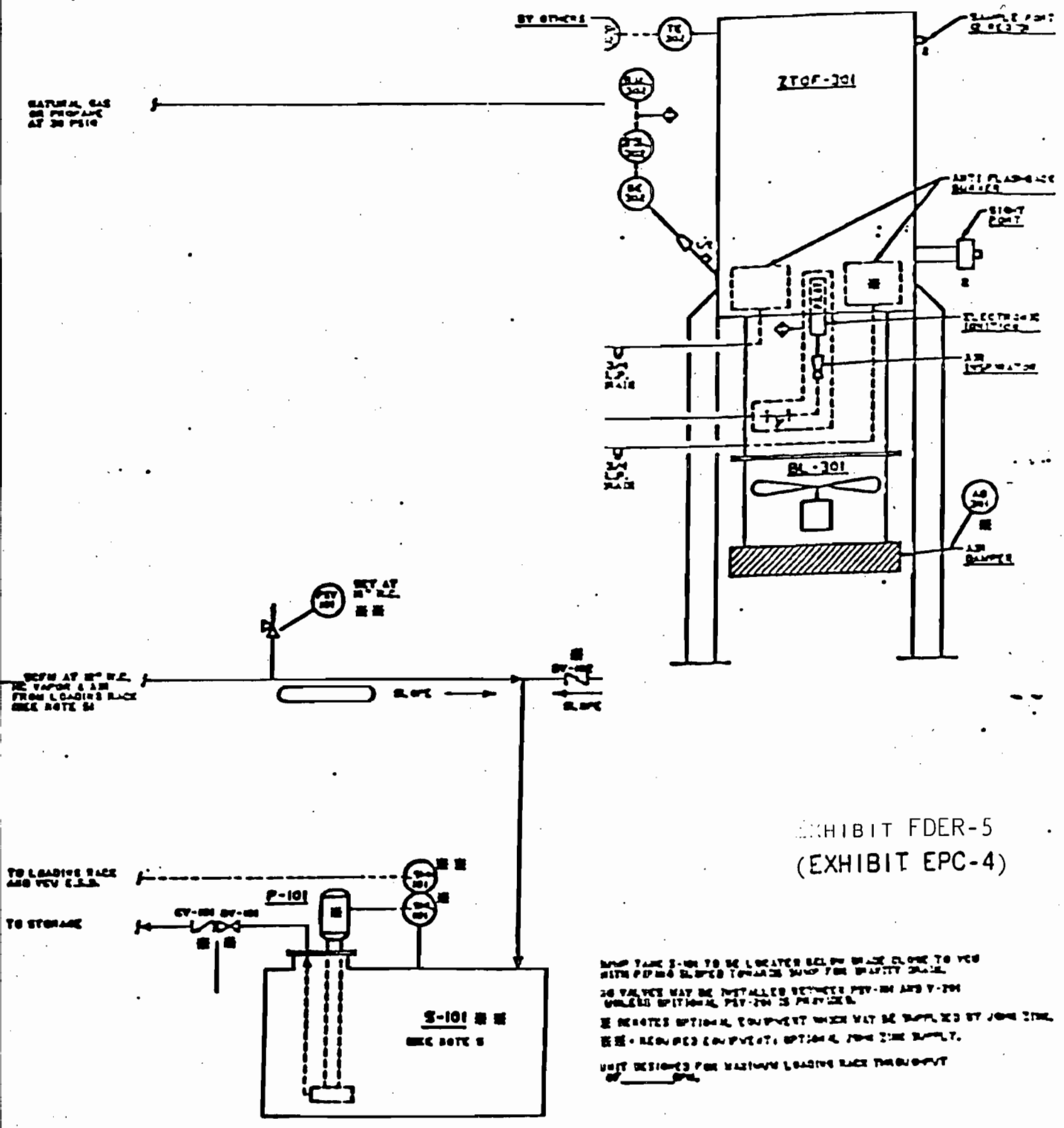


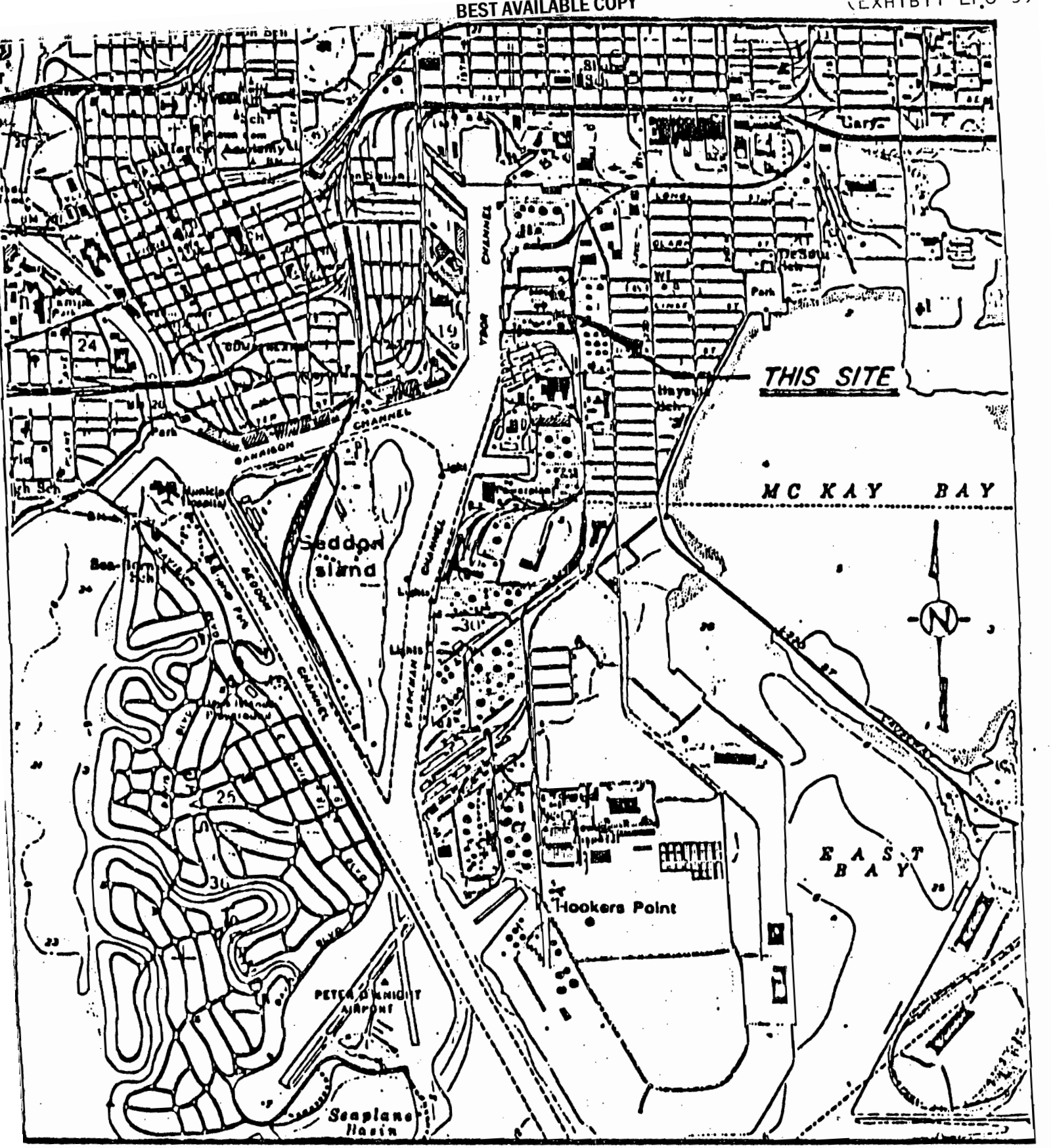
EXHIBIT FDER-5
(EXHIBIT EPC-4)

JOHN ZINK COMPANY
TULSA OKLAHOMA

TITLE: PIPING AND INSTRUMENT DIAGRAM FOR JOHN ZINK CO. TYPE GVZTOF GASOLINE VAPOR COMBUSTION UNIT

CHECKED	DATE	SCALE	DRAWING NUMBER	REV
	6-87		B-ST-2547 - SHT. 4 OF 4	C

REVISIONS



JEB	DRAWN BY: S.N.	SCALE: 1" = 2000'
	CHECKED BY: J.E.B.	DATE: 4-1-88
	PROJECT NO.: 1275	SHEET NO.: MAP 'A'

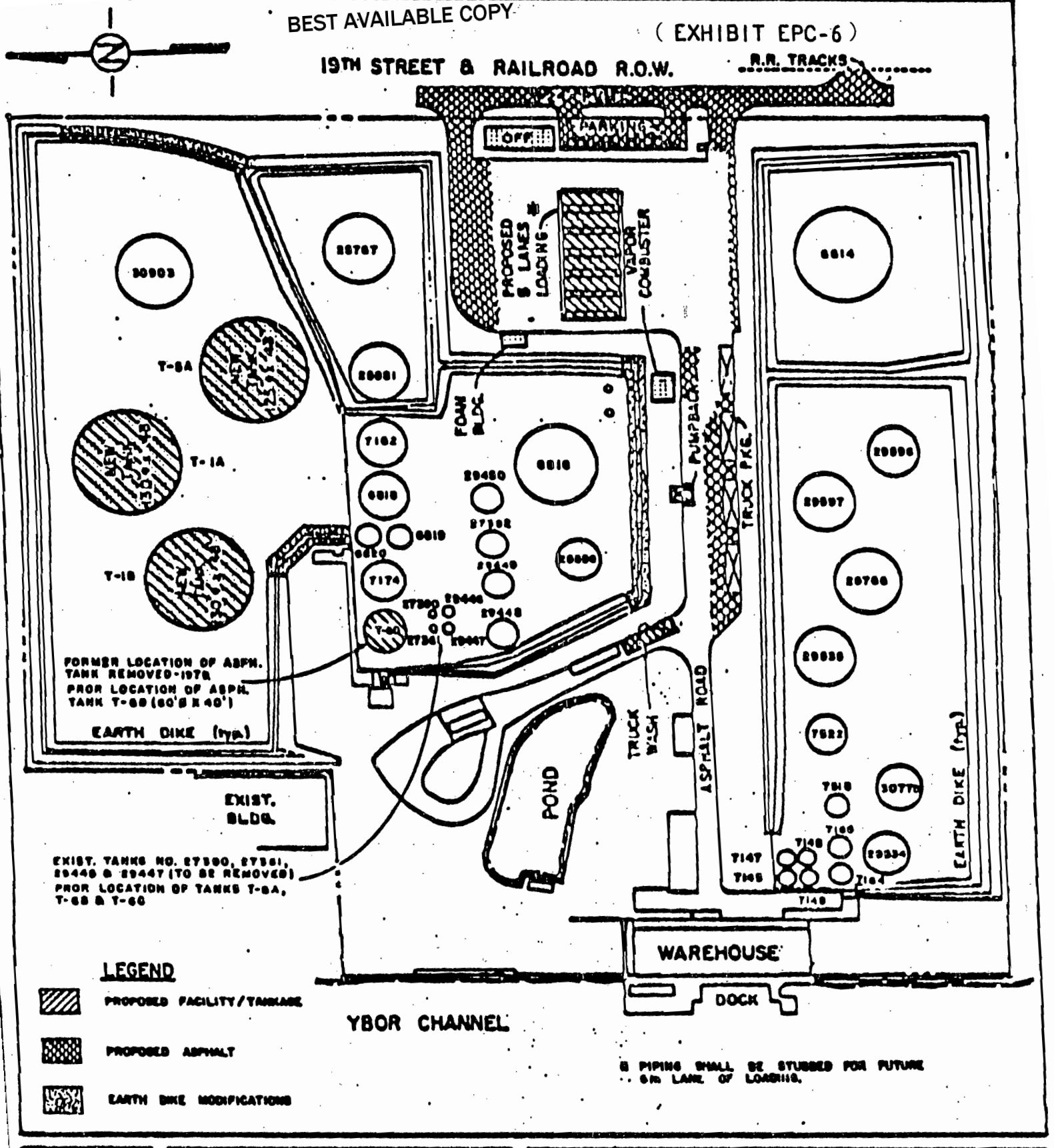
STAR ENTERPRISE — TAMPA TERMINAL
GENERAL LOCATION MAP

J.E. BRENMAN CONSULTING ENGINEERS, INC.
1801 UNIVERSITY DRIVE CORAL SPRINGS, FLORIDA 33071

EXHIBIT FDER-7

BEST AVAILABLE COPY

(EXHIBIT EPC-6)



JEB	DRAWN BY: J.A. NODARSE	SCALE: 1" = 200'
	CHECKED BY: J.E. BRENMAN	DATE: 7/1/88
	PROJECT NO.: 1275	SHEET NO.: MAP "H"

REV. NO. 1 - 6/20/89
REV. NO. 2 - 9/5/89

STAR ENTERPRISE — TAMPA TERMINAL
MASTER SITE PLAN

J.E. BRENMAN CONSULTING ENGINEERS, INC.
1801 UNIVERSITY DRIVE CORAL SPRINGS, FLORIDA 33071

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:

Mr. W. C. Wilmington
Manager Operations
Star Enterprise
P. O. Box 5140
Maitland, FL 32751-8003

4. Article Number
P 938 762 809

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X

7. Date of Delivery

JAN 22 1990

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form 3811, Mar. 1988 * U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

P 938 762 809

RECEIPT FOR CERTIFIED MAIL
NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Mr. W. C. Wilmington, Star Enterprise	
Street and No. P.O. Box 5140	
P.O., State and ZIP Code Maitland, FL 32751-8003	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date Mailed: 1-18-90 Permit: AC 29-160652 AC 29-160654	

PS Form 3800, June 1985

Florida Department of Environmental Regulation

Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

January 18, 1990

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. W. C. Wilmington - Manager Operations
Star Enterprise
P. O. Box 5140
Maitland, Florida 32751-8003

Dear Mr. Wilmington:

The Department has reviewed your applications and additional information for permits to construct three (3) storage tanks, a loading rack, and a vapor combustor unit at the Star Enterprise facility in Hillsborough County, Florida. We need more information to process these applications. Please complete the applications by supplying the information requested below:

- There is a discrepancy between the tanks identification numbers listed in the Marathon Oil FDER Permit No. AO 29-138645 and the tanks listed in your response No. 23 of your letter dated October 31, 1989. Which one is correct?

- A separate application is needed for the vapor combustor unit. Please submit one with the appropriate application fee.

- What are the potential and actual emission for the loading rack itself?

- Does the proposed LAER apply to the new sources or to the whole facility?

- Exhibit EPC-6 (your letter of October 31, 1989), shows the location of the storage tanks and emissions sources at the Star Enterprise facility. Do the tanks not labeled under the Marathon permit belong to Citgo? If so, submit the operating permit for all of the Citgo tanks.

F.A.C. Rule 17-2.510(4)(d)a. states: The committed offsets/new source allowance must equal or exceed the increase of VOC or NOx emissions from the new facility or modification. Therefore, if your facility is subject to NSR for nonattainment areas (F.A.C. Rule 17-2.510), the proposed offset of 40 TPY may not be adequate. Please refer to Rule 17-2.510.

Due to the complexity of this application, we suggest a personal meeting at the Department's Tallahassee office be arranged at our mutual convenience to address all of these concerns.

If you have any questions or wish to set up a meeting, please call Teresa Heron, or write to me at the above address.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/plm

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:

Mr. W. C. Wilmington
Manager Operations
Star Enterprise
P. O. Box 5140
Maitland, Florida 32751

MAITLAND, FL DEC 13 1989 USPO

4. Article Number
P 938 762 775

Type of Service:
- ☐ Registered
- ☐ Insured
- ☒ Certified
- ☐ COD
- ☐ Express Mail
- ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Address
X

6. Signature — Agent
X

7. Date of Delivery

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form **3811**, Mar. 1988 ★ U.S.G.P.O. 1988-212-865 **DOMESTIC RETURN RECEIPT**

P 938 762 775

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL
(See Reverse)

Sent to Mr. W. C. Wilmington, Star Enterprise	
Street and No. P.O. Box 5140	
P.O., State and ZIP Code Maitland, FL 32751	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date Mailed: 12-8-89 Permit: AC 29-160652, -654	

PS Form 3800, June 1985

Florida Department of Environmental Regulation

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

December 8, 1989

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. W. C. Wilmington
Manager Operations
Star Enterprise
P. O. Box 5140
Maitland, Florida 32751

Dear Mr. Wilmington:

RE: Star Enterprise/CITGO Joint Venture
AC 29-160652 and AC 29-160654

The information you submitted on November 9, 1989, to the Environmental Protection Commission of Hillsborough County indicates that the above referenced project is subject to review under 17-2.510, F.A.C., New Source Review for Nonattainment Areas, and the application has been forwarded through the DER Southwest District to the Bureau of Air Regulation in Tallahassee for processing. According to 17-4.050, F.A.C., (copy enclosed) the processing fee for this type application is $5,000. Since you have already submitted $1,500, an additional $3,500 is required before we can continue to process your application.

Please mail your check to the Department of Environmental Regulation, Bureau of Air Regulation at the above address in Tallahssee with a notation that it is an air construction permit fee. We will make every effort to expedite processing your application as soon as the remaining fee is received. If you have any questions, please call me at (904)488-1344.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/pa

Enclosure

cc: Harry Kerns, SW District
Arthur Wells, EPCHC
J. E. Brenman, P.E.

Florida Department of Environmental Regulation
Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400
Bob Martinez, Governor Dale Twachtmann, Secretary John Shearer, Assistant Secretary

December 8, 1989

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

RECEIVED
DEC 20 1989
DER-BAQM

Mr. W. C. Wilmington
Manager Operations
Star Enterprise
P. O. Box 5140
Maitland, Florida 32751

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AC 29-160652 and AC 29-160654

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Chief
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CHF/pa

Enclosure

cc: Harry Kerns, SW District
Arthur Wells, EPCHC
J. E. Brenman, P.E.

1031

StarEnterprise

HOUSTON, TEXAS 77067

NCNB NATIONAL BANK OF NORTH CAROLINA
ASHEVILLE, NORTH CAROLINA

CHECK NO. 201113

DATE	AMOUNT
12-15-89	$******3,500.00

VALID ON GREEN BACKGROUND ONLY

StarEnterprise
HOUSTON VOUCHER ACCOUNT

PAY TO THE ORDER OF
STATE OF FLORIDA DEPT
ENVIRONMENTAL REGULATIONS
2600 BLAIRSTONE RD
TALLAHASSEE FL 32399

Michael V Carlucci

[redacted]

AGR	FT	
DMK	DCY	
DVD		
ALS		

PERM. ROUTINE

P. O. Box 5140
Maitland, Florida 32751

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RE: Star Enterprise/CITGO Joint Venture
AC 29-160652 and AC 29-160654

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Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/pa

Enclosure

cc: Harry Kerns, SW District
Arthur Wells, EPCHC
J. E. Brenman, P.E.

1031

J.E. Brenman Consulting Engineers, Inc.
Engineers • Land Surveyors

NOVEMBER 8, 1989

NOV 9 1989

E.P.C. of H.C.

HILLSBOROUGH COUNTY
ENVIRONMENTAL PROTECTION COMMISSION
1900 9TH AVENUE
TAMPA, FLORIDA 33605

ATTENTION: MR. ARTHUR J. WELLS
AIR PERMITTING ENGINEER

REFERENCE: HILLSBOROUGH COUNTY -AP
AC 29-160654 AND AC 29-160652
STAR ENTERPRISE/CITGO JOINT VENTURE

DEAR MR. WELLS:

PER OUR RECENT CONVERSATION ENCLOSED ARE: THREE (3) COPIES EACH OF OUR RESPONSE TO YOUR LETTER OF AUGUST 4, 1989 AND THE DULY SIGNED PERMIT APPLICATION.

WE TRUST THAT YOU FIND THE RESPONSE COMPLETE AND COMPREHENSIVE. IF HOWEVER, AFTER REVIEWING THE REVISIONS QUESTIONS STILL EXIST, WE SUGGEST THAT A PERSONAL MEETING MAY BE BENEFICIAL IN BETTER ADDRESSING YOUR CONCERNS.

WE APPRECIATE YOUR KEEN INTEREST IN THIS PROJECT AND HOPE YOU NOW HAVE A BETTER UNDERSTANDING OF OUR CLIENTS OBJECTIVES.

VERY TRULY YOURS,

J.E. BRENMAN CONSULTING ENGINEERS, INC.

J.E. Brenman

J.E. BRENMAN, P.E.
PRESIDENT

CC: MR. AL GALLEGOS - CITGO
MR. R.E. HARKRIDER - STAR
MS. SANDY EBERHARD - TBRPC

1801 University Drive • Coral Springs, Florida 33071-6078
Telephone (305) 752-7117 • Fax (305) 753-7743

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHEAST FLORIDA DISTRICT
1900 SOUTH CONGRESS AVENUE
WEST PALM BEACH, FLORIDA 33406

RECEIVED
NOV 9 1989
E.P.C. of H.C.

BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY
J. SCOTT BENYON
DISTRICT MANAGER

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: BULK GASOLINE TERMINAL [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: STAR ENTERPRISE (FORMERLY KNOWN AS TEXACO) COUNTY: HILLSBOROUGH

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) PERMITTING OF EXISTING TANKS, NEW STORAGE TANKS AND LOADING RACK AND VAPOR COMBUSTOR

SOURCE LOCATION: Street 519 19 ST City TAMPA

ZONE 17; UTM: East 358.2 KM North 3092.3 KM

Latitude 27° 56' 49"N Longitude 82° 26' 24"W

APPLICANT NAME AND TITLE: W. C. WILMINGTON - MANAGER OPERATIONS

APPLICANT ADDRESS: 555 WINDERLEY PLACE, SUITE 420, MAITLAND CENTER, PO BOX 5140 MAITLAND, FL 32751-8003

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of STAR ENTERPRISE

I certify that the statements made in this application for a CONSTRUCTION permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Signed: W. C. Wilmington

W. C. WILMINGTON-MANAGER OPERATIONS
Name and Title (Please Type)

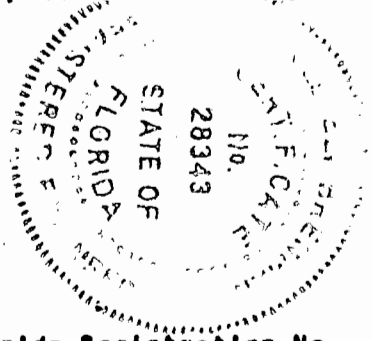
Date: 11/4/89 Telephone No. 407-660-8000

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, tha

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.



Signed J. E. Brenman

J. E. BRENMAN, PE
Name (Please Type)

J. E. BRENMAN CONSULTING ENGINEERS, INC
Company Name (Please Type)

1801 UNIVERSITY DRIVE, CRL SPGS, FL 33071-6078
Mailing Address (Please Type)

Florida Registration No. PE28343 Date: 11/3/89 Telephone No. 305-752-7117

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary. PERMITTING OF PREVIOUSLY UNPERMITTED STORAGE TANKS & THE INSTALLATION OF THREE (3) NEW PRODUCT STORAGE TANKS, A PRODUCT LOADING RACK AND DUPLEX VAPOR COMBUSTION SYSTEM. DESCRIPTION OF PROJECT IS PROVIDED AS ATTACHMENT 1.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction MARCH 1990 Completion of Construction MARCH 1991

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

VAPOR COMBUSTION SYSTEM: $200,000

INSTALLATION: 40,000

MISCELLANEOUS: 60,000

TOTAL: $300,000

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52

If power plant, hrs/yr _____ ; if seasonal, describe: N/A

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? YES

   a. If yes, has "offset" been applied? YES

   b. If yes, has "Lowest Achievable Emission Rate" been applied? YES

   c. If yes, list non-attainment pollutants. OZONE (VOC)

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. NO

3. Does the State "Prevention of Significant Deterioration" (PSD) requirement apply to this source? If yes, see Sections VI and VII. NO

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? YES

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

6. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? NO

   a. If yes, for what pollutants? OZONE (VOC)

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

After recalculating the loading volumes and resulting emissions levels from the facility we are of the opinion that neither the requirements of Reasonably Available Control Technology (RACT) nor Best Available Control Technology (BACT) apply to this source. Technically, the Star Enterprise facility is a minor source located within a non-attainment area for Ozone which will undergo a major modification. Our understanding from discussions with Bill Thomas of the Florida Department of Environmental Regulation in Tallahassee is that the following Three (3) stipulations must be met:

1.) Lowest Achievable Emissions Rate (LAER) based technology will be applicable.
2.) Offsets are required for emissions levels beyond 100 tons per year.
3.) Statewide compliance for multi-source facilities must be achieved.

The Star Enterprise DRI/ADA meets all of the stipulated criteria. The proposed control technology - Vapor Combustion is considered to be state of the art for control of Bulk Terminal Emissions. Through the closing of the CITGO terminal an offset equal to approximately 40 tons per year will be applied to the Joint Venture Terminal. The CITGO terminal is currently a minor emissions source which can theoretically emit up to a maximum of 100 tons per year. Star Enterprise operates Two terminals in Florida, Tampa and Port Everglades, both meet all applicable Air Emissions criteria.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

N/A

Description	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): N/A

2. Product Weight (lbs/hr): N/A

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1,5,6]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4,5,6] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/Hr	T/yr	
VOC	32.10	140.59	35 MG/L OF	22.83	32.10	140.59	
			GASOLINE				
			LOADED THRU				
			LOADING RACK				

[1] See Section V, Item 2.

[2] Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, C. (1) - 0.1 pounds per million BTU heat input)

[3] Calculated from MAX rate and applicable standard, USING 8760 HRS/YR AND 100 TONS/YR EMISSSIO

[4] Emission, if source operated without control (See Section V, Item 3).

5. SEE SHEET 3 OF 12 FOR JUSTIFICATION FOR CALCULATIONS

6. SEE SUPPLEMENTAL PAGES 1 - 5 FOR DETAILS OF CALCULATION, (EXHIBIT EPC-2, PGS 1-5).

Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
JOHN ZINK CO	VOC	96% (MIN)	N/A	(1)
MODEL GV-ZTOF-10				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
PROPANE (PILOT)	10 SCFH	21 SCFH	0.05

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: PROPANE IS A CLEAN FUEL

Percent Sulfur: NEGLIGIBLE Percent Ash: NEGLIGIBLE

Density: 1.52 SG Typical Percent Nitrogen: N/A

Heat Capacity: 21,513 BTU/lb 91,065 BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

NONE

(1) PERFORMANCE GUARANTEE STATED BY VENDOR PROVIDES THAT VOC EMISSIONS WILL EXCEED 35 MG/L OF PRODUCT LOADED. GUARANTEE STATEMENT ATTACHED.

HILLSBOROUGH COUNTY - AP
PERMITS
AC 29-160654 & AC 29-160652
STAR ENTERPRISE/CITGO PETROLEUM, JV

HILLSBOROUGH COUNTY ENVIRONMENTAL PROTECTION COMMISSION
RESPONSE TO LETTER OF 4 AUGUST 1989

PERMIT AP AC 29-160654 & 160652

31 OCTOBER 1989

1. PROVIDE ALL THE INFORMATION REQUIRED BY SUBSECTION 17-2.510 (8)(A), F.A.C.

All information pertaining to the operational characteristics and construction schedule of the terminal have been submitted to the Department. Please refer to the appropriate sections of the FDER Construction Permit Application. Should you require additional specific information please refer to the Development of Regional Impact (DRI) Application for Development Approval (ADA) several copies of which have been sent to Hillsborough County and FDER.

We believe that the proposed Vapor Combustion Technology meets the intent of Lowest Achievable Emission Rate (LAER). In evaluating our application one must take into account that an offset is to be applied by taking a credit for the emissions from the GITGO terminal. Since the offset is lower than the total emissions reported by the CITGO terminal for FY 1988, it can be argued that the project will produce a decrease in emissions to the surrounding area. It is our opinion that the offset and utilization of the Vapor Combustion Technology provides the LAER basis of determination.

For the following reasons it is unwarranted to provide information regarding the air quality impact of the project on the surrounding area:

a) The applied emissions offset from the CITGO terminal results in a net decrease in area emissions.

b) Transfer of existing loading operations from two currently permitted local terminals - CITGO and Marathon. The Marathon volume relates only to the Star Enterprise portion of the terminal throughput.

offsets

c) The increase in throughput volume will take place over a multiple year period (currently estimated to be greater than 5 years).

d) The large number of similar terminals within the immediate area of the terminal.

2. PROVIDE ALL THE INFORMATION REQUIRED BY SUBSECTION 17-2.510 (8)(B), F.A.C.

The CITGO terminal located at 1700 Hemlock Ave., Tampa is operated under FDER Air Emissions permit No. A029-130200, will be used as an emissions offset for the proposed project. The property on which the CITGO Terminal is located is owned by Tampa Electric Company; the terminal tankage and truck loading facilities are owned and operated by CITGO Petroleum Corporation, P.O. Box 3758, Tulsa, Oklahoma 74102.

The quantity of required offset is estimated at 40 tons per year which is approximately 44 percent of the estimated CITGO emissions for the year 1988. The offset will be applied upon startup of the new Joint Venture Terminal. A statement by CITGO provides that, "...it is CITGO's intention that, upon...completion of final development of the expanded Tampa terminal, CITGO will cease operations of its current petroleum marketing operations at Hooker's Point and hereby cease any air emissions in connection therewith."

reg. by permit

3. PROVIDE ALL THE INFORMATION REQUIRED BY SUBSECTION 17-2.510 (6)(B) 10., F.A.C.

The facility will be in full compliance with the conditions of 17-2.510, New Source Review for Nonattainment Areas. Since the project is subject to the new source review criteria it is not subject to Rule 17-2.520, PSD review.

4. RECALCULATE THE TOTAL FACILITY EMISSIONS TAKING INTO ACCOUNT ALL FUGITIVE EMISSIONS SINCE THEY ARE NOT EXEMPT PURSUANT TO 17-2.510 (2)(B), F.A.C.

The calculations which have been presented for the facility take into account all known emissions points. We are unaware of any fugitive sources of emissions.

The only potential fugitive emissions source is located at the marine dock. Loading operations at the dock involve pumping product from vessels into the storage tanks. Emissions do not result from these operations.

What is basis
re - How about
working losses

5. A DETERMINATION OF LAER (LOWEST ACHIEVABLE EMISSION RATE) IS REQUIRED. PROVIDE A RECOMMENDATION OF LAER SETTING FORTH THE BASIS FOR THE DETERMINATION [17-2.640(1)]. INCLUDE A GUARANTEE OF CONTROL DEVICE EFFICIENCY SIGNED BY THE MANUFACTURER.

Please refer to paragraph 1 for the suggested basis of determination.

6. IS THIS GOING TO BE A PHASED CONSTRUCTION PROJECT?

The project will be constructed in one phase. It is, however, anticipated that the full throughput rates will not be achieved for approximately five years after completion of construction. must be projected & permitted

7. IDENTIFY WHICH NSPS SUBPARTS APPLY TO EACH INDIVIDUAL TANK. PROVIDE DETAILS OF CONSTRUCTION FOR ALL TANKS, THE PERMIT NUMBER AND TANK DESIGNATION FOR ALL PREVIOUS PERMITTED TANKS, AND THE RULE APPLICABILITY FOR EACH TANK.

All new tanks will meet the requirements of Chapter 40 CFR 60 subpart Kb. The two previously unpermitted tanks 6814 & 7518 which are to be used for the storage of Diesel Fuel were constructed and operated prior to the promulgation of NSPS rules and should be interpreted as being grandfathered under current law. All other existing tanks which are covered under the Marathon permit are also exempt from the requirements of subpart Kb. Irrespective of whether NSPS requirements are met, tanks will only be used for product storage which is consistent with the internal configuration of the individual tank. Exhibit EPC-1, "Table 13-3.1 - Star Enterprise/CITGO Petroleum Corp - Tampa Terminal - Storage Tank & Containment Data" provides the basis for product allocations.

8. REVIEW OF YOUR APPLICATION STATES THAT TANK 7148 WILL CONTAIN ADDITIVE. PLEASE IDENTIFY WHAT THIS ADDITIVE CONSISTS OF.

The Material Safety Data Sheets (MSDS) for all products handled at the terminal have been previously submitted as part of the August 15, 1989 Sufficiency Response. We understood that the distribution covered HC-EPC. Nevertheless a copy is attached for your reference.

9. REVIEW OF YOUR APPLICATION IDENTIFIES TANK 7164 AS FIRE. PLEASE EXPLAIN WHAT THIS TANK WILL CONTAIN.

This tank will be used for the storage of water associated with the fire foam control system.

10. REVIEW OF YOUR APPLICATION IDENTIFIES TANK 7165 AS WASTE. PLEASE EXPLAIN WHAT THIS TANK WILL CONTAIN.

This tank is used to store wastewater which is generated from the periodic removal of tank bottom water from the respective storage tanks. It should be noted that the operation of this tank is covered under FDER Industrial Waste Operating Permit for the Tampa Terminal File No. 1029-128056.

11. THE PRODUCT THROUGHPUT SPECIFIED IN THE APPLICATION WILL BE THE MAXIMUM RATES SPECIFIED IN THE PERMIT SINCE THEY WERE WHAT THE EMISSION CALCULATION WERE BASED ON. RECALCULATE AND SUBMIT REVISED CALCULATIONS IF THIS IS A PROBLEM.

The use of the maximum throughput values and their associated emissions should provide the basis for the emissions allowed by the permit.

12. SUBMIT MSDS FOR ALL PRODUCTS TO BE HANDLED.

All MSDS are provided, see paragraph 8 above.

13. REVIEW OF THE APPLICATION SHOWS THAT ONLY VOC EMISSIONS WERE CALCULATED. SUBMIT EMISSION CALCULATIONS FOR THE FOLLOWING POLLUTANTS: CO, NOX, SO2, PM, PM10, VOC AND LEAD IN REGARDS TO THE PROPANE FIRED FLARE.

The emissions calculations excluded the above parameters since the flare utilizes an insignificant quantity of natural gas. Page 20 of the John Zink proposal stipulates that " Once ignited by pilot the gasoline vapor has sufficient heating value to sustain its own combustion without the necessity of adding any additional fuel." With regard to CO and NO_x the vendor anticipates levels of 10 mg/l and 2 mg/l respectively. If we assume the most probable operating condition under which 613,299,846 gallons per year of Gasolines, Diesel Fuel and Addi-

tives are loaded through the terminal these emissions equate to 25.6 tons/year of CO and 5.1 tons/year of NO_x. In their proposal the vendor states that, "typical CO and NO_x values are averages taken from several tests and are not guaranteed maximums."

14. IS LEADED GASOLINE TO BE STORED AND HANDLED?

Leaded gasoline is not to be stored or handled at the terminal.

15. CHAPTER 1-3.21 OF THE RULES OF THE ENVIRONMENTAL PROTECTION COMMISSION OF HILLSBOROUGH COUNTY REQUIRED THE OWNER OR OPERATOR OF AN AIR POLLUTER SOURCE TO OBTAIN A CONSTRUCTION PERMIT FIRST PRIOR TO BEGINNING CONSTRUCTION. REVIEW OF THE APPLICATION STATES MARCH 1,1989 AS THE INITIAL DATE FOR START OF CONSTRUCTION. IN YOUR RESPONSE TO THIS LETTER, SPECIFY THE CORRECT DATE FOR START OF CONSTRUCTION.

The correct date for beginning construction of the terminal improvements is unknown. We acknowledge that construction <u>will not</u> begin prior to our obtaining the construction permit. For purposes of the application page 2B of 12 has been modified showing the start date of March 1, 1990 and a project completion date of March 1, 1991.

16. WHAT ARE THE MAXIMUM AND MINIMUM TRUCK LOADING RATES AT THE TRUCK LOADING RACKS?

During loading operations, the estimated loading rates are:

Maximum - 10,800 GPM
Minimum - 100 GPM

These rate have been used as the basis for sizing <u>each</u> Vapor Combustor.

17. THE FUEL USAGE PRESENTED IN ITEM III E. OF THE APPLICATION (21 SCFH, PROPANE) IS NOT CONSISTENT WITH THE MANUFACTURER'S SPECIFICATIONS (54 SCFH, NATURAL GAS). IN YOUR RESPONSE TO THIS LETTER, PLEASE COMMENT.

In discussions the vendor we understand that the pilot can be fired with either Propane or Natural Gas. The 21 SCFH refers to Propane, 54 SCFH refers to the use of a Natural gas fired pilot.

18. WHAT ARE THE TOTAL POTENTIAL UNCONTROLLED EMISSIONS FROM THE ENTIRE FACILITY?

Using AP-42, Fourth Edition-September 1985, Equation 1, page 4.4-5, and the factors for gasoline presented in "Star Enterprise/ CITGO Joint Venture - Tampa Terminal - Calculation of Storage Volumes & Air Emissions", Exhibit EPC-2, pages 1 - 5, the potential uncontrolled terminal loading losses (L_L) is 2,466 tons per year. The total potential uncontrolled emissions (TPUE) for the entire facility is 2,513 tons per year. The TPUE calculation is based upon adding L_1 to the losses associated with the storage tanks shown is Exhibit EPC-2.

19. THE APPLICATION SUBMITTED WITH THE LETTER DATED JUNE 30, 1989 WAS NOT SIGNED AND SEALED PROPERLY. RESUBMIT PAGES 1A AND 2A OF 12 OF THE PERMIT APPLICATION WITH THE APPROPRIATE SEALS AND SIGNATURES.

The permit application pages 1A and 2A of 12 are resubmitted with the appropriate signatures and seals.

20. STATE APPLICATION FEES ARE BASED ON TOTAL POTENTIAL EMISSIONS. SHOULD THE FEE PREVIOUSLY SUBMITTED NOT BE SUFFICIENT, THEN THE BALANCE OF THE APPROPRIATE FEES DUE MUST BE SUBMITTED TO THE DEPARTMENT PRIOR TO ISSUANCE OF THE PERMIT.

After your review of our application please recalculate, as necessary the applicable fees for the construction permit. Upon notice, a check covering any balance owed will be submitted.

21. AS SPECIFIED IN SECTION 1A OF THE APPLICATION, ATTACH A LETTER OF AUTHORIZATION STATING THAT YOU ARE THE UNDERSIGNED OWNER OR AUTHORIZED REPRESENTATIVE OF STAR ENTERPRISE.

A letter of Authorization for Mr. Wilmington's signature is attached as Exhibit EPC-3.

22. SUPPLY ALL INFORMATION WHERE REQUIRED IN SECTION V, SUPPLEMENTAL REQUIREMENTS, OF THE CONSTRUCTION PERMIT APPLICATION.

Item No.	Disposition
1	Not required as part of our application.
2	The basis of the emission estimates are the applicable sections of "Compilation of Air Pollution Emission Factors, Volume I: Stationary Point Source and Area Sources", Fourth Edition (AP-42). The calculation of Terminal Loading Losses utilize the following equations:

Uncontrolled Through Vapor Combustor (Tons/Yr)

$$L_L = S * P * M * Q_L / T \qquad \text{Equ 1}$$

Uncontrolled Through Loading Rack (TPY)

$$L_L = 2.205 * ppm * Q_L * 3.785 / 10^6 / 2000 \qquad \text{Equ 2}$$

The symbols are as specified in AP-42, the parameters are defined in "Star Enterprise/CITGO...Calculation of Storage Volumes & Air Emissions."

3	The basis of calculating Uncontrolled Emissions is provided in AP-42 and utilizes the above Equ 2.
4	Our letter of June 30, 1989 provides information with regard to the Vapor Combustor - Air Pollution Control Device. Page 3 of that letter notifies the Department that Corporate policy requires that vendor selection be based upon competitive bidding, for this reason specific details and drawing of the control device is unavailable. It is our intent to select the control equipment to match the information provided. As an independent confirmation to source performance we suggest review of the US EPA Flare Efficiency Study available under EPA-600/2-83-052. The work was performed by an independent contractor under EPA Contract 68-023541-6.
5	The operating efficiency of the Vapor Combustor is based upon the performance guarantee provided by the vendor. Meeting this performance guarantee will be a requirement of the project bid package. The performance guarantee is based upon applicable sections

of the Standards of Performance for Bulk Gasoline Terminals (40 CFR 60 - Subpart XX).

6 A flow diagram of the loading rack vapor control facility is attached as Exhibit EPC-4.

7 A plot plan of the facility (USGS Topo map) showing the location of the establishment and points of airborne emissions is attached as Exhibit EPC-5.

8 A plot plan of the facility showing the location of the storage tanks and emissions sources is attached as Exhibit EPC-6.

9 Upon notice by the Department any balance due will be forwarded. Please refer to Paragraph 20 above.

10 Not applicable

23. A TRANSFER OF PERMIT IS REQUIRED FOR ALL PERMITTED TANKS TO BE INCLUDED IN THE PERMIT.

We acknowledge that a transfer of permit requirement exists for tanks: 6816, 7522, 25556, 25766, 25767, 25881, 29534, 29535, 29596, 29597, 30903 and 30775. For the reason cited on page 3 of our June 30, 1989 letter we ask that this requirement be made part of the specific conditions of the permit. The joint venture will submit the required application within a reasonable time following issuance of the Development Order.

24. IDENTIFY THE TAMPA, FLORIDA FACILITY CITED ON PAGE 3A OF 12 AND PROVIDE ALL AIR PERMIT NUMBERS CURRENTLY HELD FOR THIS FACILITY.

The Tampa facility cited is the same terminal for which we are applying for this permit. As previously stated, the operating permit for the storage tanks are covered by Marathon Oil FDER Permit No. A029-138645.

25. SHOW THE DERIVATION FOR THE UTILIZATION RATE LISTED ON PAGE 4A OF 12.

The utilization rate was based upon the total yearly volume of gasoline handled by the terminal. The current basis can be calculated by adding the product throughput numbers shown for gasoline on sheet 1, Exhibit EPC-2. It should however be noted

that the information provided in this section pertains to Raw Materials and Chemicals...; since the facility uses neither chemicals nor raw materials and is not involved in manufacturing operations, this Item is not applicable to the project.

Table 13-3.1
Star Enterprise/CITGO petroleum Corp.
Tampa Terminal
Storage Tank & Containment Data

Tank Number	Dia x Hgt	Roof Type (1)	Shell Type (2)	Capacity Gallons	Capacity Barrels	Year Erect	Prod (3) Pres	Prod (3) Future
T-01A	130 X 48	CIF	W	4,725,000	112,500	NEW	NEW	RUG
T-01B	130 X 48	CIF	W	4,725,000	112,500	NEW	NEW	RUG
T-05A	125 X 48	C	W	4,200,000	100,000	NEW	NEW	BA
T-06A	15 X 24	C	W	31,500	750	NEW	NEW	PGAC
T-06B	15 X 24	C	W	31,500	750	NEW	NEW	PGAC
T-06C	24 X 24	C	W	79,800	1,900	NEW	NEW	PGAC
T-06D	60 X 40	C	W	840,000	20,000	NEW	NEW	PGAC
T-50A	10 x 24	C	W	12,000	286	NEW	NEW	AD
T-50B	10 x 24	C	W	12,000	286	NEW	NEW	AD
6814	95 X 30	C	RIV	2,343,432	55,796	1919	NIS	DL
6816 *	95 X 31	C	w	1,599,108	38,074	1920	BA	BA
6818	52 X 31	C	W	478,800	11,400	1922	NIS	PGAC
6819	29 X 30	C	W	142,800	3,400	1925	NIS	PGAC
6820	29 X 30	C	W	142,800	3,400	1925	NIS	PGAC
7145	19 X 30	C	W	62,916	1,498	1924	NIS	F-LO
7146	19 X 30	C	W	64,008	1,524	1924	NIS	F-LO
7147	19 X 30	C	W	62,916	1,498	1924	NIS	F-LO
7148	19 X 30	C	W	62,916	1,498	1924	NIS	AD
7152	52 X 30	C	W	485,982	11,571	1926	NIS	PGAC
7164	29 X 30	C	W	144,060	3,430	1927	NIS	FW
7165	29 X 30	C	W	144,900	3,450	1927	WW	WW
7174	52 X 35	C	W	554,610	13,205	1927	NIS	PGAC
7518	30 X 35	C	w	184,380	4,390	1940	NIS	DL
7522 *	48 X 35	C	W	471,072	11,216	1941	DL	DL
21290	10 X 30	C	W	17,220	410	---	DL	DL
25556 *	49 X 42	C	W	541,758	12,899	1952	DL	BA
25765 *	80 x 48	CIF	W	1,734,012	41,286	1959	GAS	PUG
25767 *	80 X 48	CIF	W	1,785,588	42,514	1954	GAS	UPS
25881 *	70 X 40	CIF	W	1,137,906	27,093	1954	GAS	UPG
27380	12 X 30	C	W	25,200	600	1956	NIS	TBR
27381	12 X 30	C	W	25,200	600	1956	NIS	TBR
27382	35 X 40	C	W	288,036	6,858	1956	NIS	PGAC
29446	15 X 32	C	W	42,252	1,006	1958	NIS	TBR
29447	16 X 32	C	W	42,210	1,005	1958	NIS	TBR
29448	35 X 40	C	W	288,036	6,858	1958	NIS	PGAC
29449	35 X 40	C	W	288,036	6,858	1958	NIS	PGAC
29450	35 X 40	C	W	287,700	6,850	1958	NIS	PGAC
29534 *	50 X 48	C	W	702,408	16,724	1959	DL	DL
29535 *	70 X 48	CIF	W	1,370,796	32,638	1959	GAS	PUG
29596 *	60 X 48	CIF	W	1,012,746	24,113	1960	GAS	PUG
29597 *	70 X 48	CIF	W	1,373,736	32,708	1960	GAS	PUG
30775 *	50 X 48	CIF	W	693,588	16,514	1963	AG	AG
30903 *	90 X 48	CIF	W	2,126,754	50,637	1965	GAS	UPG

UNKNWN ASPHALT STORAGE TANK REMOVED FROM SITE AFTER 1972.

Legend

Construction

C - Cone Roof
CIF - Cone Roof with Internal Floater
RIV - Rivited Steel Tank
W - Welded Steel Plates
w - Rivited Steel Tank with Welded Rivits

Product (3)

AD - Product Additive
AG - Aviation Gas (AVGAS)
BA - Bonded Avjet
DL - Diesel Fuel
PUG - Premium Unleaded Gas
RUG - Regular Unleaded Gas
UPG - Unleaded Plus Gas
PGAC - Paving Grade Asphalt Cement
F-LO - Future Lube Oil
FW - Foam Water Storage
WW - Wastewater Storage
TBR - To Be Removed
NIS - Not In Service

NOTES:
1.) Tanks T-01A, T-01B, T-05A and 30903 share a common containment Area. NFPA 30 requires that the area contain 100% of the largest tank volume. After correcting for the tankage in place the area will contain approximately 120% of the NFPA required volume.
2.) The PGAC tanks and tanks 6816 and 25556 share a common containment area which meets the NFPA containment criteria.
3.) All other Tanks and Containments are vested and therefore exempt from review under the ADA.
4.) New containments will comply with 40 CFR part 112.
5.) Product allocations are subject to change within guidelines set by HC EPC/FDER.
6.) *Star Enterprise tanks leased to Marathon Oil.

EXHIBIT EPC-1

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Voluses & Air Emissions

Tanks No.		25766	25767	25881	29535	29596	29597	30903	T-01A	T-01B
Stored Product		(----------	----------	----------	----------	GASOLINE	----------	----------	----------	----------)
Dia, ft.		80	80	80	70	60	70	90	130	130
Hgt, ft.		48	48	48	48	48	48	48	48	48
Tank Capacity										
,gals x 10^3		1734.6	1785.0	1138.2	1369.2	1012.2	1373.4	2125.2	4725.0	4725.0
,bbls x 10^3		41.3	42.5	27.1	32.6	24.1	32.7	50.6	112.5	112.5
BASE PERIOD	20.46	35,490			28,014	20,710	28,100		96,674	96,674
----------	18.06		32,237	20,556				38,381		
Average Turnover Factor	7.87									
vs	5.96									
M gallon Terminal Thruput	4.64									
	40.00									
Average Turnover Factor	40.00									
vs	36.00	62,446	64,260	40,975	49,291	36,439	49,442	76,507	170,100	170,100
M gallon Terminal Thruput	6.50									
	4.75									
Estimated Deliveries Thru - PIPELINE		20,607	21,206	13,522	16,266	12,025	16,316	25,247	56,133	56,133
Estimated Deliveries Thru -LOADING RACK		41,839	43,054	27,453	33,025	24,414	33,126	51,260	113,967	113,967
-MISCELLANEOUS		0	0	0	0	0	0	0	0	0
TOTAL (M gals/year)		62,446	64,260	40,975	49,291	36,439	49,442	76,507	170,100	170,100
Roof Type										
Tank Constant - Ks		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE										
SEAL CONSTANT - Ks		6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Mc		0	0	0	0	0	0	0	0	0
- Fc		1	1	1	1	1	1	1	1	1
- Ff		250	250	250	250	200	250	285	285	285
- Kc		1	1	1	1	1	1	1	1	1
- Kn										
- Ld		0	0	0	0	0	0	0	0	0
- N										
- Ql										
- Fp										
- OC										
Vapor Pressure Factor - P		0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Miscellaneous Data										
temp - F		82	82	82	82	82	82	82	82	82
amb. pres. - psia		14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph		0	8	8	0	8	8	8	0	0
true vapor pressure, - psia		6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
density, - lbs/gal		6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
RVP, - psia		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
molecular weight, - MW		66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
true vapor pressure, - psia										
density, - lbs/gal										
molecular weight, - MW										
PRODUCT THROUGHPUT										
gals/yr x 10^6		62.45	64.26	40.98	49.29	36.44	49.44	76.51	170.10	170.10
tons/yr x 10^3		190.46	195.99	124.97	150.34	111.14	150.80	233.35	518.81	518.81
bbls/yr x 10^4		140.68	153.00	97.56	117.36	86.76	117.72	182.16	405.00	405.00
PRODUCT LOSSES, - lbs/yr										
Breathing		0	0	0	0	0	0	0	0	0
deck fitting		0	0	0	0	0	0	0	0	0
rim seal		4952.64	4952.64	4952.64	4333.56	3714.48	4333.56	5571.72	8048.04	8048.04
withdrawal		160.36	165.02	105.22	144.66	124.77	145.11	174.64	268.81	268.81
deck		2310.00	2310.00	2310.00	2310.00	1848.00	2310.00	2633.40	2633.40	2633.40
TOTAL TANK FARM LOSSES, lbs/yr		7423.00	7427.66	7367.86	6788.22	5687.25	6788.67	8379.76	10950.25	10950.25
, lbs/hr		0.85	0.85	0.84	0.77	0.65	0.77	0.96	1.25	1.25
, tns/yr		3.71	3.71	3.68	3.39	2.84	3.39	4.19	5.48	5.48
, lb/day		20.34	20.35	20.19	18.60	15.58	18.60	22.96	30.00	30.00

→ 11.96

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	6814	7518	7522	21290	29534	30775	6816	25556	T-05A
Stored Product	(----------DIESEL----------)					AV-GAS	(----BONDED AVJET----)		
Dia, ft.	115	30	48	10	50	70	95	49	125
Hgt, ft.	30	35	35	30	48	51	31	43	48
Tank Capacity									
,gals x 10^3	2343.6	184.8	470.4	17.3	701.4	693.0	1600.2	541.8	4200.0
,bbls x 10^3	55.8	4.4	11.2	0.41	16.7	16.5	38.1	12.9	100.0
BASE PERIOD									
Average Turnover Factor	18,444	1,454	3,702	0	5,520				
vs							9,537	3,229	25,032
M gallon Terminal Thruput						3,216			
				346					
Average Turnover Factor									
vs	84,370	6,653	16,934		25,250	24,948	57,607	19,505	151,200
M gallon Terminal Thruput									
Estimated Deliveries Thru -	17,718	1,397	3,556	0	5,303	0	57,607	19,505	151,200
Estimated Deliveries Thru -LOAD	66,652	5,256	13,378	0	19,948	24,948	0	0	0
-MISC	0	0	0	346	0	0	0	0	0
TOTAL (M gal	84,370	6,653	16,934	346	25,250	24,948	57,607	19,505	151,200
Roof Type									
Tank Constant - Ks	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE									
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Wc	0	0	0	0	0	0	0	0	0
- Fc	1	1	1	1	1	1	1	1	1
- Ff	300	150	150	150	150	285	150	150	150
- Kc	1	1	1	1	1	1	1	1	1
- Kn									
- Ld	0	0	0	0	0	0	0	0	0
- H									
- ^T									
- Fp									
- OC									
Vapor Pressure Factor - P	0.0096	0.0096	0.00022	0.00022	0.00022	0.14	0.0096	0.0096	0.0096
Miscellaneous Data									
temp - F	83	83	83	83	83	82	83	83	83
amb. pres. - psia	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph	8	8	8	8	8	8	8	8	8
true vapor pressure, - psia						6.4			
density, - lbs/gal						6.1			
RVP, - psia						10.0			
molecular weight, - MW						66.0			
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128	0.0128		0.0128	0.0128	0.0128
density, - lbs/gal	7.1	7.1	7.1	7.1	7.1		7.1	7.1	7.1
molecular weight, - MW	130	130	130	130	130		130	130	130
PRODUCT THROUGHPUT									
gals/yr x 10^6	84.37	6.65	16.93	0.35	25.25	24.95	57.61	19.50	151.20
tons/yr x 10^3	299.51	23.62	60.12	1.23	89.64	76.09	204.51	69.24	536.76
bbls/yr x 10^4	200.88	15.84	40.32	0.82	60.12	59.40	137.16	46.44	360.00
PRODUCT LOSSES, - lbs/yr									
breathing	0	0	0	0	0	0	0	0	0
deck fitting	0	0	0	0	0	0	0	0	0
rim seal	941.58	250.85	7.20	1.92	9.58	4333.56	794.35	409.72	1045.20
withdrawal	175.43	53.03	84.36	8.28	120.76	73.22	145.00	95.18	289.24
deck	374.40	187.20	4.29	4.29	4.29	2633.40	187.20	187.20	187.20
TOTAL TANK FARM LOSSES, lbs/yr	1511.41	491.07	97.85	14.48	134.63	7040.18	1126.55	692.10	1521.64
, lbs/hr	0.17	0.06	0.01	0.00	0.02	0.80	0.13	0.08	0.17
, tns/yr	0.76	0.25	0.05	0.01	0.07	3.52	0.56	0.35	0.76
, lb/day	4.14	1.35	0.27	0.04	0.37	19.29	3.09	1.90	4.17

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	6818	6819	6820	7162	7174	27382	29448	29449	29450	T-06A	T-06B	T-06C	T-06D
Stored Product	(ASPHALT)												
Dia, ft.	52	29	29	52	52	35	35	35	35	15	15	24	60
Hgt, ft.	31	30	30	30	35	40	40	40	40	24	24	24	40
Tank Capacity													
,gals x 10^3	478.8	142.8	142.8	487.2	554.4	289.8	289.8	289.8	285.6	33.6	33.6	79.8	840.0
,bbls x 10^3	11.4	3.4	3.4	11.6	13.2	6.9	6.9	6.9	6.8	0.8	0.8	1.9	20.0
BASE PERIOD													
Average Turnover Factor vs M gallon Terminal Thruput	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Turnover Factor vs M gallon Terminal Thruput	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
Estimated Deliveries Thru -	0	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Deliveries Thru -LOAD	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
-MISC	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL (M gal	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
Roof Type													
Tank Constant - Ks	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE													
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Wc	0	0	0	0	0	0	0	0	0	0	0	0	0
- Fc	1	1	1	1	1	1	1	1	1	1	1	1	1
- Ff	300	150	150	150	300	150	150	150	300	150	300	150	150
- Kc	1	1	1	1	1	1	1	1	1	1	1	1	1
- Kn													
- Ld	0	0	0	0	0	0	0	0	0	0	0	0	0
- H													
- ^T													
- Fp													
- OC													
Vapor Pressure Factor - P	0.0096	0.0096	0.0002	0.0002	0.0096	0.0096	0.0002	0.0002	0.0096	0.0096	0.0096	0.0096	0.0094
Miscellaneous Data													
temp - F	240	240	120	240	240	240	240	240	240	120	100	300	240
amb. pres. - psia	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph	0	8	8	8	8	8	0	0	8	0	8	8	0
true vapor pressure, - psia													
density, - lbs/gal													
RVP, - psia													
molecular weight, - MW													
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128
density, - lbs/gal	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
molecular weight, - MW	200	200	200	200	200	200	200	200	200	200	200	200	200
PRODUCT THROUGHPUT													
gals/yr x 10^6	3.11	0.93	0.93	3.17	3.60	1.88	1.88	1.88	1.86	0.22	0.22	0.52	5.46
tons/yr x 10^3	12.45	3.71	3.71	12.67	14.41	7.53	7.53	7.53	7.43	0.87	0.87	2.07	21.84
bbls/yr x 10^4	7.41	2.21	2.21	7.54	8.58	4.49	4.49	4.49	4.42	0.52	0.52	1.23	13.00
PRODUCT LOSSES, - lbs/yr													
breathing	0	0	0	0	0	0	0	0	0	0	0	0	0
deck fitting	0	0	0	0	0	0	0	0	0	0	0	0	0
rim seal	668.93	373.04	8.55	15.33	668.93	456.24	10.32	10.32	450.24	192.96	192.96	308.74	771.84
withdrawal	16.13	8.62	8.62	16.41	18.67	14.50	14.50	14.50	14.29	3.92	3.92	5.82	24.52
deck	552.96	552.96	3.17	12.67	552.96	552.96	12.67	12.67	552.96	138.24	96.00	864.00	552.96
TOTAL TANK FARM LOSSES, lbs/yr	1238.01	934.64	20.34	44.41	1240.56	1017.70	37.49	37.49	1017.49	335.12	292.88	1178.56	1349.32
, lbs/hr	0.14	0.11	0.00	0.01	0.14	0.12	0.00	0.00	0.12	0.04	0.03	0.13	0.15
, tns/yr	0.62	0.47	0.01	0.02	0.62	0.51	0.02	0.02	0.51	0.17	0.15	0.59	0.67
, lb/day	3.39	2.56	0.06	0.12	3.40	2.79	0.10	0.10	2.79	0.92	0.80	3.23	3.70

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	7145	7146	7147	7148	7184	7185
Stored Product	<--LUBE OIL PRODUCTS-->			ADDITIVE	FIRE	WASTE
Dia, ft.	19	19	19	19	29	29
Hgt, ft.	30	30	30	30	30	30
Tank Capacity						
,gals x 10^3	63.0	63.0	63.0	63.0	142.8	142.8
,bbls x 10^3	1.50	1.50	1.50	1.50	3.40	3.40
BASE PERIOD						
Average Turnover Factor vs M gallon Terminal Thruput	0	0	0	0	0	0
Average Turnover Factor vs M gallon Terminal Thruput	299	299	299	2,025	0	0
Estimated Deliveries Thru -	0	0	0	1,012	0	0
Estimated Deliveries Thru -LOAD	0	0	0	1,012	0	0
-MISC	299	299	299	0	0	0
TOTAL (M gal	299	299	299	2,025	0	0
Roof Type						
Tank Constant - Ks	1.1	1.1	1.1	1.1		
SEAL TYPE						
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7		
- Kc	0	0	0	0		
- Fc	1	1	1	1		
- Ff	300	300	300	300		
- Kc	1	1	1	1		
- Kn						
- Ld	0	0	0	0		
- H						
- °T						
- Fp						
- OC						
Vapor Pressure Factor - P	0.0096	0.0096	0.0096	0.0096		
Miscellaneous Data						
temp - F	100	100	100	100		
amb. pres. - psia	14.7	14.7	14.7	14.7		
wind velocity - mph	8	8	8	8		
true vapor pressure, - psia						
density, - lbs/gal						
RVP, - psia						
molecular weight, - MW						
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128		
density, - lbs/gal	8.0	8.0	8.0	8.0		
molecular weight, - MW	200	200	200	200		
PRODUCT THROUGHP						
gals/yr x 10^3	0.30	0.30	0.30	2.02		
tons/yr x 10^3	1.20	1.20	1.20	8.10		
bbls/yr x 10^3	0.71	0.71	0.71	4.82		
PRODUCT LOSSES, - lbs/yr						
breathing	0	0	0	0		
deck fitting	0	0	0	0		
rim seal	244.42	244.42	244.42	244.42		
withdrawal	4.24	4.24	4.24	28.71		
deck	96.00	96.00	96.00	96.00		
TOTAL TANK FARM LOSSES, lbs/yr	344.66	344.66	344.66	369.13		
, lbs/hr	0.04	0.04	0.04	0.04		
, tns/yr	0.17	0.17	0.17	0.18		
, lb/day	0.94	0.94	0.94	1.01		

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Terminal Throughput Data
&
Air Emissions Calculations

Vapor Recovery System Calculations Exclude
27,973,512 gals of Diesel Fuels Shipped Thru Pipelines.
228,312,000 gals of BONDED AVJET Shipped Thru Pipelines.
237,455,064 gals of GASOLINE Shipped Thru Pipelines.
897,750 gals of Lube Oil
346,080 gals of Onsite Diesel Fuel
1,012,422 gals of ADDITIVE PACKAGES SHIPPED OFF SITE.

Total Excluded Fuel Products	495,996,828
Total Terminal Fuel Products	1,108,052,044
Total Terminal Asphalt Products	25,662,000
Misc. Products (Additives,Lube Oil, on site Diesel Fuel)	1,243,830
	638,961,846 gals ⇒

SITE LOADING RACK BREAKDOWNS

Additives	1,012,422
Asphalt	25,662,000
Diesel	105,233,688
Gasoline & Avgas	507,053,736
	630,961,846 gallons

ESTIMATED EMISSIONS
at
PROJECT BUILDOUT

	Controlled Emissions		Uncontrolled Emissions		Calculated Operating Efficiency
	lbs/hr	tons/yr	lbs/hr	tons/yr	
Storage Tanks	10.79	47.27	10.79	47.27	
Vapor Recovery	21.31	93.33	21.31	93.32	96.21
TOTAL	32.10	140.60	32.10	140.59	

Notes:
1.) Calculated operating efficiency is basis upon UNCONTROLLED EMISSIONS of 35 mg/l per gallon loaded.
2.) Published data for Vapor Combustion units show operational efficiencies of between 95-99%.
3.) Communications with John Zink Company stated that anticipated efficiencies will be between 96-99%.
4.) Calculated CONTROLLED EMISSIONS were based upon the more conservative 96% efficiency.
5.) Calculations are based upon US EPA Document AP-42, Chapter 4.4 - Transportation & Marketing of Petroleum Liquids.
6.) The Calculated Operating Efficiency is based upon an emission level of 35 mg/l when operating at the stated Loading Rack Volumes.
7.) Emissions for storage tanks is based upon the summation of the TOTAL TANK FARM LOSSES calculated on pages 1 - 4.
8.) The formulas used to calculate lbs/hr of CONTROLLED EMISSIONS: 12.46 * S * P * M * (1 - EFF/100) * LOADED VOLUME / DEG R / 8760 / 1000
lbs/hr of UNCONTROLLED EMISSIONS: 2.205 * 35 * 3.785 * LOADED VOLUME / 8760 / 10^6

EXHIBIT EPC-3

Texaco

DATE: November 23, 1988

TO: Messes. L. T. Townsend - Port Arthur, TX
G. A. Birmingham - Convent, LA
R. G. Soehlke - Delaware City, DE
C. A. Flagg - White Plains, NY
J. R. Buri - Houston, TX
G. A. Hamilton - Atlanta, GA
A. Batemen - Dallas, TX
R. Rall - Orlando, FL
T. Hudson - Moorestown, NJ

FROM: Mr. J. S. Listiak
Houston, Texas

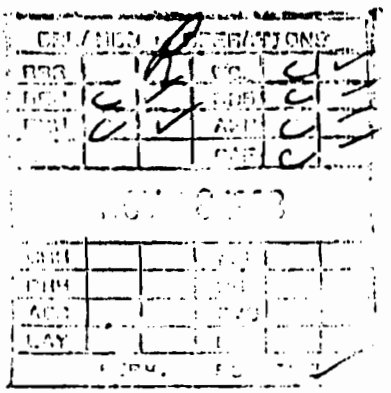
SUBJECT: SIGNATURE AUTHORIZATIONS
TRMI AND STAR ENTERPRISE

Enclosed are copies of signature authorizations for Texaco Refining and Marketing Inc. and Star Enterprise which are effective for environmental permit applications, associated reports, and documents relating to the transfer of such permits. While it is not necessary to send copies of these authorizations with documents relating to permit transfers, in the event of inquiries from agencies concerning authorization, copies of these documents may be supplied.

JSL:ph

23/1

Attachments



STAR ENTERPRISE
ENVIRONMENTAL PERMIT PROGRAMS
SIGNATURE AUTHORIZATION

To the extent permitted by law, pursuant to the United States Environmental Protection Agency's permit regulations under federal statutes and regulations under state environmental statutes, authority to sign environmental permit applications, requests for permit amendments, modifications, or transfers, reports and other information provided to governmental agencies in connection with environmental permits is hereby assigned and delegated to persons occupying or acting in the capacity of the positions as specified below:

Permit Applications, Requests for Permit Amendments, Modifications, or Transfers, Reports and Other Information

General Managers
Manager - Port Arthur Area
Plant Managers at refineries
Resale Division Managers
Operations Managers - Marketing

Reports and Other Information

Terminal Managers/Superintendents, or in the absence of these positions, Assistant Terminal Managers/Superintendents at marketing terminals.

Persons occupying or acting in the capacity of the positions specified above may sign for those facilities or activities which are within their overall operational responsibility. Persons occupying positions designated to sign permit applications may further delegate authority to sign reports and submitted information to the extent permitted by applicable law.

G. F. TILTON
President
Texaco Refining and Marketing (East) Inc.
General Partner in Star Enterprise

Date Signed: 11/22/87

Effective Date: 11/22/87

JSL\41

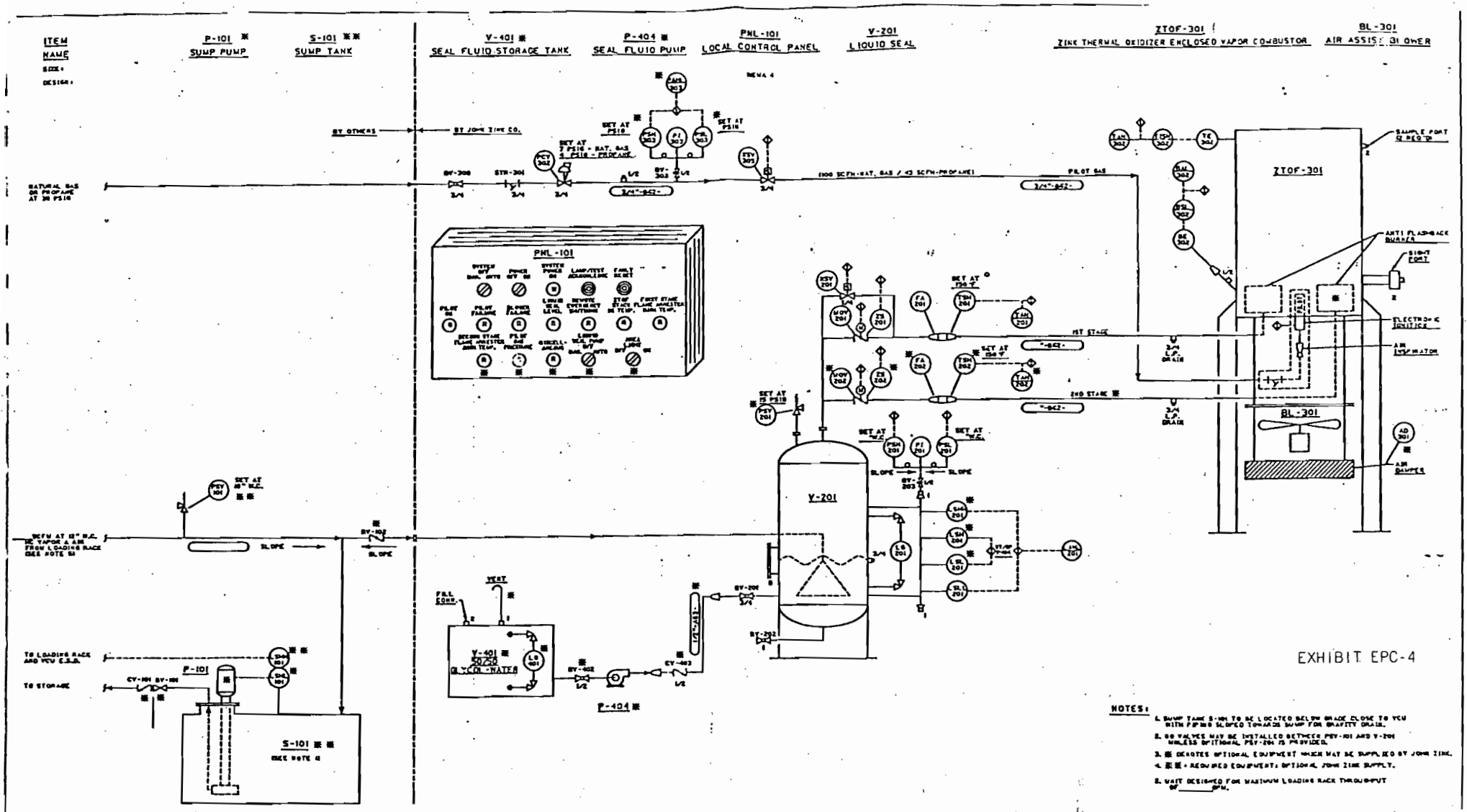


EXHIBIT EPC-4

NOTES:

1. SUMP TANK S-101 TO BE LOCATED BELOW GRADE CLOSE TO VCU WITH PIPING SLOPED TOWARDS SUMP FOR GRAVITY DRAIN.
2. 90 VALVES MAY BE INSTALLED BETWEEN PSV-101 AND V-201 UNLESS OPTIONAL PSV-201 IS PROVIDED.
3. ✱ DENOTES OPTIONAL EQUIPMENT WHICH MAY BE SUPPLIED BY JOHN ZINK.
4. ✱✱ = REQUIRED EQUIPMENT; OPTIONAL JOHN ZINK SUPPLY.
5. UNIT DESIGNED FOR MAXIMUM LOADING RACK THROUGHPUT OF _____ GPM.

CONSTRUCTION	CHKR.		
	DRFT.		
CUSTOMER APPROVAL	ENGR.		
	DRFT.		
BIDS	ENGR.		
	DRFT.		
INFORMATION	ENGR.		
	DRFT.		
ISSUED FOR:	SIGNATURE	DATE	REV.

DRAWING STATUS

CUSTOMER	
USER	
JOB SITE	
SHOP ORDER	PURCHASE ORDER
DRAWN	CHECKED / DATE
S.W.	11-87

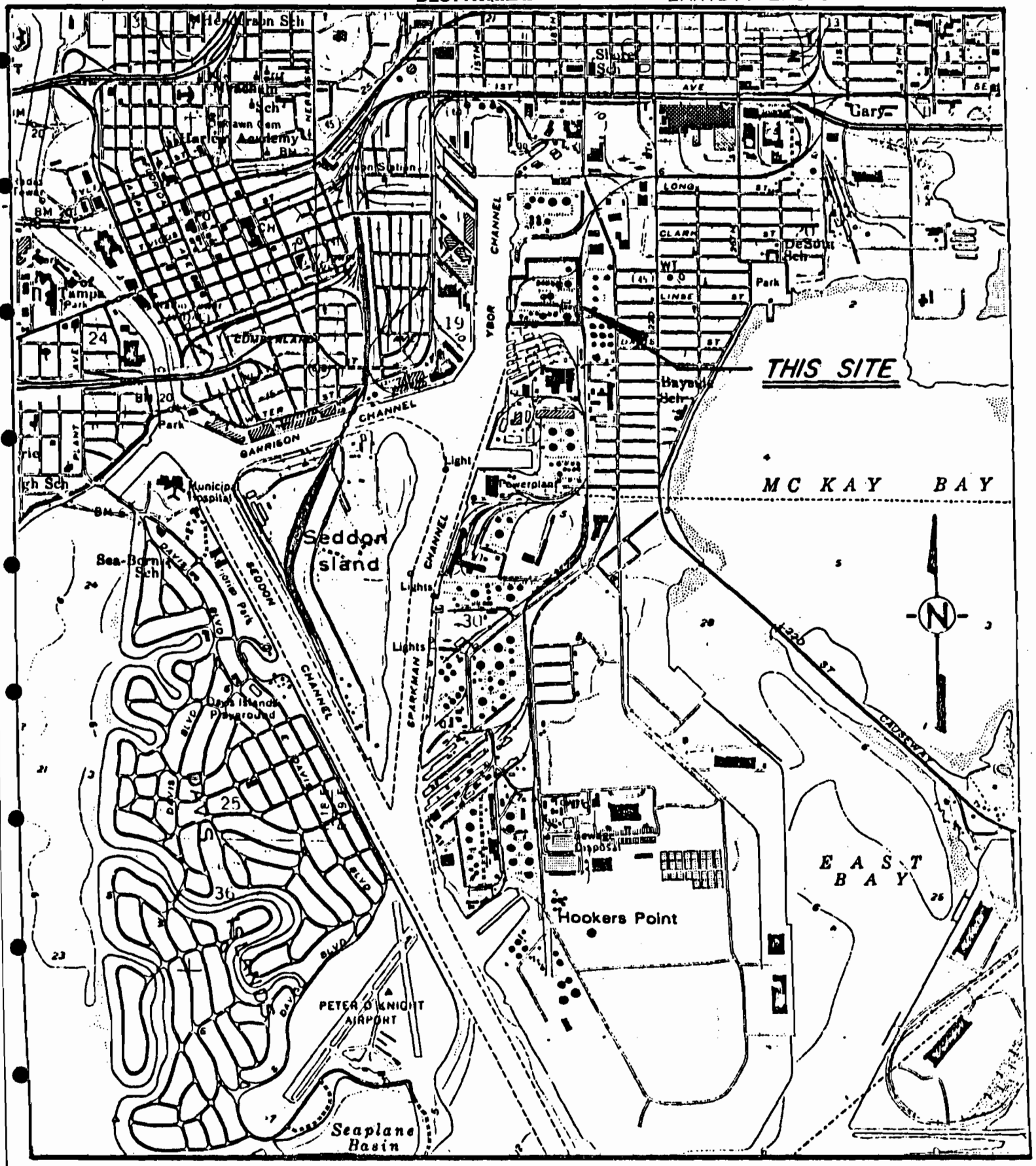
JOHN ZINK COMPANY
TULSA OKLAHOMA

TITLE: PIPING AND INSTRUMENT DIAGRAM FOR JOHN ZINK CO. TYPE GVZTOF GASOLINE VAPOR COMBUSTION UNIT

SCALE | DRAWING NUMBER | REV
B-ST-2547 - SHT. 4 OF 4 | C

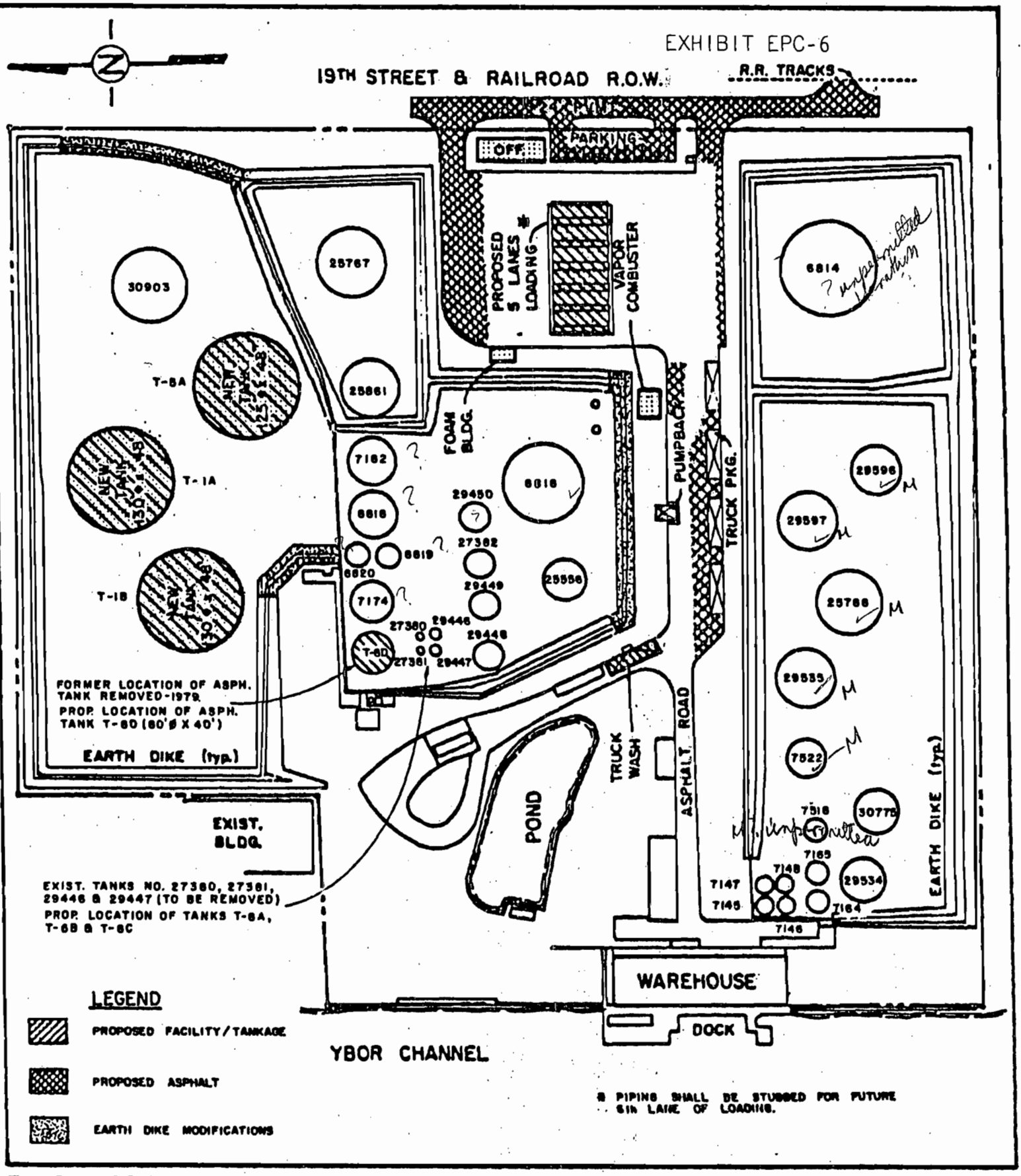
BEST AVAILABLE COPY

EXHIBIT EPC-5



JEB	DRAWN BY: S.N.	SCALE: 1" = 2000'	STAR ENTERPRISE — TAMPA TERMINAL GENERAL LOCATION MAP
	CHECKED BY: J.E.B.	DATE: 4-1-88	J.E. BRENMAN CONSULTING ENGINEERS, INC.
	PROJECT NO.: 1275	SHEET NO.: MAP 'A'	1801 UNIVERSITY DRIVE CORAL SPRINGS, FLORIDA 33071

EXHIBIT EPC-6



DRAWN BY: J.A. NODARSE	SCALE: 1" = 200'
CHECKED BY: J.E. BRENMAN	DATE: 7/1/88
PROJECT NO.: 1275	SHEET NO.: MAP "H"

REV. NO. 1 - 6/20/89
REV. NO. 2 - 9/5/89

STAR ENTERPRISE — TAMPA TERMINAL
MASTER SITE PLAN

J.E. BRENMAN CONSULTING ENGINEERS, INC.
1801 UNIVERSITY DRIVE CORAL SPRINGS, FLORIDA 33071

INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms
01173 LOUISIANA AC-30 ASPHALT

Manufacturer's Name
Texaco Inc.

Emergency Telephone No.
(914) 831-3400 ext. 204

Address
P.O. Box 509 Beacon, NY 12508

Chemical Name and/or Family or Description
Asphalt

THIS PRODUCT IS CLASSIFIED AS:
X HAZARDOUS BY DEFINITION NO.(S) 2,9,12
____ NOT HAZARDOUS:
____ ON ATTACHED EXPLANATION SHEETS

WARNING STATEMENT:
DANGER! MAY RELEASE HYDROGEN SULFIDE (H_2S) GAS
MAY BE FATAL IF INHALED.
H_2S GAS MAY CAUSE IRRITATION TO EYES
MAY CAUSE THERMAL BURNS

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment (Type)

Eyes: Chemical type goggles or face shield should be worn when contact with hot asphalt is possible.

Skin: Protective clothing such as chemically-resistant aprons and uniforms, coveralls, or lab coats should be worn. Launder or dry clean when soiled. Gloves and boots resistant to chemicals and petroleum distillates required.

Inhalation: NIOSH/MSHA approved pos. pressure air supplied respirators if H_2S level is unknown or exceeds 20ppm limit. (See Addt'l Comments-pg6)

Ventilation: Adequate to meet permissible concentrations.

Permissible Concentrations:

Air: 5 mg/cubic meter of asphalt fumes averaged over an 8 hr. exposure H_2S TLV/TWA- 10ppm (ACGIH 1984-85). OSHA ceiling limit- 20ppm H_2S

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes: Should eye contact occur with hot product, flush eyes with plenty of water for 15 minutes. Get immediate medical attention.

Skin: Flush the area with plenty of cold water to dissipate the heat. Do NOT try to remove the solidified asphalt with solvents or thinners. Get immediate medical attention.

Ingestion: None considered necessary.

Inhalation: Should symptoms noted under physiological effects occur, remove to fresh air. If not breathing, apply artificial respiration.

Other Instructions: None.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

PHYSIOLOGICAL EFFECTS

Code No. 01173

Effects of Exposure

Acute:

Eyes: Believed to be minimally irritating. Thermal burns may result from contact with hot material.

Skin: Unheated product is not expected to cause skin irritation. Thermal burns may result from contact with hot asphalt.

Respiratory System: H2S gas can cause irritation to the throat and lungs, nausea and dizziness. Death by suffocation may also occur. See Other below.

Chronic: See Additional Comments, page 6.

Other: CAUTION! H2S has poor warning properties, fatigues sense of smell

Sensitization Properties:

Skin: Yes ___ No ___ Unknown X Respiratory: Yes ___ No ___ Unknown X

Median Lethal Dose (LD_{50} LC_{50})(Species)

Oral: Believed to be > 5 g/kg (rat); practically non-toxic

Inhalation: N.D.

Dermal: Believed to be > 3 g/kg (rabbit); practically non-toxic

Other: N. D.

Irritation Index, Estimation of Irritation (Species)

Skin: Believed to be < 0.5/8.0 (rabbit); no appreciable effect

Eyes: Believed to be < 15/110 (rabbit); no appreciable effect

Symptoms of Exposure: See above

FIRE PROTECTION INFORMATION

Ignition Temp. °F. N.D. Flash Point °F. (Method) 450 F (COC)

Flammable Limits (%) Lower N.D. Upper N.D.

Products Evolved When Subjected to Heat or Combustion:

Sulfur dioxide and various hydrocarbon gases and vapors.

Recommended Fire Extinguishing Agents And Special Procedures:

According to the National Fire Protection Association Guide, use water spray, dry chemical, foam, or carbon dioxide.
Water or foam may cause frothing. Use water to cool fire-exposed containers. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop the leak.

Unusual or Explosive Hazards:

Irritating vapors may form in fire situations.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

ENVIRONMENTAL PROTECTION

Code No. 01173

Waste Disposal Method:
Under RCRA, it is the responsibility of the user of products to determine, at the time of disposal, whether product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixture, processes, etc. may render the resulting material hazardous. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Contain spill if possible. Wipe up or absorb on suitable material and shovel up.

Remarks:
Waste Classification: Product has been evaluated for RCRA characteristics and does not meet criteria of a hazardous waste if discarded in its purchased form.

PRECAUTIONS

DANGER! MAY RELEASE HYDROGEN SULFIDE (H_2S) GAS
MAY BE FATAL IF INHALED.
H_2S GAS MAY CAUSE IRRITATION TO EYES
MAY CAUSE THERMAL BURNS

H_2S gas may accumulate in confined spaces that have contained this product. Use only in well ventilated locations. Avoid breathing gas, vapor, or mist. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling. If contact is unavoidable, wear appropriate oil-impervious clothing.

Requirements for Transportation, Handling and Storage:
Minimum feasible handling temperatures should be maintained. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

DOT Proper Shipping Name: N.A.
DOT Hazard Class (if applicable): N.A.

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (°F) N.D. Vapor Pressure N.D. (mmHg)

Specific Gravity N.D. (H_2O=1) Vapor Density N.D. (Air=1)

Appearance and Odor N.D.

pH of undiluted product N.A. Solubility N.D.

Percent Volatile by Volume N.D. Evaporation N.D. ( )=1

Viscosity 2000 cSt @ 140 F Other -

Hazardous Polymerizations ____ Occur X Do not occur

The Material Reacts Violently With: (If others is checked below, see additional comments on page 6 for futher details)

Air	Water	Heat	Strong Oxidizers	Others	None of These
			X		

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

COMPOSITION

Code NS 01173

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
*Asphalt	8052424	5 mg/m3 ACGIH (FUME)	100.00

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

PRODUCT SHIPPING LABEL | Code No. 01173

01173 LOUISIANA AC-30 ASPHALT

DANGER! MAY RELEASE HYDROGEN SULFIDE (H2S) GAS
MAY BE FATAL IF INHALED.
H2S GAS MAY CAUSE IRRITATION TO EYES
MAY CAUSE THERMAL BURNS

H2S gas may accumulate in confined spaces that have contained this product. Use only in well ventilated locations. Avoid breathing gas, vapor, or mist. Avoid contact with eyes, skin or clothing. Wash thoroughly after handling. If contact is unavoidable, wear appropriate oil-impervious clothing.

If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a doctor. In case of contact, immerse affected area in coldest water available to dissipate heat. Do not attempt to remove the solidified material. Get medical attention.

In case of fire use foam, dry chemical or CO2.

Chemical/Common Name	CAS No.	Range in %
*Asphalt	8052424	100.00

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

HMIS

Health	: 0	Reactivity	: 0
Flammability	: 1	Special	: -

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-3400 (EXT. 204)

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:

Fuels/Lubricants/Antifreezes
call (914) 831-9400 (EXT 204)
Chemicals
call (512) 459-6543
Transportation Spills
call CHEMTREC (800) 424-9300

ADDITIONAL COMMENTS

Code No 01173

TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT
STATE OF MICHIGAN CRITICAL MATERIALS ACT (REVISED 1987)
No critical materials present.

Hazardous concentrations of hydrogen sulfide (H2S) gas can accumulate in storage tanks, marine vessel compartments, or other confined spaces that have contained this product. When opening hatches and dome covers stand upwind, keep face as far from the opening as possible and avoid breathing any gases or vapors. When exposure concentrations are unknown and respiratory protection is not used, personal H2S warning devices should be worn. These devices should not be relied on to warn employes of life threatening concentrations. Rotten egg odor of H2S disappears quickly even though high concentrations of H2S are still present. H2S fatigues sense of smell rapidly. H2S has an ACGIH (1987-88) TLV/TWA of 10ppm.
Clothing soaked with this oil should be removed and dry cleaned or laundered before reuse. Studies have shown that dry cleaning is at least five times more effective in removing mineral oil than laundering.
***
Ash from the combustion of heavy oils contains vanadium, which is toxic or irritating when inhaled. Protection is recommended for workers cleaning boiler tubes and fire boxes; this should include approved respirators, goggles, gloves and long sleeved, hooded coveralls.

By R. T. Richards Title Mgr. Env. Conservation & Toxicology
Date 04-16-86 ☐ New ☒ Revised, Supersedes 12-18-85

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE ACCURATE. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT AS PART OF TEXACO'S PRODUCT SAFETY PROGRAM. IT IS NOT INTENDED TO CONSTITUTE PERFORMANCE INFORMATION CONCERNING THE PRODUCT. NO EXPRESS WARRANTY, OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE WITH RESPECT TO THE PRODUCT OR THE INFORMATION CONTAINED HEREIN. DATA SHEETS ARE AVAILABLE FOR ALL TEXACO PRODUCTS. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL TEXACO PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE AND YOU ARE ENCOURAGED AND REQUESTED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

EXPLANATION OF THE INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

PRODUCT INFORMATION

Trade Name and Synonyms

Refer to the code number and name under which the product is marketed and the common commercial name of the product.

Manufacturer's Name and Address Self explanatory.

Chemical Name and/or Family or Description

Refer to chemical, generic, or descriptive name of single elements and compounds.

For purposes of this form, a product is defined as hazardous if it possesses one or more of the following characteristics: (1) has a flash-point below 200 degrees Fahrenheit, closed cup or subject to spontaneous heating; (2) has a threshold limit value as established by the American Conference of Governmental Industrial Hygeniste and/or the Occupational Safety and Health Administration (with exception to petroleum oil mist). (3) a single dose oral LD50 below 500 mg/kg; (4) causes burns to the skin in the short-term exposure or is systemically toxic by skin contact; (5) has been demonstrated to be a skin or eye irritant or causes respiratory irritation; (6) may cause skin or respiratory sensitization; (7) has teratogenic, mutagenic or other toxic effects; (8) may cause asphyxia or pneumoconiosis; (9) in the course of normal operations may produce dusts, gases, fumes, vapor, mist, or smoke which have one or more of the above characteristics; (10) contains a component which may be carcinogenic according to NTP (National Toxicology Program), IARC (International Agency for Research on Cancer), OSHA (Occupational Safety and Health Administration), EPA (Environmental Protection Agency) and/or NCI (National Cancer Institute.); (11) has a median LC50 (RATS) in air of 200 ppm or less by volume of gas or vapor or 2.0 mg/l or less of mist, fume or dust when administered by continuous inhalation for one hour; (12) is a hazard as identified in the Product Shipping Label on page 5.

OCCUPATIONAL CONTROL PROCEDURES

(Consult your Industrial Hygienist or Occupational Health Specialist.)

Protective Equipment

Type of protective equipment that is necessary for the safe handling and use of this product.

Ventilation

Normal means adequate to maintain permissible concentrations.
Ventilation: type, i.e. local exhaust, mechanical, etc.

Permissible Concentrations

Indicates worker exposure limits, such as the Threshold Limit Value (TLV) as established by the American Conference of Governmental Industrial Hygienists or standards, promulgated by the Occupational Safety and Health Administration (e.g., PEL).

TLV-Time Weighted Average (TWA) is the concentration in air averaged over an 8 hour daily exposure.

TLV-Ceiling (C) is the ceiling limit on concentration that should not be exceeded during any part of the working day.

"Skin" Notation (ACGIH) indicates that dermal absorption can contribute to overall exposure following direct contact or exposure to airborne material.

Permissible Exposure Level (PEL) is the time weighted concentration in air averaged over an 8 hour daily exposure.

EMERGENCY AND FIRST AID PROCEDURES

Administer first aid and emergency procedures in case of eye and/or skin contact, ingestion and inhalation.

PHYSIOLOGICAL EFFECTS

Acute Exposures (Eye, Skin, Respiratory System)

Refers to the most common effects that would be expected to occur from direct contact with the product.

Chronic

Refers to the effects that are most likely to occur from repeated or prolonged exposure.

Sensitizer

Means a substance which will cause on or in normal living tissue, through an allergic or photodynamic process, a hypersensitivity which becomes evident on reapplication of, or exposure to, the same substance.

Median Lethal Dose or Concentration (LD50,LC50)

Refers to that dose or concentration of the material which will produce death in 50 per cent of the animals. For inhalation, exposure time is indicated.

Irritation Index

Refers to an empirical score (Draize Method) for eye and skin irritation when tested by the method described. If numbers are not available, an estimated score indicates whether or not the material is an irritant.

FIRE PROTECTION INFORMATION

Ignition Temperature

Refers to the temperature in degrees Fahrenheit, at which a liquid will give off enough flammable vapor to ignite and burn continuously for 5 seconds.

Flash Point (Method used)

Refers to the temperature in degrees Fahrenheit, at which a liquid will give off enough flammable vapor to ignite.

Flammable Limits

Refers to the range of gas or vapor concentration (percent by volume in air) which will burn or explode if an ignition source is present. Lower means the lower flammable limit and upper means the upper flammable limit given in percent.

Products Evolved When Subjected to Heat or Combustion.

The products evolved when this material is subjected to heat or combustion. Includes temperature at which oxidation or other forms of degradation occurs.

Recommended Fire Extinguishing Agents and Special Procedures

Specifies the fire fighting agents that should be used to extinguish fires. If unusual fire hazards are involved or special procedures indicated, this is specified.

Unusual Fire or Explosive Hazards

Specifies hazards to personnel in case of fire, explosive danger.

ENVIRONMENTAL PROTECTION

Specifies how this product may be disposed.

Indicates precautions necessary in the event that leakage or breakage occurs. Included are (a) clean-up procedures, (b) personal protective equipment if necessary, (c) hazards that may be created, i.e. fire, explosion, etc.

PRECAUTIONS

Label that is required or recommended.

Requirements for Transportation, Handling and Storage

Specifies handling and storage procedures. Gives ICC, DOT, or other regulations related to safety and health for transportation.

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (or Range)

In degrees Fahrenheit or Celsius Boiling Point at 760 mmHg.

Vapor Pressure

Pressure exerted when a solid or liquid is in equilibrium with its own vapor.

Specific Gravity

The ratio of the density of the product to the density of water.

Vapor Density

The ratio of the density of the vapor at saturation concentration (20 degrees Celsius or 68 degrees Fahrenheit) to the density of air at 760 mmHg.

Appearance and Odor

Refers to the general characterization of the material, e.g. powder, colorless liquid, aromatic odor, etc.

pH

Refers to the degree of acidity or basicity of the material in a specific concentration.

pH1-5 - STRONGLY ACIDIC
pH5-7 - WEAKLY ACIDIC
pH7-9 - WEAKLY BASIC
pH9-14 - STRONGLY BASIC

Solubility

Refers to the solubility of a material by weight in water at room temperature. The term negligible, less than 0.1 %; slight, 0.1 to 1%; moderate, 1 to 10%; appreciable, 10% or greater. Gives solubility in organic solvents where appropriate.

Percent Volatile By Volume

Refers to the amount volatilized at 20 degrees Celsius or 68 degrees Fahrenheit when allowed to evaporate.

Evaporation

Gives the rate of evaporation compared to a standard

Viscosity

Measure of flow characteristics in Kinematic viscosity in Centistokes.

Hazardous Polymerization

Hazardous polymerization is that reaction which takes place at a rate which produces large amounts of energy. Indicates whether it may or may not occur and under what storage conditions.

Does the Material React Violently

Indicates whether the material will react violently, releasing large amounts of energy when exposed under conditions listed.

Composition

Components of the product as required by OSHA (1910.1200) and one or more state Right to Know laws.

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650
Phone (914) 831-3400 (Beacon)

TEXACO
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms
77001 TC-13000

Manufacturer's Name: Texaco Chemical Company
Emergency Telephone No.: (409) 722-8381

Address
3040 Post Oak Blvd. P.O. Box 27707 Houston, TX 77056

Chemical Name and/or Family or Description
Fuel Additive

THIS PRODUCT IS CLASSIFIED AS:
X CARCINOGENIC BY OSHA, IARC, OR NTP ____ NOT CARCINOGENIC

WARNING STATEMENT:
DANGER ! FLAMMABLE LIQUID AND VAPOR
CAUSES IRRITATION TO EYES AND SKIN
ATTENTION! VAPOR MAY BE HARMFUL TO LIVER, CENTRAL NERVOUS SYSTEM; CONTAINS BENZENE A CANCER HAZARD

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment (Type)

Eyes: Chemical type goggles must be worn. Do not wear contact lenses.

Skin: Protective clothing such as uniforms, coveralls or lab coats should be worn. Launder or dry clean when soiled. Gloves resistant to chemicals and petroleum distillates required.

Inhalation: Supplied air respiratory protection for cleaning large spills or upon entry into tanks, vessels, or other confined spaces.

Ventilation: Adequate to meet component permissible concentrations.

Permissible Concentrations:

Air: None established for product; refer to page 4 for component permissible concentrations.

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes: Flush thoroughly with water for at least fifteen minutes. Get medical attention.

Skin: Wash exposed areas with soap and water.

Ingestion: Do NOT induce vomiting. May cause chemical pneumonitis.

Inhalation: Should symptoms noted under physiological effects occur, remove to fresh air. If not breathing, apply artificial respiration.

Other Instructions: None.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

PHYSIOLOGICAL EFFECTS:

Code No. 77001

Effects of Exposure

Acute:

Eyes: Believed to cause moderate eye irritation.

Skin: Believed to be moderately irritating; Believed to cause redness, edema or drying of the skin.

Respiratory System: Drowsiness, narcosis, and unconsciousness possible upon exposure to high concentrations in poorly ventilated confined spaces.

Chronic: See Additional Comments, page 6.

Other: –

Sensitization Properties:

Skin: Yes ___ No ___ Unknown X Respiratory: Yes ___ No ___ Unknown X

Median Lethal Dose (LD_{50} LC_{50})(Species)

Oral: Believed to be 2.0-5.0g/kg (rat); slightly toxic

Inhalation: N.D.

Dermal: Believed to be > 3 g/kg (rabbit); practically non-toxic

Other: N. D.

Irritation Index, Estimation of Irritation (Species)

Skin: Believed to be 3.0-5.0/8.0 (rabbit); moderately irritating

Eyes: Believed to be 25-50/110(rabbit); moderately irritating

Symptoms of Exposure: See above

FIRE PROTECTION INFORMATION

Ignition Temp. °F. N.D. Flash Point °F. (Method) 65° F (TCC)

Flammable Limits (%) Lower N.D. Upper N.D.

Products Evolved When Subjected to Heat or Combustion:

Carbon monoxide, carbon dioxide, aldehydes and ketones, combustion products of nitrogen

Recommended Fire Extinguishing Agents And Special Procedures:

According to the National Fire Protection Association Guide 325M, use dry chemical, foam or carbon dioxide. Water may be ineffective on the flames, but water should be used to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for the persons attempting to stop the leak.

Unusual or Explosive Hazards:

Explosive air-vapor mixtures may form.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

ENVIRONMENTAL PROTECTION

Code No. 77001

Waste Disposal Method:
Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures and processes may change classification to non-hazardous or hazardous for reasons other than, or in addition to ignitability. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Eliminate all ignition sources including internal combustion engines and power tools. Ventilate area. Avoid breathing vapor. Use SCBA or supplied-air mask for lg spills or in confined areas. Contain spill. Remove with inert absorbant. Avoid contact with eyes.

Remarks:
Waste Classification: Product (as presently constituted) has the RCRA characteristic of ignitability and if discarded in its purchased form would have the hazardous waste number D001.

PRECAUTIONS

DANGER ! FLAMMABLE LIQUID AND VAPOR
CAUSES IRRITATION TO EYES AND SKIN
ATTENTION! VAPOR MAY BE HARMFUL TO LIVER, CENTRAL NERVOUS SYSTEM; CONTAINS BENZENE A CANCER HAZARD
Keep away from heat, sparks and flame. Avoid breathing vapor
Keep container closed. Use in only well ventilated locations
Avoid contact with eyes, skin and clothing. Wash throughly after handling.

Requirements for Transportation, Handling and Storage:
Minimum feasible handling temperatures should be maintained. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

DOT Proper Shipping Name: See additional comments page 6
DOT Hazard Class (if applicable): Flammable liquid U.N.1993, R.Q.

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (°F) N.D. Vapor Pressure 0.36 psi @ 100F (mmHg)

Specific Gravity 0.90 (H_2O=1) Vapor Density N.D. (Air=1)

Appearance and Odor Reddish brown liquid, light aromatics odor

pH of undiluted product N.D. Solubility N.D.

Percent Volatile by Volume N.D. Evaporation N.D. ( )=1

Viscosity 9.4 cSt @ 40 °C Other –

Hazardous Polymerizations ____ Occur X Do not occur

The Material Reacts Violently With: (If others is checked below, see additional comments on page 6 for futher details)

Air	Water	Heat	Strong Oxidizers	Others	None of These
					X

N.D. – Not Determined N.A. – Not Applicable
< – Less Than > – Greater Than

COMPOSITION

Code No. 77001

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
*Toluene	108883	100ppm TWA-ACGIH 100ppm TWA-OSHA 150ppm STEL-OSHA 150ppm STEL-ACGIH	20.00 - 34.99
*Xylene	1330207	100ppm TWA-ACGIH 100ppm TWA-OSHA 150ppm STEL-OSHA 150ppm STEL-ACGIH	4.00 - 10.99
*2-Ethyl-1-hexanol	104767	None Established	4.00 - 10.99
*Alkenylsuccinimide	CBI	None Established	1.00 - 3.99
*Ethylbenzene	100414	100 ppm TWA ACGIH 100 ppm PEL OSHA 125 ppm STEL ACIGH	1.00 - 3.99
*Benzene	71432	10ppm TWA ACGIH 1 ppm TWA OSHA 5 ppm STEL OSHA	0.10 - 0.99
Polymeric amine, light petroleum naptha and up to 2.0% xylene (cas.#1330207).	N.A.	None Established	20.00 - 34.99
Solvent-dewaxed heavy paraffinic petroleum distillates	64742650	5mg/m3 ACGIH (MIST) 5mg/m3 OSHA (MIST)	11.00 - 19.99

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

SARA TITLE III

I. Title III Section 302/304 Extremely Hazardous Substance

Component	CAS No.	%	RQ (Lbs)	TPQ (Lbs)
None				

II. CERCLA Section 102(a) Hazardous Substance

Component	CAS No.	%	RQ (Lbs)
Xylene	1330207	4.00-10.99	1,000
Benzene	71432	0.10-0.99	1,000
Toluene	108883	20.0-34.99	1,000

III. Title III Section 311 Hazard Categorization

Acute	Chronic	Fire	Pressure	Reactive	Not Applicable
X	X	X			

IV. Title III Section 313 Toxic Chemicals

Component	CAS No.	%
Xylene	1330207	4.00-10.99
Toluene	108883	20.0-34.99
Benzene	71432	0.10-0.99
Ethylbenzene	100414	1.00-3.99

PRODUCT SHIPPING LABEL	Code No. 77001

77001 TC-13000

DANGER ! FLAMMABLE LIQUID AND VAPOR
CAUSES IRRITATION TO EYES AND SKIN
ATTENTION! VAPOR MAY BE HARMFUL TO LIVER, CENTRAL NERVOUS SYSTEM; CONTAINS BENZENE A CANCER HAZARD
Keep away from heat, sparks and flame. Avoid breathing vapor
Keep container closed. Use in only well ventilated locations
Avoid contact with eyes,skin and clothing. Wash throughly after handling.

FIRST AID: Immediately flush eyes with plenty of water for at least 15 minutes. Call a doctor. Flush skin with water. Wash clothing before reuse. If swallowed, do not induce vomiting. Call a doctor immediately. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a doctor.
In case of fire, use water spray, foam, dry chemical or CO2.

Chemical/Common Name	CAS No.	Range in %
*Toluene	108883	20.00 - 34.99
*Xylene	1330207	4.00 - 10.99
*2-Ethyl-1-hexanol	104767	4.00 - 10.99
*Alkenylsuccinimide	CBI	1.00 - 3.99
*Ethylbenzene	100414	1.00 - 3.99
*Benzene	71432	0.10 - 0.99
Polymeric amine, light petroleum naptha and up to 2.0% xylene (cas.#1330207).	N.A.	20.00 - 34.99
Solvent-dewaxed heavy paraffinic petroleum distillates	64742650	11.00 - 19.99

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

HMIS
Health : 2 Reactivity : 0
Flammability: 3 Special : -

DOT Proper Shipping Name: See additional comments page 6
DOT Hazardous Class : Flammable liquid U.N.1993,R.Q.

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-3400 (EXT. 204)

Texaco
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:

Fuels/Lubricants/Antifreezes
call (914) 831-3400 (EXT.204)
Chemicals
call (512) 459-6543
Transportation Spills
call CHEMTREC (800) 424-9300

ADDITIONAL COMMENTS

Code No. 77001

STATE OF MICHIGAN CRITICAL MATERIALS ACT (REVISED 1988)
4.00-10.99 Wt.% xylene.

This product contains xylene. Xylene has been shown to cause liver and central nervous system (CNS) effects, and teratogenic/embryotoxic effects in laboratory animals.
ACGIH "skin" notation-appropriate measures should be taken to prevent cutaneous absorption since the TLV is based on overexposure to the mucous membranes.
This product contains benzene. Benzene has been associated with anemia and leukemia in humans and anemia, lymphoma and other cancers in laboratory animals.
D.O.T. Proper shipping name: Flammable liquid, N.O.S., (contains xylene and toluene)
This product contains toluene which upon prolonged exposures to high concentrations produces loss of appetite, nose bleeds, and liver, kidney and neural dysfunction.

By F. E. Bentley Title Coordinator of Product Safety

Date 08-22-89 ☐ New ☒ Revised, Supersedes 07-25-89

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE ACCURATE. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT AS PART OF TEXACO'S PRODUCT SAFETY PROGRAM. IT IS NOT INTENDED TO CONSTITUTE PERFORMANCE INFORMATION CONCERNING THE PRODUCT. NO EXPRESS WARRANTY, OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE WITH RESPECT TO THE PRODUCT OR THE INFORMATION CONTAINED HEREIN. DATA SHEETS ARE AVAILABLE FOR ALL TEXACO PRODUCTS. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL TEXACO PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE AND YOU ARE ENCOURAGED AND REQUESTED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

EXPLANATION OF THE INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

PRODUCT INFORMATION

Trade Name and Synonyms

Refer to the code number and name under which the product is marketed and the common commercial name of the product.

Manufacturer's Name and Address Self explanatory.

Chemical Name and/or Family or Description

Refer to chemical, generic, or descriptive name of single elements and compounds.

For purposes of this form, a product is defined as hazardous if it possesses one or more of the following characteristics: (1) has a flash-point below 200 degrees Fahrenheit, closed cup or subject to spontaneous heating; (2) has a threshold limit value as established by the American Conference of Governmental Industrial Hygenists and/or the Occupational Safety and Health Administration (with exception to petroleum oil mist). (3) a single dose oral LD50 below 500 mg/kg; (4) causes burns to the skin in the short-term exposure or is systemically toxic by skin contact; (5) has been demonstrated to be a skin or eye irritant or causes respiratory irritation; (6) may cause skin or respiratory sensitization; (7) has teratogenic, mutagenic or other toxic effects; (8) may cause asphyxia or pneumoconiosis; (9) in the course of normal operations may produce dusts, gases, fumes, vapor, mist, or smoke which have one or more of the above characteristics; (10) contains a component which may be carcinogenic according to NTP (National Toxicology Program), IARC (International Agency for Research on Cancer), OSHA (Occupational Safety and Health Administration), EPA (Environmental Protection Agency) and/or NCI (National Cancer Institute.); (11) has a median LC50 (RATS) in air of 200 ppm or less by volume of gas or vapor or 2.0 mg/l or less of mist, fume or dust when administered by continuous inhalation for one hour; (12) is a hazard as identified in the Product Shipping Label on page 5.

OCCUPATIONAL CONTROL PROCEDURES

(Consult your Industrial Hygienist or Occupational Health Specialist.)

Protective Equipment

Type of protective equiment that is necessary for the safe handling and use of this product.

Ventilation

Normal means adequate to maintain permissible concentrations.
Ventilation: type, i.e. local exhaust, mechanical, etc.

Permissible Concentrations

Indicates worker exposure limits, such as the Threshold Limit Value (TLV) as established by the American Conference of Governmental Industrial Hygienists or standards, promulgated by the Occupational Safety and Health Administration (e.g., PEL).

TLV-Time Weighted Average (TWA) is the concentration in air averaged over an 8 hour daily exposure.

TLV-Ceiling (C) is the ceiling limit on concentration that should not be exceeded during any part of the working day.

"Skin" Notation (ACGIH) indicates that dermal absorption can contribute to overall exposure following direct contact or exposure to airborne material.

Permissible Exposure Level (PEL) is the time weighted concentration in air averaged over an 8 hour daily exposure.

EMERGENCY AND FIRST AID PROCEDURES

Administer first aid and emergency procedures in case of eye and/or skin contact, ingestion and inhalation.

PHYSIOLOGICAL EFFECTS

Acute Exposures (Eye, Skin, Respiratory System)

Refers to the most common effects that would be expected to occur from direct contact with the product.

Chronic

Refers to the effects that are most likely to occur from repeated or prolonged exposure.

Sensitizer

Means a substance which will cause on or in normal living tissue, through an allergic or photodynamic process, a hypersensitivity which becomes evident on reapplication of, or exposure to, the same substance.

Median Lethal Dose or Concentration (LD50,LC50)

Refers to that dose or concentration of the material which will produce death in 50 per cent of the animals. For inhalation, exposure time is indicated.

Irritation Index

Refers to an empirical score (Draize Method) for eye and skin irritation when tested by the method described. If numbers are not available, an estimated score indicates whether or not the material is an irritant.

FIRE PROTECTION INFORMATION

Ignition Temperature

Refers to the temperature in degrees Fahrenheit, at which a liquid will give off enough flammable vapor to ignite and burn continuously for 5 seconds.

Flash Point (Method used)

Refers to the temperature in degrees Fahrenheit, at which a liquid will give off enough flammable vapor to ignite.

Flammable Limits

Refers to the range of gas or vapor concentration (percent by volume in air) which will burn or explode if an ignition source is present. Lower means the lower flammable limit and upper means the upper flammable limit given in percent.

Products Evolved When Subjected to Heat or Combustion.

The products evolved when this material is subjected to heat or combustion. Includes temperature at which oxidation or other forms of degradation occurs.

Recommended Fire Extinguishing Agents and Special Procedures

Specifies the fire fighting agents that should be used to extinguish fires. If unusual fire hazards are involved or special procedures indicated, this is specified.

Unsusual Fire or Explosive Hazards

Specifies hazards to personnel in case of fire, explosive danger.

ENVIRONMENTAL PROTECTION

Specifies how this product may be disposed.

Indicates precautions necessary in the event that leakage or breakage occurs. Included are (a) clean-up procedures, (b) personal protective equipment if necessary, (c) hazards that may be created, i.e. fire, explosion, etc.

PRECAUTIONS

Label that is required or recommended.

Requirements for Transportation, Handling and Storage

Specifies handling and storage procedures. Gives ICC, DOT, or other regulations related to safety and health for transportation.

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (or Range)

In degrees Fahrenheit or Celsius Boiling Point at 760 mmHg.

Vapor Pressure

Pressure exerted when a solid or liquid is in equilibrium with its own vapor.

Specific Gravity

The ratio of the density of the product to the density of water.

Vapor Density

The ratio of the density of the vapor at saturation concentration (20 degrees Celsius or 68 degrees Fahrenheit) to the density of air at 760 mmHg.

Appearance and Odor

Refers to the general characterization of the material, e.g. powder, colorless liquid, aromatic odor, etc.

pH

Refers to the degree of acidity or basicity of the material in a specific concentration.

pH1-5 - STRONGLY ACIDIC
pH5-7 - WEAKLY ACIDIC
pH7-9 - WEAKLY BASIC
pH9-14 - STRONGLY BASIC

Solubility

Refers to the solubility of a material by weight in water at room temperature. The term negligible, less than 0.1 %; slight, 0.1 to 1%; moderate, 1 to 10%; appreciable, 10% or greater. Gives solubility in organic solvents where appropriate.

Percent Volatile By Volume

Refers to the amount volatilized at 20 degrees Celsius or 68 degrees Fahrenheit when allowed to evaporate.

Evaporation

Gives the rate of evaporation compared to a standard

Viscosity

Measure of flow characteristics in Kinematic viscosity in Centistokes.

Hazardous Polymerization

Hazardous polymerization is that reaction which takes place at a rate which produces large amounts of energy. Indicates whether it may or may not occur and under what storage conditions.

Does the Material React Violently

Indicates whether the material will react violently, releasing large amounts of energy when exposed under conditions listed.

Composition

Components of the product as required by OSHA (1910.1200) and one or more state Right to Know laws.

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650
Phone (914) 831-3400 (Beacon)

TEXACO INC.
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms
00360 TEXACO SUPER UNLEADED

Manufacturer's Name
Texaco Inc.

Emergency Telephone No.
(914) 831-3400 ext. 204

Address
P.O. Box 509 Beacon, NY 12508

Chemical Name and/or Family or Description
Automotive Lead-Free Gasoline

THIS PRODUCT IS CLASSIFIED AS:
X HAZARDOUS BY DEFINITION NO.(S) 1,2,5,10,12
____ NOT HAZARDOUS:
____ ON ATTACHED EXPLANATION SHEETS

WARNING STATEMENT:
DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment (Type)

Eyes: Chemical type goggles or face shield optional.

Skin: Protective clothing such as uniforms, coveralls or lab coats should be worn. Launder or dry clean when soiled. Gloves resistant to chemicals and petroleum distillates required.

Inhalation: SCBA or supplied air respiratory protection required for entry into tanks,vessels, or other confined spaces containing gasoline.

Ventilation: Adequate to meet permissible concentrations.

Permissible Concentrations:

Air: The ACGIH (1984-85) TWA for gasoline is 300ppm; Texaco recommends a TWA of 100ppm.

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes: Flush with water for fifteen minutes.

Skin: Wash exposed areas with soap and water.

Ingestion: Do NOT induce vomiting. May cause chemical pneumonitis. Call a physician.

Inhalation: Should symptoms noted under physiological effects occur, remove to fresh air. If not breathing, apply artificial respiration.

Other Instructions: Remove gasoline-soaked clothing.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

PHYSIOLOGICAL EFFECTS:

Code No. 00360

Effects of Exposure

Acute:

Eyes: Causes slight-moderate eye irritation.

Skin: Moderately irritating; causes redness, edema, or drying of the skin.

Respiratory System: May cause dizziness, irritation of eyes, nose and throat, vomiting, bluish color of the skin, and CNS effects. See A.C., p.6.

Chronic: Recent studies with laboratory animals have shown that gasoline vapors caused kidney damage and kidney cancer in rats and liver cancer in mice.

Other: -

Sensitization Properties:

Skin: Yes ___ No X Unknown ___ Respiratory: Yes ___ No X Unknown ___

Median Lethal Dose (LD_{50} LC_{50}) (Species)

Oral: LD50 = 18.75 ml/kg (rat)

Inhalation: N.D.

Dermal: >5 ml/kg (rabbit)

Other: N. D.

Irritation Index, Estimation of Irritation (Species)

Skin: 0.98/8.0 (rabbit)

Eyes: 0/110 (rabbit)

Symptoms of Exposure: See above.

FIRE PROTECTION INFORMATION

Ignition Temp. °F. 850 F

Flash Point °F. (Method) -40F (COC)

Flammable Limits (%) Lower 1.4% Upper 7.6%

Products Evolved When Subjected to Heat or Combustion:

Carbon monoxide and carbon dioxide may be formed on burning in limited air supply.

Recommended Fire Extinguishing Agents And Special Procedures:

According to the National Fire Protection Association Guide 325M, use dry chemical, foam or carbon dioxide. Water may be ineffective on the flames, but water should be used to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for the persons attempting to stop the leak.

Unusual or Explosive Hazards:

Flowing gasoline can be ignited by self-generated static electricity; use adequate grounding.

N.D. - Not Determined N.A. - Not Applicable

< - Less Than > - Greater Than

ENVIRONMENTAL PROTECTION

Code No. 00360

Waste Disposal Method:
Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures and processes may change classification to non-hazardous or hazardous for reasons other than, or in addition to ignitability. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Eliminate all ignition sources including internal combustion engines and power tools. Ventilate area. Avoid breathing vapor. Use SCBA or supplied-air mask for large spills in confined areas. Contain spill if possible. Remove with inert absorbent.

Remarks:
Waste Classification: Product (as presently constituted) has the RCRA characteristic of ignitability and if discarded in its purchased form would have the hazardous waste number D001.

PRECAUTIONS

DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN
Long term exposure to vapors has caused cancer in laboratory animals. Keep away from heat, sparks and flame.
Avoid breathing vapor. Use only in well-ventilated locations.
Avoid contact with eyes and prolonged contact with skin.
Keep container closed. Wash thoroughly after handling.
FOR USE AS MOTOR FUEL ONLY

Requirements for Transportation, Handling and Storage:
Transport, handle and store in accordance with OSHA Regulation 1910.106, and applicable D.O.T. regulations.

DOT Proper Shipping Name: Gasoline
DOT Hazard Class (if applicable): Flammable liquid, UN 1203

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (°F) >90 Vapor Pressure >~350 (mmHg)

Specific Gravity 0.7-.77 (H_2O=1) Vapor Density 3-4.0 (Air=1)

Appearance and Odor Light straw to light red liquid

pH of undiluted product N.A. Solubility slight

Percent Volatile by Volume 100 Evaporation N.D. ( )=1

Viscosity <1.4 cSt @ 100F Other -

Hazardous Polymerizations ____ Occur X Do not occur

The Material Reacts Violently With: (If others is checked below, see additional comments on page 6 for futher details)

Air	Water	Heat	Strong Oxidizers	Others	None of These
		X	X		

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

COMPOSITION

Code No. 00360

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
*Gasoline consists mainly of straight chain and branched parrafinic hydrocarbons, olefins, cycloparaffins and aromatics. The benzene content normally varies from 0.2-3.5% with a typical value of 1.4%.	MIXTURE	300 ppm TWA ACGIH 100 ppm TWA Texaco	100.00

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

SARA TITLE III

I. Title III Section 302/304 Extremely Hazardous Substance

Component	CAS No.	%	RQ (Lbs)	TPQ (Lbs)
NONE				

II. CERCLA Section 102(a) Hazardous Substance

Component	CAS No.	%	RQ (Lbs)

III. Title III Section 311 Hazard Categorization

Acute	Chronic	Fire	Pressure	Reactive	Not Applicable
X	X	X			

IV. Title III Section 313 Toxic Chemicals

Component	CAS No.	%
Benzene	71432	1-3.99
Toluene	108883	4-10.99
Ethylbenzene	100414	1-3.99
Xylene	1330207	4-10.99
Pseudocumene	95636	1-3.99
Methyl tert-butyl ether	1634044	0-10(vol%)

PRODUCT SHIPPING LABEL | Code No. 00360

00360 TEXACO SUPER UNLEADED

DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN
Long term exposure to vapors has caused cancer in laboratory animals. Keep away from heat, sparks and flame.
Avoid breathing vapor.Use only in well-ventilated locations.
Avoid contact with eyes and prolonged contact with skin.
Keep container closed. Wash thoroughly after handling.
FOR USE AS MOTOR FUEL ONLY

If swallowed, do not induce vomiting. Call a physician immediately. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Wash skin with soap and plenty of water. Gasoline-soaked clothing should be removed and laundered before reuse.

In case of fire use water spray, foam, dry chemical or CO2.

Chemical/Common Name	CAS No.	Range in %
*Gasoline consists mainly of straight chain and branched parrafinic hydrocarbons, olefins, cycloparaffins and aromatics. The benzene content normally varies from 0.2-3.5% with a typical value of 1.4%.	MIXTURE	100.00

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

HMIS
Health : 2 Reactivity : 0
Flammability: 4 Special : -

DOT Proper Shipping Name: Gasoline
DOT Hazardous Class : Flammable liquid, UN 1203

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-3400 (EXT. 204)

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:
Fuels/Lubricants/Antifreezes
call (914) 831-3400 (EXT.204)
Chemicals
call (512) 469-6543
Transportation Spills
call CHEMTREC (800) 424-9300

ADDITIONAL COMMENTS	Code No. 00360

STATE OF MICHIGAN CRITICAL MATERIALS ACT (REVISED 1988)
1.4% benzene; conversion factor 6.7 pounds per gallon

Other effects of inhalation include central nervous system effects such as contracted pupils, loss of reflexes, convulsions, seizures, sudden loss of consciousness, coma and sudden death. Other indications of overexposure are headaches, flushing of the face, nausea, mental confusion and depression, loss of appetite, blurred speech and difficulty in swallowing.
This product is intended for motor fuel only.

To determine applicability or effect of any law or regulation with respect to the product, users should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By R. T. Richards Title Mgr. Env. Conservation & Toxicology
Date 04-19-88 ☐ New ☒ Revised, Supersedes 06-24-87

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

TEXACO INC.
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms
00375 TEXACO UNLEADED PLUS

Manufacturer's Name
Texaco Inc.

Emergency Telephone No.
(914) 831-3400 ext. 204

Address
P.O. Box 509 Beacon, NY 12508

Chemical Name and/or Family or Description
Automotive Lead-Free Gasoline

THIS PRODUCT IS CLASSIFIED AS:

X HAZARDOUS BY DEFINITION NO.(S) 1,2,10

_____ NOT HAZARDOUS:

_____ ON ATTACHED EXPLANATION SHEETS

WARNING STATEMENT:

DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment (Type)

Eyes: Chemical type goggles or face shield optional.

Skin: Protective clothing such as uniforms, coveralls or lab coats should be worn. Launder or dry clean when soiled. Gloves resistant to chemicals and petroleum distillates required.

Inhalation: SCBA or supplied air respiratory protection required for entry into tanks, vessels, or other confined spaces containing gasoline.

Ventilation: Adequate to meet permissible concentrations.

Permissible Concentrations:

Air: The ACGIH (1986) TWA for gasoline is 300 ppm; Texaco recommends a TWA of 100 ppm.

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes: Flush with water for fifteen minutes.

Skin: Wash exposed areas with soap and water.

Ingestion: Do NOT induce vomiting. May cause chemical pneumonitis. Call a physician.

Inhalation: Should symptoms noted under physiological effects occur, remove to fresh air. If not breathing, apply artificial respiration.

Other Instructions: Remove gasoline-soaked clothing.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

PHYSIOLOGICAL EFFECTS:

Code No. 00375

Effects of Exposure

Acute:

Eyes: Causes slight-moderate eye irritation.

Skin: Moderately irritating; causes redness, edema, or drying of the skin.

Respiratory System: May cause dizziness, irritation of eyes, nose and throat, vomiting, bluish color of the skin, and CNS effects. See A.C., p.6.

Chronic: Recent studies with laboratory animals have shown that gasoline vapors caused kidney damage and kidney cancer in rats and liver cancer in mice.

Other: -

Sensitization Properties:

Skin: Yes ___ No X Unknown ___ Respiratory: Yes ___ No X Unknown ___

Median Lethal Dose (LD_{50} LC_{50})(Species)

Oral: LD50 = 18.75 ml/kg (rat)

Inhalation: N.D.

Dermal: G.T. 5 ml/kg (rabbit)

Other: N. D.

Irritation Index, Estimation of Irritation (Species)

Skin: 0.98/8.0 (rabbit)

Eyes: 0/110 (rabbit)

Symptoms of Exposure: See above.

FIRE PROTECTION INFORMATION

Ignition Temp. °F. 850° F Flash Point °F. (Method) -40F (COC)

Flammable Limits (%) Lower 1.4% Upper 7.6%

Products Evolved When Subjected to Heat or Combustion:

Carbon monoxide and carbon dioxide may be formed on burning in limited air supply.

Recommended Fire Extinguishing Agents And Special Procedures:

According to the National Fire Protection Association Guide 325M, use dry chemical, foam or carbon dioxide. Water may be ineffective on the flames, but water should be used to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for the persons attempting to stop the leak.

Unusual or Explosive Hazards:

Flowing gasoline can be ignited by self-generated static electricity; use adequate grounding.

N.D. - Not Determined N.A. - Not Applicable

< - Less Than > - Greater Than

ENVIRONMENTAL PROTECTION

Code No. 00375

Waste Disposal Method:
Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures and processes may change classification to non-hazardous or hazardous for reasons other than, or in addition to ignitability. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Eliminate all ignition sources including internal combustion engines and power tools. Ventilate area. Avoid breathing vapor. Use SCBA or supplied-air mask for large spills in confined areas. Contain spill if possible. Remove with inert absorbent.

Remarks:
Waste Classification: Product (as presently constituted) has the RCRA characteristic of ignitability and if discarded in its purchased form would have the hazardous waste number D001.

PRECAUTIONS

DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN
Long term exposure to vapors has caused cancer in laboratory animals. Keep away from heat, sparks and flame.
Avoid breathing vapor. Use only in well-ventilated locations.
Avoid contact with eyes and prolonged contact with skin.
Keep container closed. Wash thoroughly after handling.
FOR USE AS MOTOR FUEL ONLY

Requirements for Transportation, Handling and Storage:
Transport, handle and store in accordance with OSHA Regulation 1910.106, and applicable D.O.T. regulations.

DOT Proper Shipping Name: Gasoline
DOT Hazard Class (if applicable): Flammable liquid, UN 1203

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (°F) >90 Vapor Pressure >-350 (mmHg)

Specific Gravity 0.7-.77 (H_2O=1) Vapor Density 3-4.0 (Air=1)

Appearance and Odor Light straw to light red liquid

pH of undiluted product N.A. Solubility Slight

Percent Volatile by Volume 100 Evaporation N.D. ( )=1

Viscosity <1.4 cSt @100°F Other -

Hazardous Polymerizations ____ Occur X Do not occur

The Material Reacts Violently With: (If others is checked below, see additional comments on page 6 for futher details)

Air	Water	Heat	Strong Oxidizers	Others	None of These
		X	X		

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

COMPOSITION

Code No. 00375

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
*Gasoline consists mainly of straight chain and branched paraffinic hydrocarbons, olefins, cycloparaffins and aromatics. The benzene content normally varies from 0.2-3.5% with a typical value of 1.4%.	MIXTURE	300 ppm TWA ACGIH 100 ppm TWA Texaco	50.00 - 64.99
*Gasoline consists mainly of straight chain and branched paraffinic hydrocarbons, olefins, cycloparaffins and aromatics. The benzene content normally varies from 0.2-3.5% with a typical value of 1.4%.	MIXTURE	300 ppm TWA ACGIH 100 ppm TWA Texaco	35.00 - 49.99

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

SARA TITLE III

I. Title III Section 302/304 Extremely Hazardous Substance

Component	CAS No.	%	RQ (Lbs)	TPQ (Lbs)
NONE				

II. CERCLA Section 102(a) Hazardous Substance

Component	CAS No.	%	RQ (Lbs)

III. Title III Section 311 Hazard Categorization

Acute	Chronic	Fire	Pressure	Reactive	Not Applicable
X	X	X			

IV. Title III Section 313 Toxic Chemicals

Component	CAS No.	%
Benzene	71432	1-3.99
Toluene	108883	4-10.99
Ethylbenzene	100414	1-3.99
Xylene	1330207	4-10.99
Pseudocumene	95636	1-3.99
Methyl tert-butyl ether	1634044	0-10(vol%)

PRODUCT SHIPPING LABEL | Code No. 00375

00375 TEXACO UNLEADED PLUS

DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN
Long term exposure to vapors has caused cancer in laboratory animals. Keep away from heat, sparks and flame.
Avoid breathing vapor.Use only in well-ventilated locations.
Avoid contact with eyes and prolonged contact with skin.
Keep container closed. Wash thoroughly after handling.
FOR USE AS MOTOR FUEL ONLY

If swallowed, do not induce vomiting. Call a physician immediately. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Wash skin with soap and plenty of water. Gasoline-soaked clothing should be removed and laundered before reuse.

In case of fire use water spray, foam, dry chemical or CO2.

Chemical/Common Name	CAS No.	Range in %
*Gasoline consists mainly of straight chain and branched paraffinic hydrocarbons, olefins, cycloparaffins and aromatics. The benzene content normally varies from 0.2-3.5% with a typical value of 1.4%.	MIXTURE	50.00 - 64.99
*Gasoline consists mainly of straight chain and branched paraffinic hydrocarbons, olefins, cycloparaffins and aromatics. The benzene content normally varies from 0.2-3.5% with a typical value of 1.4%.	MIXTURE	35.00 - 49.99

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

HMIS
Health : 2 Reactivity : 0
Flammability: 4 Special : -

DOT Proper Shipping Name: Gasoline
DOT Hazardous Class : Flammable liquid, UN 1203

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-3400 (EXT. 204)

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:
Fuels/Lubricants/Antifreezes
call (914) 831-3400 (EXT.204)
Chemicals
call (512) 459-6543
Transportation Spills
call CHEMTREC (800) 424-9300

ADDITIONAL COMMENTS	Code No. 00375

STATE OF MICHIGAN CRITICAL MATERIALS ACT (REVISED 1988)
1.4% benzene; conversion factor 6.7 pounds per gallon

Other effects of inhalation include central nervous system effects such as contracted pupils, loss of reflexes, convulsions, seizures, sudden loss of consciousness, coma and sudden death. Other indications of overexposure are headaches, flushing of the face, nausea, mental confusion and depression, loss of appetite, blurred speech and difficulty in swallowing.
This product is intended for motor fuel only.

To determine applicability or effect of any law or regulation with respect to the product, users should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By R. T. Richards Title Mgr. Env. Conservation & Toxicology

Date 04-19-88 ☐ New ☒ Revised, Supersedes 06-24-87

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

TEXACO INC.
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms
00365 TEXACO UNLEADED

Manufacturer's Name
Texaco Inc.

Emergency Telephone No.
(914) 831-3400 ext. 204

Address
P.O. Box 509 Beacon, NY 12508

Chemical Name and/or Family or Description
Automotive Lead-Free Gasoline

THIS PRODUCT IS CLASSIFIED AS:
X HAZARDOUS BY DEFINITION NO.(S) 1,2,5,10,12
_____ NOT HAZARDOUS:
_____ ON ATTACHED EXPLANATION SHEETS

WARNING STATEMENT:
DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment (Type)

Eyes: Chemical type goggles or face shield optional.

Skin: Protective clothing such as uniforms, coveralls or lab coats should be worn. Launder or dry clean when soiled. Gloves resistant to chemicals and petroleum distillates required.

Inhalation: SCBA or supplied air respiratory protection required for entry into tanks, vessels, or other confined spaces containing gasoline.

Ventilation: Adequate to meet permissible concentrations.

Permissible Concentrations:

Air: The ACGIH (1987-88) TWA for gasoline is 300ppm; Texaco recommends a TWA of 100ppm.

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes: Flush with water for fifteen minutes.

Skin: Wash exposed areas with soap and water.

Ingestion: Do NOT induce vomiting. May cause chemical pneumonitis. Call a physician.

Inhalation: Should symptoms noted under physiological effects occur, remove to fresh air. If not breathing, apply artificial respiration.

Other Instructions: Remove gasoline-soaked clothing.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

PHYSIOLOGICAL EFFECTS:

Code No. 0036S

Effects of Exposure

Acute:

Eyes: Causes slight-moderate eye irritation.

Skin: Moderately irritating; causes redness, edema, or drying of the skin.

Respiratory System: May cause dizziness, irritation of eyes, nose and throat, vomiting, bluish color of the skin, and CNS effects. See A.C., p.6.

Chronic: Recent studies with laboratory animals have shown that gasoline vapors caused kidney damage and kidney cancer in rats and liver cancer in mice.

Other: -

Sensitization Properties:

Skin: Yes ___ No X Unknown ___ Respiratory: Yes ___ No X Unknown ___

Median Lethal Dose (LD_{50} LC_{50}) (Species)

Oral: LD50 = 18.75 ml/kg (rat), practically nontoxic

Inhalation: N.D.

Dermal: LD > 5 ml/kg (rabbit), practically nontoxic

Other: N. D.

Irritation Index, Estimation of Irritation (Species)

Skin: 0.98/8.0 (rabbit), slightly irritating

Eyes: 0/110 (rabbit), no appreciable effect

Symptoms of Exposure: See above.

FIRE PROTECTION INFORMATION

Ignition Temp. °F. 850 F

Flash Point °F. (Method) -40F (COC)

Flammable Limits (%) Lower 1.4% Upper 7.6%

Products Evolved When Subjected to Heat or Combustion:

Carbon monoxide and carbon dioxide may be formed on burning in limited air supply.

Recommended Fire Extinguishing Agents And Special Procedures:

According to the National Fire Protection Association Guide 325M, use dry chemical, foam or carbon dioxide. Water may be ineffective on the flames, but water should be used to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for the persons attempting to stop the leak.

Unusual or Explosive Hazards:

Flowing gasoline can be ignited by self-generated static electricity; use adequate grounding.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

ENVIRONMENTAL PROTECTION

Code No.: 00365

Waste Disposal Method:
Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures and processes may change classification to non-hazardous or hazardous for reasons other than, or in addition to ignitability. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Eliminate all ignition sources including internal combustion engines and power tools. Ventilate area. Avoid breathing vapor. Use SCBA or supplied-air mask for large spills in confined areas. Contain spill if possible. Remove with inert absorbent.

Remarks:
Waste Classification: Product (as presently constituted) has the RCRA characteristic of ignitability and if discarded in its purchased form would have the hazardous waste number D001.

PRECAUTIONS

DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN
Long term exposure to vapors has caused cancer in laboratory animals. Keep away from heat, sparks and flame.
Avoid breathing vapor. Use only in well-ventilated locations.
Avoid contact with eyes and prolonged contact with skin.
Keep container closed. Wash thoroughly after handling.
FOR USE AS MOTOR FUEL ONLY

Requirements for Transportation, Handling and Storage:
Transport, handle and store in accordance with OSHA Regulation 1910.106, and applicable D.O.T. regulations.

DOT Proper Shipping Name: Gasoline
DOT Hazard Class (if applicable): Flammable liquid, UN 1203

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (°F) >90 Vapor Pressure >-350 (mmHg)

Specific Gravity 0.7-.77 (H_2O=1) Vapor Density 3-4.0 (Air=1)

Appearance and Odor Light straw to light red liquid

pH of undiluted product N.A. Solubility slight

Percent Volatile by Volume 100 Evaporation N.D. ( )=1

Viscosity <1.4 cSt @ 100F Other -

Hazardous Polymerizations _____ Occur X Do not occur

The Material Reacts Violently With: (If others is checked below, see additional comments on page 6 for futher details)

Air	Water	Heat	Strong Oxidizers	Others	None of These
		X	X		

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

COMPOSITION

Code No. 00365

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
*Gasoline consists mainly of straight chain and branched paraffinic hydrocarbons, olefins, cycloparaffins and aromatics. The benzene content normally varies from 0.2-3.5% with a typical value of 1.4%.	MIXTURE	300 ppm TWA ACGIH 100 ppm TWA Texaco	95.00 - 99.99

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

SARA TITLE III

I. Title III Section 302/304 Extremely Hazardous Substance

Component	CAS No.	%	RQ (Lbs)	TPQ (Lbs)
NONE				

II. CERCLA Section 102(a) Hazardous Substance

Component	CAS No.	%	RQ (Lbs)
NOT APPLICABLE			

III. Title III Section 311 Hazard Categorization

Acute	Chronic	Fire	Pressure	Reactive	Not Applicable
X	X	X			

IV. Title III Section 313 Toxic Chemicals

Component	CAS No.	%
Benzene	71432	1-3.99
Toluene	108883	4-10.99
Ethylbenzene	100414	1-3.99
Xylene	1330207	4-10.99
Pseudocumene	95636	1-3.99
Methyl tert-butyl ether	1634044	0-10(vol%)

PRODUCT SHIPPING LABEL | Code No. 00365

00365 TEXACO UNLEADED

DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN
Long term exposure to vapors has caused cancer in laboratory animals. Keep away from heat, sparks and flame.
Avoid breathing vapor.Use only in well-ventilated locations.
Avoid contact with eyes and prolonged contact with skin.
Keep container closed. Wash thoroughly after handling.
FOR USE AS MOTOR FUEL ONLY

If swallowed, do not induce vomiting. Call a physician immediately. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Wash skin with soap and plenty of water. Gasoline-soaked clothing should be removed and laundered before reuse.

In case of fire use water spray, foam, dry chemical or CO2.

Chemical/Common Name	CAS No.	Range in %
*Gasoline consists mainly of straight chain and branched paraffinic hydrocarbons, olefins, cycloparaffins and aromatics. The benzene content normally varies from 0.2-3.5% with a typical value of 1.4%.	MIXTURE	95.00 - 99.99

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

HMIS
Health : 2 Reactivity : 0
Flammability: 4 Special : -

DOT Proper Shipping Name: Gasoline
DOT Hazardous Class : Flammable liquid, UN 1203

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-3400 (EXT. 204)

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:
Fuels/Lubricants/Antifreezes
call (914) 831-3400 (EXT.204)
Chemicals
call (512) 459-6543
Transportation Spills
call CHEMTREC (800) 424-9300

ADDITIONAL COMMENTS	Code No. 00365

STATE OF MICHIGAN CRITICAL MATERIALS ACT (REVISED 1988)
1.4% benzene; conversion factor 6.7 pounds per gallon

Other effects of inhalation include central nervous system effects such as contracted pupils, loss of reflexes, convulsions, seizures, sudden loss of consciousness, coma and sudden death. Other indications of overexposure are headaches, flushing of the face, nausea, mental confusion and depression, loss of appetite, blurred speech and difficulty in swallowing.
This product is intended for motor fuel only.

To determine applicability or effect of any law or regulation with respect to the product, users should consult his legal advisor or the appropriate government agency. Texaco does not undertake to furnish advice on such matters.

By R. T. Richards Title Mgr. Env. Conservation & Toxicology

Date 04-19-88 ☐ New ☒ Revised, Supersedes 11-21-86

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

TEXACO INC.
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms
00456 TEXACO DIESEL 2

Manufacturer's Name
Texaco Inc.

Emergency Telephone No.
(914) 831-3400 ext. 204

Address
P.O. Box 509 Beacon, NY 12508

Chemical Name and/or Family or Description
Diesel Fuel

THIS PRODUCT IS CLASSIFIED AS:
X HAZARDOUS BY DEFINITION NO.(S) 1,5,7,9,10
____ NOT HAZARDOUS:
____ ON ATTACHED EXPLANATION SHEETS

WARNING STATEMENT:
DANGER! CAUSES SEVERE SKIN BURNS
MAY BE HARMFUL IF INHALED OR ABSORBED THROUGH SKIN
COMBUSTIBLE
USE ONLY AS A FUEL

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment (Type)

Eyes: Chemical type goggles or face shield optional.

Skin: Exposed employes should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly. Gloves resistant to chemicals and petroleum distillates recommended.

Inhalation: Supplied air respiratory protection for cleaning large spills or upon entry into tanks, vessels, or other confined spaces.

Ventilation: Normal

Permissible Concentrations:

Air: None established.

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes: As with most foreign materials, should eye contact occur, flush eyes with plenty of water.

Skin: Wash exposed areas with soap and water.

Ingestion: Do NOT induce vomiting. Aspiration may cause chemical pneumonia.

Inhalation: Should symptoms noted under physiological effects occur, remove to fresh air. If not breathing, apply artificial respiration.

Other Instructions: None.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

PHYSIOLOGICAL EFFECTS:

Code No. 00456

Effects of Exposure

Acute:

Eyes: Believed to be minimally irritating.

Skin: Primary skin irritant; extremely irritating to skin with burns and blistering possible.

Respiratory System: May cause symptoms of drowsiness or narcosis from inhalation of high vapor concentrations.

Chronic: See Additional Comments, page 6.

Other: -

Sensitization Properties:

Skin: Yes ___ No X Unknown ___ Respiratory: Yes ___ No ___ Unknown X

Median Lethal Dose (LD_{50} LC_{50}) (Species)

Oral: Similar product 9.0 ml/kg (rat); practically non-toxic

Inhalation: N.D.

Dermal: Similar product >5 g/kg (rabbit); practically non-toxic

Other: N. D.

Irritation Index, Estimation of Irritation (Species)

Skin: Similar product 6.9/8.0 (rabbit); extremely irritating

Eyes: Similar product <15/110 (rabbit); no appreciable effect

Symptoms of Exposure: See above

FIRE PROTECTION INFORMATION

Ignition Temp. °F. 500 Flash Point °F. (Method) 160 F (PM)

Flammable Limits (%) Lower 0.52 Upper 4.10

Products Evolved When Subjected to Heat or Combustion:

Carbon monoxide and carbon dioxide may be formed on burning in limited air supply.

Recommended Fire Extinguishing Agents And Special Procedures:

According to the National Fire Protection Guide 49, combustible liquid fires may be extinguished by water spray, dry chemical, foam or carbon dioxide. Use water to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop the leak.

Unusual or Explosive Hazards:

None.

N.D. - Not Determined N.A. - Not Applicable

< - Less Than > - Greater Than

ENVIRONMENTAL PROTECTION

Code No. D0456

Waste Disposal Method:
Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures and processes may change classification to non-hazardous or hazardous for reasons other than, or in addition to ignitability. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Avoid all personal contact. Ventilate area. Avoid breathing vapor. Use self-contained breathing apparatus or supplied-air mask for large spills in confined area. Contain spill if possible. Wipe up or absorb on suitable material and shovel up.

Remarks:
Waste Classification: Product (as presently constituted) has the RCRA characteristic of ignitability and if discarded in its purchased form would have the hazardous waste number D001.

PRECAUTIONS

DANGER! CAUSES SEVERE SKIN BURNS
MAY BE HARMFUL IF INHALED OR ABSORBED THROUGH SKIN
COMBUSTIBLE
USE ONLY AS A FUEL

Middle Distillates have caused skin cancer and kidney damage in laboratory animals. Do not get on skin or clothing. Keep away from heat and flame. Use only in well-ventilated locations. Avoid prolonged breathing of mist or vapor. Keep head away from container when opening or dispensing. Wash thoroughly after handling.

Requirements for Transportation, Handling and Storage:
Store away from heat and open flame. Placard required only when material is contained in packaging or container that exceeds 110 gallons or in tank car or tank truck. Transport, handle and store in accordance with OSHA Regulation 1910.106 and applicable DOT Regulations.

DOT Proper Shipping Name: Fuel Oil, No. 2
DOT Hazard Class (if applicable): Combustible liquid NA1993

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (°F) 650 Vapor Pressure low (mmHg)

Specific Gravity .8521 (H_2O=1) Vapor Density N.D. (Air=1)

Appearance and Odor Clear and bright liquid

pH of undiluted product N.A. Solubility Nil

Percent Volatile by Volume N.D. Evaporation N.D. ( )=1

Viscosity 3.0 cSt @ 100 F Other -

Hazardous Polymerizations _____ Occur X Do not occur

The Material Reacts Violently With: (If others is checked below, see additional comments on page 6 for futher details)

Air	Water	Heat	Strong Oxidizers	Others	None of These
			X		

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

COMPOSITION

Code No. 00456

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
A complex mixture of hydrocarbons produced by crude oil distillation. Consists predominantly of hydrocarbons ranging from C-9 to C-20, and boiling in the range of 325-675F. The hydrotreated or hydrodesulfurized product also contains some hydrocarbons produced by the distillation of the products from catalytic cracking. The latter materials contain bicyclic and tricyclic aromatic hydrocarbons.	N.A.	None Established	100.00

Evaluation of this product indicates that it is hazardous according to OSHA Appendix A criteria and/or Texaco's hazard criteria.

SARA TITLE III

I. Title III Section 302/304 Extremely Hazardous Substance

Component	CAS No.	%	RQ (Lbs)	TPQ (Lbs)
NONE				

II. CERCLA Section 102(a) Hazardous Substance

Component	CAS No.	%	RQ (Lbs)
NONE			

III. Title III Section 311 Hazard Categorization

Acute	Chronic	Fire	Pressure	Reactive	Not Applicable
X	X	X			

IV. Title III Section 313 Toxic Chemicals

Component	CAS No.	%
NONE		

PRODUCT SHIPPING LABEL | Code No. 00456

00456 TEXACO DIESEL 2

DANGER! CAUSES SEVERE SKIN BURNS
MAY BE HARMFUL IF INHALED OR ABSORBED THROUGH SKIN
COMBUSTIBLE
USE ONLY AS A FUEL

Middle Distillates have caused skin cancer and kidney damage in laboratory animals. Do not get on skin or clothing. Keep away from heat and flame. Use only in well-ventilated locations. Avoid prolonged breathing of mist or vapor. Keep head away from container when opening or dispensing. Wash thoroughly after handling.

In case of contact, immediately flush skin with water while removing contaminated clothing and shoes. Call a doctor. Wash clothing before reuse. If swallowed, do not induce vomiting. Call a doctor immediately.

In case of fire use water spray, foam, dry chemical or CO2.

Chemical/Common Name	CAS No.	Range in %
A complex mixture of hydrocarbons produced by crude oil distillation. Consists predominantly of hydrocarbons ranging from C-9 to C-20, and boiling in the range of 325-675F. The hydrotreated or hydrodesulfurized product also contains some hydrocarbons produced by the distillation of the products from catalytic cracking. The latter materials contain bicyclic and tricyclic aromatic hydrocarbons.	N.A.	100.00

Evaluation of this product indicates that it is hazardous according to OSHA Appendix A criteria and/or Texaco's hazard criteria.

HMIS

Health	: 4	Reactivity	: 0
Flammability	: 2	Special	: -

DOT Proper Shipping Name: Fuel Oil, No. 2
DOT Hazardous Class : Combustible liquid NA1993

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-3400 (EXT. 204)

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:

Fuels/Lubricants/Antifreezes
call (914) 831-3400 (EXT.204)
Chemicals
call (512) 459-6543
Transportation Spills
call CHEMTREC (800) 424-9300

ADDITIONAL COMMENTS	Code No. 00456

STATE OF MICHIGAN CRITICAL MATERIALS ACT (REVISED 1988)
No critical materials present.

Studies with laboratory animals have shown that middle distillates cause skin cancer and kidney damage. This product is not intended for space heaters. Do not use in agricultural sprays.
Since middle distillates have been shown to be animal skin carcinogens, applications where there is high potential human exposure may be hazardous and should be avoided.

By R. T. Richards Title Mgr. Env. Conservation & Toxicology

Date 12-09-88 ☐ New ☒ Revised, Supersedes 04-19-88

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

TEXACO INC.
INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

Trade Name and Synonyms
00321 AVIATION GASOLINE 100 LL

Manufacturer's Name: Texaco Inc.
Emergency Telephone No.: (914) 831-3400 ext. 204

Address: P.O. Box 509 Beacon, NY 12508

Chemical Name and/or Family or Description: Aviation Gasoline

THIS PRODUCT IS CLASSIFIED AS:
X HAZARDOUS BY DEFINITION NO.(S) 1,2,7,10,12
____ NOT HAZARDOUS:
____ ON ATTACHED EXPLANATION SHEETS

WARNING STATEMENT:
DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment (Type)

Eyes: Chemical type goggles or face shield optional.

Skin: Protective clothing such as uniforms, coveralls or lab coats should be worn. Launder or dry clean when soiled. Gloves resistant to chemicals and petroleum distillates required.

Inhalation: SCBA or supplied air respiratory protection required for entry into tanks,vessels, or other confined spaces containing gasoline.

Ventilation: Adequate to meet permissible concentrations.

Permissible Concentrations:

Air: The ACGIH (1983) time weighted average concentration for gasoline is 300 ppm; Texaco recommends 100 ppm. Benzene TWA = 10 ppm.

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes: Flush with water for fifteen minutes.

Skin: Wash exposed areas with soap and water.

Ingestion: Do NOT induce vomiting. May cause chemical pneumonitis. Call a physician.

Inhalation: Should symptoms noted under physiological effects occur, remove to fresh air. If not breathing, apply artificial respiration.

Other Instructions: Remove gasoline-soaked clothing.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

PHYSIOLOGICAL EFFECTS:

Code No. 00321

Effects of Exposure

Acute:

Eyes: Causes slight-moderate eye irritation.

Skin: Moderately irritating; causes redness, edema, or drying of the skin.

Respiratory System: May cause dizziness, irritation of eyes, nose and throat, vomiting, bluish color of the skin, and CNS effects. See A.C., p.6.

Chronic: Recent studies with laboratory animals have shown that gasoline vapors caused kidney damage and kidney cancer in rats and liver cancer in mice.

Other: -

Sensitization Properties:

Skin: Yes ___ No ___ Unknown X Respiratory: Yes ___ No ___ Unknown X

Median Lethal Dose (LD_{50} LC_{50}) (Species)

Oral: lowest published lethal dose = 500 mg/kg (human)

Inhalation: lowest published toxic concentrations = 900 ppm (1 hr.-human)

Dermal: N.D.; believed to be G.T. 3 g/kg (rabbit); practically non-toxic

Other: N. D.

Irritation Index, Estimation of Irritation (Species)

Skin: N.D.; believed to be L.T. 0.5/8.0 (rabbit); no appreciable effect

Eyes: N.D.; believed to be L.T. 15/110 (rabbit); no appreciable effect

Symptoms of Exposure: N.D.; See above

FIRE PROTECTION INFORMATION

Ignition Temp. °F. 824° F Flash Point °F. (Method) below 10 F COC

Flammable Limits (%) Lower N.D. Upper N.D.

Products Evolved When Subjected to Heat or Combustion:

Carbon monoxide and carbon dioxide may be formed on burning in limited air supply.

Recommended Fire Extinguishing Agents And Special Procedures:

According to the National Fire Protection Association Guide 325M, use dry chemical, foam or carbon dioxide. Water may be ineffective on the flames, but water should be used to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for the persons attempting to stop the leak.

Unusual or Explosive Hazards:

Flowing gasoline can be ignited by self-generated static electricity; use adequate grounding.

N.D. - Not Determined N.A. - Not Applicable

< - Less Than > - Greater Than

ENVIRONMENTAL PROTECTION

Code No. 00321

Waste Disposal Method:
Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures and processes may change classification to non-hazardous or hazardous for reasons other than, or in addition to ignitability and lead toxicity. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Eliminate all ignition sources including internal combustion engines and power tools. Ventilate area. Avoid breathing vapor. Use SCBA or supplied-air mask for large spills or in confined areas. Contain spill if possible. Remove with inert absorbant.

Remarks:
Waste Classification: Product (as presently constituted) has the RCRA characteristic of ignitability and lead toxicity and if discarded in its purchased form would have the hazardous waste numbers D001 and D008.

PRECAUTIONS

DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN
Long term exposure to vapors has caused cancer in laboratory animals. Keep away from heat, sparks and flame.
Avoid breathing vapor. Use only in well-ventilated locations.
Avoid contact with eyes and prolonged contact with skin.
Keep container closed. Wash thoroughly after handling.
USE AS AVIATION FUEL ONLY; CONTAINS LEAD-ANTIKNOCK COMPOUNDS

Requirements for Transportation, Handling and Storage:
Transport, handle and store in accordance with OSHA Regulation 1910.106, and applicable D.O.T. regulations.

DOT Proper Shipping Name: Gasoline
DOT Hazard Class (if applicable): Flammable liquid UN1203

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (°F) N.D. Vapor Pressure N.D. (mmHg)

Specific Gravity N.D. (H_2O=1) Vapor Density N.D. (Air=1)

Appearance and Odor BLUE LIQUID

pH of undiluted product N.D. Solubility N.D.

Percent Volatile by Volume N.D. Evaporation N.D. ( )=1

Viscosity N.D. Other –

Hazardous Polymerizations ____ Occur X Do not occur

The Material Reacts Violently With: (If others is checked below, see additional comments on page 6 for futher details)

Air	Water	Heat	Strong Oxidizers	Others	None of These
		X	X		

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

COMPOSITION

Code No. 00321

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
*Aviation gasoline consists mainly of highly branched paraffinic hydrocarbons and aromatics. The benzene content varies from none to 0.1%. The lead content may vary in compliance with ASTM and United States Surgeon General regulations.		100 ppm TWA - Texaco	100.00

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

SARA TITLE III

I. Title III Section 302/304 Extremely Hazardous Substance

Component	CAS No.	%	RQ (Lbs)	TPQ (Lbs)
Tetraethyllead	78002	0.1-0.99	10	100

II. CERCLA Section 102(a) Hazardous Substance

Component	CAS No.	%	RQ (Lbs)
Tetraethyllead	78002	0.1-0.99	10

III. Title III Section 311 Hazard Categorization

Acute	Chronic	Fire	Pressure	Reactive	Not Applicable
X	X	X			

IV. Title III Section 313 Toxic Chemicals

Component	CAS No.	%
Benzene	71432	<1.0

PRODUCT SHIPPING LABEL | Code No. 00321

00321 AVIATION GASOLINE 100 LL

DANGER! EXTREMELY FLAMMABLE
HARMFUL OR FATAL IF SWALLOWED
MAY BE HARMFUL IF INHALED; MAY CAUSE IRRITATION
MAY BE HARMFUL IF ABSORBED THROUGH SKIN
Long term exposure to vapors has caused cancer in laboratory animals. Keep away from heat, sparks and flame.
Avoid breathing vapor.Use only in well-ventilated locations.
Avoid contact with eyes and prolonged contact with skin.
Keep container closed. Wash thoroughly after handling.
USE AS AVIATION FUEL ONLY; CONTAINS LEAD-ANTIKNOCK COMPOUNDS

If swallowed, DO NOT induce vomiting.
Call a doctor immediately.
In case of contact,immediately flush eyes with plenty of water for at least 15 minutes.
Wash skin with soap and plenty of water.
Gasoline-soaked clothing should be removed and laundered before reuse.

In case of fire use water spray, foam, dry chemical or CO2.

Chemical/Common Name	CAS No.	Range in %
*Aviation gasoline consists mainly of highly branched paraffinic hydrocarbons and aromatics. The benzene content varies from none to 0.1%. The lead content may vary in compliance with ASTM and United States Surgeon General regulations.		100.00

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

HMIS
Health : 2 Reactivity : 0
Flammability: 4 Special : -

DOT Proper Shipping Name: Gasoline
DOT Hazardous Class : Flammable liquid UN1203

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-3400 (EXT. 204)

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:
Fuels/Lubricants/Antifreezes
call (914) 831-3400 (EXT.204)
Chemicals
call (512) 459-6543
Transportation Spills
call CHEMTREC (800) 424-9300

ADDITIONAL COMMENTS	Code No. 00321

STATE OF MICHIGAN CRITICAL MATERIALS ACT (REVISED 1988)
2.1 g/gal lead; 0.1% benzene; conversion factor 6.7 lbs/gal.

Other effects of inhalation include central nervous system effects such as contracted pupils, loss of reflexes, convulsions, seizures, sudden loss of consciousness, coma and sudden death. Other indications of overexposure are headaches, flushing of the face, nausea, mental confusion and depression, loss of appetite, blurred speech and difficulty in swallowing.
This product is intended for motor fuel only.

By R. T. Richards Title Mgr. Env. Conservation & Toxicology
Date 04-19-88 ☐ New ☒ Revised, Supersedes 10-09-87

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

DU PONT

MATERIAL SAFETY DATA SHEET

MATERIAL IDENTIFICATION

NUMBER : 1533PC
NAME : DMA-54

CHEMICAL FAMILY : AMINE AMIDE CARBOXYLATE
TRADE NAMES AND SYNONYMS :
DUPONT MULTIFUNCTIONAL GASOLINE ADDITIVE NO. 54

DUPONT REGISTRY NUMBER : 237508
TSCA INVENTORY STATUS : Reported/Included
NPCA-HMIS RATING : Health: 3 Flammability: 3 Reactivity: 0
Personal Protection rating to be supplied by user depending on use conditions.
MANUFACTURER/DISTRIBUTOR: E.I. du Pont de Nemours & Co., Inc.
1007 Market Street
Wilmington, DE 19898
PRODUCT INFORMATION PHONE : 1-(800)441-7515
TRANSPORTATION EMERGENCY PHONE : 1-(800)424-9300
MEDICAL EMERGENCY PHONE : 1-(800)441-3637

****

COMPONENTS

Material	CAS Number	%
NJ TRADE SECRET REGISTRY # 00850201001-5073 P		40-50
*XYLENE	1330-20-7	20-30
*ETHYLBENZENE	100-41-4	0-5
*METHYL ALCOHOL	67-56-1	10-20
NJ TRADE SECRET REGISTRY # 00850201001-5074 P		0-10
DEHAZE RESIN	NOT AVAIL.	0-5

* Regulated as a toxic chemical under section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1980 and 40 CFR part 372.

****

PHYSICAL DATA

Boiling Point : IBP 65 deg C at 760 mm Hg.
Odor : Hydrocarbon
Form : Liquid, Clear
Color : Amber
Specific Gravity : 0.91 at 16 deg C

(PHYSICAL DATA - CONTINUED)

Solubility in H2O: Methanol portion

****

HAZARDOUS REACTIVITY

Instability : Stable.
Incompatibility : None reasonably foreseeable.
Decomposition : Decomposition will not occur.
Polymerization : Polymerization will not occur.

****

FIRE AND EXPLOSION DATA

Flash Point : 10 deg C (50 deg F)
Method : PMCC
Vapor Pressure: 1.2 psi @ 21C (70F)
2.8 psi @ 38C (100F)
9.0 psi @ 55C (130F)

FIRE AND EXPLOSION HAZARDS

Flammable liquid.

EXTINGUISHING MEDIA

Water Spray. Chemical Foam. Dry Chemical. CO2.

SPECIAL FIRE FIGHTING INSTRUCTIONS

Evacuate personnel to a safe area.

****

HEALTH HAZARD INFORMATION

Inhalation 6 hr. LC50: 3,907 ppm in mice (xylene solvent) - very low toxicity
Skin absorption LD50: 15,800 mg/kg in rabbits (methanol solvent) - very low toxicity
Oral ALD: > 25,000 mg/kg in rats - very low toxicity

The product is a severe skin irritant, contains eye irritants, and is a mild skin sensitizer in animals. Toxic effects described in animals from short exposures by inhalation, ingestion, or skin contact are largely attributable to the Methanol and Xylene content and include anaesthetic effects, liver effects, blindness, and acidosis. Animal testing with Methanol indicates that this product does not have mutagenic effects. Methanol produced developmental effects in the offspring of rats exposed by inhalation to levels of 10,000 or 20,000 ppm during pregnancy. Behavioral effects were observed in the offspring of rats exposed to 2500 mg/kg/day in their drinking water (equivalent to human ingestion of 150 mL, a dose expected to be fatal). Because

(HEALTH HAZARD INFORMATION - CONTINUED)

maternal effects in humans would also occur at these high oral and inhalation concentrations, it is concluded that methanol is not a significant hazard for the conceptus. Xylenes demonstrate no mutagenic activity, while some tests in rats demonstrated increased numbers of morphologically abnormal sperm at high dosage levels. Otherwise no animal test reports are available on the product or its components to define carcinogenic, or reproductive hazards.

Human health effects of overexposure by inhalation, ingestion, skin or eye contact may initially include eye irritation with discomfort, tearing, or blurring of vision; nonspecific discomfort, such as nausea, headache, or weakness; or temporary nervous system depression with anaesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness. Higher Methanol exposures may lead to abnormal liver function as detected by laboratory tests. The product contains a large percentage of Methanol. As little as 100 ml ingested Methanol may cause blindness or fatality. Skin permeation of Methanol can occur in amounts capable of producing the effects of systemic toxicity. There are no reports of human sensitization to the product or its ingredients. Individuals with preexisting diseases of the central nervous system, retina or liver may have increased susceptibility to the toxicity of excessive exposures.

Carcinogenicity

None of the components in this chemical is listed by IARC, NTP, OSHA, or ACGIH as a carcinogen.

Exposure Limits for DMA-54

TLV ** (ACGIH) : None Established
PEL (OSHA) : None Established

Other Applicable Exposure Limits:

Exposure Limits for XYLENE

AEL * (DuPont): None Established
TLV ** (ACGIH) : 100 ppm, 435 mg/m3
STEL 150 ppm, 655 mg/m3
PEL (OSHA) : 100 ppm, 435 mg/m3

Exposure Limits for ETHYLBENZENE

AEL * (DuPont): None Established
TLV ** (ACGIH) : 100 ppm, 435 mg/m3
STEL 125 ppm, 545 mg/m3

(HEALTH HAZARD INFORMATION - CONTINUED)

PEL (OSHA) : 100 ppm, 435 mg/m3

Exposure Limits for METHYL ALCOHOL

AEL *	(DuPont):	200 ppm - 8 & 12 Hr. TWA, skin
TLV **	(ACGIH) :	200 ppm, 260 mg/m3, skin
		STEL 250 ppm, 310 mg/m3, skin
PEL	(OSHA) :	200 ppm, 260 mg/m3

* AEL is DuPont's Acceptable Exposure Limit.
** TLV is a registered trademark.

Safety Precautions

Avoid breathing vapors or mist. Avoid contact with eyes. Avoid contact with skin. Avoid contact with clothing. Wash thoroughly after handling.

****

FIRST AID

INHALATION - If large amounts are inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen, and call a physician.

SKIN CONTACT - Flush skin with water after excessive contact.

EYE CONTACT - In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION - May be fatal or cause blindness if swallowed. Induce vomiting immediately by giving two glasses of water and sticking finger down throat. Provide 100 ml of 100-proof ethyl alcohol (grain alcohol) in 2000 ml water as an antidote and call a physician. Never give anything by mouth to an unconscious person.

Gastric lavage may be advisable for significant ingestions.

****

PROTECTION INFORMATION

Generally Applicable Control Measures and Procedures

Use only with adequate ventilation. Keep away from heat, sparks and flames. Keep container tightly closed. Do not consume food, drink or tobacco in the areas where they may become contaminated with this material.

Personal Protective Equipment

(PROTECTION INFORMATION - CONTINUED)

Eye/Face : Coverall chemical splash goggles.
Protective Gloves : Buna N rubber gloves.

****

DISPOSAL INFORMATION

Aquatic Toxicity :
SEE INFORMATION AND REFERENCES

Spill, Leak, or Release

NOTE: Review FIRE AND EXPLOSION HAZARDS and SAFETY PRECAUTIONS before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up.
Soak up with sawdust, sand, oil dry or other absorbent material.

Waste Disposal

Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

****

SHIPPING INFORMATION

DOT
Proper Shipping Name :
FLAMMABLE LIQUID, N.O.S.
(CONTAINS XYLENE AND METHANOL)
Hazard Class : FLAMMABLE LIQUID
UN/NA No. : 1993

Shipping Containers
Steel Drums : DOT 17E

****

STORAGE CONDITIONS

Store in well ventilated area. Keep container tightly closed. Store in accordance with National Fire Protection Assn regulations.

****

TITLE III HAZARD CLASSIFICATIONS

Acute: Yes
Chronic: No
Fire: Yes
Reactivity: No
Pressure: No

****

ADDITIONAL INFORMATION AND REFERENCES

AQUATIC TOXICITY:

Methanol has very low toxicity (96 hr. LC50 > 5,000 mg/l.)
96 hr. LC50, fathead minnows: 28.1 g/l.

(ADDITIONAL INFORMATION AND REFERENCES - CONTINUED)

Xylene is moderately toxic (96 hr. LC50 1-50 mg/l).
96 hr. LC50, fathead minnows: 27-42 mg/l.

LIT. NO. E79794-2

This product contains trace quantities (<270ppm) of Benzene, a chemical known to the state of California to cause cancer.

MASSACHUSETTS: All known ingredients of this product which are also on the Massachusetts Right-to-Know list are fully disclosed in the "Components" section on the first page of this MSDS.

****

Date of latest Revision : 88/12/29
Responsibility for MSDS : D. C. ZIMMERMAN
CHEMICALS & PIGMENTS
WILMINGTON, DE 19898
800-441-9442

CITGO Petroleum Corporation
P.O. Box 3758
Tulsa, Oklahoma 74102

Material Safety Data Sheet

Trade Name: **CITGO Regular Gasoline**

Commodity Code: **02-002**

Synonyms: Motor Gasoline, Petrol, Gas

Date: February 10, 1989

CAS No.: Mixture
(Refer to Section 1)

Technical Contact: (918) 495-5933
Medical Emergency: (318) 491-6215
Chemtrec Emergency: (800) 424-9300

Citgo Index No.: **0082**

Material Hazard Evaluation

(Per OSHA Hazard Communication
Standard [29 CFR Part 1910.1200]) (OHCS)

Health: DANGER: Contains *Benzene* - cancer hazard.
Harmful or fatal if swallowed. Vapors hazardous.

Precautionary Statement: DANGER: Extremely flammable liquid. Do not siphon by mouth. If swallowed, do not induce vomiting - call physician immediately.

HMIS Rating[1]: Health 1 Flammability 3 Reactivity 0

1.0 Generic Composition / Components

Components	CAS #	%	Hazard Data
Petroleum Distillates	Mixture	85-98	Oral: LDLo(human): 0.5-5.0g/kg
Benzene	71-43-2	< 5	OSHA PEL: TWA 1 ppm Oral: LD50(ms): 4700mg/kg.
Lower Aliphatic Alcohols	Mixture	0-11	Oral: LD50(rat): > 5.0g/kg Dermal LD50(rat): > 5.0g/kg Inhn TClo(Human): ~25 ppm
Lower Aliphatic Ethers	Mixture	0-15	Oral LD50(rat): 4 ml/kg Dermal LD50(rbt): > 10 ml/kg Eyes: Mild irritant

The addition of lower aliphatic ethers, alcohols or organic lead compounds, as used here, do not alter the product's toxicity.

[1] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA and NPCA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

2.0 Physical Data

Physical Hazard Classification (Per 29 CFR Part 1910.1200)

No	Combustible	Yes	Flammable	No	Pyrophoric
No	Compressed Gas	No	Organic Peroxide	No	Reactivity
No	Explosive	No	Oxidizer	Yes	Stable

Boiling Point, 760 mmHg, °C(°F):	35(95)
Specific Gravity (60/60°F) (H_2O = 1):	0.75
Vapor Density (Air = 1):	3-4
% Volatiles by Volume:	High
Melting Point, °C(°F):	NA
Vapor Pressure, mmHg (25°C):	510-760
Solubility in H_2O, % by Weight:	Negligible
Evaporation Rate (Butyl Acetate = 1):	< 1
pH of Undiluted Product:	ND
Appearance and Odor:	Bronze clear liquid - gasoline odor

3.0 Fire and Explosion Data

Flash Point, COC, °C(°F)	-43(-45)
Flash Point, PMC, °C(°F)	ND
Fire Point, COC, °C(°F)	ND
NFPA Rating[2]	Health: **1** Flammability: **3** Reactivity: **0**
Flammable Limits (% by volume in air)	Lower: **1.4** Upper: **7.6**
Extinguishing Media	CO_2, dry chemical, foam, water fog
Special Fire Fighting Procedure	Wear self-contained breathing apparatus when in a confined area.
Unusual Fire or Explosion Hazard	Material is highly volatile and emits vapors which may be ignited by other ignition sources.

4.0 Reactivity Data

Stability:	Stable
Conditions Contributing to Instability:	High Temperature, flame.
Incompatibility:	Strong oxidants, strong acids, caustics.
Hazardous Decomposition Products: (thermal, unless otherwise specified)	CO_2, (CO under incomplete combustion).
Conditions Contributing to Hazardous Polymerization:	None.

[2] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

5.0 Spill or Leak Procedures

Procedures if Material is Spilled:

- Remove sources of ignition, ventilate area.
- ***Small spills***: Take up with non-combustible absorbant such as fullers earth or sand. Place into containers for later disposal.
- ***Large spills***: Contain spill in earthen dikes for later recovery. Control ignition sources around spill area. A fire-fighting foam blanket on top of spill will reduce vapor release and the danger of fire.
- Report spills as required to appropriate authorities.

Waste Disposal:

- It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal.
- Check before disposing to be sure you are in compliance with all applicable laws and regulations.
- Chemtrec/RCRA Emergency Hotline Number: 800-424-9346.

Protective Measures During Repair and Maintenance of Contaminated Equipment:

- Refer to Section VII - Special Protection Information.
- Provide sufficient ventilation, eliminate all ignition sources.
- Wash exposed skin thoroughly with soap and water.
- Remove soiled clothing.
- Use impervious gloves if extended, direct contact is expected.

6.0 Health Hazard Data

Health Hazard Classification

(Per 29 CFR Part 1910.1200)

No	Carcinogen	No	Corrosive
Yes	Animal Carcinogen	Yes	Irritant
No	Suspect Carcinogen	No	Sensitizer
No	Mutagen	No	Teratogen
No	Highly Toxic	Yes	Target Organ: Hematopoietic, respiratory system, skin
No	Toxic		

Product listed as Carcinogen or Potential Carcinogen by:

NTP No IARC No OSHA No Other Yes (API studies)

Toxicity summary: Moderately toxic: 0.3 to 8 oz. may be a lethal oral dose for 150 lb. human.

Major Route(s) of Entry: Vapors, inhalation, and skin contact.

Acute Exposure Symptoms

Inhalation:	Moderate risk of vapor intoxication. Major risk in enclosed spaces with poor ventilation. Euphoria, lung irritation and edema, headache, dizziness, drowsiness, convulsions, coma, cyanosis, generalized depression.
Dermal Contact:	Defatting with drying of skin.
Eye Contact:	Irritant.
Ingestion:	Burning of mouth and upper GI tract, vomiting and diarrhea. Above 1 oz. or less than 1 oz. with retention: general depression, sedation, respiratory depression, coma.

Chronic Exposure

Skin:	Drying of skin (dermatitis)
Inhalation:	Benzene has been classified as a leukemogen, and may produce anemia, leukemia from repeated or prolonged exposure to high concentrations. The American Petroleum Institute sponsored chronic inhalation studies of unleaded gasoline vapors indicating unleaded gasoline is carcinogenic to laboratory animals.

Other Special Effects

None

Medical Conditions Aggravated by Exposure

Pre-existing dermatoses.

First Aid and Emergency Procedures for Acute Effect

Inhalation:	Remove to fresh air. Respiratory support, if necessary. Seek medical aid.
Dermal:	Wash with soap and water. Do not wear heavily contaminated clothing before cleaning.
Eyes:	Flush with large volumes of water. Seek medical aid.
Ingestion:	Do not induce vomiting. Seek medical aid.

Notes to Physician: This is a low viscosity material with a Saybolt viscosity at 100°F of less than 40 SUS. Pulmonary high aspiration hazard, possibly producing lipoid pneumonia if swallowed and vomiting occurs. Use careful gastric lavage with tight fitting, cuffed endotracheal tube.

7.0 Special Protection Information

Ventilation Requirements:	Use in well ventilated area. In confined space, mechanical ventilation may be required to keep levels of certain components below mandated standards. Responsible individuals should evaluate air concentrations of specific regulated chemicals.
TLV:	TWA (Time Weighted Average): 300 ppm (900 mg/m^3) STEL (Short Term Exposure): 500 ppm (1500 mg/m^3) ACGIH-1987-88.
Specific Personal Protective Equipment:	If high vapor concentration is expected, use approved organic respirator.
Eyes:	Safety glasses, or chemical goggles, with side shields, if splashing is anticipated.
Dermal:	Oil impervious gloves, such as Nitrile-Butadiene rubber gloves, if frequent or prolonged contact is expected.
Other Clothing or Equipment:	Wear body-covering garments to prevent prolonged or repeated direct dermal exposure. Remove gasoline soaked clothing since it presents a fire hazard. Launder before reuse. Treat gasoline generally as leukemogenic and potentially carcinogenic material.

8.0 Transportation and Special Precautions

Storage: Keep container tightly closed and away from heat and flame and strong oxiders (NFPA Class 1A Flammable). Do not store with strong oxidizers.

Caution: Empty containers may contain product residue which could produce flammable and explosive vapors.

Consult appropriate Federal, State and Local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

DOT Information

Proper Shipping Name:	Gasoline.
Hazard Class:	Flammable Liquid.
Hazard Identification Number:	UN 1203.
Placard:	Flammable Liquid.
Packaging Exceptions/Restrictions:	Refer to: 49CFR173.118 49CFR173.119
Compatibility Category:	Group 33

9.0 Environmental Data

Product Name CITGO Regular Gasoline
Commodity Code: 02-002

SARA TITLE III

Section 313 - Toxic Chemicals

This product contains toxic chemicals of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

Components	CAS#	%
Benzene	71-43-2	0-5
Tertiary Butyl Alcohol	75-65-0	0-10
Ethyl Benzene	100-41-4	0-5
Methyl-t-butyl ether	1634-04-4	0-15
Toluene	108-88-3	0-25
1,2,4 Trimethyl Benzene	95-63-6	0-5
Xylene (mixed isomers)	1330-20-7	0-25

Section 311 - Hazard Categories

No Not Applicable
Yes Acute (Immediate Health Hazard)
Yes Chronic (Delayed Health Hazard)
Yes Fire Hazard
No Sudden Pressure Release
No Reactivity Hazard

Section 302/(A) - Extremely Hazardous Substances

(RQ = Reportable Quantity)
(TPQ = Threshold Planning Quantity)

This product does not contain Extremely Hazardous Substances of Section 302/(A).

Component	CAS#	%	RQ lbs.	TPQ lbs.
None	-	-	-	-

Clean Water Act

Under Section 311 (b) (4) of the Clean Water Act, discharges of crude oil and petroleum products in any kind or form to surface waters must be immediately reported to the National Response Center: 800-424-8802.

Comprehensive Environmental, Response, Compensation & Liability Act (CERCLA) - Section 102 Hazardous Substances

Component	CAS#	%	RQ lbs.
None	-	-	-

Petroleum and petroleum fractions are excluded from the list of CERCLA hazardous substances by Section 101(14) of CERCLA.

10.0 Labeling

DANGER

Contains BENZENE - Cancer Hazard
Extremely flammable
Harmful or fatal if swallowed

Handling

Keep away from heat, sparks, and flames.
Keep container closed.
Do not breathe vapors.
Use only with adequate ventilation.
Do not siphon by mouth.

This product contains benzene and certain other hydrocarbons which are potentially toxic and carcinogenic. Avoid repeated or prolonged contact with skin.

First Aid

If swallowed, do not induce vomiting.
Call a physician immediately.
In case of contact, remove contaminated clothing immediately, and wash thoroughly with soap and water.

CITGO Petroleum Corporation
P.O. Box 3758
Tulsa, Oklahoma 74102

Material Safety Data Sheet

Trade Name: **CITGO Unleaded Gasoline**

Commodity Code: **04-001**

Synonyms: Motor Gasoline, Petrol, Gas

Date: February 10, 1989

CAS No.: Mixture
(Refer to Section 1)

Technical Contact: (918) 495-5933
Medical Emergency: (318) 491-6215
Chemtrec Emergency: (800) 424-9300

Citgo Index No.: **0083**

Material Hazard Evaluation

(Per OSHA Hazard Communication
Standard [29 CFR Part 1910.1200]) (OHCS)

Health: DANGER: Contains *Benzene* - cancer hazard.
Harmful or fatal if swallowed. Vapors hazardous.

Precautionary Statement: DANGER: Extremely flammable liquid. Do not siphon by mouth. If swallowed, do not induce vomiting - call physician immediately.

HMIS Rating[1]: Health 1 Flammability 3 Reactivity 0

1.0 Generic Composition / Components

Components	CAS #	%	Hazard Data
Petroleum Distillates	Mixture	85-98	Oral: LDLo(human): 0.5-5.0g/kg
Benzene	71-43-2	< 5	OSHA PEL: TWA 1 ppm Oral: LD50(ms): 4700mg/kg.
Lower Aliphatic Alcohols	Mixture	0-11	Oral: LD50(rat): > 5.0g/kg Dermal LD50(rat): > 5.0g/kg Inhn TClo(Human): ~ 25 ppm
Lower Aliphatic Ethers	Mixture	0-15	Oral LD50(rat): 4 ml/kg Dermal LD50(rbt): > 10 ml/kg Eyes: Mild irritant

Alcohols, alkylethers and similar additives, do not significantly alter the toxicity of Unleaded Gasoline.

[1] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA and NPCA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

2.0 Physical Data

Physical Hazard Classification (Per 29 CFR Part 1910.1200)

No	Combustible	Yes	Flammable	No	Pyrophoric
No	Compressed Gas	No	Organic Peroxide	No	Reactivity
No	Explosive	No	Oxidizer	Yes	Stable

Boiling Point, 760 mmHg, °C(°F):	35(95)
Specific Gravity (60/60°F) (H_2O = 1):	0.75
Vapor Density (Air = 1):	3-4
% Volatiles by Volume:	High
Melting Point, °C(°F):	NA
Vapor Pressure, mmHg (25°C):	510-760
Solubility in H_2O, % by Weight:	Negligible
Evaporation Rate (Butyl Acetate = 1):	< 1
pH of Undiluted Product:	ND
Appearance and Odor:	Light yellow or clear liquid - gasoline odor

3.0 Fire and Explosion Data

Flash Point, COC, °C(°F)	-43(-45)
Flash Point, PMC, °C(°F)	ND
Fire Point, COC, °C(°F)	ND
NFPA Rating[2]	Health: **1** Flammability: **3** Reactivity: **0**
Flammable Limits (% by volume in air)	Lower: **1.4** Upper: **7.6**
Extinguishing Media	CO_2, dry chemical, foam, water fog
Special Fire Fighting Procedure	Wear self-contained breathing apparatus when in a confined area.
Unusual Fire or Explosion Hazard	Material is highly volatile and emits vapors which may be ignited by other ignition sources.

4.0 Reactivity Data

Stability:	Stable
Conditions Contributing to Instability:	High Temperature, flame.
Incompatibility:	Strong oxidants, strong acids, caustics.
Hazardous Decomposition Products: (thermal, unless otherwise specified)	CO_2, (CO under incomplete combustion).
Conditions Contributing to Hazardous Polymerization:	None.

[2] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

5.0 Spill or Leak Procedures

Procedures if Material is Spilled:

- Remove sources of ignition, ventilate area.
- ***Small spills***: Take up with non-combustible absorbant such as fullers earth or sand. Place into containers for later disposal.
- ***Large spills***: Contain spill in earthen dikes for later recovery. Control ignition sources around spill area. A fire-fighting foam blanket on top of spill will reduce vapor release and the danger of fire.
- Report spills as required to appropriate authorities.

Waste Disposal:

- It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal.
- Check before disposing to be sure you are in compliance with all applicable laws and regulations.
- Chemtrec/RCRA Emergency Hotline Number: 800-424-9346.

Protective Measures During Repair and Maintenance of Contaminated Equipment:

- Refer to Section VII - Special Protection Information.
- Provide sufficient ventilation, eliminate all ignition sources.
- Wash exposed skin thoroughly with soap and water.
- Remove soiled clothing.
- Use impervious gloves if extended, direct contact is expected.

6.0 Health Hazard Data

Health Hazard Classification

(Per 29 CFR Part 1910.1200)

No	Carcinogen	No	Corrosive
Yes	Animal Carcinogen	Yes	Irritant
No	Suspect Carcinogen	No	Sensitizer
No	Mutagen	No	Teratogen
No	Highly Toxic	Yes	Target Organ: Hematopoietic, respiratory system, skin
No	Toxic		

Product listed as Carcinogen or Potential Carcinogen by:

NTP No IARC No OSHA No Other Yes (API studies)

Toxicity summary: Moderately toxic: 0.3 to 8 oz. may be a lethal oral dose for 150 lb. human.

Major Route(s) of Entry: Vapors, inhalation, and skin contact.

Acute Exposure Symptoms

Inhalation:	Moderate risk of vapor intoxication. Major risk in enclosed spaces with poor ventilation. Euphoria, lung irritation and edema, headache, dizziness, drowsiness, convulsions, coma, cyanosis, generalized depression.
Dermal Contact:	Defatting with drying of skin.
Eye Contact:	Irritant.
Ingestion:	Burning of mouth and upper GI tract, vomiting and diarrhea. Above 1 oz. or less than 1 oz. with retention: general depression, sedation, respiratory depression, coma.

Chronic Exposure

Skin:	Drying of skin (dermatitis)
Inhalation:	Benzene has been classified as a leukemogen, and may produce anemia, leukemia from repeated or prolonged exposure to high concentrations. The American Petroleum Institute sponsored chronic inhalation studies of unleaded gasoline vapors indicating unleaded gasoline is carcinogenic to laboratory animals.

Other Special Effects

None

Medical Conditions Aggravated by Exposure

Pre-existing dermatoses.

First Aid and Emergency Procedures for Acute Effect

Inhalation:	Remove to fresh air. Respiratory support, if necessary. Seek medical aid.
Dermal:	Wash with soap and water. Do not wear heavily contaminated clothing before cleaning.
Eyes:	Flush with large volumes of water. Seek medical aid.
Ingestion:	Do not induce vomiting. Seek medical aid.

Notes to Physician: This is a low viscosity material with a Saybolt viscosity at 100°F of less than 40 SUS. Pulmonary high aspiration hazard, possibly producing lipoid pneumonia if swallowed and vomiting occurs. Use careful gastric lavage with tight fitting, cuffed endotracheal tube.

7.0 Special Protection Information

Ventilation Requirements:	Use in well ventilated area. In confined space, mechanical ventilation may be required to keep levels of certain components below mandated standards. Responsible individuals should evaluate air concentrations of specific regulated chemicals.
TLV:	TWA (Time Weighted Average): 300 ppm (900 mg/m^3) STEL (Short Term Exposure): 500 ppm (1500 mg/m^3) ACGIH-1987-88.
Specific Personal Protective Equipment:	If high vapor concentration is expected, use approved organic respirator.
Eyes:	Safety glasses, or chemical goggles, with side shields, if splashing is anticipated.
Dermal:	Oil impervious gloves, such as Nitrile-Butadiene rubber gloves, if frequent or prolonged contact is expected.
Other Clothing or Equipment:	Wear body-covering garments to prevent prolonged or repeated direct dermal exposure. Remove gasoline soaked clothing since it presents a fire hazard. Launder before reuse. Treat gasoline generally as leukemogenic and potentially carcinogenic material.

8.0 Transportation and Special Precautions

Storage: Keep container tightly closed and away from heat and flame and strong oxiders (NFPA Class 1A Flammable). Do not store with strong oxidizers.

Caution: Empty containers may contain product residue which could produce flammable and explosive vapors.

Consult appropriate Federal, State and Local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

DOT Information

Proper Shipping Name:	Gasoline.
Hazard Class:	Flammable Liquid.
Hazard Identification Number:	UN 1203.
Placard:	Flammable Liquid.
Packaging Exceptions/Restrictions:	Refer to: 49CFR173.118 49CFR173.119
Compatibility Category:	Group 33

9.0 Environmental Data

Product Name CITGO Unleaded Gasoline
Commodity Code: 04-001

SARA TITLE III

Section 313 - Toxic Chemicals

This product contains toxic chemicals of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

Components	CAS#	%
Benzene	71-43-2	0-5
Tertiary Butyl Alcohol	75-65-0	0-10
Ethyl Benzene	100-41-4	0-5
Methyl-t-butyl ether	1634-04-4	0-15
Toluene	108-88-3	0-25
1,2,4 Trimethyl Benzene	95-63-6	0-5
Xylene (mixed isomers)	1330-20-7	0-25

Section 311 - Hazard Categories

No Not Applicable	Yes Fire Hazard
Yes Acute (Immediate Health Hazard)	No Sudden Pressure Release
Yes Chronic (Delayed Health Hazard)	No Reactivity Hazard

Section 302/(A) - Extremely Hazardous Substances

(RQ = Reportable Quantity)
(TPQ = Threshold Planning Quantity)

This product does not contain Extremely Hazardous Substances of Section 302/(A).

Component	CAS#	%	RQ lbs.	TPQ lbs.
None	-	-	-	-

Clean Water Act

Under Section 311 (b) (4) of the Clean Water Act, discharges of crude oil and petroleum products in any kind or form to surface waters must be immediately reported to the National Response Center: 800-424-8802.

Comprehensive Environmental, Response, Compensation & Liability Act (CERCLA) - Section 102 Hazardous Substances

Component	CAS#	%	RQ lbs.
None	-	-	-

Petroleum and petroleum fractions are excluded from the list of CERCLA hazardous substances by Section 101(14) of CERCLA.

10.0 Labeling

DANGER

Contains BENZENE - Cancer Hazard
Extremely flammable
Harmful or fatal if swallowed

Handling

Keep away from heat, sparks, and flames.
Keep container closed.
Do not breathe vapors.
Use only with adequate ventilation.
Do not siphon by mouth.

This product contains benzene and certain other hydrocarbons which are potentially toxic and carcinogenic. Avoid repeated or prolonged contact with skin.

First Aid

If swallowed, do not induce vomiting.
Call a physician immediately.
In case of contact, remove contaminated clothing immediately, and wash thoroughly with soap and water.

CITGO Petroleum Corporation
P.O. Box 3758
Tulsa, Oklahoma 74102

Material Safety Data Sheet

Trade Name: **CITGO Premium Unleaded Gasoline - 91 Octane**

Commodity Code: **04-101**

Synonyms: Motor Gasoline, Petrol, Gas

Date: February 10, 1989

CAS No.: Mixture
(Refer to Section 1)

Technical Contact: (918) 495-5933
Medical Emergency: (318) 491-6215
Chemtrec Emergency: (800) 424-9300

Citgo Index No.: **0084**

Material Hazard Evaluation

(Per OSHA Hazard Communication Standard [29 CFR Part 1910.1200]) (OHCS)

Health: DANGER: Contains *Benzene* - cancer hazard.
Harmful or fatal if swallowed. Vapors hazardous.

Precautionary Statement: DANGER: Extremely flammable liquid. Do not siphon by mouth. If swallowed, do not induce vomiting - call physician immediately.

HMIS Rating[1]: Health 1 Flammability 3 Reactivity 0

1.0 Generic Composition / Components

Components	CAS #	%	Hazard Data
Petroleum Distillates	Mixture	85-98	Oral: LDLo(human): 0.5-5.0g/kg
Benzene	71-43-2	< 5	OSHA PEL: TWA 1 ppm Oral: LD50(ms): 4700mg/kg.
Lower Aliphatic Alcohols	Mixture	0-11	Oral: LD50(rat): > 5.0g/kg Dermal LD50(rat): > 5.0g/kg Inhn TClo(Human): ~ 25 ppm
Lower Aliphatic Ethers	Mixture	0-15	Oral LD50(rat): 4 ml/kg Dermal LD50(rbt): > 10 ml/kg Eyes: Mild irritant

Addition of octane improvers does not alter the toxicity of this product.

[1] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA and NPCA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

2.0 Physical Data

Physical Hazard Classification (Per 29 CFR Part 1910.1200)

No	Combustible	Yes	Flammable	No	Pyrophoric
No	Compressed Gas	No	Organic Peroxide	No	Reactivity
No	Explosive	No	Oxidizer	Yes	Stable

Boiling Point, 760 mmHg, °C(°F):	35(95)
Specific Gravity (60/60°F) (H_2O = 1):	0.75
Vapor Density (Air = 1):	3-4
% Volatiles by Volume:	High
Melting Point, °C(°F):	NA
Vapor Pressure, mmHg (25°C):	510-760
Solubility in H_2O, % by Weight:	Negligible
Evaporation Rate (Butyl Acetate = 1):	< 1
pH of Undiluted Product:	ND
Appearance and Odor:	Light yellow or clear liquid - gasoline odor

3.0 Fire and Explosion Data

Flash Point, COC, °C(°F)	-43(-45)
Flash Point, PMC, °C(°F)	ND
Fire Point, COC, °C(°F)	ND
NFPA Rating[2]	Health: **1** Flammability: **3** Reactivity: **0**
Flammable Limits (% by volume in air)	Lower: **1.4** Upper: **7.6**
Extinguishing Media	CO_2, dry chemical, foam, water fog
Special Fire Fighting Procedure	Wear self-contained breathing apparatus when in a confined area.
Unusual Fire or Explosion Hazard	Material is highly volatile and emits vapors which may be ignited by other ignition sources.

4.0 Reactivity Data

Stability:	Stable
Conditions Contributing to Instability:	High Temperature, flame.
Incompatibility:	Strong oxidants, strong acids, caustics.
Hazardous Decomposition Products: (thermal, unless otherwise specified)	CO_2, (CO under incomplete combustion).
Conditions Contributing to Hazardous Polymerization:	None.

[2] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA guidelines.

5.0 Spill or Leak Procedures

Procedures if Material is Spilled:

- Remove sources of ignition, ventilate area.
- *Small spills*: Take up with non-combustible absorbant such as fullers earth or sand. Place into containers for later disposal.
- *Large spills*: Contain spill in earthen dikes for later recovery. Control ignition sources around spill area. A fire-fighting foam blanket on top of spill will reduce vapor release and the danger of fire.
- Report spills as required to appropriate authorities.

Waste Disposal:

- It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal.
- Check before disposing to be sure you are in compliance with all applicable laws and regulations.
- Chemtrec/RCRA Emergency Hotline Number: 800-424-9346.

Protective Measures During Repair and Maintenance of Contaminated Equipment:

- Refer to Section VII - Special Protection Information.
- Provide sufficient ventilation, eliminate all ignition sources.
- Wash exposed skin thoroughly with soap and water.
- Remove soiled clothing.
- Use impervious gloves if extended, direct contact is expected.

6.0 Health Hazard Data

Health Hazard Classification

(Per 29 CFR Part 1910.1200)

No	Carcinogen	No	Corrosive
Yes	Animal Carcinogen	Yes	Irritant
No	Suspect Carcinogen	No	Sensitizer
No	Mutagen	No	Teratogen
No	Highly Toxic	Yes	Target Organ: Hematopoietic, respiratory system, skin
No	Toxic		

Product listed as Carcinogen or Potential Carcinogen by:

NTP No IARC No OSHA No Other Yes (API studies)

Toxicity summary: Moderately toxic: 0.3 to 8 oz. may be a lethal oral dose for 150 lb. human.

Major Route(s) of Entry: Vapors, inhalation, and skin contact.

Acute Exposure Symptoms

Inhalation:	Moderate risk of vapor intoxication. Major risk in enclosed spaces with poor ventilation. Euphoria, lung irritation and edema, headache, dizziness, drowsiness, convulsions, coma, cyanosis, generalized depression.
Dermal Contact:	Defatting with drying of skin.
Eye Contact:	Irritant.
Ingestion:	Burning of mouth and upper GI tract, vomiting and diarrhea. Above 1 oz. or less than 1 oz. with retention: general depression, sedation, respiratory depression, coma.

Chronic Exposure

Skin:	Drying of skin (dermatitis)
Inhalation:	Benzene has been classified as a leukemogen, and may produce anemia, leukemia from repeated or prolonged exposure to high concentrations. The American Petroleum Institute sponsored chronic inhalation studies of unleaded gasoline vapors indicating unleaded gasoline is carcinogenic to laboratory animals.

Other Special Effects

None

Medical Conditions Aggravated by Exposure

Pre-existing dermatoses.

First Aid and Emergency Procedures for Acute Effect

Inhalation:	Remove to fresh air. Respiratory support, if necessary. Seek medical aid.
Dermal:	Wash with soap and water. Do not wear heavily contaminated clothing before cleaning.
Eyes:	Flush with large volumes of water. Seek medical aid.
Ingestion:	Do not induce vomiting. Seek medical aid.

Notes to Physician: This is a low viscosity material with a Saybolt viscosity at 100°F of less than 40 SUS. Pulmonary high aspiration hazard, possibly producing lipoid pneumonia if swallowed and vomiting occurs. Use careful gastric lavage with tight fitting, cuffed endotracheal tube.

7.0 Special Protection Information

Ventilation Requirements:	Use in well ventilated area. In confined space, mechanical ventilation may be required to keep levels of certain components below mandated standards. Responsible individuals should evaluate air concentrations of specific regulated chemicals.
TLV:	TWA (Time Weighted Average): 300 ppm (900 mg/m^3) STEL (Short Term Exposure): 500 ppm (1500 mg/m^3) ACGIH-1987-88.
Specific Personal Protective Equipment:	If high vapor concentration is expected, use approved organic respirator.
Eyes:	Safety glasses, or chemical goggles, with side shields, if splashing is anticipated.
Dermal:	Oil impervious gloves, such as Nitrile-Butadiene rubber gloves, if frequent or prolonged contact is expected.
Other Clothing or Equipment:	Wear body-covering garments to prevent prolonged or repeated direct dermal exposure. Remove gasoline soaked clothing since it presents a fire hazard. Launder before reuse. Treat gasoline generally as leukemogenic and potentially carcinogenic material.

8.0 Transportation and Special Precautions

Storage: Keep container tightly closed and away from heat and flame and strong oxiders (NFPA Class 1A Flammable). Do not store with strong oxidizers.

Caution: Empty containers may contain product residue which could produce flammable and explosive vapors.

Consult appropriate Federal, State and Local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

DOT Information

Proper Shipping Name:	Gasoline.
Hazard Class:	Flammable Liquid.
Hazard Identification Number:	UN 1203.
Placard:	Flammable Liquid.
Packaging Exceptions/Restrictions:	Refer to: 49CFR173.118 49CFR173.119
Compatibility Category:	Group 33

9.0 Environmental Data

Product Name: CITGO Premium Unleaded Gasoline - 91 Octane
Commodity Code: 04-101

SARA TITLE III

Section 313 - Toxic Chemicals

This product contains toxic chemicals of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

Components	CAS#	%
Benzene	71-43-2	0-5
Tertiary Butyl Alcohol	75-65-0	0-10
Ethyl Benzene	100-41-4	0-5
Methyl-t-butyl ether	1634-04-4	0-15
Toluene	108-88-3	0-25
1,2,4 Trimethyl Benzene	95-63-6	0-5
Xylene (mixed isomers)	1330-20-7	0-25

Section 311 - Hazard Categories

No Not Applicable
Yes Acute (Immediate Health Hazard)
Yes Chronic (Delayed Health Hazard)
Yes Fire Hazard
No Sudden Pressure Release
No Reactivity Hazard

Section 302/(A) - Extremely Hazardous Substances

(RQ = Reportable Quantity)
(TPQ = Threshold Planning Quantity)

This product does not contain Extremely Hazardous Substances of Section 302/(A).

Component	CAS#	%	RQ lbs.	TPQ lbs.
None	-	-	-	-

Clean Water Act

Under Section 311 (b) (4) of the Clean Water Act, discharges of crude oil and petroleum products in any kind or form to surface waters must be immediately reported to the National Response Center: 800-424-8802.

Comprehensive Environmental, Response, Compensation & Liability Act (CERCLA) - Section 102 Hazardous Substances

Component	CAS#	%	RQ lbs.
None	-	-	-

Petroleum and petroleum fractions are excluded from the list of CERCLA hazardous substances by Section 101(14) of CERCLA.

10.0 Labeling

DANGER

Contains BENZENE - Cancer Hazard
Extremely flammable
Harmful or fatal if swallowed

Handling

Keep away from heat, sparks, and flames.
Keep container closed.
Do not breathe vapors.
Use only with adequate ventilation.
Do not siphon by mouth.

This product contains benzene and certain other hydrocarbons which are potentially toxic and carcinogenic. Avoid repeated or prolonged contact with skin.

First Aid

If swallowed, do not induce vomiting.
Call a physician immediately.
In case of contact, remove contaminated clothing immediately, and wash thoroughly with soap and water.

CITGO Petroleum Corporation
P.O. Box 3758
Tulsa, Oklahoma 74102

Material Safety Data Sheet

Trade Name: **CITGO Midgrade Unleaded Gasoline**

Commodity Code: **04-401**

Synonyms: Motor Gasoline, Petrol, Gas

Date: June 23, 1989

CAS No.: Mixture
(Refer to Section 1)

Technical Contact: (918) 495-5933
Medical Emergency: (318) 491-6215
Chemtrec Emergency: (800) 424-9300

Citgo Index No.: **0186**

Material Hazard Evaluation

(Per OSHA Hazard Communication
Standard [29 CFR Part 1910.1200]) (OHCS)

Health: DANGER: Contains *Benzene* - cancer hazard.
Harmful or fatal if swallowed. Vapors hazardous.

Precautionary Statement: DANGER: Extremely flammable liquid. Do not siphon by mouth. If swallowed, do not induce vomiting - call physician immediately.

HMIS Rating[1]: Health 1 Flammability 3 Reactivity 0

1.0 Generic Composition / Components

Components	CAS #	%	Hazard Data
Petroleum Distillates	Mixture	85-98	Oral: LDLo(human): 0.5-5.0g/kg
Benzene	71-43-2	< 5	OSHA PEL: TWA 1 ppm Oral: LD50(ms): 4700mg/kg.
Lower Aliphatic Alcohols	Mixture	0-11	Oral: LD50(rat): > 5.0g/kg Dermal LD50(rat): > 5.0g/kg Inhn TClo(Human): ~25 ppm
Lower Aliphatic Ethers	Mixture	0-15	Oral LD50(rat): 4 ml/kg Dermal LD50(rbt): > 10 ml/kg Eyes: Mild irritant

The addition of alcohols to Unleaded Gasoline with Oxinol does not alter its toxicity significantly.

[1] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA and NPCA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

2.0 Physical Data

Physical Hazard Classification (Per 29 CFR Part 1910.1200)

No	Combustible	Yes	Flammable	No	Pyrophoric
No	Compressed Gas	No	Organic Peroxide	No	Reactivity
No	Explosive	No	Oxidizer	Yes	Stable

Boiling Point, 760 mmHg, °C(°F):	35(95)
Specific Gravity (60/60°F) (H_2O = 1):	0.75
Vapor Density (Air = 1):	3-4
% Volatiles by Volume:	High
Melting Point, °C(°F):	NA
Vapor Pressure, mmHg (25°C):	510-760
Solubility in H_2O, % by Weight:	Negligible
Evaporation Rate (Butyl Acetate = 1):	< 1
pH of Undiluted Product:	ND
Appearance and Odor:	Light yellow or clear liquid - gasoline odor

3.0 Fire and Explosion Data

Flash Point, COC, °C(°F)	-43(-45)
Flash Point, PMC, °C(°F)	ND
Fire Point, COC, °C(°F)	ND
NFPA Rating[2]	Health: **1** Flammability: **3** Reactivity: **0**
Flammable Limits (% by volume in air)	Lower: **1.4** Upper: **7.6**
Extinguishing Media	CO_2, dry chemical, foam, water fog
Special Fire Fighting Procedure	Wear self-contained breathing apparatus when in a confined area.
Unusual Fire or Explosion Hazard	Material is highly volatile and emits vapors which may be ignited by other ignition sources.

4.0 Reactivity Data

Stability:	Stable
Conditions Contributing to Instability:	High Temperature, flame.
Incompatibility:	Strong oxidants, strong acids, caustics.
Hazardous Decomposition Products: (thermal, unless otherwise specified)	CO_2, (CO under incomplete combustion).
Conditions Contributing to Hazardous Polymerization:	None.

[2] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

5.0 Spill or Leak Procedures

Procedures if Material is Spilled:

- Remove sources of ignition, ventilate area.
- ***Small spills***: Take up with non-combustible absorbant such as fullers earth or sand. Place into containers for later disposal.
- ***Large spills***: Contain spill in earthen dikes for later recovery. Control ignition sources around spill area. A fire-fighting foam blanket on top of spill will reduce vapor release and the danger of fire.
- Report spills as required to appropriate authorities.

Waste Disposal:

- It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal.
- Check before disposing to be sure you are in compliance with all applicable laws and regulations.
- Chemtrec/RCRA Emergency Hotline Number: 800-424-9346.

Protective Measures During Repair and Maintenance of Contaminated Equipment:

- Refer to Section VII - Special Protection Information.
- Provide sufficient ventilation, eliminate all ignition sources.
- Wash exposed skin thoroughly with soap and water.
- Remove soiled clothing.
- Use impervious gloves if extended, direct contact is expected.

6.0 Health Hazard Data

Health Hazard Classification

(Per 29 CFR Part 1910.1200)

No	Carcinogen	No	Corrosive
Yes	Animal Carcinogen	Yes	Irritant
No	Suspect Carcinogen	No	Sensitizer
No	Mutagen	No	Teratogen
No	Highly Toxic	Yes	Target Organ: Hematopoietic, respiratory system, skin
No	Toxic		

Product listed as Carcinogen or Potential Carcinogen by:

NTP No IARC No OSHA No Other Yes (API studies)

Toxicity summary: Moderately toxic: 0.3 to 8 oz. may be a lethal oral dose for 150 lb. human.

Major Route(s) of Entry: Vapors, inhalation, and skin contact.

Acute Exposure Symptoms

Inhalation: Moderate risk of vapor intoxication. Major risk in enclosed spaces with poor ventilation. Euphoria, lung irritation and edema, headache, dizziness, drowsiness, convulsions, coma, cyanosis, generalized depression.

Dermal Contact: Defatting with drying of skin.

Eye Contact: Irritant.

Ingestion: Burning of mouth and upper GI tract, vomiting and diarrhea. Above 1 oz. or less than 1 oz. with retention: general depression, sedation, respiratory depression, coma.

Chronic Exposure

Skin: Drying of skin (dermatitis)

Inhalation: Benzene has been classified as a leukemogen, and may produce anemia, leukemia from repeated or prolonged exposure to high concentrations. The American Petroleum Institute sponsored chronic inhalation studies of unleaded gasoline vapors indicating unleaded gasoline is carcinogenic to laboratory animals.

Other Special Effects

None

Medical Conditions Aggravated by Exposure

Pre-existing dermatoses.

First Aid and Emergency Procedures for Acute Effect

Inhalation: Remove to fresh air. Respiratory support, if necessary. Seek medical aid.

Dermal: Wash with soap and water. Do not wear heavily contaminated clothing before cleaning.

Eyes: Flush with large volumes of water. Seek medical aid.

Ingestion: Do not induce vomiting. Seek medical aid.

Notes to Physician: This is a low viscosity material with a Saybolt viscosity at 100°F of less than 40 SUS. Pulmonary high aspiration hazard, possibly producing lipoid pneumonia if swallowed and vomiting occurs. Use careful gastric lavage with tight fitting, cuffed endotracheal tube.

7.0 Special Protection Information

Ventilation Requirements:	Use in well ventilated area. In confined space, mechanical ventilation may be required to keep levels of certain components below mandated standards. Responsible individuals should evaluate air concentrations of specific regulated chemicals.
TLV:	TWA (Time Weighted Average): 300 ppm (900 mg/m^3) STEL (Short Term Exposure): 500 ppm (1500 mg/m^3) ACGIH-1987-88.
Specific Personal Protective Equipment:	If high vapor concentration is expected, use approved organic respirator.
Eyes:	Safety glasses, or chemical goggles, with side shields, if splashing is anticipated.
Dermal:	Oil impervious gloves, such as Nitrile-Butadiene rubber gloves, if frequent or prolonged contact is expected.
Other Clothing or Equipment:	Wear body-covering garments to prevent prolonged or repeated direct dermal exposure. Remove gasoline soaked clothing since it presents a fire hazard. Launder before reuse. Treat gasoline generally as leukemogenic and potentially carcinogenic material.

8.0 Transportation and Special Precautions

Storage: Keep container tightly closed and away from heat and flame and strong oxiders (NFPA Class 1A Flammable). Do not store with strong oxidizers.

Caution: Empty containers may contain product residue which could produce flammable and explosive vapors.

Consult appropriate Federal, State and Local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

DOT Information

Proper Shipping Name:	Gasoline.
Hazard Class:	Flammable Liquid.
Hazard Identification Number:	UN 1203.
Placard:	Flammable Liquid.
Packaging Exceptions/Restrictions:	Refer to: 49CFR173.118 49CFR173.119
Compatibility Category:	Group 33

9.0 Environmental Data

Product Name CITGO Midgrade Unleaded Gasoline
Commodity Code: 04-401

SARA TITLE III

Section 313 - Toxic Chemicals

This product contains toxic chemicals of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

Components	CAS#	%
Benzene	71-43-2	0-5
Tertiary Butyl Alcohol	75-65-0	0-10
Ethyl Benzene	100-41-4	0-5
Methyl-t-butyl ether	1634-04-4	0-15
Toluene	108-88-3	0-25
1,2,4 Trimethyl Benzene	95-63-6	0-5
Xylene (mixed isomers)	1330-20-7	0-25

Section 311 - Hazard Categories

No Not Applicable
Yes Acute (Immediate Health Hazard)
Yes Chronic (Delayed Health Hazard)
Yes Fire Hazard
No Sudden Pressure Release
No Reactivity Hazard

Section 302/(A) - Extremely Hazardous Substances

(RQ = Reportable Quantity)
(TPQ = Threshold Planning Quantity)

This product does not contain Extremely Hazardous Substances of Section 302/(A).

Component	CAS#	%	RQ lbs.	TPQ lbs.
None	-	-	-	-

Clean Water Act

Under Section 311 (b) (4) of the Clean Water Act, discharges of crude oil and petroleum products in any kind or form to surface waters must be immediately reported to the National Response Center: 800-424-8802.

Comprehensive Environmental, Response, Compensation & Liability Act (CERCLA) - Section 102 Hazardous Substances

Component	CAS#	%	RQ lbs.
None	-	-	-

Petroleum and petroleum fractions are excluded from the list of CERCLA hazardous substances by Section 101(14) of CERCLA.

10.0 Labeling

DANGER

Contains BENZENE - Cancer Hazard
Extremely flammable
Harmful or fatal if swallowed

Handling

Keep away from heat, sparks, and flames.
Keep container closed.
Do not breathe vapors.
Use only with adequate ventilation.
Do not siphon by mouth.

This product contains benzene and certain other hydrocarbons which are potentially toxic and carcinogenic. Avoid repeated or prolonged contact with skin.

First Aid

If swallowed, do not induce vomiting.
Call a physician immediately.
In case of contact, remove contaminated clothing immediately, and wash thoroughly with soap and water.

CITGO Petroleum Corporation
P.O. Box 3758
Tulsa, Oklahoma 74102

Material Safety Data Sheet

Trade Name: **CITGO Premium Unleaded Gasoline - 92 Octane**

Commodity Code: **05-401**

Synonyms: Motor Gasoline, Petrol, Gas

Date: February 10, 1989

CAS No.: Mixture
(Refer to Section 1)

Technical Contact: (918) 495-5933
Medical Emergency: (318) 491-6215
Chemtrec Emergency: (800) 424-9300

Citgo Index No.: **0934**

Material Hazard Evaluation

(Per OSHA Hazard Communication
Standard [29 CFR Part 1910.1200]) (OHCS)

Health: DANGER: Contains *Benzene* - cancer hazard.
Harmful or fatal if swallowed. Vapors hazardous.

Precautionary Statement: DANGER: Extremely flammable liquid. Do not siphon by mouth. If swallowed, do not induce vomiting - call physician immediately.

HMIS Rating[1]: Health 1 Flammability 3 Reactivity 0

1.0 Generic Composition / Components

Components	CAS #	%	Hazard Data
Petroleum Distillates	Mixture	85-98	Oral: LDLo(human): 0.5-5.0g/kg
Benzene	71-43-2	< 5	OSHA PEL: TWA 1 ppm Oral: LD50(ms): 4700mg/kg.
Lower Aliphatic Alcohols	Mixture	0-11	Oral: LD50(rat): > 5.0g/kg Dermal LD50(rat): > 5.0g/kg Inhn TClo(Human): ~ 25 ppm
Lower Aliphatic Ethers	Mixture	0-15	Oral LD50(rat): 4 ml/kg Dermal LD50(rbt): > 10 ml/kg Eyes: Mild irritant

The addition of octane improvers does not alter the toxicity of Premium Unleaded Gasoline.

[1] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA and NPCA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

5.0 Spill or Leak Procedures

Procedures if Material is Spilled:

- Remove sources of ignition, ventilate area.
- ***Small spills***: Take up with non-combustible absorbant such as fullers earth or sand. Place into containers for later disposal.
- ***Large spills***: Contain spill in earthen dikes for later recovery. Control ignition sources around spill area. A fire-fighting foam blanket on top of spill will reduce vapor release and the danger of fire.
- Report spills as required to appropriate authorities.

Waste Disposal:

- It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal.
- Check before disposing to be sure you are in compliance with all applicable laws and regulations.
- Chemtrec/RCRA Emergency Hotline Number: 800-424-9346.

Protective Measures During Repair and Maintenance of Contaminated Equipment:

- Refer to Section VII - Special Protection Information.
- Provide sufficient ventilation, eliminate all ignition sources.
- Wash exposed skin thoroughly with soap and water.
- Remove soiled clothing.
- Use impervious gloves if extended, direct contact is expected.

6.0 Health Hazard Data

Health Hazard Classification

(Per 29 CFR Part 1910.1200)

No	Carcinogen	No	Corrosive
Yes	Animal Carcinogen	Yes	Irritant
No	Suspect Carcinogen	No	Sensitizer
No	Mutagen	No	Teratogen
No	Highly Toxic	Yes	Target Organ: Hematopoietic, respiratory system, skin
No	Toxic		

Product listed as Carcinogen or Potential Carcinogen by:

NTP No IARC No OSHA No Other Yes (API studies)

Toxicity summary: Moderately toxic: 0.3 to 8 oz. may be a lethal oral dose for 150 lb. human.

Major Route(s) of Entry: Vapors, inhalation, and skin contact.

Acute Exposure Symptoms

Inhalation:	Moderate risk of vapor intoxication. Major risk in enclosed spaces with poor ventilation. Euphoria, lung irritation and edema, headache, dizziness, drowsiness, convulsions, coma, cyanosis, generalized depression.
Dermal Contact:	Defatting with drying of skin.
Eye Contact:	Irritant.
Ingestion:	Burning of mouth and upper GI tract, vomiting and diarrhea. Above 1 oz. or less than 1 oz. with retention: general depression, sedation, respiratory depression, coma.

Chronic Exposure

Skin:	Drying of skin (dermatitis)
Inhalation:	Benzene has been classified as a leukemogen, and may produce anemia, leukemia from repeated or prolonged exposure to high concentrations. The American Petroleum Institute sponsored chronic inhalation studies of unleaded gasoline vapors indicating unleaded gasoline is carcinogenic to laboratory animals.

Other Special Effects

None

Medical Conditions Aggravated by Exposure

Pre-existing dermatoses.

First Aid and Emergency Procedures for Acute Effect

Inhalation:	Remove to fresh air. Respiratory support, if necessary. Seek medical aid.
Dermal:	Wash with soap and water. Do not wear heavily contaminated clothing before cleaning.
Eyes:	Flush with large volumes of water. Seek medical aid.
Ingestion:	Do not induce vomiting. Seek medical aid.

Notes to Physician: This is a low viscosity material with a Saybolt viscosity at 100°F of less than 40 SUS. Pulmonary high aspiration hazard, possibly producing lipoid pneumonia if swallowed and vomiting occurs. Use careful gastric lavage with tight fitting, cuffed endotracheal tube.

7.0 Special Protection Information

Ventilation Requirements:	Use in well ventilated area. In confined space, mechanical ventilation may be required to keep levels of certain components below mandated standards. Responsible individuals should evaluate air concentrations of specific regulated chemicals.
TLV:	TWA (Time Weighted Average): 300 ppm (900 mg/m^3) STEL (Short Term Exposure): 500 ppm (1500 mg/m^3) ACGIH-1987-88.
Specific Personal Protective Equipment:	If high vapor concentration is expected, use approved organic respirator.
Eyes:	Safety glasses, or chemical goggles, with side shields, if splashing is anticipated.
Dermal:	Oil impervious gloves, such as Nitrile-Butadiene rubber gloves, if frequent or prolonged contact is expected.
Other Clothing or Equipment:	Wear body-covering garments to prevent prolonged or repeated direct dermal exposure. Remove gasoline soaked clothing since it presents a fire hazard. Launder before reuse. Treat gasoline generally as leukemogenic and potentially carcinogenic material.

8.0 Transportation and Special Precautions

Storage: Keep container tightly closed and away from heat and flame and strong oxiders (NFPA Class 1A Flammable). Do not store with strong oxidizers.

Caution: Empty containers may contain product residue which could produce flammable and explosive vapors.

Consult appropriate Federal, State and Local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

DOT Information

Proper Shipping Name:	Gasoline.
Hazard Class:	Flammable Liquid.
Hazard Identification Number:	UN 1203.
Placard:	Flammable Liquid.
Packaging Exceptions/Restrictions:	Refer to: 49CFR173.118 49CFR173.119
Compatibility Category:	Group 33

9.0 Environmental Data

Product Name: CITGO Premium Unleaded Gasoline - 92 Octane
Commodity Code: 05-401

SARA TITLE III

Section 313 - Toxic Chemicals

This product contains toxic chemicals of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

Components	CAS#	%
Benzene	71-43-2	0-5
Tertiary Butyl Alcohol	75-65-0	0-10
Ethyl Benzene	100-41-4	0-5
Methyl-t-butyl ether	1634-04-4	0-15
Toluene	108-88-3	0-25
1,2,4 Trimethyl Benzene	95-63-6	0-5
Xylene (mixed isomers)	1330-20-7	0-25

Section 311 - Hazard Categories

No	Not Applicable	Yes	Fire Hazard
Yes	Acute (Immediate Health Hazard)	No	Sudden Pressure Release
Yes	Chronic (Delayed Health Hazard)	No	Reactivity Hazard

Section 302/(A) - Extremely Hazardous Substances

(RQ = Reportable Quantity)
(TPQ = Threshold Planning Quantity)

This product does not contain Extremely Hazardous Substances of Section 302/(A).

Component	CAS#	%	RQ lbs.	TPQ lbs.
None	-	-	-	-

Clean Water Act

Under Section 311 (b) (4) of the Clean Water Act, discharges of crude oil and petroleum products in any kind or form to surface waters must be immediately reported to the National Response Center: 800-424-8802.

Comprehensive Environmental, Response, Compensation & Liability Act (CERCLA) - Section 102 Hazardous Substances

Component	CAS#	%	RQ lbs.
None	-	-	-

Petroleum and petroleum fractions are excluded from the list of CERCLA hazardous substances by Section 101(14) of CERCLA.

10.0 Labeling

DANGER

Contains BENZENE - Cancer Hazard
Extremely flammable
Harmful or fatal if swallowed

Handling

Keep away from heat, sparks, and flames.
Keep container closed.
Do not breathe vapors.
Use only with adequate ventilation.
Do not siphon by mouth.

This product contains benzene and certain other hydrocarbons which are potentially toxic and carcinogenic. Avoid repeated or prolonged contact with skin.

First Aid

If swallowed, do not induce vomiting.
Call a physician immediately.
In case of contact, remove contaminated clothing immediately, and wash thoroughly with soap and water.

CITGO Petroleum Corporation
P.O. Box 3758
Tulsa, Oklahoma 74102

Material Safety Data Sheet

Trade Name: **CITGO Premium Unleaded Gasoline - 93 Octane**

Commodity Code: **05-501**

Synonyms: Motor Gasoline, Petrol, Gas

Date: February 10, 1989

CAS No.: Mixture
(Refer to Section 1)

Technical Contact: (918) 495-5933
Medical Emergency: (318) 491-6215
Chemtrec Emergency: (800) 424-9300

Citgo Index No.: **0953**

Material Hazard Evaluation

(Per OSHA Hazard Communication
Standard [29 CFR Part 1910.1200]) (OHCS)

Health: DANGER: Contains *Benzene* - cancer hazard.
Harmful or fatal if swallowed. Vapors hazardous.

Precautionary Statement: DANGER: Extremely flammable liquid. Do not siphon by mouth. If swallowed, do not induce vomiting - call physician immediately.

HMIS Rating[1]: Health 1 Flammability 3 Reactivity 0

1.0 Generic Composition / Components

Components	CAS #	%	Hazard Data
Petroleum Distillates	Mixture	85-98	Oral: LDLo(human): 0.5-5.0g/kg
Benzene	71-43-2	< 5	OSHA PEL: TWA 1 ppm Oral: LD50(ms): 4700mg/kg.
Lower Aliphatic Alcohols	Mixture	0-11	Oral: LD50(rat): > 5.0g/kg Dermal LD50(rat): > 5.0g/kg Inhn TClo(Human): ~25 ppm
Lower Aliphatic Ethers	Mixture	0-15	Oral LD50(rat): 4 ml/kg Dermal LD50(rbt): > 10 ml/kg Eyes: Mild irritant

The addition of octane improvers does not alter the toxicity of Premium Unleaded Gasoline.

[1] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA and NPCA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

2.0 Physical Data

Physical Hazard Classification (Per 29 CFR Part 1910.1200)

No	Combustible	Yes	Flammable	No	Pyrophoric
No	Compressed Gas	No	Organic Peroxide	No	Reactivity
No	Explosive	No	Oxidizer	Yes	Stable

Boiling Point, 760 mmHg, °C(°F):	35(95)
Specific Gravity (60/60°F) (H_2O = 1):	0.75
Vapor Density (Air = 1):	3-4
% Volatiles by Volume:	High
Melting Point, °C(°F):	NA
Vapor Pressure, mmHg (25°C):	510-760
Solubility in H_2O, % by Weight:	Negligible
Evaporation Rate (Butyl Acetate = 1):	< 1
pH of Undiluted Product:	ND
Appearance and Odor:	Light yellow or clear liquid - gasoline odor

3.0 Fire and Explosion Data

Flash Point, COC, °C(°F)	-43(-45)
Flash Point, PMC, °C(°F)	ND
Fire Point, COC, °C(°F)	ND
NFPA Rating[2]	Health: 1 Flammability: 3 Reactivity: 0
Flammable Limits (% by volume in air)	Lower: 1.4 Upper: 7.6
Extinguishing Media	CO_2, dry chemical, foam, water fog
Special Fire Fighting Procedure	Wear self-contained breathing apparatus when in a confined area.
Unusual Fire or Explosion Hazard	Material is highly volatile and emits vapors which may be ignited by other ignition sources.

4.0 Reactivity Data

Stability:	Stable
Conditions Contributing to Instability:	High Temperature, flame.
Incompatibility:	Strong oxidants, strong acids, caustics.
Hazardous Decomposition Products: (thermal, unless otherwise specified)	CO_2, (CO under incomplete combustion).
Conditions Contributing to Hazardous Polymerization:	None.

[2] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

5.0 Spill or Leak Procedures

Procedures if Material is Spilled:

- Remove sources of ignition, ventilate area.
- ***Small spills***: Take up with non-combustible absorbant such as fullers earth or sand. Place into containers for later disposal.
- ***Large spills***: Contain spill in earthen dikes for later recovery. Control ignition sources around spill area. A fire-fighting foam blanket on top of spill will reduce vapor release and the danger of fire.
- Report spills as required to appropriate authorities.

Waste Disposal:

- It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal.
- Check before disposing to be sure you are in compliance with all applicable laws and regulations.
- Chemtrec/RCRA Emergency Hotline Number: 800-424-9346.

Protective Measures During Repair and Maintenance of Contaminated Equipment:

- Refer to Section VII - Special Protection Information.
- Provide sufficient ventilation, eliminate all ignition sources.
- Wash exposed skin thoroughly with soap and water.
- Remove soiled clothing.
- Use impervious gloves if extended, direct contact is expected.

6.0 Health Hazard Data

Health Hazard Classification

(Per 29 CFR Part 1910.1200)

No	Carcinogen	No	Corrosive
Yes	Animal Carcinogen	Yes	Irritant
No	Suspect Carcinogen	No	Sensitizer
No	Mutagen	No	Teratogen
No	Highly Toxic	Yes	Target Organ: Hematopoietic, respiratory system, skin
No	Toxic		

Product listed as Carcinogen or Potential Carcinogen by:

NTP No IARC No OSHA No Other Yes (API studies)

Toxicity summary: Moderately toxic: 0.3 to 8 oz. may be a lethal oral dose for 150 lb. human.

Major Route(s) of Entry: Vapors, inhalation, and skin contact.

Acute Exposure Symptoms

Inhalation:	Moderate risk of vapor intoxication. Major risk in enclosed spaces with poor ventilation. Euphoria, lung irritation and edema, headache, dizziness, drowsiness, convulsions, coma, cyanosis, generalized depression.
Dermal Contact:	Defatting with drying of skin.
Eye Contact:	Irritant.
Ingestion:	Burning of mouth and upper GI tract, vomiting and diarrhea. Above 1 oz. or less than 1 oz. with retention: general depression, sedation, respiratory depression, coma.

Chronic Exposure

Skin:	Drying of skin (dermatitis)
Inhalation:	Benzene has been classified as a leukemogen, and may produce anemia, leukemia from repeated or prolonged exposure to high concentrations. The American Petroleum Institute sponsored chronic inhalation studies of unleaded gasoline vapors indicating unleaded gasoline is carcinogenic to laboratory animals.

Other Special Effects

None

Medical Conditions Aggravated by Exposure

Pre-existing dermatoses.

First Aid and Emergency Procedures for Acute Effect

Inhalation:	Remove to fresh air. Respiratory support, if necessary. Seek medical aid.
Dermal:	Wash with soap and water. Do not wear heavily contaminated clothing before cleaning.
Eyes:	Flush with large volumes of water. Seek medical aid.
Ingestion:	Do not induce vomiting. Seek medical aid.

Notes to Physician: This is a low viscosity material with a Saybolt viscosity at 100°F of less than 40 SUS. Pulmonary high aspiration hazard, possibly producing lipoid pneumonia if swallowed and vomiting occurs. Use careful gastric lavage with tight fitting, cuffed endotracheal tube.

7.0 Special Protection Information

Ventilation Requirements:	Use in well ventilated area. In confined space, mechanical ventilation may be required to keep levels of certain components below mandated standards. Responsible individuals should evaluate air concentrations of specific regulated chemicals.
TLV:	TWA (Time Weighted Average): 300 ppm (900 mg/m^3) STEL (Short Term Exposure): 500 ppm (1500 mg/m^3) ACGIH-1987-88.
Specific Personal Protective Equipment:	If high vapor concentration is expected, use approved organic respirator.
Eyes:	Safety glasses, or chemical goggles, with side shields, if splashing is anticipated.
Dermal:	Oil impervious gloves, such as Nitrile-Butadiene rubber gloves, if frequent or prolonged contact is expected.
Other Clothing or Equipment:	Wear body-covering garments to prevent prolonged or repeated direct dermal exposure. Remove gasoline soaked clothing since it presents a fire hazard. Launder before reuse. Treat gasoline generally as leukemogenic and potentially carcinogenic material.

8.0 Transportation and Special Precautions

Storage: Keep container tightly closed and away from heat and flame and strong oxiders (NFPA Class 1A Flammable). Do not store with strong oxidizers.

Caution: Empty containers may contain product residue which could produce flammable and explosive vapors.

Consult appropriate Federal, State and Local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

DOT Information

Proper Shipping Name:	Gasoline.
Hazard Class:	Flammable Liquid.
Hazard Identification Number:	UN 1203.
Placard:	Flammable Liquid.
Packaging Exceptions/Restrictions:	Refer to: 49CFR173.118 49CFR173.119
Compatibility Category:	Group 33

9.0 Environmental Data

Product Name: CITGO Premium Unleaded Gasoline - 93 Octane
Commodity Code: 05-501

SARA TITLE III

Section 313 - Toxic Chemicals

This product contains toxic chemicals of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

Components	CAS#	%
Benzene	71-43-2	0-5
Tertiary Butyl Alcohol	75-65-0	0-10
Ethyl Benzene	100-41-4	0-5
Methyl-t-butyl ether	1634-04-4	0-15
Toluene	108-88-3	0-25
1,2,4 Trimethyl Benzene	95-63-6	0-5
Xylene (mixed isomers)	1330-20-7	0-25

Section 311 - Hazard Categories

No Not Applicable
Yes Acute (Immediate Health Hazard)
Yes Chronic (Delayed Health Hazard)
Yes Fire Hazard
No Sudden Pressure Release
No Reactivity Hazard

Section 302/(A) - Extremely Hazardous Substances

(RQ = Reportable Quantity)
(TPQ = Threshold Planning Quantity)

This product does not contain Extremely Hazardous Substances of Section 302/(A).

Component	CAS#	%	RQ lbs.	TPQ lbs.
None	-	-	-	-

Clean Water Act

Under Section 311 (b) (4) of the Clean Water Act, discharges of crude oil and petroleum products in any kind or form to surface waters must be immediately reported to the National Response Center: 800-424-8802.

Comprehensive Environmental, Response, Compensation & Liability Act (CERCLA) - Section 102 Hazardous Substances

Component	CAS#	%	RQ lbs.
None	-	-	-

Petroleum and petroleum fractions are excluded from the list of CERCLA hazardous substances by Section 101(14) of CERCLA.

10.0 Labeling

DANGER

Contains BENZENE - Cancer Hazard
Extremely flammable
Harmful or fatal if swallowed

Handling

Keep away from heat, sparks, and flames.
Keep container closed.
Do not breathe vapors.
Use only with adequate ventilation.
Do not siphon by mouth.

This product contains benzene and certain other hydrocarbons which are potentially toxic and carcinogenic. Avoid repeated or prolonged contact with skin.

First Aid

If swallowed, do not induce vomiting.
Call a physician immediately.
In case of contact, remove contaminated clothing immediately, and wash thoroughly with soap and water.

CITGO Petroleum Corporation
P.O. Box 3758
Tulsa, Oklahoma 74102

Material Safety Data Sheet

Trade Name: **CITGO Turbine Jet A Fuel**

Commodity Code: **06-002**

Synonyms: Fuel Oil

Date: April 10, 1989

CAS No.: Mixture
(Refer to Section 1)

Technical Contact: (918) 495-5933
Medical Emergency: (318) 491-6215
Chemtrec Emergency: (800) 424-9300

Citgo Index No.: **0089**

Material Hazard Evaluation

(Per OSHA Hazard Communication
Standard [29 CFR Part 1910.1200]) (OHCS)

Health: Low hazard under ambient conditions. Vapors, mists and fumes hazardous.

Precautionary Statement: CAUTION: Combustible Liquid. Do not inhale vapors, fumes, or mists. Prevent dermal contact.

HMIS Rating[1]: Health 0 Flammability 2 Reactivity 0

1.0 Generic Composition / Components

Components	CAS #	%	Hazard Data
Petroleum Fractions with Hydrocarbons C_5-C_{16}	Mixture	> 98	Oral: LdLo(hm): 500-5000 mg/kg
Additives	Mixture	< 2	Very low toxicity

[1] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA and NPCA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

2.0 Physical Data

Physical Hazard Classification (Per 29 CFR Part 1910.1200)

Yes	Combustible	No	Flammable	No	Pyrophoric
No	Compressed Gas	No	Organic Peroxide	No	Reactivity
No	Explosive	No	Oxidizer	Yes	Stable

Boiling Point, 760 mmHg, °C(°F):	205-300(400-572)
Specific Gravity (60/60°F) (H_2O = 1):	0.77-.83
Vapor Density (Air = 1):	3-4
% Volatiles by Volume:	ND
Melting Point, °C(°F):	NA
Vapor Pressure, mmHg (25°C):	~2.0 mmHg
Solubility in H_2O., % by Weight:	Negligible
Evaporation Rate (Butyl Acetate = 1):	< 1
pH of Undiluted Product:	ND
Appearance and Odor:	Water white to lemon

3.0 Fire and Explosion Data

Flash Point, COC, °C(°F)	51-66(123-150)
Flash Point, PM, °C(°F)	ND
Fire Point, COC, °C(°F)	ND
NFPA Rating[2]	Health: **1** Flammability: **2** Reactivity: **0**
Flammable Limits (% by volume in air)	Lower: **0.7** Upper: **5.0**
Extinguishing Media	CO_2, dry chemical, foam, water fog
Special Fire Fighting Procedure	Wear self-contained breathing apparatus when in a confined area.
Unusual Fire or Explosion Hazard	Material is highly volatile and emits vapors which may be ignited by other ignition sources.

4.0 Reactivity Data

Stability:	Stable
Conditions Contributing to Instability:	Heat, flame.
Incompatibility:	Caustics, oxidizing agents and strong acids.
Hazardous Decomposition Products: (thermal, unless otherwise specified)	CO_2, (CO under incomplete combustion)
Conditions Contributing to Hazardous Polymerization:	None.

[2] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

5.0 Spill or Leak Procedures

Procedures if Material is Spilled:

- Remove sources of ignition, ventilate area.
- ***Small Spills***: Take up with noncombustible absorbant such as fullers earth or sand. Place into containers for later disposal.
- ***Large Spills***: Contain spill in earthen dikes for later recovery. Control ignition sources around spill area. A fire-fighting foam blanket on top of spill will reduce vapor release and the danger of fire.
- Report spills as required to appropriate authorities.

Waste Disposal:

- It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal.
- Check before disposing to be sure you are in compliance with all applicable laws and regulations.
- Chemtrec/RCRA Emergency Hotline Number: 800-424-9346.

Protective Measures During Repair and Maintenance of Contaminated Equipment:

- Refer to Section VII - Special Protection Information.
- Provide sufficient ventilation, eliminate all ignition sources.
- Wash exposed skin thoroughly with soap and water.
- Remove soiled clothing.
- Use oil impervious gloves if extended, direct contact is expected.

6.0 Health Hazard Data

Health Hazard Classification

(Per 29 CFR Part 1910.1200)

No	Carcinogen	No	Corrosive
No	Animal Carcinogen	Yes	Irritant (Pulmonary)
No	Suspect Carcinogen	No	Sensitizer
No	Mutagen	No	Teratogen
No	Highly Toxic	Yes	Target Organ: Lungs, CNS (Depressant)
No	Toxic		

Product listed as Carcinogen or Potential Carcinogen by:

NTP No IARC No OSHA No Other No

Toxicity Summary: Normally of low toxicity, except on ingestion, if misting occurs or dermal absorption.

Major Route(s) of Entry: Inhalation of fumes, mists or vapors. Dermal absorption.

Acute Exposure Symptoms

Inhalation:	Mists or fumes above the TLV may cause transient euphoria, respiratory and GI irritation, headache, dizziness, CNS and generalized depression, coma, particularly in oxygen-deficient atmosphere.
Dermal Contact:	Mild temporary irritation.
Eye Contact:	Mild to moderate irritation.
Ingestion:	Toxic dose: 1 oz. to 1 pint for a human adult. Symptoms include burning of mouth and upper GI tract, vomiting and diarrhea. Less than 1 oz. with retention may produce general depression, sedation, respiratory and cardiac insufficiency and coma.
Injection:	Irritation, erythema, edema.

Chronic Exposure

Prolonged, repeated dermal contact may cause drying, cracking, dermatoses.

Other Special Effects

None.

Medical Conditions Aggravated by Exposure

Pre-existing dermatosis.

First Aid and Emergency Procedures for Acute Effect

Inhalation:	Remove from exposure, seek immediate medical aid.
Dermal:	Wash with soap and water. Do not wear heavily contaminated clothing before cleaning.
Eyes:	Flush with large volumes of tepid water.
Ingestion:	Do not induce vomiting. Seek medical aid.
Injection:	Seek immediate medical aid.

Notes to Physician: This is a low viscosity material, with a Saybolt viscosity at 100°F of 32. If ingestion and vomiting occurs, there exists a high pulmonary aspiration hazard, possibly inducing lipoid pneumonia. For quantities above a few drops, use careful gastric lavage with tight fitting, cuffed endotracheal tube.

7.0 Special Protection Information

Ventilation Requirements: Use in well ventilated area. In confined spaces, mechanical ventilation may be required to keep levels of certain components below mandated standards. Responsible individuals should evaluate air concentrations of specific regulated chemicals.

Permitted Threshold: None assigned.
Air Concentrations

Specific Personal Protective Equipment:

Respiratory: Approved organic respirator above the TLVs.

Eyes: Safety goggles, or chemical splash goggles if splashing is anticipated.

Dermal: Oil impervious gloves if frequent or prolonged contact is expected.

Other Clothing or Equipment: Wear body-covering work clothes to avoid prolonged or repeated exposure. Remove fuel oil soaked clothing since it presents a fire hazard. Launder soiled work clothes before reuse.

8.0 Transportation and Special Precautions

Storage: Keep container tightly closed and away from heat and flame. Do not store with strong oxidizers.

Caution: Empty containers may contain product residue which could include flammable or explosive vapors.

Consult appropriate Federal, State and Local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

DOT Information

Proper Shipping Name:	Fuel Oil
Hazard Class:	Combustible liquid
Hazard Identification Number:	NA 1993
Placard:	Combustible liquid
Compatability Category*:	Group 33
CHRIS Code:	ODS

*DOT - Coast Guard

9.0 Environmental Data

Product Name CITGO Turbine Jet A Fuel
Commodity Code: 06-002

SARA TITLE III

Section 313 - Toxic Chemicals

This product does not contain toxic chemicals of Section 313 of Title III of Superfund Amendments and Re-authorization Act of 1986 (SARA) and 40 CFR Part 372.

Components	CAS#	%
Naphthalene	91-20-3	<3

Section 311 - Hazard Categories

No Not Applicable
Yes Acute (Immediate Health Hazard)
Yes Chronic (Delayed Health Hazard)
Yes Fire Hazard
No Sudden Release of Pressure Hazard
No Reactive Hazard

Section 302/(A) - Extremely Hazardous Substances

(RQ = Reportable Quantity)
(TPQ = Threshold Planning Quantity)

This product does not contain Extremely Hazardous Substances of Section 302/(A).

Component	CAS#	%	RQ lbs.	TPQ lbs.
None	-	-	-	-

Clean Water Act

Under Section 311 (b) (4) of the Clean Water Act, discharges of crude oil and petroleum products in any kind or form to surface waters must be immediately reported to the National Response Center: 800-424-8802.

Comprehensive Environmental, Response, Compensation & Liability Act (CERCLA) - Section 102 Hazardous Substances

Component	CAS#	%	RQ lbs.

Petroleum and petroleum fractions are excluded from the list of CERCLA hazardous substances by Section 101(14) of CERCLA.

10.0 Labeling

DANGER:

COMBUSTIBLE LIQUID

HARMFUL IF SWALLOWED

HANDLING:

Keep away from heat, sparks and flames.
Keep container closed.
Do not breathe vapor.
Prevent direct dermal contact.

FIRST AID:

If swallowed, do not induce vomiting.
Call a physician immediately.
In case of contact, remove contaminated clothing immediately and wash thoroughly with soap and water.

CITGO Petroleum Corporation
P.O. Box 3758
Tulsa, Oklahoma 74102

Material Safety Data Sheet

Trade Name: **CITGO No. 2 Diesel Fuel**

Commodity Code: **10-104**

Synonyms: Fuel Oil

Date: April 10, 1989

CAS No.: Mixture
(Refer to Section 1)

Technical Contact: (918) 495-5933
Medical Emergency: (318) 491-6215
Chemtrec Emergency: (800) 424-9300

Citgo Index No.: **0093**

Material Hazard Evaluation

(Per OSHA Hazard Communication
Standard [29 CFR Part 1910.1200]) (OHCS)

Health: Low hazard under ambient conditions. Vapors, mists and fumes hazardous.

Precautionary Statement: CAUTION: Combustible Liquid. Do not inhale vapors, fumes, or mists. Prevent dermal contact.

HMIS Rating[1]: Health 0 Flammability 2 Reactivity 0

1.0 Generic Composition / Components

Components	CAS #	%	Hazard Data
Diesel Fuel C_7-C_{13} aliphatic and naphthenic hydrocarbons	Mixture	> 99	Oral: LdLo(hm): 500-5000 mg/kg
Additives (corrosion inhibitors)	Mixture	< 1	Non-hazardous

[1] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA and NPCA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

2.0 Physical Data

Physical Hazard Classification (Per 29 CFR Part 1910.1200)

Yes	Combustible	No	Flammable	No	Pyrophoric
No	Compressed Gas	No	Organic Peroxide	No	Reactivity
No	Explosive	No	Oxidizer	Yes	Stable

Boiling Point, 760 mmHg, °C(°F):	125(257)
Specific Gravity (60/60°F) (H_2O = 1):	0.87
Vapor Density (Air = 1):	> 1
% Volatiles by Volume:	ND
Melting Point, °C(°F):	NA
Vapor Pressure, mmHg (25°C):	~ 2 mmHg
Solubility in H_2O., % by Weight:	Negligible
Evaporation Rate (Butyl Acetate = 1):	< 1
pH of Undiluted Product:	ND
Appearance and Odor:	Water white to lemon

3.0 Fire and Explosion Data

Flash Point, COC, °C(°F)	52-85(125-180)
Flash Point, PM, °C(°F)	ND
Fire Point, COC, °C(°F)	ND
NFPA Rating[2]	Health: **1** Flammability: **2** Reactivity: **0**
Flammable Limits (% by volume in air)	Lower: **0.7** Upper: **5.0**
Extinguishing Media	CO_2, dry chemical, foam, water fog
Special Fire Fighting Procedure	Wear self-contained breathing apparatus when in a confined area.
Unusual Fire or Explosion Hazard	Material is highly volatile and emits vapors which may be ignited by other ignition sources.

4.0 Reactivity Data

Stability:	Stable
Conditions Contributing to Instability:	Heat, flame.
Incompatibility:	Caustics, oxidizing agents and strong acids.
Hazardous Decomposition Products: (thermal, unless otherwise specified)	CO_2, (CO under incomplete combustion)
Conditions Contributing to Hazardous Polymerization:	None.

[2] Hazard Rating: least-0; slight-1; moderate-2; high-3; extreme-4
Citgo assignment based on our evaluation per NFPA guidelines.

NA - Not Applicable ND - No Data NE - Not Established

5.0 Spill or Leak Procedures

Procedures if Material is Spilled:

- Remove sources of ignition, ventilate area.
- ***Small Spills***: Take up with noncombustible absorbant such as fullers earth or sand. Place into containers for later disposal.
- ***Large Spills***: Contain spill in earthen dikes for later recovery. Control ignition sources around spill area. A fire-fighting foam blanket on top of spill will reduce vapor release and the danger of fire.
- Report spills as required to appropriate authorities.

Waste Disposal:

- It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal.
- Check before disposing to be sure you are in compliance with all applicable laws and regulations.
- Chemtrec/RCRA Emergency Hotline Number: 800-424-9346.

Protective Measures During Repair and Maintenance of Contaminated Equipment:

- Refer to Section VII - Special Protection Information.
- Provide sufficient ventilation, eliminate all ignition sources.
- Wash exposed skin thoroughly with soap and water.
- Remove soiled clothing.
- Use oil impervious gloves if extended, direct contact is expected.

6.0 Health Hazard Data

Health Hazard Classification

(Per 29 CFR Part 1910.1200)

No	Carcinogen	No	Corrosive
No	Animal Carcinogen	Yes	Irritant (Pulmonary)
No	Suspect Carcinogen	No	Sensitizer
No	Mutagen	No	Teratogen
No	Highly Toxic	Yes	Target Organ: Lungs, CNS (Depressant)
No	Toxic		

Product listed as Carcinogen or Potential Carcinogen by:

NTP No IARC No OSHA No Other No

Toxicity Summary: Normally of low toxicity, except on ingestion, if misting occurs or dermal absorption.

Major Route(s) of Entry: Inhalation of fumes, mists or vapors. Dermal absorption.

Acute Exposure Symptoms

Inhalation:	Mists or fumes above the TLV may cause transient euphoria, respiratory and GI irritation, headache, dizziness, CNS and generalized depression, coma, particularly in oxygen-deficient atmosphere.
Dermal Contact:	Mild temporary irritation.
Eye Contact:	Mild to moderate irritation.
Ingestion:	Toxic dose: 1 oz. to 1 pint for a human adult. Symptoms include burning of mouth and upper GI tract, vomiting and diarrhea. Less than 1 oz. with retention may produce general depression, sedation, respiratory and cardiac insufficiency and coma.
Injection:	Irritation, erythema, edema.

Chronic Exposure

Prolonged, repeated dermal contact may cause drying, cracking, dermatoses.

Other Special Effects

None.

Medical Conditions Aggravated by Exposure

Pre-existing dermatosis.

First Aid and Emergency Procedures for Acute Effect

Inhalation:	Remove from exposure, seek immediate medical aid.
Dermal:	Wash with soap and water. Do not wear heavily contaminated clothing before cleaning.
Eyes:	Flush with large volumes of tepid water.
Ingestion:	Do not induce vomiting. Seek medical aid.
Injection:	Seek immediate medical aid.

Notes to Physician: This is a low viscosity material, with a Saybolt viscosity at 100°F of 32.6-40 SUS. If ingestion and vomiting occurs, there exists a high pulmonary aspiration hazard, possibly inducing lipoid pneumonia. For quantities above a few drops, use careful gastric lavage with tight fitting, cuffed endotracheal tube.

7.0 Special Protection Information

Ventilation Requirements: Use in well ventilated area. In confined spaces, mechanical ventilation may be required to keep levels of certain components below mandated standards. Responsible individuals should evaluate air concentrations of specific regulated chemicals.

Permitted Threshold: None assigned.
Air Concentrations

Specific Personal Protective Equipment:

Respiratory: Approved organic respirator above the TLVs.

Eyes: Safety goggles, or chemical splash goggles if splashing is anticipated.

Dermal: Oil impervious gloves if frequent or prolonged contact is expected.

Other Clothing or Equipment: Wear body-covering work clothes to avoid prolonged or repeated exposure. Remove fuel oil soaked clothing since it presents a fire hazard. Launder soiled work clothes before reuse.

8.0 Transportation and Special Precautions

Storage: Keep container tightly closed and away from heat and flame. Do not store with strong oxidizers.

Caution: Empty containers may contain product residue which could include flammable or explosive vapors.

Consult appropriate Federal, State and Local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

DOT Information

Proper Shipping Name:	Fuel Oil
Hazard Class:	Combustible liquid
Hazard Identification Number:	NA 1993
Placard:	Combustible liquid
Compatability Category*:	Group 33
CHRIS Code:	ODS

*DOT - Coast Guard

9.0 Environmental Data

Product Name	CITGO No. 2 Diesel Fuel
Commodity Code:	10-104

SARA TITLE III

Section 313 - Toxic Chemicals

This product does not contain toxic chemicals of Section 313 of Title III of Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

Components	CAS#	%
None	NA	NA

Section 311 - Hazard Categories

No Not Applicable	Yes Fire Hazard
Yes Acute (Immediate Health Hazard)	No Sudden Release of Pressure Hazard
Yes Chronic (Delayed Health Hazard)	No Reactive Hazard

Section 302/(A) - Extremely Hazardous Substances

(RQ = Reportable Quantity)
(TPQ = Threshold Planning Quantity)

This product does not contain Extremely Hazardous Substances of Section 302/(A).

Component	CAS#	%	RQ lbs.	TPQ lbs.
None	-	-	-	-

Clean Water Act

Under Section 311 (b) (4) of the Clean Water Act, discharges of crude oil and petroleum products in any kind or form to surface waters must be immediately reported to the National Response Center: 800-424-8802.

Comprehensive Environmental, Response, Compensation & Liability Act (CERCLA) - Section 102 Hazardous Substances

Component	CAS#	%	RQ lbs.

Petroleum and petroleum fractions are excluded from the list of CERCLA hazardous substances by Section 101(14) of CERCLA.

10.0 Labeling

DANGER:

COMBUSTIBLE LIQUID

HARMFUL IF SWALLOWED

HANDLING:

Keep away from heat, sparks and flames.
Keep container closed.
Do not breathe vapor.
Prevent direct dermal contact.

FIRST AID:

If swallowed, do not induce vomiting.
Call a physician immediately.
In case of contact, remove contaminated clothing immediately and wash thoroughly with soap and water.

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.		25766	25767	25801	29535	29596	29597	30903	T-01A	T-01B
Stored Product		<----------GASOLINE---------->								
Dia, ft.		80	80	80	70	60	70	90	130	130
Hgt, ft.		48	48	48	48	48	48	48	48	48
Tank Capacity										
,gals x 10^3		1734.6	1785.0	1138.2	1369.2	1012.2	1373.4	2125.2	4725.0	4725.0
,bbls x 10^3		41.3	42.5	27.1	32.6	24.1	32.7	50.6	112.5	112.5
BASE PERIOD	20.46	35,490			28,014	20,710	28,100		96,674	96,674
----------	18.06		32,237	20,556				38,381		
Average Turnover Factor	7.87									
vs	5.96									
M gallon Terminal Thruput	4.64									
	40.00									
Average Turnover Factor	40.00									
vs	36.00	62,446	64,260	40,975	49,291	36,439	49,442	76,507	170,100	170,100
M gallon Terminal Thruput	6.50									
	4.75									
Estimated Deliveries Thru -	PIPELINE	20,607	21,206	13,522	16,266	12,025	16,316	25,247	56,133	56,133
	-LOADING RACK	41,839	43,054	27,453	33,025	24,414	33,126	51,260	113,967	113,967
	-MISCELLANEOUS	0	0	0	0	0	0	0	0	0
TOTAL (M gals/year)		62,446	64,260	40,975	49,291	36,439	49,442	76,507	170,100	170,100
Roof Type										
Tank Constant - Ks		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE										
SEAL CONSTANT - Ks		6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Nc		0	0	0	0	0	0	0	0	0
- Fc		1	1	1	1	1	1	1	1	1
- Ff		250	250	250	250	200	250	285	285	285
- Kc		1	1	1	1	1	1	1	1	1
- Kn										
- Ld		0	0	0	0	0	0	0	0	0
- H										
- ^T										
- Fp										
- OC										
Vapor Pressure Factor - P		0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Miscellaneous Data										
temp - F		82	82	82	82	82	82	82	82	82
amb. pres. - psia		14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph		8	8	8	8	8	8	8	8	8
true vapor pressure, - psia		6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
density, - lbs/gal		6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
RVP, - psia		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
molecular weight, - MW		66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
true vapor pressure, - psia										
density, - lbs/gal										
molecular weight, - MW										
PRODUCT THROUGHPUT										
gals/yr x 10^6		62.45	64.26	40.98	49.29	36.44	49.44	76.51	170.10	170.10
tons/yr x 10^3		190.46	195.99	124.97	150.34	111.14	150.80	233.35	518.81	518.81
bbls/yr x 10^4		148.68	153.00	97.56	117.36	86.76	117.72	182.16	405.00	405.00
PRODUCT LOSSES, - lbs/yr										
breathing		0	0	0	0	0	0	0	0	0
deck fitting		0	0	0	0	0	0	0	0	0
rim seal		4952.64	4952.64	4952.64	4333.56	3714.48	4333.56	5571.72	8048.04	8048.04
withdrawal		160.36	165.02	105.22	144.66	124.77	145.11	174.64	268.81	268.81
deck		2310.00	2310.00	2310.00	2310.00	1848.00	2310.00	2633.40	2633.40	2633.40
TOTAL TANK FARM LOSSES, lbs/yr		7423.00	7427.66	7367.86	6788.22	5687.25	6788.67	8379.76	10950.25	10950.25
, lbs/hr		0.85	0.85	0.84	0.77	0.65	0.77	0.96	1.25	1.25
, tns/yr		3.71	3.71	3.68	3.39	2.84	3.39	4.19	5.48	5.48
, lb/day		20.34	20.35	20.19	18.60	15.58	18.60	22.96	30.00	30.00

→ 11,96

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	6814	7518	7522	21290	29534	30775	6816	25556	T-05A
Stored Product	(----------DIESEL----------)					AV-GAS	(----BONDED AVJET----)		
Dia, ft.	115	30	48	10	50	70	95	49	125
Hgt, ft.	30	35	35	30	48	51	31	43	48
Tank Capacity									
,gals x 10^3	2343.6	184.8	470.4	17.3	701.4	693.0	1600.2	541.8	4200.0
,bbls x 10^3	55.8	4.4	11.2	0.41	16.7	16.5	38.1	12.9	100.0
BASE PERIOD									
Average Turnover Factor vs M gallon Terminal Thruput	18,444	1,454	3,702	0	5,520	3,216	9,537	3,229	25,032
Average Turnover Factor vs M gallon Terminal Thruput	84,370	6,653	16,934	346	25,250	24,948	57,607	19,505	151,200
Estimated Deliveries Thru -	17,718	1,397	3,556	0	5,303	0	57,607	19,505	151,200
Estimated Deliveries Thru -LOAD	66,652	5,256	13,378	0	19,948	24,948	0	0	0
-MISC	0	0	0	346	0	0	0	0	0
TOTAL (M gal	84,370	6,653	16,934	346	25,250	24,948	57,607	19,505	151,200
Roof Type									
Tank Constant - Ks	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE									
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Nc	0	0	0	0	0	0	0	0	0
- Fc	1	1	1	1	1	1	1	1	1
- Ff	300	150	150	150	150	285	150	150	150
- Kc	1	1	1	1	1	1	1	1	1
- Kn									
- Ld	0	0	0	0	0	0	0	0	0
- H									
- °T									
- Fp									
- CC									
Vapor Pressure Factor - P	0.0096	0.0096	0.00022	0.00022	0.00022	0.14	0.0096	0.0096	0.0096
Miscellaneous Data									
temp - F	83	83	83	83	83	82	83	83	83
amb. pres. - psia	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph	8	8	8	8	8	8	8	8	8
true vapor pressure, - psia						6.4			
density, - lbs/gal						6.1			
RVP, - psia						10.0			
molecular weight, - MW						66.0			
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128	0.0128		0.0128	0.0128	0.0128
density, - lbs/gal	7.1	7.1	7.1	7.1	7.1		7.1	7.1	7.1
molecular weight, - MW	130	130	130	130	130		130	130	130
PRODUCT THROUGHPUT									
gals/yr x 10^6	84.37	6.65	16.93	0.35	25.25	24.95	57.61	19.50	151.20
tons/yr x 10^3	299.51	23.62	60.12	1.23	89.64	76.09	204.51	69.24	536.76
bbls/yr x 10^4	200.88	15.84	40.32	0.82	60.12	59.40	137.16	46.44	360.00
PRODUCT LOSSES, - lbs/yr									
breathing	0	0	0	0	0	0	0	0	0
deck fitting	0	0	0	0	0	0	0	0	0
rim seal	981.58	250.65	7.20	1.92	9.58	4333.56	794.35	409.72	1045.20
withdrawal	175.43	53.03	84.36	8.28	120.76	73.22	145.00	95.18	289.24
deck	374.40	187.20	4.29	4.29	4.29	2633.40	187.20	187.20	187.20
TOTAL TANK FARM LOSSES, lbs/yr	1511.41	491.07	97.85	14.48	134.63	7040.18	1126.55	692.10	1521.64
, lbs/hr	0.17	0.06	0.01	0.00	0.02	0.80	0.13	0.08	0.17
, tns/yr	0.76	0.25	0.05	0.01	0.07	3.52	0.56	0.35	0.76
, lb/day	4.14	1.35	0.27	0.04	0.37	19.29	3.09	1.90	4.17

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	6818	6819	6820	7162	7174	27382	29448	29449	29450	T-06A	T-06B	T-06C	T-06D
Stored Product	<----------ASPHALT---------->												
Dia, ft.	52	29	29	52	52	35	35	35	35	15	15	24	60
Hgt, ft.	31	30	30	30	35	40	40	40	40	24	24	24	40
Tank Capacity													
,gals x 10^3	478.8	142.8	142.8	487.2	554.4	289.8	289.8	289.8	285.6	33.6	33.6	79.8	840.0
,bbls x 10^3	11.4	3.4	3.4	11.6	13.2	6.9	6.9	6.9	6.8	0.8	0.8	1.9	20.0
BASE PERIOD													
Average Turnover Factor vs M gallon Terminal Thruput	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Turnover Factor vs M gallon Terminal Thruput	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
Estimated Deliveries Thru -	0	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Deliveries Thru -LOAD	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
-MISC	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL (M gal	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
Roof Type													
Tank Constant - Ks	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE													
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Nc	0	0	0	0	0	0	0	0	0	0	0	0	0
- Fc	1	1	1	1	1	1	1	1	1	1	1	1	1
- Ff	300	150	150	150	300	150	150	150	300	150	300	150	150
- Kc	1	1	1	1	1	1	1	1	1	1	1	1	1
- Kn													
- Ld	0	0	0	0	0	0	0	0	0	0	0	0	0
- H													
- ^T													
- Fp													
- OC													
Vapor Pressure Factor - P	0.0096	0.0096	0.0002	0.0002	0.0096	0.0096	0.0002	0.0002	0.0096	0.0096	0.0096	0.0096	0.0096
Miscellaneous Data													
temp - F	240	240	120	240	240	240	240	240	240	120	100	300	240
amb. pres. - psia	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph	0	0	0	0	0	0	0	0	0	0	0	0	0
true vapor pressure, - psia													
density, - lbs/gal													
RVP, - psia													
molecular weight, - MW													
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128
density, - lbs/gal	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
molecular weight, - MW	200	200	200	200	200	200	200	200	200	200	200	200	200
PRODUCT THROUGHPUT													
gals/yr x 10^6	3.11	0.93	0.93	3.17	3.60	1.88	1.88	1.88	1.86	0.22	0.22	0.52	5.46
tons/yr x 10^3	12.45	3.71	3.71	12.67	14.41	7.53	7.53	7.53	7.43	0.87	0.87	2.07	21.84
bbls/yr x 10^4	7.41	2.21	2.21	7.54	8.58	4.49	4.49	4.49	4.42	0.52	0.52	1.23	13.00
PRODUCT LOSSES, - lbs/yr													
breathing	0	0	0	0	0	0	0	0	0	0	0	0	0
deck fitting	0	0	0	0	0	0	0	0	0	0	0	0	0
rim seal	668.93	373.06	8.55	15.33	668.93	450.24	10.32	10.32	450.24	192.96	192.96	308.74	771.84
withdrawal	16.13	8.62	8.62	16.41	18.67	14.50	14.50	14.50	14.29	3.92	3.92	5.82	24.52
deck	552.96	552.96	3.17	12.67	552.96	552.96	12.67	12.67	552.96	138.24	96.00	864.00	552.96
TOTAL TANK FARM LOSSES, lbs/yr	1238.01	934.64	20.34	44.41	1240.56	1017.70	37.49	37.49	1017.49	335.12	292.88	1178.56	1349.32
, lbs/hr	0.14	0.11	0.00	0.01	0.14	0.12	0.00	0.00	0.12	0.04	0.03	0.13	0.15
, tns/yr	0.62	0.47	0.01	0.02	0.62	0.51	0.02	0.02	0.51	0.17	0.15	0.59	0.67
, lb/day	3.39	2.56	0.06	0.12	3.40	2.79	0.10	0.10	2.79	0.92	0.80	3.23	3.70

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	7145	7146	7147	7148	7164	7165
Stored Product	<--LUBE OIL PRODUCTS-->			ADDITIVE	FIRE	WASTE
Dia, ft.	19	19	19	19	29	29
Hgt, ft.	30	30	30	30	30	30
Tank Capacity						
,gals x 10^3	63.0	63.0	63.0	63.0	142.8	142.8
,bbls x 10^3	1.50	1.50	1.50	1.50	3.40	3.40
BASE PERIOD						
Average Turnover Factor vs M gallon Terminal Thruput	0	0	0	0	0	0
Average Turnover Factor vs M gallon Terminal Thruput	299	299	299	2,025	0	0
Estimated Deliveries Thru -	0	0	0	1,012	0	0
Estimated Deliveries Thru -LOAD	0	0	0	1,012	0	0
-MISC	299	299	299	0	0	0
TOTAL (M gal	299	299	299	2,025	0	0
Roof Type						
Tank Constant - Ks	1.1	1.1	1.1	1.1		
SEAL TYPE						
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7		
- Nc	0	0	0	0		
- Fc	1	1	1	1		
- Ff	300	300	300	300		
- Kc	1	1	1	1		
- Kn						
- Ld	0	0	0	0		
- H						
- ^T						
- Fp						
- OC						
Vapor Pressure Factor - P	0.0096	0.0096	0.0096	0.0096		
Miscellaneous Data						
temp - F	100	100	100	100		
amb. pres. - psia	14.7	14.7	14.7	14.7		
wind velocity - mph	8	8	8	8		
true vapor pressure, - psia						
density, - lbs/gal						
RVP, - psia						
molecular weight, - MW						
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128		
density, - lbs/gal	8.0	8.0	8.0	8.0		
molecular weight, - MW	200	200	200	200		
PRODUCT THROUGHPUT						
gals/yr x 10^6	0.30	0.30	0.30	2.02		
tons/yr x 10^3	1.20	1.20	1.20	8.10		
bbls/yr x 10^4	0.71	0.71	0.71	4.82		
PRODUCT LOSSES, - lbs/yr						
breathing	0	0	0	0		
deck fitting	0	0	0	0		
rim seal	244.42	244.42	244.42	244.42		
withdrawal	4.24	4.24	4.24	28.71		
deck	96.00	96.00	96.00	96.00		
TOTAL TANK FARM LOSSES, lbs/yr	344.66	344.66	344.66	369.13		
, lbs/hr	0.04	0.04	0.04	0.04		
, tns/yr	0.17	0.17	0.17	0.18		
, lb/day	0.94	0.94	0.94	1.01		

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Terminal Throughput Data
&
Air Emissions Calculations

Vapor Recovery System Calculations Exclude

	27,973,512 gals of Diesel Fuels Shipped Thru Pipelines.
	228,312,000 gals of BONDED AVJET Shipped Thru Pipelines.
	237,455,064 gals of GASOLINE Shipped Thru Pipelines.
	897,750 gals of Lube Oil
	346,080 gals of Onsite Diesel Fuel
	1,012,422 gals of ADDITIVE PACKAGES SHIPPED OFF SITE.
Total Excluded Fuel Products	495,996,828
Total Terminal Fuel Products	1,108,052,844
Total Terminal Asphalt Products	25,662,000
Misc. Products (Additives,Lube Oil, on site Diesel Fuel)	1,243,830
	638,961,846 gals ⇒

SITE LOADING RACK BREAKDOWNS

Additives	1,012,422
Asphalt	25,662,000
Diesel	105,233,688
Gasoline & Avgas	507,053,736
	638,961,846 gallons

ESTIMATED EMISSIONS
at
PROJECT BUILDOUT

	Controlled Emissions		Uncontrolled Emissions		Calculated Operating Efficiency
	lbs/hr	tons/yr	lbs/hr	tons/yr	
Storage Tanks	10.79	47.27	10.79	47.27	
Vapor Recovery	21.31	93.33	21.31	93.32	96.21
TOTAL	32.10	140.60	32.10	140.59	

Notes:
1.) Calculated operating efficiency is basis upon UNCONTROLLED EMISSIONS of 35 mg/l per gallon loaded.
2.) Published data for Vapor Combustion units show operational efficiencies of between 95-99%.
3.) Communications with John Zink Company stated that anticipated efficiencies will be between 96-99%.
4.) Calculated CONTROLLED EMISSIONS were based upon the more conservative 96% efficiency.
5.) Calculations are based upon US EPA Document AP-42, Chapter 4.4 - Transportation & Marketing of Petroleum Liquids.
6.) The Calculated Operating Efficiency is based upon an emission level of 35 mg/l when operating at the stated Loading Rack Volumes.
7.) Emissions for storage tanks is based upon the summation of the TOTAL TANK FARM LOSSES calculated on pages 1 - 4.
8.) The formulas used to calculate lbs/hr of CONTROLLED EMISSIONS: 12.46 * S * P * M * (1 - EFF/100) * LOADED VOLUME / DEG R / 8760 / 1000
lbs/hr of UNCONTROLLED EMISSIONS: 2.205 * 35 * 3.785 * LOADED VOLUME / 8760 / 10^6

ITEM	P-101 *	S-101 **	V-401 *	P-404 *	PNL-101	V-201	ZTOF-301	BL-301
NAME	SUMP PUMP	SUMP TANK	SEAL FLUID STORAGE TANK	SEAL FLUID PUMP	LOCAL CONTROL PANEL	LIQUID SEAL	ZINK THERMAL OXIDIZER ENCLOSED VAPOR COMBUSTOR	AIR ASSIST BLOWER
SIZE:								
DESIGN:								

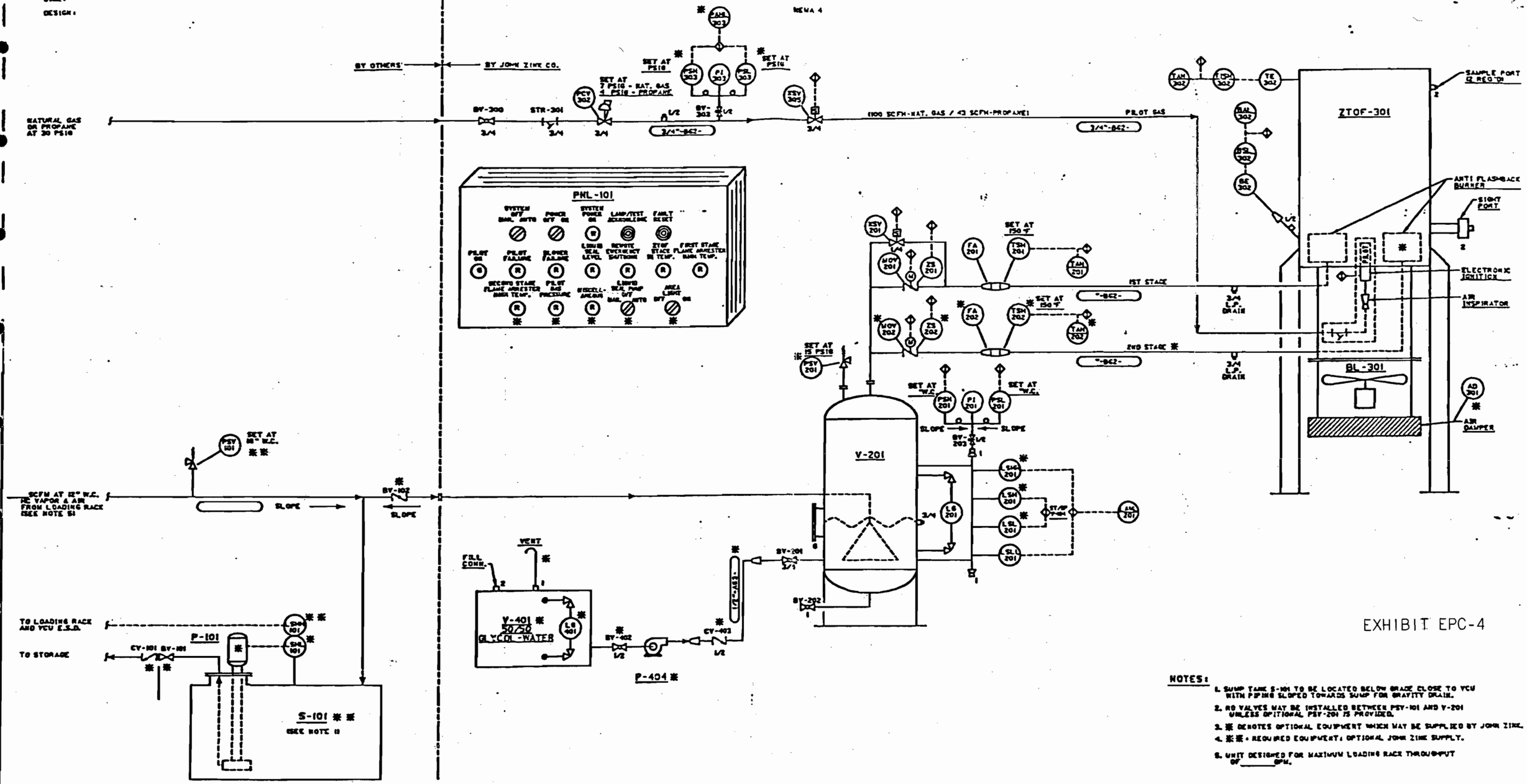


EXHIBIT EPC-4

NOTES:

1. SUMP TANK S-101 TO BE LOCATED BELOW GRADE CLOSE TO YCU WITH PIPING SLOPED TOWARDS SUMP FOR GRAVITY DRAIN.
2. NO VALVES MAY BE INSTALLED BETWEEN PSV-101 AND V-201 UNLESS OPTIONAL PSV-201 IS PROVIDED.
3. * DENOTES OPTIONAL EQUIPMENT WHICH MAY BE SUPPLIED BY JOHN ZINK.
4. * * = REQUIRED EQUIPMENT; OPTIONAL JOHN ZINK SUPPLY.
5. UNIT DESIGNED FOR MAXIMUM LOADING RACK THROUGHPUT OF _____ GPM.

NO.	DESCRIPTION	DATE	BY	CHECK	ENGR. APPROVED
	REVISIONS				

DRAWING NUMBER	DESCRIPTION
	REFERENCE DRAWINGS

CONSTRUCTION	ENGR.			
	DRFT.			
CUSTOMER APPROVAL	ENGR.			
	DRFT.			
BIDS	ENGR.			
	DRFT.			
INFORMATION	ENGR.			
	DRFT.			
ISSUED FOR:	SIGNATURE	DATE	REV.	

DRAWING STATUS

CLIENTS APPROVED	CERTIFIED
DATE:	DATE:

CUSTOMER:
USER:
JOBSITE:
SHOP ORDER | PURCHASE ORDER

DRAWN	CHECKED	DATE
S.W.		11-87

JOHN ZINK COMPANY
TULSA OKLAHOMA

TITLE: PIPING AND INSTRUMENT DIAGRAM FOR JOHN ZINK CO. TYPE GVZTOF GASOLINE VAPOR COMBUSTION UNIT

SCALE	DRAWING NUMBER	REV
	B-S1-2547 - SHT. 4 OF 4	C

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.		25766	25767	25881	29535	29596	29597	30903	T-01A	T-01B
Stored Product		<----------GASOLINE---------->								
Dia, ft.		80	80	80	70	60	70	90	130	130
Hgt, ft.		48	48	48	48	48	48	48	48	48
Tank Capacity										
,gals x 10^3		1734.6	1785.0	1138.2	1369.2	1012.2	1373.4	2125.2	4725.0	4725.0
,bbls x 10^3		41.3	42.5	27.1	32.6	24.1	32.7	50.6	112.5	112.5
BASE PERIOD	20.46	35,490			28,014	20,710	28,100		96,674	96,674
----------	18.06		32,237	20,556				38,381		
Average Turnover Factor	7.87									
vs	5.96									
M gallon Terminal Thruput	4.64									
	40.00									
Average Turnover Factor	40.00									
vs	36.00	62,446	64,260	40,975	49,291	36,439	49,442	76,507	170,100	170,100
M gallon Terminal Thruput	6.50									
	4.75									
Estimated Deliveries Thru -	PIPELINE	20,607	21,206	13,522	16,266	12,025	16,316	25,247	56,133	56,133
	-LOADING RACK	41,839	43,054	27,453	33,025	24,414	33,126	51,260	113,967	113,967
	-MISCELLANEOUS	0	0	0	0	0	0	0	0	0
TOTAL (M gals/year)		62,446	64,260	40,975	49,291	36,439	49,442	76,507	170,100	170,100
Roof Type										
Tank Constant - Ks		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE										
SEAL CONSTANT - Ks		6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Nc		0	0	0	0	0	0	0	0	0
- Fc		1	1	1	1	1	1	1	1	1
- Ff		250	250	250	250	200	250	285	285	285
- Kc		1	1	1	1	1	1	1	1	1
- Kn										
- Ld		0	0	0	0	0	0	0	0	0
- H										
- ^T										
- Fp										
- OC										
Vapor Pressure Factor - P		0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Miscellaneous Data										
temp - F		82	82	82	82	82	82	82	82	82
amb. pres. - psia		14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph		8	8	8	8	8	8	8	8	8
true vapor pressure, - psia		6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
density, - lbs/gal		6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
RVP, - psia		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
molecular weight, - MW		66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
true vapor pressure, - psia										
density, - lbs/gal										
molecular weight, - MW										
PRODUCT THROUGHPUT										
gals/yr x 10^6		62.45	64.26	40.98	49.29	36.44	49.44	76.51	170.10	170.10
tons/yr x 10^3		190.46	195.99	124.97	150.34	111.14	150.80	233.35	518.81	518.81
bbls/yr x 10^4		148.68	153.00	97.56	117.36	86.76	117.72	182.16	405.00	405.00
PRODUCT LOSSES, - lbs/yr										
breathing		0	0	0	0	0	0	0	0	0
deck fitting		0	0	0	0	0	0	0	0	0
rim seal		4952.64	4952.64	4952.64	4333.56	3714.48	4333.56	5571.72	8048.04	8048.04
withdrawal		160.36	165.02	105.22	144.66	124.77	145.11	174.64	268.81	268.81
deck		2310.00	2310.00	2310.00	2310.00	1848.00	2310.00	2633.40	2633.40	2633.40
TOTAL TANK FARM LOSSES, lbs/yr		7423.00	7427.66	7367.86	6788.22	5687.25	6788.67	8379.76	10950.25	10950.25
, lbs/hr		0.85	0.85	0.84	0.77	0.65	0.77	0.96	1.25	1.25
, tns/yr		3.71	3.71	3.68	3.39	2.84	3.39	4.19	5.48	5.48
, lb/day		20.34	20.35	20.19	18.60	15.58	18.60	22.96	30.00	30.00

EXHIBIT FDER-1
(EXHIBIT EPC-2)

APPLICATION TRACKING SYSTEM 02/15/89

APPL NO:160654
APPL RECVD:02/10/89 TYPE CODE:AC SUBCODE:1D LAST UPDATE:02/14/89
DER OFFICE RECVD:TPA DER OFFICE TRANSFER TO:___ APPLICATION COMPLETE:00/00/00
DER PROCESSOR:~~THOMAS~~ McDonald
APPL STATUS:AC DATE:02/10/89 (ACTIVE/DENIED/WITHDRAWN/EXEMPT/ISSUED/GENERAL)
RELIEF:__ (SSAC/EXEMPTIONS/VARIANCE)
(Y/N) N MANUAL TRACKING DISTRICT:48 COUNTY:29
(Y/N) DNR REVIEW REQD? LAT/LONG:27.56.49/82.26.24
(Y/N) ~~Y~~ PUBLIC NOTICE REQD? BASIN-SEGMENT:__.___
(Y/N) N GOV BODY LOCAL APPROVAL REQD? COE #:__________
(Y/N) Y LETTER OF INTENT REQD? _ (I/ISSUE D/DENY) ALT#:___-__________

PROJECT SOURCE NAME:NEW STORAGE TANKS
STREET:519 19TH ST. CITY:TAMPA
STATE:FL ZIP:_____ PHONE:___-___-____
APPLICATION NAME:STAR ENTERPRISE
STREET:555 WINDERLEY PLACE STE. 420 CITY:MAITLAND
STATE:FL ZIP:32751 PHONE:___-___-____
AGENT NAME:J.E. SPENMAN CONSULTING ENGINEERS
STREET:1901 UNIVERSITY DRIVE CITY:CORAL SPRINGS
STATE:FL ZIP:33071 PHONE:305-752-7117
FEE #1 DATE PAID:02/10/89 AMOUNT PAID:00500 RECEIPT NUMBER:00132192

B DATE APPLICANT INFORMED OF NEED FOR PUBLIC NOTICE - - - __/__/__
C DATE DER SENT DNR APPLICATION/SENT DNR INTENT - - - - - __/__/__--__/__/__
D DATE DER REQ. COMMENTS FROM GOV. BODY FOR LOCAL APP. -. __/__/__
E DATE #1 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - 03/10/89--07/07/89
L DATE #2 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - 08/04/89--11/09/89
E DATE #3 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - __/__/__--__/__/__
E DATE #4 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - __/__/__--__/__/__
E DATE #5 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - __/__/__--__/__/__
E DATE #6 ADDITIONAL INFO REQ--REC FROM APPLICANT - - - - __/__/__--__/__/__
F DATE GOVERNING BODY REQUESTED SURVEY RESULTS/REPORTS - - __/__/__
G DATE FIELD REPORT WAS REQ--REC - - - - - - - - - - - - __/__/__--__/__/__
H DATE DNR REVIEW WAS COMPLETED - - - - - - - - - - - - __/__/__

I DATE APPLICATION WAS COMPLETE - - - - - - - - - - - - - 00/00/00
J DATE GOVERNING BODY PROVIDED COMMENTS OR OBJECTIONS - - __/__/__
K DATE NOTICE OF INTENT WAS SENT--REC TO APPLICANT - - - - __/__/__--__/__/__
L DATE PUBLIC NOTICE WAS SENT TO APPLICANT - - - - - - - __/__/__
M DATE PROOF OF PUBLICATION OF PUBLIC NOTICE RECEIVED - - __/__/__
N WAIVER DATE BEGIN--END (DAY 90) - - - - - - - - - - - __/__/__--__/__/__

COMMENTS:

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	6814	7518	7522	21290	29534	30775	6816	25556	T-05A
Stored Product	<----------DIESEL---------->					AV-GAS	<----BONDED AVJET---->		
Dia, ft.	115	30	48	10	50	70	95	49	125
Hgt, ft.	30	35	35	30	48	51	31	43	48
Tank Capacity									
,gals x 10^3	2343.6	184.8	470.4	17.3	701.4	693.0	1600.2	541.8	4200.0
,bbls x 10^3	55.8	4.4	11.2	0.41	16.7	16.5	38.1	12.9	100.0
BASE PERIOD									
Average Turnover Factor	18,444	1,454	3,702	0	5,520				
vs							9,537	3,229	25,032
M gallon Terminal Thruput						3,216			
				346					
Average Turnover Factor									
vs	84,370	6,653	16,934		25,250	24,948	57,607	19,505	151,200
M gallon Terminal Thruput									
Estimated Deliveries Thru -	17,718	1,397	3,556	0	5,303	0	57,607	19,505	151,200
Estimated Deliveries Thru -LOAD	66,652	5,256	13,378	0	19,948	24,948	0	0	0
-MISC	0	0	0	346	0	0	0	0	0
TOTAL (M gal	84,370	6,653	16,934	346	25,250	24,948	57,607	19,505	151,200
Roof Type									
Tank Constant - Ks	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE									
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Nc	0	0	0	0	0	0	0	0	0
- Fc	1	1	1	1	1	1	1	1	1
- Ff	300	150	150	150	150	285	150	150	150
- Kc	1	1	1	1	1	1	1	1	1
- Kn									
- Ld	0	0	0	0	0	0	0	0	0
- H									
- ^T									
- Fp									
- OC									
Vapor Pressure Factor - P	0.0096	0.0096	0.00022	0.00022	0.00022	0.14	0.0096	0.0096	0.0096
Miscellaneous Data									
temp - F	83	83	83	83	83	82	83	83	83
amb. pres. - psia	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph	8	8	8	8	8	8	8	8	8
true vapor pressure, - psia						6.4			
density, - lbs/gal						6.1			
RVP, - psia						10.0			
molecular weight, - MW						66.0			
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128	0.0128		0.0128	0.0128	0.0128
density, - lbs/gal	7.1	7.1	7.1	7.1	7.1		7.1	7.1	7.1
molecular weight, - MW	130	130	130	130	130		130	130	130
PRODUCT THROUGHPUT									
gals/yr x 10^6	84.37	6.65	16.93	0.35	25.25	24.95	57.61	19.50	151.20
tons/yr x 10^3	299.51	23.62	60.12	1.23	89.64	76.09	204.51	69.24	536.76
bbls/yr x 10^4	200.88	15.84	40.32	0.82	60.12	59.40	137.16	46.44	360.00
PRODUCT LOSSES, - lbs/yr									
breathing	0	0	0	0	0	0	0	0	0
deck fitting	0	0	0	0	0	0	0	0	0
rim seal	961.50	250.85	9.20	1.92	9.58	4333.56	794.35	409.72	1045.20
withdrawal	175.43	53.03	84.36	8.28	120.76	73.22	145.00	95.18	289.24
deck	374.40	187.20	4.29	4.29	4.29	2633.40	187.20	187.20	187.20
TOTAL TANK FARM LOSSES, lbs/yr	1511.41	491.07	97.85	14.48	134.63	7040.18	1126.55	692.10	1521.64
, lbs/hr	0.17	0.06	0.01	0.00	0.02	0.80	0.13	0.08	0.17
, tns/yr	0.76	0.25	0.05	0.01	0.07	3.52	0.56	0.35	0.76
, lb/day	4.14	1.35	0.27	0.04	0.37	19.29	3.09	1.90	4.17

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	6818	6819	6820	7162	7174	27382	29448	29449	29450	T-06A	T-06B	T-06C	T-06D
Stored Product	<--------					ASPHALT							-------->
Dia, ft.	52	29	29	52	52	35	35	35	35	15	15	24	60
Hgt, ft.	31	30	30	30	35	40	40	40	40	24	24	24	40
Tank Capacity													
,gals x 10^3	478.8	142.8	142.8	487.2	554.4	289.8	289.8	289.8	285.6	33.6	33.6	79.8	840.0
,bbls x 10^3	11.4	3.4	3.4	11.6	13.2	6.9	6.9	6.9	6.8	0.8	0.8	1.9	20.0
BASE PERIOD													
Average Turnover Factor vs M gallon Terminal Thruput	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Turnover Factor vs M gallon Terminal Thruput	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
Estimated Deliveries Thru -	0	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Deliveries Thru -LOAD	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
-MISC	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL (M gal	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
Roof Type													
Tank Constant - Ks	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE													
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Nc	0	0	0	0	0	0	0	0	0	0	0	0	0
- Fc	1	1	1	1	1	1	1	1	1	1	1	1	1
- Ff	300	150	150	150	300	150	150	150	300	150	300	150	150
- Kc	1	1	1	1	1	1	1	1	1	1	1	1	1
- Kn													
- Ld	0	0	0	0	0	0	0	0	0	0	0	0	0
- H													
- ^T													
- Fp													
- OC													
Vapor Pressure Factor - P	0.0096	0.0096	0.0002	0.0002	0.0096	0.0096	0.0002	0.0002	0.0096	0.0096	0.0096	0.0096	0.0096
Miscellaneous Data													
temp - F	240	240	120	240	240	240	240	240	240	120	100	300	240
amb. pres. - psia	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph	8	8	8	8	8	8	8	8	8	8	8	8	8
true vapor pressure, - psia													
density, - lbs/gal													
RVP, - psia													
molecular weight, - MW													
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128
density, - lbs/gal	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
molecular weight, - MW	200	200	200	200	200	200	200	200	200	200	200	200	200
PRODUCT THROUGHPUT													
gals/yr x 10^6	3.11	0.93	0.93	3.17	3.60	1.88	1.88	1.88	1.86	0.22	0.22	0.52	5.46
tons/yr x 10^3	12.45	3.71	3.71	12.67	14.41	7.53	7.53	7.53	7.43	0.87	0.87	2.07	21.84
bbls/yr x 10^4	7.41	2.21	2.21	7.54	8.58	4.49	4.49	4.49	4.42	0.52	0.52	1.23	13.00
PRODUCT LOSSES, - lbs/yr													
breathing	0	0	0	0	0	0	0	0	0	0	0	0	0
deck fitting	0	0	0	0	0	0	0	0	0	0	0	0	0
rim seal	668.93	373.06	8.55	15.33	668.93	450.24	10.32	10.32	450.24	192.96	192.96	308.74	771.84
withdrawal	16.13	8.62	8.62	16.41	18.67	14.50	14.50	14.50	14.29	3.92	3.92	5.82	24.52
deck	552.96	552.96	3.17	12.67	552.96	552.96	12.67	12.67	552.96	138.24	96.00	864.00	552.96
TOTAL TANK FARM LOSSES, lbs/yr	1238.01	934.64	20.34	44.41	1240.56	1017.70	37.49	37.49	1017.49	335.12	292.88	1178.56	1349.32
, lbs/hr	0.14	0.11	0.00	0.01	0.14	0.12	0.00	0.00	0.12	0.04	0.03	0.13	0.15
, tns/yr	0.62	0.47	0.01	0.02	0.62	0.51	0.02	0.02	0.51	0.17	0.15	0.59	0.67
, lb/day	3.39	2.56	0.06	0.12	3.40	2.79	0.10	0.10	2.79	0.92	0.80	3.23	3.70

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	7145	7146	7147	7148	7164	7165
Stored Product	<--LUBE OIL PRODUCTS-->			ADDITIVE	FIRE	WASTE
Dia, ft.	19	19	19	19	29	29
Hgt, ft.	30	30	30	30	30	30
Tank Capacity						
,gals x 10^3	63.0	63.0	63.0	63.0	142.8	142.8
,bbls x 10^3	1.50	1.50	1.50	1.50	3.40	3.40
BASE PERIOD						
Average Turnover Factor vs M gallon Terminal Thruput	0	0	0	0	0	0
Average Turnover Factor vs M gallon Terminal Thruput	299	299	299	2,025	0	0
Estimated Deliveries Thru -	0	0	0	1,012	0	0
Estimated Deliveries Thru -LOAD	0	0	0	1,012	0	0
-MISC	299	299	299	0	0	0
TOTAL (M gal	299	299	299	2,025	0	0
Roof Type						
Tank Constant - Ks	1.1	1.1	1.1	1.1		
SEAL TYPE						
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7		
- Nc	0	0	0	0		
- Fc	1	1	1	1		
- Ff	300	300	300	300		
- Kc	1	1	1	1		
- Kn						
- Ld	0	0	0	0		
- H						
- ΔT						
- Fp						
- OC						
Vapor Pressure Factor - P	0.0096	0.0096	0.0096	0.0096		
Miscellaneous Data						
temp - F	100	100	100	100		
amb. pres. - psia	14.7	14.7	14.7	14.7		
wind velocity - mph	8	8	8	8		
true vapor pressure, - psia						
density, - lbs/gal						
RVP, - psia						
molecular weight, - MW						
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128		
density, - lbs/gal	8.0	8.0	8.0	8.0		
molecular weight, - MW	200	200	200	200		
PRODUCT THROUGHPUT						
gals/yr x 10^6	0.30	0.30	0.30	2.02		
tons/yr x 10^3	1.20	1.20	1.20	8.10		
bbls/yr x 10^4	0.71	0.71	0.71	4.82		
PRODUCT LOSSES, - lbs/yr						
breathing	0	0	0	0		
deck fitting	0	0	0	0		
rim seal	244.42	244.42	244.42	244.42		
withdrawal	4.24	4.24	4.24	28.71		
deck	96.00	96.00	96.00	96.00		
TOTAL TANK FARM LOSSES, lbs/yr	344.66	344.66	344.66	369.13		
, lbs/hr	0.04	0.04	0.04	0.04		
, tns/yr	0.17	0.17	0.17	0.18		
, lb/day	0.94	0.94	0.94	1.01		

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Terminal Throughput Data
&
Air Emissions Calculations

Vapor Recovery System Calculations Exclude

27,973,512	gals of Diesel Fuels Shipped Thru Pipelines.
228,312,000	gals of BONDED AVJET Shipped Thru Pipelines.
237,455,064	gals of GASOLINE Shipped Thru Pipelines.
897,750	gals of Lube Oil
346,080	gals of Onsite Diesel Fuel
1,012,422	gals of ADDITIVE PACKAGES SHIPPED OFF SITE.
495,996,828	Total Excluded Fuel Products
1,108,052,844	Total Terminal Fuel Products
25,662,000	Total Terminal Asphalt Products
1,243,830	Misc. Products (Additives,Lube Oil, on site Diesel Fuel)
638,961,846 gals	

SITE LOADING RACK BREAKDOWNS

Additives	1,012,422
Asphalt	25,662,000
Diesel	105,233,688
Gasoline & Avgas	507,053,736
638,961,846 gallons	

ESTIMATED EMISSIONS
at
PROJECT BUILDOUT

	Potential Emissions		Controlled Emissions	
	lbs/hr	tons/yr	lbs/hr	tons/yr
Storage Tanks	11	47	11	47
Vapor Recovery	564	2,471	21	93
TOTAL	575	2,518	32	141

Notes:
1.) Calculated operating efficiency is basis upon UNCONTROLLED EMISSIONS of 35 mg/l per gallon loaded.
2.) Published data for Vapor Combustion units show operational efficiencies of between 95-99%.
3.) Communications with John Zink Company stated that anticipated efficiencies will be between 96-99%.
4.) Calculated CONTROLLED EMISSIONS were based upon the more conservative 96% efficiency.
5.) Calculations are based upon US EPA Document AP-42, Chapter 4.4 - Transportation & Marketing of Petroleum Liquids.
6.) The Calculated Operating Efficiency is based upon an emission level of 35 mg/l when operating at the stated Loading Rack Volumes.
7.) Emissions for storage tanks is based upon the summation of the TOTAL TANK FARM LOSSES calculated on pages 1 - 4.
8.) The formulas used to calculate lbs/hr of CONTROLLED EMISSIONS: 12.46 * S * P * M * (1 - EFF/100) * LOADED VOLUME / DEG R / 8760 / 1000
lbs/hr of POTENTIAL EMISSIONS: 12.46 * S * P * M * LOADED VOLUME / DEG R / 8760 / 1000

Jim McDonald, DER

J.E. Brenman Consulting Engineers, Inc.
Engineers • Land Surveyors

OCTOBER 26, 1989

OCT 30 1989

E.P.C. of H.C.

CERTIFIED RRR
P 394 445 891

HILLSBOROUGH COUNTY
ENVIRONMENTAL PROTECTION COMMISSION
1900 9TH AVENUE
TAMPA, FLORIDA 33605

ATTENTION: MR. ARTHUR J. WELLS
AIR PERMITTING ENGINEER

REFERENCE: HILLSBOROUGH COUNTY -AP
AC 29-160654 AND AC 29-160652
STAR ENTERPRISE/CITGO JOINT VENTURE

DEAR MR. WELLS:

DUE TO THE COMPLEXITY OF THE AIR EMISSIONS PERMIT APPLICATION, WE REQUIRE ADDITIONAL TIME FOR THE PREPARATION OF OUR RESPONSE TO YOUR AUGUST 4, 1989 LETTER. WE ANTICIPATE YOUR RECEIPT OF OUR RESPONSE DURING THE WEEK OF NOVEMBER 6, 1989.

WE WILL DO EVERYTHING POSSIBLE TO HAVE THE RESPONSE SATISFACTORILY ADDRESS THE POINTS RAISED IN YOUR LETTER.

VERY TRULY YOURS,

J.E. BRENMAN CONSULTING ENGINEERS, INC.

J.E. Brenman

J.E. BRENMAN, P.E.
PRESIDENT

cc: MR. AL GALLEGOS - CITGO
MR. R.E. HARKRIDER - STAR

To: Jim McDonald, FDER
From: Art Wells, EPC/HC
For your information and file.

D.E.R.

NOV - 3 1989

SOUTHWEST

1801 University Drive • Coral Springs, Florida 33071-6078
Telephone (305) 752-7117 • Fax (305) 753-7743

Jim McDonald

ROGER P. STEWART
DIRECTOR

1900 - 9th AVE
TAMPA, FLORIDA 33605

TELEPHONE (813) 272-5960

To: Jim McDonald, FDER
From: Art Wells, EPC/H-IC
For your information/file.

October 18, 1989

Mr. R.R. Rall
Division Manager Operations
Star Enterprises
P.O. Box 5140
Maitland, FL 32751-8003

RE: Hillsborough County - AP
AC29-160654 and AC29-160652

Dear Mr. Rall:

Our letter dated August 4, 1989, notified you the above referenced applications are incomplete (see attached copy).

When a permit application is incomplete, all processing of the application is suspended. Pursuant to Section 120.60, Florida Statutes, the Department may deny a permit application if the applicant, after receiving timely notice, fails to correct errors, omission, or supply additional information with a reasonable period of time.

It has been 75 days since you were notified of the need for additional information. Therefore, within 15 days of receipt of this letter please advise us if:

A. You wish to withdraw your application.
B. You need additional time to obtain the required information and approximately the date we should receive the information.
C. You have questions about our request and wish to discuss your application with us.

If we do not receive one of the responses listed above or the necessary information to complete the application within the required time requested, the Department will initiate action to deny the application.

Your cooperation regarding this matter will be appreciated.

Sincerely,

Arthur J. Wells

Arthur J. Wells
Air Permit Engineer

bb

cc: J. Harry Kerns/Jim McDonald, FDER
J.E. Brenman

Attachment

30TH DAY
COMPLETENESS REVIEW
COMMENT FORM

DATE: 8-4-89 PATS DAY: 29

COMPANY NAME: Star Enterprises

APPLICATION NUMBER(S): AC29-160654 + AC29-160652

AGENCY CONTACT(S): Ed Svec / Art Wells

DESCRIPTION OF SOURCE(S): 35 Storage Tanks and Truck Loading Rack w/Flare

STATUS
( ) Complete
( ) Exempt
( ) Withdrawn
(X) Incompleteness Letter Necessary With Following Items:

see attached my notes and EPC's notes

REVIEW ENGINEER: Jim McDonald

DISTRICT AIR ENGINEER: Harry

BEST AVAILABLE COPY

12 Marathon Tanks

2 New Gas T-01A + T-01E gas

1 New Loaded AVJET T-05A

2 Unpermitted Tanks 6814, 755 diesel

1 New Diesel #21290

4 Lube Oil 7145-7148 | 7145, 7146, 7147 Lube oil | 7148 Additive | 7164 Fire | 7165 Waste | 0

9 8 - Additional (?) 6818-6820 7162 7174 27382 29449 [illegible] Asphalt

4 New Tanks (?) T-06A, T-06B T-06C, T-06D Asphalt

35 34 Tanks Total

1 Tank Nos. stated to be on Marathon permit A0029-138645 are [illegible] accordingly

2 What are in 8 additional Tanks + 4 New Tanks ASPHALT

3 Has date of construction of all the tanks been received for NSPS etc

4 Need Transfer of Marathon's 12 tanks if to go on this permit

1 Not signed

12 2 Ref to Attachment 1 no Attachment

12 3 NSPS No ⇒ Yes

12 4 RACT No ⇒ Yes

12 5 Ref to Star Enterprise has a source in Tampa. What is source + permit #

12 6 Section III, C. Need Attachment II + III 43,333 gal/hr

7 John Zink info not signed by company

8. Only 6 of Marathon's tanks allowed to store GAS Table 1 column 7 correlate Tank # to Tank # so we can see which tanks store gas + NSPS switched to gas

9. EPC's #14 If yes, calculate [illegible]

10 Show how values in IA + IE derived

$$\frac{35\ mg}{L} \times \frac{1\ L}{0.264\ gal} \times \frac{78{,}180\ gal}{hr} \times \frac{1\ g}{1000\ mg} \times \frac{1\ lb}{454\ g} = \frac{22.83}{12.946}$$

$$= 189.23$$

1st part of letter

Info given in application Subject to 17-2.510

(8) (a) ~~None~~

1.
2.
3.
4.

(b) 1. Have not done

2. Have not done

~~[illegible]~~

Provide all the information required by

completion Item #1 ~~Comply with all requirements of~~ 17-2.510(8)(a)

#2 " " " " " " (8)(b)

#3 Comply " " " " 17-2.510(6)(b)10.

#4 Account for all fugitive emissions (include in facility total) since they are not exempt pursuant to 17-2.510 (2)(b)

Because They are on list of 28 and 40 CFR 60 applies.

17-2.640

#5 Need to ~~make a~~ recommend a determination of LAER setting forth the basis for such determination as required by Subsection 17-2.640(1)

#6 ~~Does~~ Is this going to be a phased construction project?

#7 ~~What NSPS rules apply~~

Need to identify ~~what~~ which NSPS subparts

Tank 7148

#8 Additive — What is it?

Tank 7164

#9 Fire - What is it?

Tank 7165

#10 Waste - What is it?

#11 Product throughputs will be max. in permit since that is what the emission calculations were based on. Recalculate and Submit if this is a problem.

#12 Submit MSDS sheets for all products to be handled.

#13 Only emission calculated are VOC
Need CO, NO_x, SO_2, PM, PM_{10}, VOC, Lead from the flare

~~Also Lead Emissions from~~

#14 Is leaded gasoline to be stored and handled?

#15 Must Obtain a construction permit first prior to beginning construction

#16 What are the Max and min. truck loading rates at the truck loading racks?

#17 Fuel usage presented in Item III E. compared to Manufacturer specifications, there is a discrepancy.

21 SCFH (Propane) → 54 SCFH (Nat. Gas)

#18 What are the total potential uncontrolled emissions from the entire facility

#19 Sign and seal application
Resubmit pages 1A and 2A of 12 with seals

#20 ~~There may be additional state application fee based on the emiss~~

State application fees are based on total potential emissions. Should the fee previously submitted not be sufficient, then the balance of the appropriate fees due must be submitted to the Dept's prior to issuance of the permit.

#21 No letter of authorization from R.R. Rall, need to identify him as owner or authorized representative

#22 Supply all information where required in Section V, ~~Comply with all~~ Supplemental Requirements, of ~~the~~ the construction permit application.

Jim McDonald, FDER

ROGER P. STEWART
DIRECTOR

1900 - 9th AVE
TAMPA, FLORIDA 33605

TELEPHONE (813) 272-5960

August 4, 1989

D. E. R.

AUG - 7 1989

SOUTHWEST DISTRICT
TAMPA

Mr. R.R. Rall
Division Manager Operations
Star Enterprises
P.O. Box 5140
Maitland, FL 32751-8003

Re: Hillsborough County - AP AC 29-160654 & 160652

Dear Mr. Rall:

The staffs of the Environmental Protection Commission of Hillsborough County and the Florida Department of Environmental Regulation acknowledge receipt of the correspondence dated June 30, 1989 submitted by J.E. Brenman Consulting Engineers and are currently in review of your applications regarding construction of the new product storage tanks and a truck loading rack in Tampa.

Review of your applications have determined that they are still incomplete. Pursuant to Section 17-4.07, F.A.C., in order to continue processing the applications, the following additional information must be received:

1. Provide all the information required by Subsection 17-2.510 (8)(a), F.A.C.

2. Provide all the information required by Subsection 17-2.510 (8)(b), F.A.C.

3. Provide all the information required by Subsection 17-2.510 (6)(b) 10., F.A.C.

4. Recalculate the total facility emissions taking into account all fugitive emissions since they are not exempt pursuant to 17-2.510 (2)(b), F.A.C.

5. A determination of LAER (Lowest Achievable Emission Rate) is required. Provide a recommendation of LAER setting forth the basis for the determination [17-2.640(1)]. Include a guarantee of control device efficiency signed by the manufacturer.

6. Is this going to be a phased construction project?

7. Identify which NSPS subparts apply to each individual tank. Provide details of construction for all tanks, the permit number and tank designation for all previous permitted tanks, and the rule applicability for each tank.

8. Review of your application states that Tank 7148 will contain additive. Please identify what this additive consists of.

9. Review of your application identifies Tank 7164 as fire. Please explain what this tank will contian.

10. Review of your application identifies Tank 7165 as waste. Please expalin what this tank will contain.

11. The product throughputs specified in the application will be the maximum rates specified in the permit since they were what the emission calculations were based on. Recalculate and submit revised calculations if this is a problem.

12. Submit MSDS for all products to be handled.

13. Review of the application shows that only VOC emissions were calculated. Submit emission calculations for the following pollutants: CO, NOx, SO_2, PM, PM10, VOC and lead in regards to the propane fired flare.

14. Is leaded gasoline to be stored and handled?

15. Chapter 1-3.21 of the Rules of the Environmental Protection Commission of Hillsborough County required the owner or operator of an air pollutor source to obtain a construction permit first prior to beginning construction. Review of the application states March 1989 as the initial date for start of construction. IN your response to this letter, specify the correct date for start of construction.

16. What are the maximum and minimum truck loading rates at the truck loading racks?

17. The fuel usage presented in Item III E. of the application (21 SCFH, Propane) is not consistent with the manufacturer's specifications (54 SCFH, Natural Gas). In your response to this letter, please comment.

18. What are the total potential uncontrolled emissions from the entire facility?

19. The application submitted with the letter dated June 30, 1989 was not signed and sealed properly. REsubmit pages 1A and @A of 12 of the permit application with the appropriate seals and signatures.

20. State application fees are based on total potential emissions. Should the fee previously submitted not be sufficient, then the balance of the appropriate fees due must be submitted to the Department prior to issuance of the permit.

21. As specified in Section IA. of the application, attach a letter of authrization statiing that you are the undersigned owner or authorized representative of Star Enterprise.

22. Supply all information where required in Section V, Supplemental Requirements, of the construction permit application.

23. A transfer of permit is required for all permitted tanks to be included in the permit.

24. Identify the Tampa, Florida facility cited on page 3A of 12 and provide all air permit numbers currently held for this facility.

25. Show the derivation for the utilization rate listed on page 4A of 12.

Please submit your complete response no later than September 15, 1989. If I can be of any assistance, please contact me at (813) 272-5530.

Sincerely,

for Arthur J. Wells
Air Permit Engineer

ph

cc: J. Harry Kerns, Jim McDonald, FDER
J.E. Brenman

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHEAST FLORIDA DISTRICT
1900 SOUTH CONGRESS AVENUE
WEST PALM BEACH, FLORIDA 33406

BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY
J. SCOTT BENYON
DISTRICT MANAGER

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: Bulk Gasoline Terminal [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: Star Enterprise (formerly known as Texaco) COUNTY: Hillsborough

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) Permitting of existing tanks, new storage tanks and loading rack and vapor combustor

SOURCE LOCATION: Street 519 19 ST City Tampa

Zone 17; UTM: East 358.2 KM North 3092.3 KM

Latitude 27° 56' 49"N Longitude 82° 26' 24"W

APPLICANT NAME AND TITLE: R. R. Rall, Division Manager Operations

APPLICANT ADDRESS: 555 Winderley Place, Suite 420, Maitland Center, PO Box 514 Maitland, FL 32751-800

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of Star Enterprise

I certify that the statements made in this application for a construction permit are true, correct and complete to the best of my knowledge and belief. Furthe I agree to maintain and operate the pollution control source and pollution contr facilities in such a manner as to comply with the provision of Chapter 403, Flori Statutes, and all the rules and regulations of the department and revisions thereof. also understand that a permit, if granted by the department, will be non-transferab and I will promptly notify the department upon sale or legal transfer of the permitt establishment.

*Attach letter of authorization

Signed: _____

R. R. Rall, Division Manager Operations
Name and Title (Please Type)

Date: _____ Telephone No. 407-660-800

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project h been designed/examined by me and found to be in conformity with modern engineer principles applicable to the treatment and disposal of pollutants characterized in permit application. There is reasonable assurance, in my professional judgment, t

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

D.E.R.

JUL 17 1989

SOUTHWEST DISTRICT

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed _____

J. E. BRENMAN, PE
Name (Please Type)

J. E. BRENMAN CONSULTING ENGINEERS, INC
Company Name (Please Type)

1801 UNIVERSITY DRIVE, CRL SPGS, FL 33071-6078
Mailing Address (Please Type)

orida Registration No. PE28343 Date: _____ Telephone No. 305-752-7117

SECTION II: GENERAL PROJECT INFORMATION

Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary. PERMITTING OF PREVIOUSLY UNPERMITTED STORAGE TANKS & THE INSTALLATION OF THREE (3) NEW PRODUCT STORAGE TANKS, A PRODUCT LOADING RACK AND DUPLEX VAPOR COMBUSTION SYSTEM. DESCRIPTION OF PROJECT IS PROVIDED AS ATTACHMENT 1.

Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction MARCH 1989 Completion of Construction MARCH 1990

Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

VAPOR COMBUSTION SYSTEM: $200,000

INSTALLATION: 40,000

MISCELLANEOUS: 60,000

TOTAL: $300,000

Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr _____ ; if seasonal, describe: N/A

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? YES

   a. If yes, has "offset" been applied? YES

   b. If yes, has "Lowest Achievable Emission Rate" been applied? YES

   c. If yes, list non-attainment pollutants. OZONE (VOC)

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. NO

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. NO Chk'd

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? NO

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

6. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? NO

   a. If yes, for what pollutants? OZONE (VOC)

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

After recalculating the loading volumes and resulting emissions levels from the facility we are of the opinion that neither the requirements of Reasonably Available Control Technology (RACT) nor Best Available Control Technology (BACT) apply to this source. Technically, the Star Enterprise facility is a minor source located within a non-attainment area for Ozone which will undergo a major modification. Our understanding from discussions with Bill Thomas of the Florida Department of Environmental Regulation in Tallahassee is that the following Three (3) stipulations must be met:

1.) Lowest Achievable Emissions Rate (LAER) based technology will be applicable.
2.) Offsets are required for emissions levels beyond 100 tons per year.
3.) Statewide compliance for multi-source facilities must be achieved.

The Star Enterprise DRI/ADA meets all of the stipulated criteria. The proposed control technology - Vapor Combustion is considered to be state of the art for control of Bulk Terminal Emissions. Through the closing of the CITGO terminal an offset equal to approximately 40 tons per year will be applied to the Joint Venture Terminal. The CITGO terminal is currently a minor emissions source which can theoretically emit up to a maximum of 100 tons per year. Star Enterprise operates Two terminals in Florida, Tampa and Port Everglades, both meet all applicable Air Emissions criteria.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

Raw Materials and Chemicals Used in your Process, if applicable:

escription	Contaminants		Utilization Rate - lbs/hr	Relate to Flow Diagram
	Type	% Wt		
ASOLINE	VOC		SEE ATTACHMENT II AND III	
			MAX HOURLY GAL/DAY	
			44,333	

Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): N/A

2. Product Weight (lbs/hr): N/A

Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of ontaminant	Emission[1,5,6]		Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4,5,6] Emission		Relate to Flow Diagram
	Maximum lbs/hr	Actual T/yr			lbs/Hr	T/yr	
OC	32.10	140.59	35 MG/L OF	22.83	32.10	140.59	
	x 8760		GASOLINE	100 ÷ 8760 = .5			
			LOADED THRU				
			LOADING RACK				

Section V, Item 2.

rence applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, 1) - 0.1 pounds per million BTU heat input)

lated from MAX rate and applicable standard, USING 8760 HRS/YR AND 100 TONS/YR EMISSSION

ion, if source operated without control (See Section V, Item 3).

SHEET 3A OF 12 FOR JUSTIFICATION FOR CALCULATIONS

SUPPLEMENTAL PAGES 1 - 5 FOR DETAILS OF CALCULATION.

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
JOHN ZINK CO	VOC	96% (MIN)	N/A	(1)
MODEL GV-ZTOF-10, 600-2				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
PROPANE (PILOT)	10 SCFH	21 SCFH	0.05

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: PROPANE IS A CLEAN FUEL

Percent Sulfur: NEGLIGIBLE Percent Ash: NEGLIGIBLE

Density: 1.52 SG Typical Percent Nitrogen: N/A

Heat Capacity: 21,513 BTU/lb 91,065 BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

NONE

1) PERFORMANCE GUARANTEE STATED BY VENDOR PROVIDES THAT VOC EMISSIONS WILL NO EXCEED 35 MG/L OF PRODUCT LOADED. GUARANTEE STATEMENT ATTACHED.

A. PROCESS DESCRIPTION

The John Zink Company has reviewed your operating criteria and is pleased to propose, for your consideration, an automated John Zink GV-ZTOF Natural Draft, Air Assisted, Total Enclosed Vapor Combustor.

John Zink combustors have been extensively tested by the United States Environmental Protection Agency and were chosen by the USEPA on which to base their emissions and operating standards. We do not believe any other manufacturer's combustors have passed USEPA tests.

The system is designed on the following conditions:

Ambient Temperatures:	0°F to 100°F
Minimum Truck Loading Rate:	600 GPM
Maximum Truck Loading Rate:	10,800 GPM
Minimum Vapor Flow Rate to Combustor:	80 SCFM
Maximum Vapor Flow Rate to Combustor:	1,443 SCFM
Maximum Hydrocarbon (Measured as Propane) Concentration:	60 Vol%
Maximum Pressure Drop through Unit:	12" W.C.

The John Zink Series GV-ZTOF Smokeless, Total Enclosed, Natural Draft, Air Assisted Combustor is a custom designed integrated waste vapor combustor. The combustor is specially designed for the conditions given. Any modification to these design criteria should be related to John Zink Company to insure the performance of the combustor.

The proposed GV-ZTOF combustor includes a self supporting vertical ceramic refractory lined cylindrical carbon steel shell within which combustion is complete. There are no visible flames and noise levels are minimal. Internal risers deliver the waste vapor to the patented burners. The air for smoke suppression is supplied by the surrounding plenum. One continuous pilot provides an ignition source to safely combust the waste vapor.

The safety design of a vapor combustion unit in this application is of utmost importance since it receives an air/hydrocarbon vapor mixture which can often times be in the explosive range. The John Zink Vapor Combustion Unit features several unique safety controls. The first feature is the automatic air purge of the combustion stack with air, utilizing the air blower. The second feature is the proprietary anti-flashback burners used. The design of these burners minimizes flashback potential.

Supplementing this is careful sizing of the burners combined with vapor minimum flow control to keep the gas velocity above the flame propagation speed of the gas being burned making flashback unlikely to occur.

If the above measures fail, a labyrinth type flame arrestor is provided with a temperature switch mounted near the surface of the element to detect heat increase. A temperature switch reacts to the temperature input causing a valve upstream of the flame arrestor to close, eliminating the fuel source and extinguishing the fire.

The final safety device is the liquid seal with special internals for use with gases in the stoichiometric range. The John Zink Liquid Seal properly maintained and operated has been proven 100% effective in stopping a flame front, providing assurance that no fire can reach the terminal from the combustor burners.

The unit is designed to be fully automatic, responding to a signal from the truck rack to start the air blower and light the pilot. The start-up sequence consists of a short air purge using the air-assist blower to purge the ZTOF stack of any combustibles prior to pilot ignition. This brief air purge is followed by automatic electronic ignition of the pilot.

After the pilot ignition is proven by the flame scanner, a "ready" signal is sent to the loading pumps to allow loading to begin. The system will automatically shut down 15 minutes after the last truck has loaded. The system will remain in the standby mode waiting for the next truck.

B. EQUIPMENT DESCRIPTION

The following items comprise the Terminal Combustion System.

Item No. 1

One (1) 9'0" O.D. X 50' O.A.H. self supported ZTOF natural draft combustion stack.

Seven (7) proprietary John Zink Antiflashback Burners are provided on the mentioned gas inlets.

Rain deflector to be located at the top circumference of the combustor to protect the refractory.

One (1) Pre-mix pilot with ignitor designed to utilize propane or natural gas.

One (1) set of lifting lugs

Two (2) emission test ports per code of federal regulations

Structural design and fabrication is in accordance with AISC.

Welding is per AWS-D1.1 No testing or x-ray is included.

Material: Carbon steel except stainless steel burners.

Refractory:
a) 1" thick 2600°F, ceramic fiber blanket hot face.
b) 1" thick 2300°F, ceramic fiber blanket cold face.
c) Ceramic fiber to be installed with 310 S.S. pins and keepers on 6" centers
d) Ceramic fiber to be coated with rigidizing agent

Item No. 2 - Combustion Air Blower

One (1) Tube-Axial Air Blower complete with 2 hp, 480 volt, TEAO motor. Motor starter is provided on control panel.

Item No. 3 - Controls

One (1) John Zink GV-ZTOF Combustion Control Package installed in a NEMA 4 weatherproof control panel.

The control system includes the following:

1. Self-Inspirating Automatic Pilot ignition system complete with:

   a. Fuel gas pressure regulator
   b. Air inspirator
   c. Pilot gas block valve
   d. Pilot gas solenoid valve
   e. Pressure gauge for pilot gas
   f. Strainer for pilot gas

2. Two (2) waste vapor burner control pressure switches. (Dwyer Model 1950)

3. Control panel indicating lights and shutdowns.

   a. Low liquid seal level (red light-shutdown)
   b. Pilot failure (red light-shutdown)
   c. Power on (white light)
   d. High temperature on flame arrestors (red light-shutdown)
   e. Blower failure (red light-shutdown)
   f. Pilot power (green light)
   g. Remote emergency/sump tank high level (red light-shutdown)

4. One (1) liquid level gauge glass

5. One (1) Liquid Level switch

6. Two (2) high temperature switches (one for each flame arrestor element).

7. GE Series One Programmable controller

8. Space heaters inside control panel and actuator cover.

9. One (1) ultraviolet flame detector for pilot flame detection.

10. Two (2) electrically operated butterfly burner block valves with electric actuators. These valves stay closed until vapor combustor unit is operational, pilot is proven, truck ground signal is reached at VCU and vapor flow rate to unit is sufficient to create minimum pressure in vapor header.

Item No. 4, Liquid Seal Drum

One (1) John Zink patented 36" diameter X approximately 6' TT, vertical Liquid Seal Drum.

The Liquid Seal is utilized to provide positive pressure on the combustion gas relief header and to be a positive flame arrestor in the event a flashback occurs. The drum has specially designed internals to insure a steady flow of gases to the combustor tip thus increasing the maximum smokeless capacity of the combustor with the minimum amount of supplemental energy. The liquid seal's proprietary internals also decrease the noise caused by uneven combustion at the combustor.

The following connections are included.

One (1) 10" ANSI class 150 lb. RF gas inlet
One (1) 10" ANSI class 150 lb. RF gas outlet
One (1) 1" NPT drain connections
Two (2) 2" NPT level connection
Two (2) 3/4" NPT level gauge
One (1) 1" NPT Liquid Fill
One (1) 8" ANSI class 150 lb. RF inspection opening
One (1) 3/4" NPT hydrocarbon skimmer drain

Design pressure is 50 PSIG.

The Liquid Seal Drum is designed and fabricated per ASME. Welding is per ASME. No code stamp is provided.

Item No. 5 - Flame Arrestor

Two (2) Groth Model 7618-11 Flame Arrestors are provided in each waste vapor lines. Each flame arrestor has a connection for a temperature switch mounted on the hot face.

Item No. 6 - Structural Skid

Structural skid to hold liquid seal, control panel, staging valves and flame arrestors. All piping required between skid and combustor have been provided for customer field installation.

Item No. 7 - Unit Testing

The control system will be given a functional test in manufacturer's shop to check safety shutdowns. The following minimum check out shall be performed:

a. Natural gas connected to pilot fuel train to check pilot operation.
b. Liquid seal to be filled with water to check low level switch.
c. Pressure switches to be preset.
d. All safety shutdowns to be checked.
e. Start signal to be given to unit to simulate field operation.

Unit Weight: 30,000 pounds

Paint:
A. No paint required on stainless steel surface
B. Paint to be applied to exterior carbon steel surface only unless otherwise noted.
C. Exterior carbon steel surface preparation per SSPC-SP6-63 and prime coat with Devoe Napko 5Z self cure inorganic zinc (2½ Mil D.F.T)

C. UTILITY REQUIREMENTS

1. Pilot . . . . . 21 SCFH Propane @ 4 PSIG
   or 54 SCFH of Natural Gas @ 7 PSIG

2. Electrical
   a. Control panel . . . 110V/1ph/60 Hertz
   b. Air Blower. . . . . 2 HP/460/3 ph/60 Hertz

3. Instrument Air. . . . . None

4. Assist Gas . . . . . None

D. ADVANTAGES AND SPECIAL FEATURES

The John Zink Hydrocarbon Vapor Combustion System has a number of advantages and features which set it apart from other vapor combustion equipment. These factors need to be carefully taken into consideration when evaluating combustors manufactured by others which, while on the surface may appear to be similar, are often substantially inferior and of poor quality and design. Some of these features that are incorporated into the John Zink Vapor Combustion System design are listed as follows:

1. Recognized by the U.S. EPA, along with Carbon Adsorption-Absorption vapor recovery, as the best demonstrated technologies for emission control at petroleum product bulk terminals.

2. Meets Federal EPA hydrocarbon vapor emission standards.

3. Superior safety design is included in all John Zink Vapor Combustion Systems. This is of utmost importance in product terminal applications where the combustion unit is required to burn vapors which often are composed of air-hydrocarbon vapor mixtures that can support combustion without any additional air or fuel. In this situation, improperly designed vapor combustion systems may lead to flame flashbacks from the combustion unit to the loading terminal via the vapor header. This obviously could be very dangerous and must be avoided.

   To assure a safe design, John Zink Company provides four levels of flashback protection and prevention:

   a. Anti-flashback Burners
   b. Burner Velocity Control
   c. Labyrinth Flame Arrestor with High-temperature Sensor shutdown
   d. ASME Coded Liquid Seal

   Other manufacturers often leave out some or all of these protective features, sometimes including them but at a substantial extra cost.

4. Also included are new improved anti-flashback burners designed and developed by John Zink Company which incorporate the same flashback design features that are used in the design of flame arrestors. The burners provide excellent combustion efficiency and flashback protection, even when required to operate at extreme turndown ratios.

5. Burner velocity controls using pressure sensors, motor operated valves, and multiple burner staging (when required) to maintain burner vapor velocity above the flame propagation speed are provided as an additional flashback prevention measure.

6. Labyrinth-type flame arrestor with temperature sensor is provided on each burner stage to stop a flashback. Furthermore, a temperature sensor is provided on the burner side of each flame arrestor which quickly detects a flashback and automatically causes a system shutdown.

7. A liquid seal drum is provided as a back-up safety device. The John Zink patented liquid seal with special internals has proven 100% effective in stopping a flame front, providing assurance that no fire can reach the terminal from the combustion unit. Unlike smaller, cheaper, competitive units, John Zink liquid seals are designed per ASME code with sufficient pressure rating to fully contain an explosion.

8. Automatic system monitoring is provided as a standard on each system to assure proper and safe operation. The annunciation panel simplifies troubleshooting by continuously monitoring normal operating functions and all fault-related shutdowns. The John Zink Annunciation Panel contains individual first out bullet type fault and run lights mounted on the face of the panel for easy visual observation from a distance. Some competitors have been known to forego this feature in an effort to reduce cost.

9. John Zink Vapor Combustors have solid state control logic which provides superior reliability and greater flexibility for infield changes to accommodate future operational requirements. Light indicators and plug-in I/O modules, dramatically simplify troubleshooting procedures.

10. Air-assisted smokeless combustion is provided as standard on both LH and ZTOF-type designs. A forced-draft air blower is incorporated in the design to provide partial combustion air and sufficient mixing energy to assure smokeless combustion. The air-assist blower, in addition to smoke suppression, significantly reduces thermal radiation and shortens the flame length. The forced air flow cools the burner tips which, in turn, increases burner life and helps to prevent potential flashbacks. Competitive equipment without the air assist feature is much more likely to experience smoking and visible flames escaping the combustion unit.

11. Energy efficient pilots are provided on each John Zink Vapor Combustion System. These automatic ignition pilots are designed for minimum gas requirements and maximum stability. They have been proven in wind speeds over 100 mph. Each pilot is equipped with a continuous flame monitor to assure combustion of waste vapor.

12. John Zink utilizes 2 layers of refractory held in place by 310 SS pins and keepers on 6" centers and the refractory is sprayed with a rigidizing agent. Most competitive units use a less dense and/or thinner refractory with cheaper pins and keepers spaced at greater distances with no rigidizer. The bottom line is that the John Zink refractory is installed to last and to protect the steel shell.

13. John Zink offers an assembled and tested unit. John Zink doesn't send a box of parts for the customer to build his own combustor.

14. John Zink uses stainless steel tubing for pressure sensing lines, not copper.

15. John Zink units are sandblasted and primed with inorganic zinc. Other units are often only hand cleaned and primed with red oxide.

16. John Zink provides the customer a detailed operating and maintenance manual. This compares to some vendors who say give us a call if you have problems. The manual includes the following sections:

    I. Introduction
    II. Safety
    III. System Description
    IV. Design Basis and Performance Summary
    V. Initial Preparation and Start-up Procedures
    VI. Troubleshooting Guide
    VII. Preventative Maintenance
    VIII. Control Logic Program
    IX. System Drawings
    X. Complete Set of Specification Sheet and Manufacturer's Literature on Components

17. All John Zink ZTOF combustion stacks have two connections for emission testing. These connections are offered as a standard on all John Zink Units. Connections are installed to meet the emission testing requirements of the U.S. Environmental Protection Agency for bulk gasoline loading terminals (40 CFG 60, Subpart XX).

Refer to Attachments A and B to this proposal for additional pricing information.

E. Notes

1. It is required to install equipment in non hazardous location.

2. John Zink Company standard domestic shipping preparations are provided.

3. Owner is responsible for installation and winterization of the unit, including, but not limited to:
   a. Off loading and connecting piping and electrical
   b. Foundations
   c. Gylcol/water mixture in liquid seal.
   d. Minor reassembly of components removed for shipping

4. Three (3) operating manuals are included in selling price.

5. This unit is offered with ceramic fiber in lieu of castable refractory, curing is not required with the ceramic fiber blanket.

6. Customer is responsible for the following field wiring and conduit from the control panel to:

   a. Ignition transformer and pilot
   b. Flame scanner
   c. Blower motor

7. A job schedule will be provided within 14 days from placement of order. This schedule will include the following minimum information:
   a. Engineering
   b. Issue of drawings
   c. Procurement
   d. Fabrication
   e. Testing
   f. Shipping

F. The following information is provided to assist you in completing your permit application:

1. Type of Control Device: John Zink Enclosed Flame Hydrocarbon Vapor Combustion Unit.

2. Model GV-ZTOF-10,800-2

3. Design to combust hydrocarbon vapors displaced from loading gasoline into bulk transport trucks at a maximum rate of 1,443 ACFM (equivalent to a maximum truck fill rate of 10,800 gpm)

G. Emissions from Control Device

VOC: Guarantee: 35 mg/liter of product loaded
(.292 lb/1,000 gal.)
CO: Typical: 10 mg/liter (.0835 lbs/1,000 gal.)
NO_X: Typical: 2 mg/liter (.0167 lbs/1,000 gal.)

Annual or hourly emission rates can be calculated by multiplying above rates by the annual and hourly product loading volumes.

VOC emission guarantee from combustor is based on:

(a) Combustion unit being operated per recommended manufacturer's instructions at conditions as specified in the "Design Basis" of the proposal.

(b) VOC's are considered to be those hydrocarbons normally found in gasoline vapors displaced when transports are loaded (excluding ethane and methane). A typical analysis taken from the U.S. E.P.A. publication EPA-450/2-77-026 is as follows:

Component	Vol%
Air	58.1
Propane	0.6
Iso-butane	2.9
Butene	3.2
N-Butane	17.4
Iso-Pentane	7.7
Pentene	5.1
N-Pentane	2.0
Hexane	3.0

(c) Calculation of hydrocarbon emissions from the vapor combustion system will be determined by appropriate and generally accepted sampling and analyzing techniques per requirements of the U. S. Environmental Protection Agency for bulk gasoline loading terminals (40 CRF 60, Subpart XX). Emissions are to be averaged over a 6 hour test period.

(d) John Zink Company is responsible only for those VOC emissions that pass through the combustion system and is not responsible for those emissions that may occur from the loading rack or from the vapor collection system due to improper truck or pipe sealing techniques.

Typical CO and NOx emission values are averages taken from several tests and are not guaranteed maximums.

7. Emission stack geometry and flow characteristics:

Stack Height:	50'
Stack Diameter:	9'
Max. Stack Flue Flowrate:	56,023 SCFM
Max. Exit Gas Temperature:	1800°F
Max. Velocity:	71.6 FPS

8. Fuels Used: None except for 54 SCFH natural gas used for pilot. Natural gas heating value is approximately 1009 BTU/SCF. Once ignited by pilot the gasoline vapor has sufficient heating value to sustain its own combustion without the necessity of adding any additional fuel.

9. Liquid or solid waste generated by control device: None except periodic (approximately every 6 months) changeout of ethylene glycol based antifreeze used in liquid seal drum (approximately 75 gallons).

10. Process flow diagram and description: Attached is a preliminary flow diagram and a written description of the vapor control device.

DESCRIPTION OF JOHN ZINK TERMINAL VAPOR COMBUSTION SYSTEM OPERATION

The system typically contains a combustion unit (LH or ZTOF), special anti-flashback burners(s), automatic ignition pilot with continuous monitor, motor operated vapor block valve(s), flame arrestor(s), air-assist blower, liquid seal, piping, instrumentation and master control panel packaged as a complete assembly ready for convenient field installation.

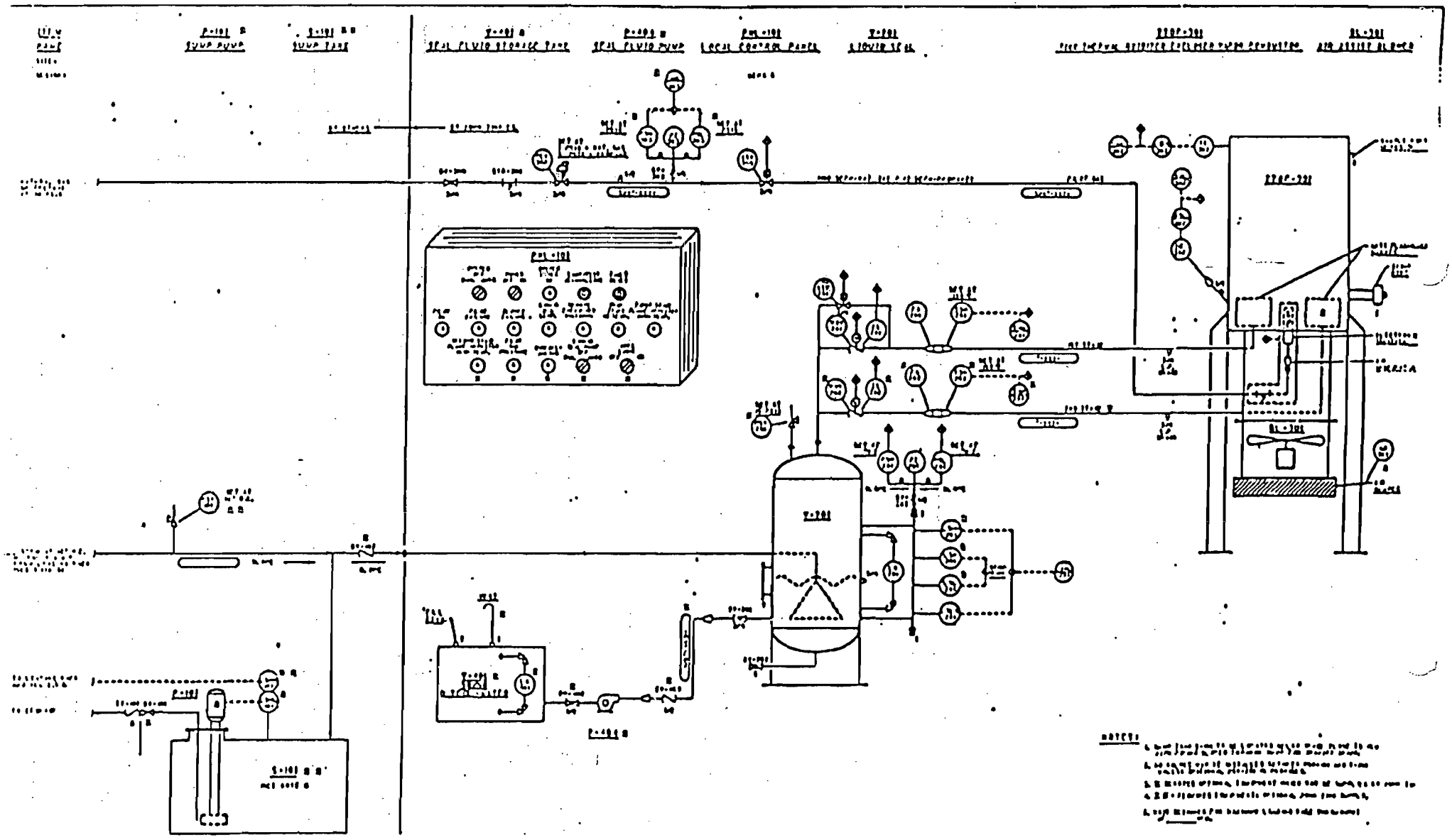
Typically, until loading occurs at the transport loading rack, the vapor combustion system is in a standby mode with no pilot flame, the vapor block valve is closed, and the air-assist blower is off. Automatic start-up of the vapor combustion system is initiated by an electrical signal from the loading rack that product loading will occur shortly.

The start-up sequence consists of a short air purge using the air-assist blower to purge the LH air plenum or the ZTOF stack of any combustibles prior to pilot ignition. This brief air purge is followed by automatic electronic ignition of the pilot. After pilot ignition, product loading begins at the loading rack and an air-vapor mixture begins to flow from the transports being loaded to the vapor combustion system.

Flow through the vapor combustion system first consists of the air-vapor mixture from the loading rack bubbling through a liquid seal (typically water or water/antifreeze). As soon as sufficient flow is available, it will be detected by the pressure monitoring controls which will automatically open the vapor block valve allowing the air vapor mixture to flow through the flame arrestor to the burner, where the combustible vapors are ignited by the pilot and burned. The air-assist blower provides partial combustion air and mixing energy to the burner tips to assure smokeless combustion.

As the loading operation at the loading rack is completed, vapor flow to the combustion system decreases. The pressure monitoring system closes the vapor block valve when the vapor flow is insufficient to maintain minimum burner velocity. The pilot and air-assist blower remain on for a brief time period after loading is complete. If no further loading occurs, the combustion unit will shut down in the standby mode to await automatic re-start as described.

For applications involving high turndown requirements, multiple burners and staging valves are normally provided to assure excellent combustion efficiency and maintain minimum burner velocities.



C. Performance Guarantee

John Zink Company guarantees the VOC emissions from the proposed Vapor Combustion Unit not to exceed 35 milligrams per liter of product loaded.

VOC emission guarantee from combustor is based on:

(a) Combustion unit being operated per recommended manufacturer's instructions at conditions as specified in the "Design Basis" of the proposal.

(b) VOC's are considered to be those hydrocarbons normally found in gasoline vapors displaced when transports are loaded (excluding ethane and methane). A typical analysis taken from the U.S. E.P.A. publication EPA-450/2-77-026 is as follows:

Component	Vol%
Air	58.1
Propane	0.6
Iso-butane	2.9
Butene	3.2
N-Butane	17.4
Iso-Pentane	7.7
Pentene	5.1
N-Pentane	2.0
Hexane	3.0

(c) Calculation of hydrocarbon emissions from the vapor combustion system will be determined by appropriate and generally accepted sampling and analyzing techniques per requirements of the U. S. Environmental Protection Agency for bulk gasoline loading terminals (40 CRF 60, Subpart XX). Emissions are to be averaged over a 6 hour test period.

(d) John Zink Company is responsible only for those VOC emissions that pass through the combustion system and is not responsible for those emissions that may occur from the loading rack or from the vapor collection system due to improper truck or pipe sealing techniques.

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.		25766	25767	25881	29535	29596	29597	30903	T-01A	T-01B
Stored Product		<----------GASOLINE---------->								
Dia, ft.		80	80	80	70	60	70	90	130	130
Hgt, ft.		48	48	48	48	48	48	48	48	48
Tank Capacity										
,gals x 10^3		1734.6	1765.0	1138.2	1369.2	1012.2	1373.4	2125.2	4725.0	4725.0
,bbls x 10^3		41.3	42.5	27.1	32.6	24.1	32.7	50.6	112.5	112.5
BASE PERIOD	20.46	35,490			28,014	20,710	28,100		96,674	96,674
----------	18.06		32,237	20,556				38,361		
Average Turnover Factor	7.87									
vs	5.96									
M gallon Terminal Thruput	4.64									
	40.00									
Average Turnover Factor	40.00									
vs	36.00	62,446	64,260	40,975	49,291	36,439	49,442	76,507	170,100	170,100
M gallon Terminal Thruput	6.50									
	4.75									
Estimated Deliveries Thru - PIPELINE		20,607	21,206	13,522	16,266	12,025	16,316	25,247	56,133	56,133
Estimated Deliveries Thru -LOADING RACK		41,839	43,054	27,453	33,025	24,414	33,126	51,260	113,967	113,967
-MISCELLANEOUS		0	0	0	0	0	0	0	0	0
TOTAL (M gals/year)		62,446	64,260	40,975	49,291	36,439	49,442	76,507	170,100	170,100
Roof Type										
Tank Constant - Ks		1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE										
SEAL CONSTANT - Ks		6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Wc		0	0	0	0	0	0	0	0	0
- Fc		1	1	1	1	1	1	1	1	1
- Ff		250	250	250	250	200	250	285	285	285
- Kc		1	1	1	1	1	1	1	1	1
- Kn										
- Ld		0	0	0	0	0	0	0	0	0
- H										
- ΔT										
- Fp										
- OC										
Vapor Pressure Factor - P		0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Miscellaneous Data										
temp - F		82	82	82	82	82	82	82	82	82
amb. pres. - psia		14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph		8	8	8	8	8	8	8	8	8
true vapor pressure, - psia		6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
density, - lbs/gal		6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
RVP, - psia		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
molecular weight, - MW		66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0	66.0
true vapor pressure, - psia										
density, - lbs/gal										
molecular weight, - MW										
PRODUCT THROUGHPUT										
gals/yr x 10^6		62.45	64.26	40.98	49.29	36.44	49.44	76.51	170.10	170.10
tons/yr x 10^3		190.46	195.99	124.97	150.34	111.14	150.80	233.35	518.81	518.81
bbls/yr x 10^4		148.68	153.00	97.56	117.36	86.76	117.72	182.16	405.00	405.00
PRODUCT LOSSES, - lbs/yr										
breathing		0	0	0	0	0	0	0	0	0
deck fitting		0	0	0	0	0	0	0	0	0
rim seal		4952.64	4952.64	4952.64	4333.56	3714.48	4333.56	5571.72	8048.04	8048.04
withdrawal		160.36	165.02	105.22	144.66	124.77	145.11	174.64	268.81	268.81
deck		2310.00	2310.00	2310.00	2310.00	1848.00	2310.00	2633.40	2633.40	2633.40
TOTAL TANK FARM LOSSES, lbs/yr		7423.00	7427.66	7367.86	6788.22	5687.25	6788.67	8379.76	10950.25	10950.25
, lbs/hr		0.85	0.85	0.84	0.77	0.65	0.77	0.96	1.25	1.25
, tns/yr		3.71	3.71	3.68	3.39	2.84	3.39	4.19	5.48	5.48
, lb/day		20.34	20.35	20.19	18.60	15.58	18.60	22.96	30.00	30.00

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	6814	7518	7522	21290	29534	30775	6816	25556	T-05A
Stored Product	(----------	----------	DIESEL	----------	----------)	AV-GAS	(----	BONDED AVJET	----)
Dia, ft.	115	30	48	10	50	70	95	49	125
Hgt, ft.	30	35	35	30	48	51	31	43	48
Tank Capacity									
,gals x 10^3	2343.6	184.8	470.4	17.3	701.4	693.6	1600.2	541.8	4200.0
,bbls x 10^3	55.8	4.4	11.2	0.41	16.7	16.5	38.1	12.9	100.0
BASE PERIOD									
Average Turnover Factor	18,444	1,454	3,702	0	5,520				
vs							9,537	3,229	25,032
M gallon Terminal Thruput						3,216			
				346					
Average Turnover Factor									
vs	84,370	6,653	16,934		25,250	24,948	57,607	19,505	151,200
M gallon Terminal Thruput									
Estimated Deliveries Thru -	17,718	1,397	3,556	0	5,303	0	57,607	19,505	151,200
Estimated Deliveries Thru -LOAD	66,652	5,256	13,378	0	19,948	24,948	0	0	0
-MISC	0	0	0	346	0	0	0	0	0
TOTAL (M gal	84,370	6,653	16,934	346	25,250	24,948	57,607	19,505	151,200
Roof Type									
Tank Constant - Ks	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE									
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Nc	0	0	0	0	0	0	0	0	0
- Fc	1	1	1	1	1	1	1	1	1
- Ff	300	150	150	150	150	285	150	150	150
- Kc	1	1	1	1	1	1	1	1	1
- Kn									
- Ld	0	0	0	0	0	0	0	0	0
- H									
- ^T									
- Fp									
- OC									
Vapor Pressure Factor - P	0.0096	0.0096	0.00022	0.00022	0.00022	0.14	0.0096	0.0096	0.0096
Miscellaneous Data									
temp - F	83	83	83	83	83	82	83	83	83
amb. pres. - psia	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph	8	8	8	8	8	8	8	8	8
true vapor pressure, - psia						6.4			
density, - lbs/gal						6.1			
RVP, - psia						10.0			
molecular weight, - MW						66.0			
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128	0.0128		0.0128	0.0128	0.0128
density, - lbs/gal	7.1	7.1	7.1	7.1	7.1		7.1	7.1	7.1
molecular weight, - MW	130	130	130	130	130		130	130	130
PRODUCT THROUGHPUT									
gals/yr x 10^6	84.37	6.65	16.93	0.35	25.25	24.95	57.61	19.50	151.20
tons/yr x 10^3	299.51	23.62	60.12	1.23	89.64	76.09	204.51	69.24	536.76
bbls/yr x 10^4	200.88	15.84	40.32	0.82	60.12	59.40	137.16	46.44	360.00
PRODUCT LOSSES, - lbs/yr									
breathing	0	0	0	0	0	0	0	0	0
deck fitting	0	0	0	0	0	0	0	0	0
rim seal	961.58	250.85	9.20	1.92	9.58	4333.56	794.35	409.72	1045.20
withdrawal	175.43	53.03	84.36	8.28	120.76	73.22	145.00	95.18	269.24
deck	374.40	187.20	4.29	4.29	4.29	2633.40	187.20	187.20	187.20
TOTAL TANK FARM LOSSES, lbs/yr	1511.41	491.07	97.85	14.48	134.63	7040.18	1126.55	692.10	1521.64
, lbs/hr	0.17	0.06	0.01	0.00	0.02	0.80	0.13	0.08	0.17
, tns/yr	0.76	0.25	0.05	0.01	0.07	3.52	0.56	0.35	0.76
, lb/day	4.14	1.35	0.27	0.04	0.37	19.29	3.09	1.90	4.17

4.55 Fixed Roof Tanks (5)
1.79 Floating Roof Tanks
6.33 TPY

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tanks No.	6818	6819	6820	7162	7174	27382	29448	29449	29450	T-06A	T-06B	T-06C	T-06D
Stored Product	<--------					ASPHALT							-------->
Dia, ft.	52	29	29	52	52	35	35	35	35	15	15	24	60
Hgt, ft.	31	30	30	30	35	40	40	40	40	24	24	24	40
Tank Capacity													
,gals x 10^3	478.8	142.8	142.8	487.2	554.4	289.8	289.8	289.8	285.6	33.6	33.6	79.8	840.0
,bbls x 10^3	11.4	3.4	3.4	11.6	13.2	6.9	6.9	6.9	6.8	0.8	0.8	1.9	20.0
BASE PERIOD													
Average Turnover Factor vs M gallon Terminal Thruput	0	0	0	0	0	0	0	0	0	0	0	0	0
Average Turnover Factor vs M gallon Terminal Thruput	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
Estimated Deliveries Thru -	0	0	0	0	0	0	0	0	0	0	0	0	0
Estimated Deliveries Thru -LOAD	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
-MISC	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL (M gal	3,112	928	928	3,167	3,604	1,884	1,884	1,884	1,856	218	218	519	5,460
Roof Type													
Tank Constant - Ks	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
SEAL TYPE													
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
- Hc	0	0	0	0	0	0	0	0	0	0	0	0	0
- Fc	1	1	1	1	1	1	1	1	1	1	1	1	1
- Ff	300	150	150	150	300	150	150	150	300	150	300	150	150
- Kc	1	1	1	1	1	1	1	1	1	1	1	1	1
- Kn													
- Ld	0	0	0	0	0	0	0	0	0	0	0	0	0
- H													
- ^T													
- Fp													
- OC													
Vapor Pressure Factor - P	0.0096	0.0096	0.0002	0.0002	0.0096	0.0096	0.0002	0.0002	0.0096	0.0096	0.0096	0.0096	0.0096
Miscellaneous Data													
temp - F	240	240	120	240	240	240	240	240	240	120	100	300	240
amb. pres. - psia	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7
wind velocity - mph	8	8	8	8	8	8	8	8	8	8	8	8	8
true vapor pressure, - psia													
density, - lbs/gal													
RVP, - psia													
molecular weight, - MW													
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128	0.0128
density, - lbs/gal	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
molecular weight, - MW	200	200	200	200	200	200	200	200	200	200	200	200	200
PRODUCT THROUGHPUT													
gals/yr x 10^6	3.11	0.93	0.93	3.17	3.60	1.88	1.88	1.88	1.86	0.22	0.22	0.52	5.46
tons/yr x 10^3	12.45	3.71	3.71	12.67	14.41	7.53	7.53	7.53	7.43	0.87	0.87	2.07	21.84
bbls/yr x 10^4	7.41	2.21	2.21	7.54	8.58	4.49	4.49	4.49	4.42	0.52	0.52	1.23	13.00
PRODUCT LOSSES, - lbs/yr													
breathing	0	0	0	0	0	0	0	0	0	0	0	0	0
deck fitting	0	0	0	0	0	0	0	0	0	0	0	0	0
rim seal	668.93	373.06	8.55	15.33	668.93	450.24	10.32	10.32	450.24	192.96	192.96	308.74	771.84
withdrawal	16.13	8.62	8.62	16.41	18.67	14.50	14.50	14.50	14.29	3.92	3.92	5.82	24.52
deck	552.96	552.96	3.17	12.67	552.96	552.96	12.67	12.67	552.96	138.24	96.00	864.00	552.96
TOTAL TANK FARM LOSSES, lbs/yr	1238.01	934.64	20.34	44.41	1240.56	1017.70	37.49	37.49	1017.49	335.12	292.88	1178.56	1349.32
, lbs/hr	0.14	0.11	0.00	0.01	0.14	0.12	0.00	0.00	0.12	0.04	0.03	0.13	0.15
, tns/yr	0.62	0.47	0.01	0.02	0.62	0.51	0.02	0.02	0.51	0.17	0.15	0.59	0.67
, lb/day	3.39	2.56	0.06	0.12	3.40	2.79	0.10	0.10	2.79	0.92	0.80	3.23	3.70

4,138 TPY Throughput

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Calculation
of
Storage Volumes & Air Emissions

Tank No.	7145	7146	7147	7148	7164	7165
Stored Product	(--LUBE OIL PRODUCTS--)			ADDITIVE	FIRE	WASTE
Dia, ft.	19	19	19	19	29	29
Hgt, ft.	30	30	30	30	30	30
Tank Capacity						
,gals x 10^3	63.0	63.0	63.0	63.0	142.8	142.8
,bbls x 10^3	1.50	1.50	1.50	1.50	3.40	3.40
BASE PERIOD						
Average Turnover Factor vs M gallon Terminal Thruput	0	0	0	0	0	0
Average Turnover Factor vs M gallon Terminal Thruput	299	299	299	2,025	0	0
Estimated Deliveries Thru -	0	0	0	1,012	0	0
Estimated Deliveries Thru -LOAD	0	0	0	1,012	0	0
-MISC	299	299	299	0	0	0
TOTAL (M gal	299	299	299	2,025	0	0
Roof Type						
Tank Constant - Ks	1.1	1.1	1.1	1.1		
SEAL TYPE						
SEAL CONSTANT - Ks	6.7	6.7	6.7	6.7		
- Nc	0	0	0	0		
- Fc	1	1	1	1		
- Ff	300	300	300	300		
- Kc	1	1	1	1		
- Kn						
- Ld	0	0	0	0		
- H						
- ΔT						
- Fp						
- OC						
Vapor Pressure Factor - P	0.0096	0.0096	0.0096	0.0096		
Miscellaneous Data						
temp - F	100	100	100	100		
amb. pres. - psia	14.7	14.7	14.7	14.7		
wind velocity - mph	8	8	8	8		
true vapor pressure, - psia						
density, - lbs/gal						
RVP, - psia						
molecular weight, - MW						
true vapor pressure, - psia	0.0128	0.0128	0.0128	0.0128		
density, - lbs/gal	8.0	8.0	8.0	8.0		
molecular weight, - MW	200	200	200	200		
PRODUCT THROUGHPUT						
gals/yr x 10^6	0.30	0.30	0.30	2.02		
tons/yr x 10^3	1.20	1.20	1.20	8.10		
bbls/yr x 10^4	0.71	0.71	0.71	4.82		
PRODUCT LOSSES, - lbs/yr						
breathing	0	0	0	0		
deck fitting	0	0	0	0		
rim seal	244.42	244.42	244.42	244.42		
withdrawal	4.24	4.24	4.24	28.71		
deck	96.00	96.00	96.00	96.00		
TOTAL TANK FARM LOSSES, lbs/yr	344.66	344.66	344.66	369.13		
, lbs/hr	0.04	0.04	0.04	0.04		
, tns/yr	0.17	0.17	0.17	0.18		
, lb/day	0.94	0.94	0.94	1.01		

0.69 TiY

Star Enterprise/CITGO Joint Venture
Tampa Terminal

Terminal Throughput Data
↓
Air Emissions Calculations

Vapor Recovery System Calculations Exclude 27,973,512 gals of Diesel Fuels Shipped Thru Pipelines.
228,312,000 gals of BONDED AVJET Shipped Thru Pipelines.
237,455,084 gals of GASOLINE Shipped Thru Pipelines.
897,750 gals of Lube Oil
346,080 gals of Onsite Diesel Fuel
1,012,422 gals of ADDITIVE PACKAGES SHIPPED OFF SITE.

Total Excluded Fuel Products	495,996,826
Total Terminal Fuel Products	1,102,052,844
Total Terminal Asphalt Products	25,662,600
Misc. Products (Additives, Lube Oil, on site Diesel Fuel)	1,243,830
	638,961,846 gals

SITE LOADING RACK BREAKDOWNS

Additives	1,012,422	295.645 lbs/yr
Asphalt	25,662,000	7,493.742 lbs/yr
Diesel	105,233,688	30,730.035 lbs/yr
Gasoline & Avgas	507,053,736	148,068.355 lbs/yr
	638,961,846 gallons	

ESTIMATED EMISSIONS
at
PROJECT BUILDOUT

	Controlled Emissions		Uncontrolled Emissions		Calculated Operating Efficiency
	lbs/hr	tons/yr	lbs/hr	tons/yr	
Storage Tanks	10.79	47.27	10.79	47.27	
Vapor Recovery	21.31	93.33	21.31	93.32	96.21
TOTAL	32.10	140.60	32.10	140.59	

Notes:
1.) Calculated operating efficiency is basis upon UNCONTROLLED EMISSIONS of 35 mg/l per gallon loaded.
2.) Published data for Vapor Combustion units show operational efficiencies of between 95-99%.
3.) Communications with John Zink Company stated that anticipated efficiencies will be between 96-99%.
4.) Calculated CONTROLLED EMISSIONS were based upon the more conservative 96% efficiency.
5.) Calculations are based upon US EPA Document AP-42, Chapter 4.4 - Transportation & Marketing of Petroleum Liquids.
6.) The Calculated Operating Efficiency is based upon an emission level of 35 mg/l when operating at the stated Loading Rack Volumes.
7.) Emissions for storage tanks is based upon the summation of the TOTAL TANK FARM LOSSES calculated on pages 1 - 4.
8.) The formulas used to calculate lbs/hr of CONTROLLED EMISSIONS: 12.46 * S * P * M * (1 - EFF/100) * LOADED VOLUME / DEG R / 8760 / 1000
lbs/hr of UNCONTROLLED EMISSIONS: 2.205 * 35 * 3.785 * LOADED VOLUME / 8760 / 10^6

JEB J.E. Brenman Consulting Engineers, Inc.
Engineers • Land Surveyors

TPC rec'd July 7, 1989

JUNE 30, 1989

HILLSBOROUGH COUNTY
ENVIRONMENTAL PROTECTION COMMISSION
1900 9TH AVENUE
TAMPA, FLORIDA 33605

ATTENTION: MR. ARTHUR J. WELLS
AIR PERMITTING ENGINEER

REFERENCE: HILLSBOROUGH COUNTY - AP
AC-160654 & AC-160652
HC - EPC LETTER 10 MARCH 1989 TO MR. R. R. RALL

DEAR MR. WELLS:

IN RESPONSE TO YOUR REFERENCED LETTER, PLEASE NOTE THE FOLLOWING:

1) BASED UPON REFINEMENTS MADE TO THE PREVIOUS THROUGHPUT VOLUMES, THE PROJECTED TAMPA TERMINAL LOADING VOLUMES HAVE BEEN INCREASED. THE INFORMATION PROVIDED IN THE ATTACHED TABLES 1-5 SUPERCEDE THAT WHICH WAS INCLUDED WITH THE ORIGINAL APPLICATION.

NEW STORAGE TANKS (AC29-160654)

2) TANKS 6816, 7522, 25556, 25766, 25767, 25881, 29534, 29535, 29596, 29597, 30903 & 30775 WHICH ARE ON MARATHON PETROLEUM CO. PERMIT NO. A029-138645, ARE TO BE INCLUDED AS PART OF THE STAR ENTERPRISE APPLICATION. THE ABOVE TANKS ARE LOCATED ON THE STAR ENTERPRISE TERMINAL AND ARE OWNED BY STAR ENTERPRISE. THE AGREEMENT BETWEEN STAR ENTERPRISE & MARATHON PROVIDES THAT THE TANKS BE JOINTLY USED. SINCE MARATHON PROVIDES USE OF THEIR LOADING RACK TO STAR ENTERPRISE, THE TANKS WERE PERMITTED BY MARATHON.

3) TANKS 6814 & 7518 ARE UNPERMITTED AND ARE CURRENTLY NOT IN SERVICE. OUR PERMIT APPLICATION CALLS FOR REACTIVATING BOTH TANKS FOR STORAGE OF DIESEL PRODUCT. THE CONSTRUCTION DETAILS FOR THESE TANKS AS WELL AS THE TWELVE INDICATED ABOVE, ARE INCLUDED IN THE ATTACHED TABLE.

4) WE ARE UNAWARE OF THE CURRENT EMISSIONS LEVELS ATTRIBUTED TO THE TWELVE PERMITTED TANKS. CALCULATIONS FOR PROJECTED EMISSIONS FROM ALL TANKAGE AND THE PROPOSED STAR ENTERPRISE LOADING RACK ARE INCLUDED AS TABLES 1-5.

1801 University Drive • Coral Springs, Florida 33071-6078
Telephone (305) 752-7117 • Fax (305) 753-7743

5) IT SHOULD BE NOTED THAT THE TABLES INCLUDE SEVERAL ADDITIONAL TANKS FOR WHICH A PERMIT WILL BE REQUIRED. THESE TANKS ARE DESIGNATED AS 21290 FOR ON SITE DIESEL USE, 7145-7148 FOR LUBE OIL AND AND ADDITIVE, TANKS 6818-6820, 7162, 7174, 27382, 29449, 29450, & NEW TANKS T-06A, T-06B, T-06C & T-06D.

6) THE CONSTRUCTION DETAILS FOR ALL PROPOSED AND PREVIOUSLY UNPERMITTED TANKS WILL BE FORWARDED SHORTLY.

7) WITH REGARD TO THE CITGO TERMINAL, PLEASE NOTE THAT THE APPLICANT, STAR ENTERPRISE, AND CITGO PETROLEUM CORPORATION ("CITGO") ARE CURRENTLY NEGOTIATING AN AGREEMENT TO OPERATE THE EXPANDED TAMPA, FLORIDA TERMINAL WHICH IS THE SUBJECT OF THIS APPLICATION FOR DEVELOPMENT APPROVAL. IT IS CITGO'S INTENTION THAT, UPON CONCLUSION OF AN AGREEMENT WITH APPLICANT AND COMPLETION OF FINAL DEVELOPMENT OF THE EXPANDED TAMPA TERMINAL, CITGO WILL CEASE OPERATIONS OF ITS CURRENT PETROLEUM MARKETING TERMINAL OPERATIONS AT HOOKER'S POINT AND HEREBY CEASE ANY AIR EMISSIONS IN CONNECTION THEREWITH. ANY SUCH CESSATION BY CITGO OF OPERATIONS AT ITS CURRENT TAMPA FACILITIES IS, OF COURSE, CONTINGENT ON THE FINAL ADA/DRI APPROVAL FROM THE TAMPA BAY REGIONAL PLANNING COUNCIL, APPROVAL OF ALL APPLICABLE ENVIRONMENTAL AND OTHER REGULATORY PERMITS AND FINAL COMPLETION OF SAID TERMINAL EXPANSION. IN CONNECTION THEREWITH, CITGO WILL BE WILLING TO PROVIDE THE TAMPA BAY REGIONAL PLANNING COUNCIL WITH A LETTER CONFIRMING ITS INTENT IN CONNECTION WITH THIS PROJECT.

HOWEVER, CITGO PETROLEUM CORPORATION CANNOT ADDRESS ANY FUTURE INTENTIONS BY THE LANDOWNER OF SAID PROPERTY, TAMPA ELECTRIC COMPANY, REGARDING ITS FUTURE USE OF SAID PROPERTY OR FUTURE PERMITTING APPLICATIONS THAT MAY RELATE THERETO.

SIX LANE TRUCK LOADING RACK (AC29-160652)

8) THE EMISSIONS VALUES SHOWN IN TABLE 5 ARE BASED UPON THE SUMMATION OF TANK THROUGHPUTS (SHOWN IN TABLES 1-4) AND HAVE BEEN CALCULATED USING THE CRITERIA PRESENTED IN AP42. THE NOTES PRESENTED IN TABLE 5 PROVIDE ADDITIONAL INSITE INTO THE CALCULATIONS. ON THE BASIS OF THE CALCULATIONS & LAER GUIDELINES, AN AIR EMISSIONS OFFSET OF APPROXIMATELY 40 TONS/YEAR WILL BE REQUIRED FROM THE CITGO TERMINAL.

9) DETAILS PERTAINING TO THE VAPOR FLARES IN THE FORM OF THE MANUFACTURERS PROPOSAL AND PERFORMANCE GUARANTEE ARE INCLUDED WITH OUR SUBMITTAL.

IN SUMMARY THE PERMITTED OWNERSHIP OF THE AIR POLLUTION SOURCES ARE VESTED WITH STAR ENTERPRISE AND CITGO PETROLEUM CORP. UNTIL WE GET FURTHER ALONG INTO THE DRI PROCESS, WE ARE RELUCTANT TO SUBMIT THE FDER TRANSFER FORM FOR THE TANKS PERMITTED UNDER MARATHON PERMIT NO. A029-138645. ALTHOUGH OUR CALCULATIONS ARE BASED UPON DATA PROVIDED BY JOHN ZINK COMPANY, COMPETITIVE BIDDING MAY RESULT IN USING ANOTHER VENDOR. SHOULD THIS OCCUR, A RESUBMITTAL OF APPROPRIATE INFORMATION WILL BE MADE.

WE TRUST THAT WITH THIS LETTER AND ATTACHMENTS, YOU ARE ABLE TO COMPLETE THE REVIEW OF OUR APPLICATION. SHOULD QUESTIONS ARISE PERTAINING TO THE APPLICATION, PLEASE CONTACT JERRY BRENMAN. IF YOU FIND THAT A MEETING WOULD BE BENEFICIAL, PLEASE LET US KNOW SO THAT A MUTUALLY CONVENIENT TIME CAN BE ARRANGED.

VERY TRULY YOURS,

J.E. BRENMAN CONSULTING ENGINEERS, INC.

J.E. Brenman

J.E. BRENMAN, P.E.
PRESIDENT

JEB/JB

ATTACHMENT

CC: R. E. HARKRIDER - STAR
AL GALLEGOS - CITGO
L. DAVID DELA PARTE - DELA PARTE, GILBERT
JIM MC DONALD - FDER, TAMPA

30TH DAY
COMPLETENESS REVIEW
COMMENT FORM

DATE: 3-10-89 PATS DAY: 29

COMPANY NAME: STAR ENTERPRISE

APPLICATION NUMBER(S): AC29-160654

AGENCY CONTACT(S): Art Wells

DESCRIPTION OF SOURCE(S): 3 New Storage Tanks
2 tanks (NSPS) one for gasoline 1 tank for jet fuel

STATUS
( ) Complete
( ) Exempt
( ) Withdrawn
(X) Incompleteness Letter Necessary With Following Items:

see attached

REVIEW ENGINEER: Jim McDonald

DISTRICT AIR ENGINEER: H. Kleinsmith

Mr. R. R. Rall
Division Manager Operations
Star Enterprises
P.O. Box 5110
Maitland, FL 32751-8003

Dear Mr. Rall:

Re: Hillsborough County - AP
AC29-160654 + 160652

On February 10, 1989, we received your 2 air pollution construction applications regarding 3 new petroleum storage tanks and a truck loading rack in Tampa. In order to continue processing the applications, the following additional information is requested pursuant to Subsection 17-4.07(1), F.A.C.:

3 New Storage Tanks (AC29-160654)

1. Are you requesting the existing tanks shown on your Table, which are currently on Marathon Petroleum Company's permit #029-138645, to be included as part of this application? If yes,

A. The Marathon Petroleum Company and Star Enterprise will need to complete and submit for these tanks an Application for Transfer of Permit (DER Form 17-1.201(1)).

B. Since your Table shows 14 existing tanks and permit A029-13845 shows only 12 tanks, is it correct tanks #6814 and #7518 are also existing unpermitted tanks? If yes, explain.

C. Will your acquisition and usage of the 12 existing permitted tanks cause a change in the total emissions from those tanks? If yes, explain.

2. In accordance with Section V 4. of the application, submit design drawings for the 2 new tanks containing gasoline to show compliance with 40 CFR 60 Subpart Kb, for the tank containing aviation jet fuel, and the 2 existing unpermitted diesel tanks.

3. Submit a revised Figure 2 and Table which clearly identifies the permitted ownership of the air pollution sources. Be sure to identify each source/tank as noted in your application and/or as identified in a current permit. The Table should be larger values so they are clearly legible.

4. In accordance with Section V 2. and 3. of the application submit the emission calculations for the 3 new, 12 existing, and 2 existing unpermitted tanks.

5. Is it correct CITGO Petroleum Corporation's 2 permits will not be utilized because of the joint venture with

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the permits active?

<u>Six Lane Truck Loading Rack (AC[illegible]-[illegible]065[illegible])</u>

6. In accordance with Section V 2. and 3. of the application, submit emission calculations to show how the emission values in Attachment II were derived, comply with 40 CFR 60 Subpart XX and match the throughput of all the storage tanks.

7. In accordance with Section V 4. of the application, submit the design details of the proposed John Zink Co. flare.

8. Submit the manufacturer's guarantee of the efficiency of the flare to document the value used in the emission calculations of No. 6.

Upon receipt of the requested additional information, processing of the applications will continue. If you feel a meeting would help expedite the permitting process or have any questions, please call me at (813) 272-5530.

Sincerely

Art

CC: JIM McDONALD, FDER-Tampa
Robert E. Harbrider
J. E. Brennan, P.E.

ENVIRONMENTAL PROTECTION COMMISSION
HILLSBOROUGH COUNTY

ROGER P. STEWART
DIRECTOR

1900 - 9th AVE
TAMPA, FLORIDA 33605

TELEPHONE (813) 272-5960

March 10, 1989

D. E. R.
MAR 1 3 1989
SOUTHWEST DISTRICT
TAMPA

Mr. R.R. Rall
Division Manager Operations
Star Enterprises
P.O. Box 5140
Maitland, FL 32751-8003

RE: Hillsborough County -AP AC29-160654 & 160652

Dear Mr. Rall:

On February 10, 1989, we received your 2 air pollution construction applications regarding 3 new petroleum storage tanks and a truck loading rack in Tampa. In order to continue processing the applications, the following additional information is requested pursuant to Subsection 17-4.07 (1),F.A.C.:

3 New Storage Tanks (AC29-160654)

1. Are you requesting the existing tanks shown on your table, which are currently on Marathon Petroleum Company's permit AO29-138645, to be included as part of this application? If yes, please explain.

   A. The Marathon Petroleum Company and Star Enterprise will need to complete and submit for these tanks an application for transfer of permit DER form 17-1.201 (1).
   B. Since your table shows 14 existing tanks and permit AO29-138645 shows only 12 tanks, is it correct tanks #6814 and #7518 are also existing unpermitted tanks? If yes, explain.
   C. Will your acquisition and usage of the 12 existing permitted tanks cause a change in the total emissions from those tanks? If yes explain.

2. In accordance with Section V4. of the application, submit design drawings for the 2 new tanks containing gasoline to show compliance with 40 CFR 60 subpart Kb, for the tank containing aviation jet fuel, and the 2 existing unpermitted diesel tanks.

3. Submit a revised Figure 2 and table which clearly identifies the permitted ownership of the air pollution sources. Be sure to identify each source/tank as noted in your application and/or as identified in a current permit. The table should show larger values so they are clearly legible.

4. In accordance with Section V2. and 3. of the application, submit the emission calculations for the 3 new, 12 existing, and 2 existing unpermitted tanks.

5. Is it correct (ITGO Petroleum Corporation's 2 permits will not be utilized because of the joint venture with Texaco (Star Enterprise), but they still request to keep the permits active?

Six Lane Truck Loading Rack (AC29-160652)

6. In accordance with Section V2. and 3. of the application, submit emission calculations to show how the emission values in attachment II were derived, comply with 40 CFR 60 Subpart XX and match the throughput of all the storage tanks.

7. In accordance with Section V 4. of the application, submit the design details of the proposed John Zink Company flare.

8. Submit the manufacturer's guarantee of the efficiency of the flare to document the value used in the emission calculations of No. 6.

Upon receipt of the requested additional information, processing of the applications will continue. If you feel a meeting would help expedite the permitting process or have any questions, please call me at (813) 272-5530.

Sincerely,

Arthur J. Wells

Arthur J. Wells
Air Permit Engineer

ph

cc: Jim McDonald, DER-Tampa
Robert E. Harkrider
J.E. Brenman, P.E.

JEB J.E. Brenman Consulting Engineers, Inc.
Engineers • Land Surveyors

FEBRUARY 3, 1989

HILLSBOROUGH COUNTY
ENVIRONMENTAL PROTECTION COMMISSION
1410 NORTH 21ST STREET
TAMPA, FLORIDA 33605

ATTENTION: MR. VICTOR SAN AGUSTIN, P.E.
CHIEF, AIR PERMITTING SECTION

REFERENCE: STAR ENTERPRISE
TAMPA TERMINAL EXPANSION
NEW STORAGE TANKS

GENTLEMEN:

ENCLOSED ARE FOUR (4) COPIES OF THE CONSTRUCTION PERMIT APPLICATION ASSOCIATED WITH THE EXPANSION OF THE STAR ENTERPRISE TAMPA TERMINAL. TWO (2) CHECKS TO COVER THE COSTS ASSOCIATED WITH THE PERMIT ARE ALSO ENCLOSED; ONE IN THE AMOUNT OF $730.00 FOR HILLSBOROUGH COUNTY AND $500.00 FOR THE STATE OF FLORIDA.

FOR REFERENCE PURPOSES PLEASE NOTE THAT TEXACO INC. AND SAUDI ARABIAN OIL COMPANY ENTERED INTO A JOINT VENTURE PARTNERSHIP FOR REFINING, DISTRIBUTING AND MARKETING PETROLEUM PRODUCTS UNDER THE TEXACO TRADEMARK IN THE EAST AND GULF COAST REGIONS OF THE UNITED STATES. THE PARTNERSHIP PROVIDED FOR THE PURCHASE BY SRI OF 50 PER CENT INTEREST IN TEXACO'S REFINING ASSETS AND RELATED MARKETING SYSTEMS IN 23 EAST AND GULF COAST STATES, AS WELL AS THE DISTRICT OF COLUMBIA. THE JOINT VENTURE'S ASSETS INCLUDE THREE MAJOR REFINERIES, LOCATED IN DELAWARE CITY, DELAWARE; CONVENT, LOUISIANA; AND PORT ARTHUR, TEXAS, PLUS 50 PRODUCT DISTRIBUTION TERMINALS, APPROXIMATELY 1,400 OWNED AND LEASED SERVICE STATIONS AND A BRANDED DISTRIBUTOR NETWORK OF APPROXIMATELY 10,000 STATIONS. THE PARTNERSHIP, NAMED STAR ENTERPRISE, WAS PLACED INTO OPERATION JANUARY 1, 1989.

SHOULD QUESTIONS ARISE CONCERNING OUR PERMIT APPLICATION, PLEASE ADDRESS THEM TO THE WRITER'S ATTENTION WITH A COPY TO MR. ROBERT E. HARKRIDER, SUPERVISOR OF OPERATIONS, STAR ENTERPRISE, P.O. BOX 5140, MAITLAND, FLORIDA.

VERY TRULY YOURS,

J.E. BRENMAN CONSULTING ENGINEERS, INC.

J.E. Brenman

J.E. BRENMAN, P.E.
PRESIDENT

JEB/BB
CC: R. R. RALL - STAR ENTERPRISE
R. E. HARKRIDER - STAR ENTERPRISE
DANA BURCH - CITGO
JIM MILLER - CITGO
L. D. DE LA PARTE - DE LA PARTE, GILBERT, P.A.

1801 University Drive • Coral Springs, Florida 33071-6078
Telephone (305) 752-7117 • Fax (305) 753-7743

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AIRS 057644-AC-001
11-3-95

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHEAST FLORIDA DISTRICT
1900 SOUTH CONGRESS AVENUE
WEST PALM BEACH, FLORIDA 33406

AC29-160654

RECEIVED
FEB 10 1989
E.P.C. OF H.C.
AIR PROGRAM

APPLICATION TO OPERATE/CONSTRUCT AIR POLLUTION SOURCES

SOURCE TYPE: BULK GASOLINE TERMINAL [ ] New[1] [X] Existing[1]

APPLICATION TYPE: [X] Construction [ ] Operation [ ] Modification

COMPANY NAME: STAR ENTERPRISE (FORMERLY KNOWN AS TEXACO) COUNTY: HILLSBOROUGH

Identify the specific emission point source(s) addressed in this application (i.e. Lime Kiln No. 4 with Venturi Scrubber; Peaking Unit No. 2, Gas Fired) NEW STORAGE TANKS

SOURCE LOCATION: Street 519 19 ST City TAMPA

ZONE 17; UTM: East 358.2 KM North 3092.3 KM

Latitude 27° 56' 49"N Longitude 82° 26' 24"W

APPLICANT NAME AND TITLE: R. R. RALL, DIVISION MANAGER OPERATIONS

APPLICANT ADDRESS: 555 WINDERLEY PLACE, SUITE 420, MAITLAND CENTER, PO BOX 5140 MAITLAND, FL 32751-8003

SECTION I: STATEMENTS BY APPLICANT AND ENGINEER

A. APPLICANT

I am the undersigned owner or authorized representative* of STAR ENTERPRISE

I certify that the statements made in this application for a CONSTRUCTION permit are true, correct and complete to the best of my knowledge and belief. Further, I agree to maintain and operate the pollution control source and pollution control facilities in such a manner as to comply with the provision of Chapter 403, Florida Statutes, and all the rules and regulations of the department and revisions thereof. I also understand that a permit, if granted by the department, will be non-transferable and I will promptly notify the department upon sale or legal transfer of the permitted establishment.

*Attach letter of authorization

Mr. Robert E. Hankinson
Supervisor of Operations
Star Enterprise
P.O. Box 5140
Maitland, Florida 32751-8003

Signed: [signature]

R. R. RALL, DIVISION MANAGER OPERATIONS
Name and Title (Please Type)

Date: 2/3/89 Telephone No. 407-660-8000

B. PROFESSIONAL ENGINEER REGISTERED IN FLORIDA (where required by Chapter 471, F.S.)

This is to certify that the engineering features of this pollution control project have been designed/examined by me and found to be in conformity with modern engineering principles applicable to the treatment and disposal of pollutants characterized in the permit application. There is reasonable assurance, in my professional judgment, that

[1] See Florida Administrative Code Rule 17-2.100(57) and (104)

D.E.R.

FEB 10 1989

SOUTHEAST DISTRICT

the pollution control facilities, when properly maintained and operated, will discharge an effluent that complies with all applicable statutes of the State of Florida and the rules and regulations of the department. It is also agreed that the undersigned will furnish, if authorized by the owner, the applicant a set of instructions for the proper maintenance and operation of the pollution control facilities and, if applicable, pollution sources.

Signed J. E. Brenman

J. E. BRENMAN, PE
Name (Please Type)

J. E. BRENMAN CONSULTING ENGINEERS, INC
Company Name (Please Type)

1801 UNIVERSITY DRIVE, CRL SPGS, FL 33071-6078
Mailing Address (Please Type)

Florida Registration No. PE28343 Date: 2/3/89 Telephone No. 305-752-7117

SECTION II: GENERAL PROJECT INFORMATION

A. Describe the nature and extent of the project. Refer to pollution control equipment, and expected improvements in source performance as a result of installation. State whether the project will result in full compliance. Attach additional sheet if necessary.

PROJECT INVOLVES INSTALLATION OF THREE (3) NEW PRODUCT STORAGE TANKS, A PRODUCT LOADING RACK AND DUPLEX VAPOR COMBUSTION SYSTEM. DESCRIPTION OF PROJECT IS PROVIDED AS ATTACHMENT 1.

B. Schedule of project covered in this application (Construction Permit Application Only)

Start of Construction MARCH 1989 Completion of Construction MARCH 1990

C. Costs of pollution control system(s): (Note: Show breakdown of estimated costs only for individual components/units of the project serving pollution control purposes. Information on actual costs shall be furnished with the application for operation permit.)

VAPOR COMBUSTION SYSTEM: $200,000

INSTALLATION: 40,000

MISCELLANEOUS: 60,000

TOTAL: $300,000

D. Indicate any previous DER permits, orders and notices associated with the emission point, including permit issuance and expiration dates.

E. Requested permitted equipment operating time: hrs/day 24 ; days/wk 7 ; wks/yr 52 ;

if power plant, hrs/yr_____; if seasonal, describe: N/A

F. If this is a new source or major modification, answer the following questions. (Yes or No)

1. Is this source in a non-attainment area for a particular pollutant? YES

   a. If yes, has "offset" been applied? NO

   b. If yes, has "Lowest Achievable Emission Rate" been applied? NO

   c. If yes, list non-attainment pollutants. OZONE (VOC)

2. Does best available control technology (BACT) apply to this source? If yes, see Section VI. NO

3. Does the State "Prevention of Significant Deterioriation" (PSD) requirement apply to this source? If yes, see Sections VI and VII. NO

4. Do "Standards of Performance for New Stationary Sources" (NSPS) apply to this source? NO

5. Do "National Emission Standards for Hazardous Air Pollutants" (NESHAP) apply to this source? NO

H. Do "Reasonably Available Control Technology" (RACT) requirements apply to this source? YES

   a. If yes, for what pollutants? OZONE (VOC)

   b. If yes, in addition to the information required in this form, any information requested in Rule 17-2.650 must be submitted.

Attach all supportive information related to any answer of "Yes". Attach any justification for any answer of "No" that might be considered questionable.

SECTION III: AIR POLLUTION SOURCES & CONTROL DEVICES (Other than Incinerators)

A. Raw Materials and Chemicals Used in your Process, if applicable:

Description	Contaminants Type	Contaminants % Wt	Utilization Rate - lbs/hr	Relate to Flow Diagram
GASOLINE	VOC		SEE ATTACHMENT II AND III	
			MAX HOURLY GAL/DAY	
			44,333	

B. Process Rate, if applicable: (See Section V, Item 1)

1. Total Process Input Rate (lbs/hr): N/A

2. Product Weight (lbs/hr): N/A

C. Airborne Contaminants Emitted: (Information in this table must be submitted for each emission point, use additional sheets as necessary)

Name of Contaminant	Emission[1] Maximum lbs/hr	Emission[1] Actual T/yr	Allowed[2] Emission Rate per Rule 17-2	Allowable[3] Emission lbs/hr	Potential[4] Emission lbs/yr	Potential[4] Emission T/yr	Relate to Flow Diagram
VOC	17.67	77.39	35 MG/L OF	22.83	21.98	96.26	
	9.03	39.54	GASOLINE				
			LOADED THRU				
			LOADING RACK				

[1]See Section V, Item 2.

[2]Reference applicable emission standards and units (e.g. Rule 17-2.600(5)(b)2. Table II, E. (1) - 0.1 pounds per million BTU heat input)

[3]Calculated from MAX rate and applicable standard, USING 8760 HRS/YR AND 100 TONS/YR EMISSSION

[4]Emission, if source operated without control (See Section V, Item 3).

D. Control Devices: (See Section V, Item 4)

Name and Type (Model & Serial No.)	Contaminant	Efficiency	Range of Particles Size Collected (in microns) (If applicable)	Basis for Efficiency (Section V Item 5)
JOHN ZINK CO	VOC	98% (MIN)	N/A	(1)
MODEL GV-ZTOF-10				

E. Fuels

Type (Be Specific)	Consumption*		Maximum Heat Input (MMBTU/hr)
	avg/hr	max./hr	
PROPANE (PILOT)	10 SCFH	21 SCFH	0.05

*Units: Natural Gas--MMCF/hr; Fuel Oils--gallons/hr; Coal, wood, refuse, other--lbs/hr.

Fuel Analysis: PROPANE IS A CLEAN FUEL

Percent Sulfur: NEGLIGIBLE Percent Ash: NEGLIGIBLE

Density: 1.52 SG Typical Percent Nitrogen: N/A

Heat Capacity: 21,513 BTU/lb 91,065 BTU/gal

Other Fuel Contaminants (which may cause air pollution): _____

F. If applicable, indicate the percent of fuel used for space heating.

Annual Average _____ Maximum _____

G. Indicate liquid or solid wastes generated and method of disposal.

NONE

(1) PERFORMANCE GUARANTEE SHEET

H. Emission Stack Geometry and Flow Characteristics (Provide data for each stack):

Stack Height: 50' O.A.H. ft. Stack Diameter: 9'0" ft.

Gas Flow Rate: 56,023 ACFM 56,023 DSCFM Gas Exit Temperature: 1800 °F.

Water Vapor Content: 14.4 (EST) % Velocity: 71.6 FPS

SECTION IV: INCINERATOR INFORMATION

(NOT APPLICABLE)

Type of Waste	Type 0 (Plastics)	Type I (Rubbish)	Type II (Refuse)	Type III (Garbage)	Type IV (Pathological)	Type V (Liq.& Gas By-prod.)	Type VI (Solid By-prod.)
Actual lb/hr Incinerated							
Uncontrolled (lbs/hr)							

Description of Waste _____

Total Weight Incinerated (lbs/hr) _____ Design Capacity (lbs/hr) _____

Approximate Number of Hours of Operation per day _____ day/wk _____ wks/yr. _____

Manufacturer _____

Date Constructed _____ Model No. _____

	Volume $(ft)^3$	Heat Release (BTU/hr)	Fuel		Temperature (°F)
			Type	BTU/hr	
Primary Chamber					
Secondary Chamber					

Stack Height: _____ ft. Stack Diamter: _____ Stack Temp. _____

Gas Flow Rate: _____ ACFM _____ DSCFM* Velocity: _____ FPS

*If 50 or more tons per day design capacity, submit the emissions rate in grains per standard cubic foot dry gas corrected to 50% excess air.

Type of pollution control device: [ ] Cyclone [ ] Wet Scrubber [ ] Afterburner

[ ] Other (specify) _____

Brief description of operating characteristics of control devices: _____

Ultimate disposal of any effluent other than that emitted from the stack (scrubber water, ash, etc.):

NOTE: Items 2, 3, 4, 6, 7, 8, and 10 in Section V must be included where applicable.

SECTION V: SUPPLEMENTAL REQUIREMENTS

Please provide the following supplements where required for this application.

1. Total process input rate and product weight -- show derivation [Rule 17-2.100(127)]

2. To a construction application, attach basis of emission estimate (e.g., design calculations, design drawings, pertinent manufacturer's test data, etc.) and attach proposed methods (e.g., FR Part 60 Methods 1, 2, 3, 4, 5) to show proof of compliance with applicable standards. To an operation application, attach test results or methods used to show proof of compliance. Information provided when applying for an operation permit from a construction permit shall be indicative of the time at which the test was made.

3. Attach basis of potential discharge (e.g., emission factor, that is, AP42 test).

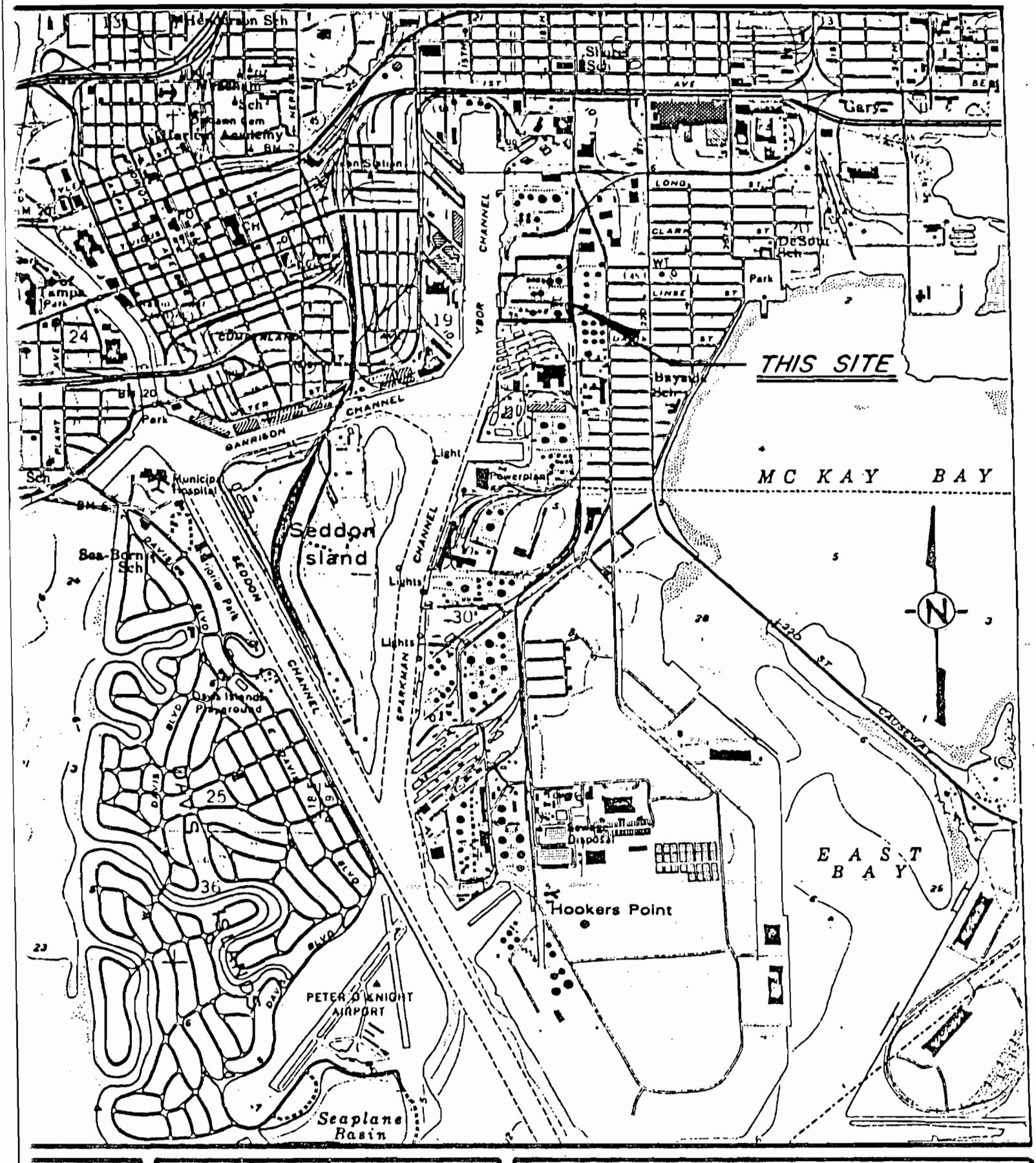
4. With construction permit application, include design details for all air pollution control systems (e.g., for baghouse include cloth to air ratio; for scrubber include cross-section sketch, design pressure drop, etc.)

5. With construction permit application, attach derivation of control device(s) efficiency. Include test or design data. Items 2, 3 and 5 should be consistent: actual emissions = potential (1-efficiency).

6. An 8 1/2" x 11" flow diagram which will, without revealing trade secrets, identify the individual operations and/or processes. Indicate where raw materials enter, where solid and liquid waste exit, where gaseous emissions and/or airborne particles are evolved and where finished products are obtained.

7. An 8 1/2" x 11" plot plan showing the location of the establishment, and points of airborne emissions, in relation to the surrounding area, residences and other permanent structures and roadways (Example: Copy of relevant portion of USGS topographic map).

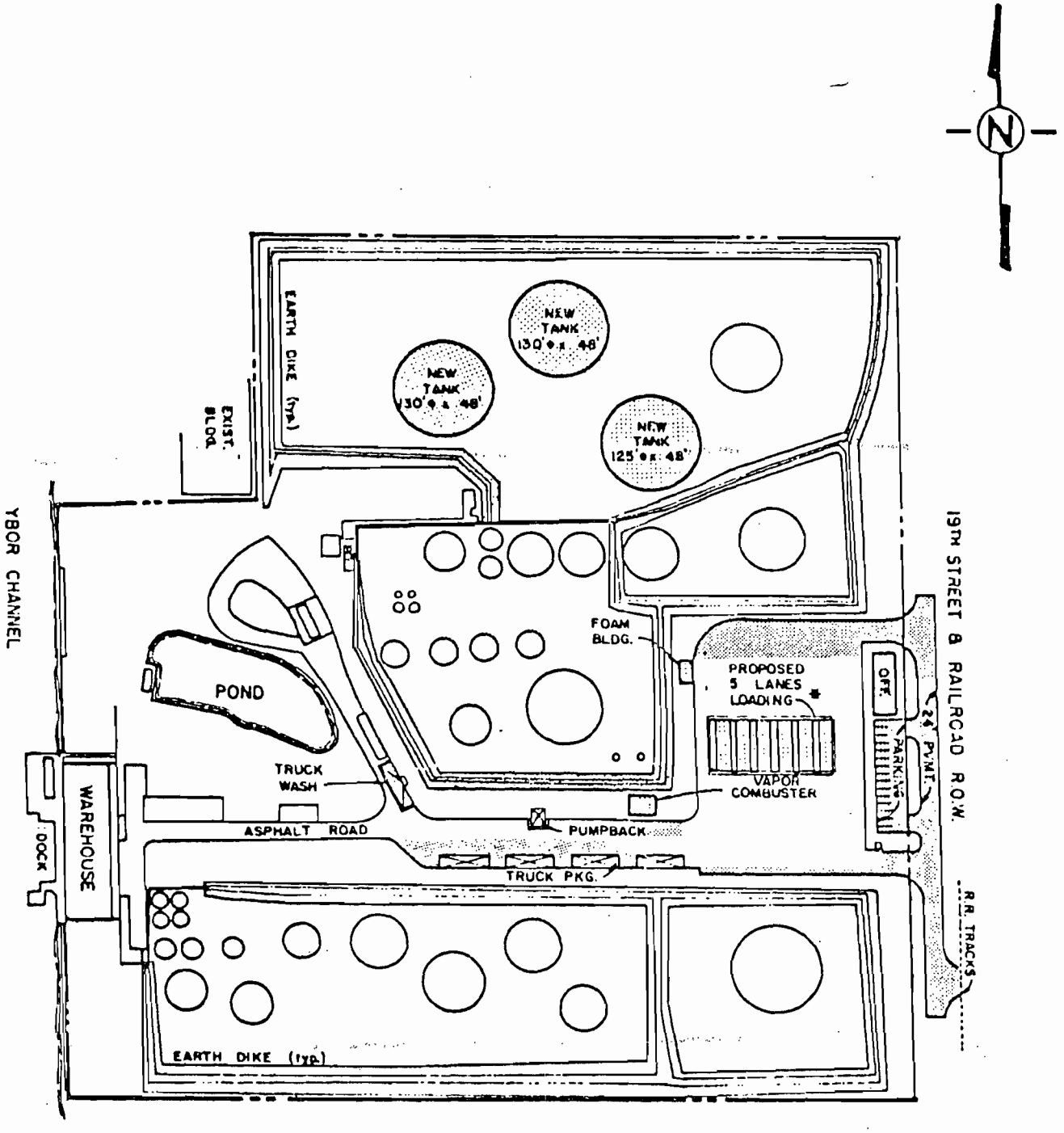
8. An 8 1/2" x 11" plot plan of facility showing the location of manufacturing processes and outlets for airborne emissions. Relate all flows to the flow diagram.



DRAWN BY: S.N.	SCALE: 1" = 2000'
CHECKED BY: J.E.B.	DATE: 4-1-88
PROJECT NO.: 1275	SHEET NO.:

STAR ENTERPRISE — TAMPA TERMINAL
GENERAL LOCATION MAP

J.E. BRENMAN CONSULTING ENGINEERS, INC.
1801 UNIVERSITY DRIVE CORAL SPRINGS, FLORIDA 33071



* PIPING SHALL BE STUBBED FOR FUTURE 6th LANE OF LOADING.

LEGEND

- PROPOSED FACILITY/TANKAGE
- PROPOSED ASPHALT
- EARTH DIKE MODIFICATIONS

JEB

DRAWN BY: S.N.	SCALE: 1" = 200'
CHECKED BY: J.E.B.	DATE: 7-1-88
PROJECT NO.: 1275	SHEET NO.:

STAR ENTERPRISE — TAMPA TERMINAL
MASTER SITE PLAN

J.E. BRENMAN CONSULTING ENGINEERS, INC.
1801 UNIVERSITY DRIVE CORAL SPRINGS FLORIDA

JEB J.E. Brenman Consulting Engineers, Inc.

TEXACO REFINING & MARKETING, INC.
TAMPA TERMINAL EXPANSION

PROJECT DESCRIPTION

ATTACHMENT I

THE EXISTING TEXACO REFINING & MARKETING INC. (TRMI) PRODUCTS TERMINAL IS LOCATED AS SHOWN IN FIGURE 1, AND ENCOMPASSES APPROXIMATELY 25 ACRES. THE SITE INCLUDES THIRTY-THREE (33) TANKS, NINETEEN (19) OF WHICH STORE GASOLINE AND DISTILLATE PRODUCTS; THIRTEEN (13) ARE USED FOR ASPHALT AND ASPHALT RELATED BLENDING/CUTTING SOLVENTS; THE REMAINING TANK CONTAINS TANK WATER BOTTOMS WHICH IS MANUALLY REMOVED FROM THE PETROLEUM TANKS. TABLE 1, SHOWS AN APPROXIMATE BREAKDOWN SUMMARY OF THE STORED PRODUCT MIX. THE TOTAL AVAILABLE HYDROCARBON STORAGE CAPACITY, UNDER PRESENT OPERATIONS, IS APPROXIMATELY 493,000 BARRELS. THE MODIFIED TERMINAL WILL INCLUDE SEVENTEEN (17) PETROLEUM STORAGE TANKS AND THE WATER BOTTOM TANK FOR A TOTAL AVAILABLE PETROLEUM STORAGE OF APPROXIMATELY 735,000 BARRELS. ALTHOUGH THE PROJECT SHOWS AN APPARENT GAIN IN STORAGE CAPACITY OF 242,000 BARRELS, WHEN CONSIDERING THE IMPACT OF CLOSING THE CITGO TERMINAL, FEWER TANKS WILL BE EMPLOYED, AND THE AREA IMMEDIATE TO THE PROJECT WILL SHOW A NET DECREASE OF APPROXIMATELY 24,000 BARRELS OF PETROLEUM STORAGE.

THE TERMINAL DOES NO PROCESSING OR REFINING OF PETROLEUM PRODUCTS, NOR ARE SUCH ACTIVITIES CONTEMPLATED FOR THE FUTURE. ALL DOCK FACILITIES ARE IN PLACE AND EXCEPT FOR NORMAL MAINTENANCE AND REPAIRS, WILL NOT BE AFFECTED BY THE ON SITE DEVELOPMENT. APPLICABLE AMERICAN PETROLEUM INSTITUTE (API) STANDARDS HAVE BEEN MET FOR THE EXISTING TANKAGE AND WILL BE UTILIZED FOR THE CONSTRUCTION OF FUTURE TANKS. THE PROJECT WILL REQUIRE MODIFICATION TO THE ON SITE PIPING NETWORK AND WILL INCLUDE THE ADDITION OF ONE (1) -- FIVE (5) LANE TANK TRUCK LOADING RACK. PIPING FOR THE RACK WILL INCLUDE THE PROVISION FOR A SIXTH LANE. THE NEW RACK WILL REPLACE A TWO (2) BAY RACK, FORMERLY USED AT THE TRMI SITE AND THE PRESENT THREE (3) LANE CITGO RACK. THE NEW FACILITY WILL BE DESIGNED TO ACCOMODATE THE LOADING REQUIREMENTS OF TRMI AND CITGO. THE PROJECT WILL NOT CHANGE THE TOTAL NUMBER OF JOINT TERMINAL OPERATIONS PERSONNEL NOR WILL IT EFFECT VEHICULAR MOVEMENTS THROUGH THE AREA. FIGURE 2 SHOWS THE CONCEPTUAL SITE PLAN FOR THIS PROPOSED EXPANSION.

CITGO will not use but may transfer rack/flare + tanks per [illegible]

THE PROJECT WILL NOT AFFECT THE LOADED VOLUME OF GASOLINE DELIVERED BY EITHER TRMI OR CITGO. TRMI IS CURRENTLY UTILIZING THE MARATHON OIL TERMINAL FOR LOADING PRODUCTS. THE MARATHON RACKS ARE CONNECTED TO THE TRMI STORAGE TANKS. CITGO IS CURRENTLY LOADING FROM THE TERMINAL WHICH WILL BE DISASSEMBLED UPON COMPLETION OF THE TRMI EXPANSION. AFTER COMPLETION OF THE PROJECT THE SAME VOLUME OF PETROLEUM PRODUCTS (CORRECTED FOR ANNUAL GROWTH) WILL BE HANDLED BY THE TRMI TERMINAL AS WAS HANDLED THROUGH THE TRMI/MARATHON AND CITGO RACKS.

ATTACHMENT II

STAR Enterprise
Port of Tampa

Petroleum Storage Tanks
Data Summary

STORAGE TANKS

Tank Designation	Product	Volume Barrels/Gallons (1000)	Dimensions Feet	Roof Type	Exterior Color	Estimated Thruput Volume Gal/yr (10^6)
T-01A	Unleaded Gasoline	112.5/4,725	130'0 x 48' hg	Internal Floating	White	91.04
T-01B	Unleaded Gasoline	112.5/4,725	130'0 x 48' hg	Internal Floating	White	91.04
T-05A	Aviation Jet Fuel	100/4,200	130'0 x 48' hg	Floating Pan	White	25.04

Emissions

Controlled		Uncontrolled	
lbs/hr	tons/yr	lbs/hr	tons/yr
9.03	39.54	9.03	39.54

NOTES:

1. Calculation Reference: Compilation of Air Pollutant Emission Factors, AP-42, Volume I, Page 4.4-7, Sept 1985.
2. See Attachment III for Emissions Information

Star Enterprise
Port of Tampa - Sales Terminal

Air Emissions
Post Development

TANK No.	25766	25767	25801	29535	29596	29597	30903	T-01A	T-01B	6014	7510	7522	29534	30775	6016	25556	T-05A	TOTALS
STORED PRODUCT	<----------GASOLINE---------->									<----------DIESEL---------->				AV-GAS	<----BOUNDED AVJET---->			
Dia, ft	80	80	80	70	60	70	90	130	130	115	30	40	50	70	95	40	125	
Hgt (total)	40	40	40	40	40	40	40	40	40	30	35	35	40	51	31	43	40	
TANK CAPACITY																		
Gals x 10^3	1734.0	1785.6	1137.9	1370.0	1012.7	1373.7	2126.0	4725.0	4725.0	2343.4	184.4	471.1	702.4	693.6	1599.1	541.0	4200.0	30,727
BBLS x 10^3	41.3	42.5	27.1	32.6	24.1	32.7	50.6	112.5	112.5	55.8	4.4	11.2	16.7	16.5	38.1	12.9	100.0	732
ROOF TYPE																		
PAINT																		
TANK CONSTANT - Ks	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	
SEAL TYPE																		
SEAL CONSTANT - Ks	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	6.70	
Qc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Fc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Ff	250	250	250	250	200	250	285	285	285	300	150	150	150	285	150	150	150	
Kc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Kn																		
Ld	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
N																		
T																		
Fp																		
C																		
Vp factor - P	.14	.14	.14	.14	.14	.14	.14	.14	.14	.02960	.00960	.00822	.00822	.14	.00960	.00960	.00960	
MISCELLANEOUS DATA																		
P	02	02	02	02	02	02	02	02	02	03	03	02	03	02	03	03	03	
ambient,psia	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70	
wind velocity, mph	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
true Vp, psia	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40	6.40					6.40				
lbs/gal	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10	6.10					6.10				
RVP, psia	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00					10.00				
molecular weight	66	66	66	66	66	66	66	66	66					66				
true Vp, psia										.0120	.0120	.0120	.0120		.0120	.0120	.0120	
lbs/gal										7.1	7.1	7.1	7.1		7.1	7.1	7.1	
molecular weight										130	130	130	130		130	130	130	
PRODUCT THROUGHPUT																		
gals/yr x10^6	33.41	34.41	21.93	26.41	19.51	26.47	40.98	91.04	91.04	39.17	1.51	3.85	5.75	3.15	9.53	3.23	25.04	456
tons/yr x10^3	101.91	104.94	66.87	80.56	59.52	80.73	124.99	277.69	277.69	58.46	4.60	11.75	17.52	9.61	29.08	9.85	76.38	1,392
bbls/yr x10^4	79.55	81.92	52.20	62.89	46.46	63.02	97.57	216.77	216.77	45.64	3.59	9.17	13.68	7.50	22.70	7.69	59.61	1,087
PRODUCT LOSSES																		
breath. loss,lbs/yr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
deck fitting,lbs/yr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
rim seal, lbs/yr	5021.03	5021.03	5021.03	4393.40	3785.77	4393.40	5648.86	9159.17	9159.17	983.50	250.85	9.33	9.40	4393.40	794.35	489.72	1845.20	
withdrawal, lbs/yr	85.80	86.35	56.31	77.52	66.82	77.69	93.54	143.88	143.88	39.86	12.02	19.20	27.40	9.24	23.99	15.76	47.90	
deck loss, lbs/yr	2341.98	2341.98	2341.98	2341.98	1873.52	2341.98	2669.76	2669.76	2669.76	374.40	187.20	0.00	4.25	2669.76	187.20	187.20	187.20	
TOTAL TK FARM LOSSES, lbs/yr	7448.73	7451.28	7419.23	6812.82	5726.11	6912.98	8411.96	10972.81	10972.81	1375.84	450.07	28.30	41.21	7072.41	1005.55	612.68	1280.30	83,475
TOTAL TK FARM LOSSES, lbs/hr	.85	.85	.85	.78	.65	.78	.96	1.25	1.25	.16	.05	.00	.00	.81	.11	.07	.15	10
TOTAL TK FARM LOSSES, tons/yr	3.72	3.73	3.71	3.41	2.85	3.41	4.21	5.49	5.49	.69	.23	.01	.02	3.54	.50	.31	.64	42
TOTAL TK FARM LOSSES, lbs/day	20.41	20.41	20.33	18.67	15.63	18.97	23.05	30.06	30.06	3.77	1.23	.08	.11	19.38	2.75	1.68	3.51	230

ATTACHMENT III

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
4520 OAK FAIR BLVD.
TAMPA, FLORIDA 33610-7347
813-623-5561
Suncom—552-7612

January 29, 1988

Mr. G. D. Sheely, Manager
Regulatory & Environmental Compliance
Marathon Petroleum Company
539 South Main Street
Findlay, OH 45840

Dear Mr. Sheely:

Re: Hillsborough County - AP
Amendment to AO29-138645

In response to a telephone request from Rosemary Richards of your staff, the following change is made to DER Form 17-1.201(5) Page 1 of 7 of your permit. According to Rosemary Richards, Tank #25-12 has a fixed cone roof tank only.

Change from:	Tank #	Roof Type	Product	Capacity(bbl)
	25-12	Cone w/Internal Floater	#2 Fuel Oil	25,000

Change to:	Tank #	Roof Type	Product	Capacity(bbl)
	25-12	Cone	#2 Fuel Oil	25,000

Persons whose substantial interests are affected by this permit amendment have a right, pursuant to Section 120.57, Florida Statutes, to petition for an administrative determination (hearing) on it. The petition must conform to the requirements of Chapters 17-103 and 28-5.201, F.A.C., and must be filed (received) in the Department's Office of General Counsel, 2600 Blair Stone Road, Tallahassee, Florida 32399, within fourteen (14) days of receipt of this notice. Failure to file a petition within the fourteen (14) days constitutes a waiver of any right such person has to an administrative determination (hearing) pursuant to Section 120.57, Florida Statutes. This permit is final and effective on the date filed with the Clerk of the Department unless a petition is filed in accordance with this paragraph or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition and conforms to Rule 17-103.070, F.A.C. Upon timely filing of a petition or a request for an extension of time, this permit will not be effective until further Order of the Department.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

BEST AVAILABLE COPY

SOUTHWEST DISTRICT
4520 OAK FAIR BLVD.
TAMPA, FLORIDA 33610-7347
813-623-5561
Suncom—552-7612

PERMITTEE:
Marathon Petroleum Company
539 South Main Street
Findlay, OH 45480

PERMIT/CERTIFICATION
Permit No.: AO29-138644
County: Hillsborough
Expiration Date: 11-5-92
Project: Nine (9) Truck Loading Racks w/Two VRUs

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of nine (9) truck loading racks consisting of sixty three (63) bottom loading arms. Volatile organic compound emissions generated during truck loading of petroleum products are vented through two Edwards Engineering Corporation, Model DE 3200 compression/refrigeration vapor recovery units. Both units operate simultaneously.

Location: 425 South 20th Street, Tampa

UTM:17-359.5E 3091.7N NEDS NO: 0080 Point ID: 01

Replaces Permit No.: AO29-57649, AC29-48488

- Loading Racks w/VRU's.

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. In accordance with 40 CFR 60.502(C), volatile organic compounds emitting into the atmosphere from both vapor recovery units shall not exceed 80 milligram/liter of gasoline loaded.

2. Vapor collection system from each loading rack shall be designed to prevent any total organic compounds vapors collected at one loading rack from passing to another loading rack [40 CFR 60.502(d)].

3. Test the emissions for the following pollutants at intervals of twelve months from May 14, 1987, and submit two copies of the test data to the Air Section of the Environmental Protection Commission of Hillsborough County. Within forty five (45) days of such testing. Testing procedures shall be consistent with the requirements of Section 17-2.700, F.A.C.

(X) Volatile Organic Compounds

4. Testing of emissions must be accomplished under truck loading conditions required by Section 17-2.700(6)(c)2.b., F.A.C.(ie. Methods #25A or 25B). The number of gallons loaded on both leaking and non-leaking trucks shall be specified in the test results. Failure to submit the input rates or operation at conditions which do not reflect actual operating conditions may invalidate the data [Section 403.161(1)(c), Florida Statutes].

5. The Environmental Protection Commission of Hillsborough County shall be notified in writing 15 days in advance of any compliance test to be conducted on this source.

6. No VOC vapors originating from the truck loading operation shall be emitted into the atmosphere without first passing through the vapor recovery units [Section 17-2.240, F.A.C.].

7. The permittee shall use the necessary precautions to avoid discharging, leaking, seeping, pouring or dumping volatile organic compounds or organic solvents [Section V., Chapter 1-3 of the Rules of the Environmental Protection Commission of Hillsborough County].

8. No objectionable odors shall be allowed, as per Subsection 17-2.620(2), F.A.C.

9. In accordance with 40 CFR 60.502(e), loadings of liquid product into gasoline tank trucks shall be limited to vapor tight gasoline tank trucks using the following procedures:

A. The permittee or operator shall obtain the vapor tightness documentation described in 40 CFR 60.505(b) for each tank truck which is to be loaded at the effected facility.

B. The permittee or operator shall require the tank identification number to be recorded as each gasoline tank truck is loaded.

C. The permittee or operator shall cross check each tank identification with the file of tank vapor tightness documentation within two (2) weeks after the corresponding tank is loaded.
D. The permittee or operator shall notify the owner or operator of each non vapor-tight gasoline tank truck loaded within three (3) weeks after the loading has occurred.
E. The permittee or operator shall take steps assuring that the non vapor-tight gasoline tank truck will not be reloaded until vapor tightness documentation for that truck is obtained.

10. In accordance with 40 CFR 60.502(f), (g), (h), (i), (j), the permittee or operator shall act to assure the following:
A. The loadings of gasoline tank trucks are made only into tanks equipped with vapor collection equipment that is compatible with the terminal's vapor collection system.
B. The terminal's and the tank truck's vapor collection systems are connected during each loading of a gasoline tank truck. Examples of actions to accomplish this include training drivers in the hook up procedures and posting visible reminder signs at the affected loading racks.
C. The vapor collection and liquid loading equipment shall be designed and operated to prevent gauge pressure in the delivery tank from exceeding 4,500 pascals (450 mm of water) during product loading. This level is not to be exceeded when measured by the procedures specified in 40 CFR 60.503(b).
D. No pressure-vacuum vent in the bulk gasoline terminal's vapor collection system shall begin to open at a system pressure less than 4,500 pascals (450 mm of water).
E. Each calendar month, the vapor collection system, the vapor processing system, and each loading rack handling gasoline shall be inspected during the loading of gasoline tank trucks for total organic compounds liquid or vapor leaks. Detection methods incorporating sight, sound, or smell are acceptable. Each detection of a leak shall be recorded and the source of leak repaired within fifteen (15) calendar days after it is detected.

11. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information as per Section 17-4.14, F.A.C.

(A) Annual amount of materials and/or fuels utilized.
(B) Annual emissions (note calculation basis).
(C) Any changes in the information contained in the permit application.

Duplicate copies of all reports shall be submitted to the Environmental Protection Commission of Hillsborough County.

12. Pursuant to Section 17-4.09, F.A.C., an application for renewal of permit to operate this source shall be submitted to the Environmental Protection Commission of Hillsborough County at least 60 days prior to its expiration date.

Issued this 13th day of November 1987.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

Richard D. Garrity, Ph.D.
District Manager

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
4520 OAK FAIR BLVD.
TAMPA, FLORIDA 33610-7347
813-623-5561
Suncom—552-7612

PERMITTEE:
Marathon Petroleum Company
539 South 20th Street
Findlay, OH 45840

PERMIT/CERTIFICATION
Permit No.: AO29-138645
County: Hillsborough
Expiration Date: 11-5-92
Project: Petroleum Storage Tank Farm

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of the following petroleum storage tanks:

Tank #	Roof Type	Product	Capacity(bbl)
21-2	Cone w/Internal Floater	Water/gas Mixture	21,000
55-3	External Floater	SU Gasoline	55,000
55-4	External Floater	SU Gasoline	55,000
80-6	External Floater	UL Gasoline	80,000
35-7	Cone w/Internal Floater	UL Gasoline	35,000
21-8	Cone w/Internal Floater	#2 Fuel Oil	21,000
30-9	Cone	#1 Fuel Oil	30,000
55-10	External Floater	SU Gasoline	55,000
80-11	Cone w/Internal Floater	UL Gasoline	80,000
25-12	Cone ~~w/Internal Floater~~	#2 Fuel Oil	25,000
30-13	Cone w/Internal Floater	SU Gasoline	30,000

55-14	External Floater	SU Gasoline	55,000
80-15	External Floater	L Gasoline	80,000
80-16	External Floater	L Gasoline	80,000
80-17	External Floater	UL Gasoline	80,000
80-18	External Floater	UL Gasoline	80,000
80-19	Cone w/Internal Floater	UL Gasoline	80,000
T-5	Cone	Slop	500
-	Cone	Gasoline Additive	8,000
-	Cone	Gasoline Additive	8,000
-	Cone	Gasoline Additive	8,000
*43-21	Cone w/Internal Floater	#2 Diesel Fuel	43,000
*54-22	Cone w/Internal Floater	UL Gasoline	54,000
*27-23	Cone w/Internal Floater	UL Gasoline	27,000
*24-24	Cone w/Internal Floater	SU Gasoline	24,000
*38-25	Cone	#2 Diesel Fuel	38,000
*33-26	Cone w/Internal Floater	SU Gasoline	33,000
*13-27	Cone	#2 Diesel Fuel	13,000
*43-28	Cone w/Internal Floater	L Gasoline	43,000
*33-29	Cone w/Internal Floater	L Gasoline	33,000
*11-30	Cone	#2 Diesel Fuel	11,000
*17-31	Cone w/Internal Floater	Avgas	17,000
*17-32	Cone	#2 Diesel Fuel	17,000

*Tanks leased from Texaco

Location: 425 South 20th Street, Tampa

UTM:17-359.5E 3091.7N NEDS NO: 0080 Point ID: 02

Replaces Permit No.: AO29-60567

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:
- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Operation of all internal floating roof tanks shall comply with the requirements of Subsection 17-2.650(D)(f)8., F.A.C. Requirements include:

a) All internal floating roofs shall be equipped with a closure seal, or seals, to close the space between the roof edge and tank wall.

b) The source shall be maintained so that there shall be no visible holes, tears, or other openings in the seal or any seal fabric or materials.

c) All openings, except stub drains are to be equipped with covers, lids, or seals such that:

(I) The cover, lid, or seal is in a closed position at all times except on demand for sampling, maintenance, repair, or necessary operational practices; and

(II) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports; and

(III) Rim vents, if provided, are set to open when the roof is being floated off the leg supports or at the manufacturer's recommended setting.

2. All gasoline storage tanks equipped with external floating roofs shall comply with all the applicable provisions of subsection 17-2.650(1)(f)17., F.A.C.

3. The permittee shall not store, pump, handle, load, or unload in any fixed roof tank volatile organic solvents without applying known and existing vapor emission control devices or systems as deemed necessary by the Environmental Protection Commission of Hillsborough County (Section V., Chapter 1-3, of the rules of EPC/HC).

4. The permittee shall use the necessary precautions to avoid discharging, leaking, seeping, pouring or dumping volatile organic compounds or organic solvents (Section V., Chapter 1-3 of the rules of the EPC/HC).

5. No objectionable odors shall be allowed, as per Subsection 17-2.620(2), F.A.C.

6. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information as per Section 17-4.14, F.A.C.

(A) Annual amount of materials and/or fuels utilized.
(B) Annual emissions (note calculation basis).
(C) Any changes in the information contained in the permit application.

Duplicate copies of all reports shall be submitted to the Environmental Protection Commission of Hillsborough County.

7. Pursuant to Section 17-4.09, F.A.C., an application for renewal of permit to operate this source shall be submitted to the Environmental Protection Commission of Hillsborough County at least 60 days prior to its expiration date.

Issued this 13 TH day of November 1985

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

Richard D. Garrity, Ph.D.
District Manager

HILLSBOROUGH COUNTY ENVIRONMENTAL PROTECTION COMMISSION

ANNUAL OPERATING REPORT: PETROLEUM BULK TERMINALS

Representing Calendar Year 1984
Date submitted: April 9, 1985

SECTION I - GENERAL INFORMATION

Terminal name: Marathon Petroleum Company
Terminal address: P. O. Drawer M, 425 South 20th Street (Street or Box Number) | Tampa (City) | FL (State) | 33675 (Zip)
Person to contact regarding this report: Frank Stanczak | Title: Mgr. Environmental | Telephone: 419/422-2121
Mailing address: 539 South Main Street (Street or Box Number) | Findlay (City) | OH (State) | 45840 (Zip)
Terminal manager/superintendent name: T. P. Robertson

SECTION II BULK STORAGE TANK INFORMATION

Tank Number or Designation	Tank Type a.	Tank Color	Tank Construction b.	Tank Condition c.	Tank Height (ft)	Tank Diameter (ft)	Tank Capacity (gal)	Product	Annual Throughput (gal)
T-5	Fixed Roof	White	Welded	Good	31	11	19,488	Transmix	19,488
21-2	Internal Floater	White	Welded	Good	37	70	877,338	Kerosene	2,105,280
21-8	Internal Floater	White	Welded	Good	37	70	901,278	Diesel Fuel	13,804,000
30-9	Vapor-Miser	White	Welded	Good	44	70	1,160,922	Kerosene	2,790,720
35-7	Internal Floater	White	Welded	Good	40	80	1,168,272	Gasoline	27,910,400
55-3	External Floater	White	Welded	Good	48	90	1,191,610	Gasoline	45,354,400
55-4	External Floater	White	Welded	Good	48	90	1,957,704	Gasoline	22,566,000
80-6	External Floater	White	Welded	Good	48	110	2,956,002	Gasoline	46,473,810
11-30	Fixed Roof	White	Welded	Good	35	50	446,418	Diesel Fuel	6,902,000
13-27	Fixed Roof	White	Welded	Good	42	49	509,292	Diesel Fuel	7,888,000
17-31	Internal Floater	White	Welded	Good	50	50	656,208	AV Jet	2,516,000
17-32	Fixed Roof	White	Welded	Good	48	50	672,756	Diesel Fuel	9,860,000
24-24	Internal Floater	White	Welded	Good	48	60	972,426	Gasoline	11,283,000
25-12	Fixed Roof	White	Welded	Good	37	70	915,436	Diesel Fuel	13,804,000
27-23	Internal Floater	White	Welded	Good	40	70	989,184	Gasoline	20,932,800
30-13	Internal Floater	White	Welded	Good	48	67	1,027,068	Gasoline	17,121,930
33-26	Internal Floater	White	Welded	Good	48	70	1,316,910	Gasoline	15,044,000
33-29	Internal Floater	White	Welded	Good	48	70	1,224,510	Gasoline	19,567,920
38-25	Fixed Roof	White	Welded	Good	30	95	1,419,558	Diesel Fuel	21,692,000
43-21	Internal Floater	White	Welded	Good	48	80	1,583,652	Diesel Fuel	24,650,000
43-28	Internal Floater	White	Welded	Good	48	80	1,565,424	Gasoline	24,459,900
54-22	Internal Floater	White	Welded	Good	48	90	2,055,270	Gasoline	45,354,400
55-10	External Floater	White	Welded	Good	48	90	1,951,320	Gasoline	22,566,000
55-14	External Floater	White	Welded	Good	48	90	1,951,698	Gasoline	22,566,000
80-11	Internal Floater	White	Welded	Good	40	120	3,151,638	Gasoline	73,264,800

a. Fixed roof, internal floating, etc.
b. Welded, riveted, etc.
c. Good, vapor-tight; Fair, some vapor leaks; Poor, in need of repair.

ANNUAL OPERATING REPORT: PETROLEUM BULK TERMINALS

Representing Calendar Year 1984
Date submitted: _____

SECTION I - GENERAL INFORMATION

Terminal name: _____
Terminal address: _____
(Street or Box Number) (City) (State) (Zip)
Person to contact regarding this report: _____ Title: _____ Telephone: _____
Mailing address: _____
(Street or Box Number) (City) (State) (Zip)
Terminal manager/superintendent name: _____

SECTION II BULK STORAGE TANK INFORMATION

Tank Number or Designation	Tank Type a.	Tank Color	Tank Construction b.	Tank Condition c.	Tank Height (ft)	Tank Diameter (ft)	Tank Capacity (gal)	Product	Annual Throughput (gal)
80-15	External Floater	White	Welded	Good	40	120	2,849,490	Gasoline	44,027,820
80-16	External Floater	White	Welded	Good	40	120	2,857,092	Gasoline	46,473,810
80-17	External Floater	White	Welded	Good	48	110	2,923,830	Gasoline	66,287,200
80-18	External Floater	White	Welded	Good	48	110	2,906,946	Gasoline	46,473,810
80-19	Internal Floater	White	Welded	Good	48	110	3,090,276	Gasoline	69,776,000

a. Fixed roof, internal floating, etc.
b. Welded, riveted, etc.
c. Good, vapor-tight; Fair, some vapor leaks; Poor, in need of repair.

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33637-9544
813-985-7402
SunCom - 542-8000

PERMITTEE:
Mr. Robert V. Faith
Terminal Facilities Manager
Citgo Petroleum Corporation
P.O. Box 3758
Tulsa, Oklahoma 74102

PERMIT/CERTIFICATION
Permit No.: AO29-130199
County: Hillsborough
Expiration Date: 4-16-92
Project: Truck Loading
Racks w/VRU

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of a John Zink 560 ACFM vapor recovery unit (VRU) at a gasoline terminal. Hydrocarbon emissions from the loading of trucks from three loading racks are vented to a John Zink carbon adsorption/absorption vapor recovery unit. Each loading rack has four bottom loading arms; three for gasoline and one for diesel. Emissions from the VRU shall not exceed 80 milligrams per liter of gasoline/petroleum product loaded.

Location: 1700 Hemolck Avenue, Tampa

UTM: 17-358.3E 3088.5N NEDS NO: 0181 Point ID: 02

Replaces Permit No.: AO29-42679

14. (con't)

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Pursuant to Subsection 17-2.650(1)(f)10., F.A.C., volatile organic compound (VOC) emissions from the vapor recovery unit (VRU) shall not exceed 80.0 milligrams per liter of gasoline loaded.

2. Loading of any petroleum product is prohibited unless the displaced vapors are vented directly to the VRU (Chapter 1-3, Section V - Environmental Protection Commission of Hillsborough County).

3. The permittee shall take all necessary precautions to avoid discharging, leaking, spilling, seeping, pouring or dumping of volatile organic compounds or petroleum liquids. (Chapter 1-3, Section V - Environmental Protection Commission of Hillsborough County).

4. Pursuant to Section 17-2.250, F.A.C., emissions in excess of the allowable VOC emission limitation which are vented to the atmosphere for a period exceeding two hours after an unavoidable malfunction is a violation of the regulation. Any atmospheric emissions in excess of the allowable VOC emission limitation which are a result of an avoidable malfunction is also a violation.

5. Compliance with the emissions standard specified in condition #1 shall be demonstrated by using EPA Method 25A or 25B, and shall be conducted annually from January 13, 1987. Testing procedure shall be consistent with the requirements of Section 17-2.700, F.A.C. Two copies of the test data shall be submitted to the Air Section of the Environmental Protection Commission of Hillsborough County within 45 days of testing.

6. Testing of emissions must be accomplished at a minimum rate of 80,000 gallons of gasoline loaded over a 6 hour period. Failure to submit the input rates or operation at conditions which do not reflect actual operating conditions may invalidate the data [Section 403.161(1)(c), Florida Statutes].

7. The Environmental Protection Commission of Hillsborough County shall be notified in writing 15 days in advance of any compliance test to be conducted on this source.

8. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information as per Section 17.4.14, F.A.C.

(A) Annual amount of materials and/or fuels utilized.
(B) Annual emissions (note calculation basis).
(C) Any changes in the information contained in the permit application.

Duplicate copies of all reports shall be submitted to the Environmental Protection Commission of Hillsborough County.

PERMITTEE:
Citgo Petroleum Corporation

Permit No. AO29-130199
Project: Truck Loading Racks w/VRU

9. Pursuant to Section 17-4.09, F.A.C. an application for renewal of permit to operate this source shall be submitted to the Environmental Protection Commission of Hillsborough County at least 60 days prior to its expiration date.

Issued this 30th day of April 1987.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

Richard D. Garrity, Ph.D.
District Manager

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOUTHWEST DISTRICT
7601 HIGHWAY 301 NORTH
TAMPA, FLORIDA 33637-9544
(813)985-7402
SUNCOM 542-8000

PERMITTEE:
Mr. Robert V. Faith
Terminal Facilities Manager
Citgo Petroleum Corporation
P.O. Box 3758
Tulsa, Oklahoma 74102

PERMIT/CERTIFICATION
Permit No.: AO29-130200
County: Hillsborough
Expiration Date: 4-20-92
Project: Petroleum Tank Farm

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-2 & 17-4. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the department and made a part hereof and specifically described as follows:

For the operation of the following petroleum storage tanks:

Tank No.	Capacity(x1000 bbl)	Product	Tank Type
201	25	SU/gasoline	cone roof, internal floating roof
202	10	Diesel	Internal floating roof
203	10	Diesel	Internal floating roof

PERMITTEE:
Citgo Petroleum Corporation

Permit No. AO29-130200
Project: Petroleum Tank Farm

Tank No. Tank Type	Capacity(x1000 bbl)		Product
204	10	U/gasoline	Cone roof, internal floating roof
205	10	U/gasoline	Cone roof, internal floating roof
206	25	Gasoline	External floating roof
207	25	Gasoline	External floating roof
208	25	U/Gasoline	Internal floating roof
209	25	U/gasoline	Internal floating roof
210	55	Gasoline	External floating roof
211	25	SU/Gasoline	Internal floating roof
212	25	Gasoline	Internal floating roof
213	20	Slop	Horizontal, Welded

Location: 1700 Hemlock Avenue, Tampa

UTM: 17-358.3E 3088.5N NEDS NO: 0181 Point ID: 01

Replaces Permit No.: AO29-52113

14. (con't)

b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.

c. Records of monitoring information shall include:

- the date, exact place, and time of sampling or measurements;
- the person responsible for performing the sampling or measurements;
- the date(s) analyses were performed;
- the person responsible for performing the analyses;
- the analytical techniques or methods used; and
- the results of such analyses.

15. When requested by the department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

SPECIFIC CONDITIONS:

1. Submit for this facility, each calendar year, on or before March 1, an emission report for the preceding calendar year containing the following information as per Section 17.4.14, F.A.C.

(A) Annual amount of materials and/or fuels utilized.
(B) Annual emissions (note calculation basis).
(C) Any changes in the information contained in the permit application.

Duplicate copies of all reports shall be submitted to the Environmental Protection Commission of Hillsborough County.

2. All fixed roof gasoline storage tanks equipped with internal floating pans shall comply with all the provisions of Subsection 17-2.650(1)(f)8., F.A.C.

3. All external floating roof gasoline storage tanks shall comply with all the applicable provisions of Subsection 17-2.650(1)(f)17., F.A.C.

4. All petroleum product storage tanks shall be inspected regularly and all deficiencies corrected as soon as possible.

5. Pursuant to Section 17-4.09, F.A.C., an application for renewal of permit to operate this source shall be submitted to the Environmental Protection Commission of Hillsborough County at least 60 days prior to its expiration date.

Issued this 30th day of April 19[illegible]

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION

Richard D. Garrity, Ph.D.
District Manager