AIR PERMIT APPLICATION FOR BULK PLANT #302

Prepared for:

Tri-State Petroleum
98 South Main Street
New Martinsville, West Virginia 26155

Prepared by:

Potesta & Associates, Inc.
7012 MacCorkle Avenue, S.E.
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Project No. 0101-16-0199

June 2016

POTESTA

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Attachments Not Applicable to this Application: Attachments M, Q, R and S.

SECTION I - III

GENERAL APPLICANT INFORMATION

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☒ **CONSTRUCTION** ☐ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☒ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
Tri-State Petroleum

2. Federal Employer ID No. ***(FEIN):***
55-0544468

3. Name of facility *(if different from above):*
Bulk Plant #302

4. The applicant is the:
☒ **OWNER** ☐ **OPERATOR** ☐ **BOTH**

5A. Applicant's mailing address:
2627 Vance Avenue
Wheeling, West Virginia 26003

5B. Facility's present physical address:
98 South Main Street
New Martinsville, West Virginia 26155

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☒ **YES** ☐ **NO**

➪ If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**

➪ If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation: NA

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**

➪ If **YES,** please explain: Applicant is the owner.

➪ If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.): Chemical Manufacturing

Facility is a bulk fuel storage transfer facility.

10. North American Industry Classification System **(NAICS)** code for the facility:
424710

11A. DAQ Plant ID No. (for existing facilities only):
N/A

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
N/A

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

From the intersection of State Route 2 and State Route 7, proceed approximately .10 mile north and turn left on Harlan Drive. Travel approximately .50 mile on Harlan Drive to the intersection of Harlan Drive and Main Street where the site is located.

12.B. New site address (if applicable):	12C. Nearest city or town: New Martinsville	12D. County: Wetzel
12.E. UTM Northing (KM): 4,387.612	12F. UTM Easting (KM): 511.445	12G. UTM Zone: 17 N

13. Briefly describe the proposed change(s) at the facility:
New permit for installation of three tanks: One 12,000 gallon gasoline tank, one 12,000 gallon diesel tank, and one 15,000 gallon diesel tank.

14A. Provide the date of anticipated installation or change: March 1, 2016 If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: NA	14B. Date of anticipated Start-Up if a permit is granted: March 1, 2016

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 8 Days Per Week 5 Weeks Per Year 52

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

17. **Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18. **Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known)*. A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known)*. Provide this information as **Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) .
- Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**
- Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

➪ For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

☒ Bulk Liquid Transfer Operations
☐ Chemical Processes
☐ Concrete Batch Plant
☐ Grey Iron and Steel Foundry
☐ General Emission Unit, specify:
☒ Haul Road Emissions
☐ Hot Mix Asphalt Plant
☐ Incinerator
☐ Indirect Heat Exchanger
☐ Quarry
☐ Solid Materials Sizing, Handling and Storage Facilities
☒ Storage Tanks

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below: Not Applicable

☐ Absorption Systems
☐ Adsorption Systems
☐ Afterburner
☐ Baghouse
☐ Condenser
☐ Electrostatic Precipitator
☐ Flare
☐ Mechanical Collector
☒ Wet Collecting System
☐ Other Collectors, specify:

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

➢ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33. **Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ **YES** ☒ **NO**

➢ If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's ***"Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

☐ Authority of Corporation or Other Business Entity
☐ Authority of Governmental Agency
☐ Authority of Partnership
☐ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned ☒ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE Edward J. Coyne II, COO DATE: 6-7-2016

(Please use blue ink) *(Please use blue ink)*

35B. Printed name of signee: Edward J. Coyne, II		35C. Title: Chief Operating Officer
35D. E-mail: ecoyne@fueledbytristate.com	36E. Phone: (800) 541-3835, Ext. 200	36F. FAX: (304) 277-1473
36A. Printed name of contact person (if different from above):		36B. Title: COO
36C. E-mail:	36D. Phone:	36E. FAX:

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- ☒ **Attachment A: Business Certificate**
- ☒ **Attachment B: Map(s)**
- ☒ **Attachment C: Installation and Start Up Schedule**
- ☒ **Attachment D: Regulatory Discussion**
- ☒ **Attachment E: Plot Plan**
- ☒ **Attachment F: Detailed Process Flow Diagram(s)**
- ☒ **Attachment G: Process Description**
- ☒ **Attachment H: Material Safety Data Sheets (MSDS)**
- ☒ **Attachment I: Emission Units Table**
- ☒ **Attachment J: Emission Points Data Summary Sheet**
- ☒ **Attachment K: Fugitive Emissions Data Summary Sheet**
- ☒ **Attachment L: Emissions Unit Data Sheet(s)**
- ☐ **Attachment M: Air Pollution Control Device Sheet(s)**
- ☒ **Attachment N: Supporting Emissions Calculations**
- ☒ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
- ☒ **Attachment P: Public Notice**
- ☐ **Attachment Q: Business Confidential Claims**
- ☐ **Attachment R: Authority Forms**
- ☐ **Attachment S: Title V Permit Revision Information**
- ☒ **Application Fee**

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- ☐ *Forward 1 copy of the application to the Title V Permitting Group and:*
- ☐ *For Title V Administrative Amendments:*
  - ☐ *NSR permit writer should notify Title V permit writer of draft permit,*
- ☐ *For Title V Minor Modifications:*
  - ☐ *Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,*
  - ☐ *NSR permit writer should notify Title V permit writer of draft permit.*
- ☐ *For Title V Significant Modifications processed in parallel with NSR Permit revision:*
  - ☐ *NSR permit writer should notify a Title V permit writer of draft permit,*
  - ☐ *Public notice should reference both 45CSR13 and Title V permits,*
  - ☐ *EPA has 45 day review period of a draft permit.*

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

ATTACHMENT A

BUSINESS CERTIFICATE

State of West Virginia

Certificate

I, Natalie E. Tennant, Secretary of State of the State of West Virginia, hereby certify that

TRI-STATE PETROLEUM CORPORATION

was incorporated under the laws of West Virginia and a Certificate of Incorporation was issued by the West Virginia Secretary of State's Office on April 19, 1974.

I further certify that the corporation has not been revoked by the State of West Virginia nor has the West Virginia Secretary of State issued a Certificate of Dissolution to the corporation.

Accordingly, I hereby issue this

CERTIFICATE OF EXISTENCE

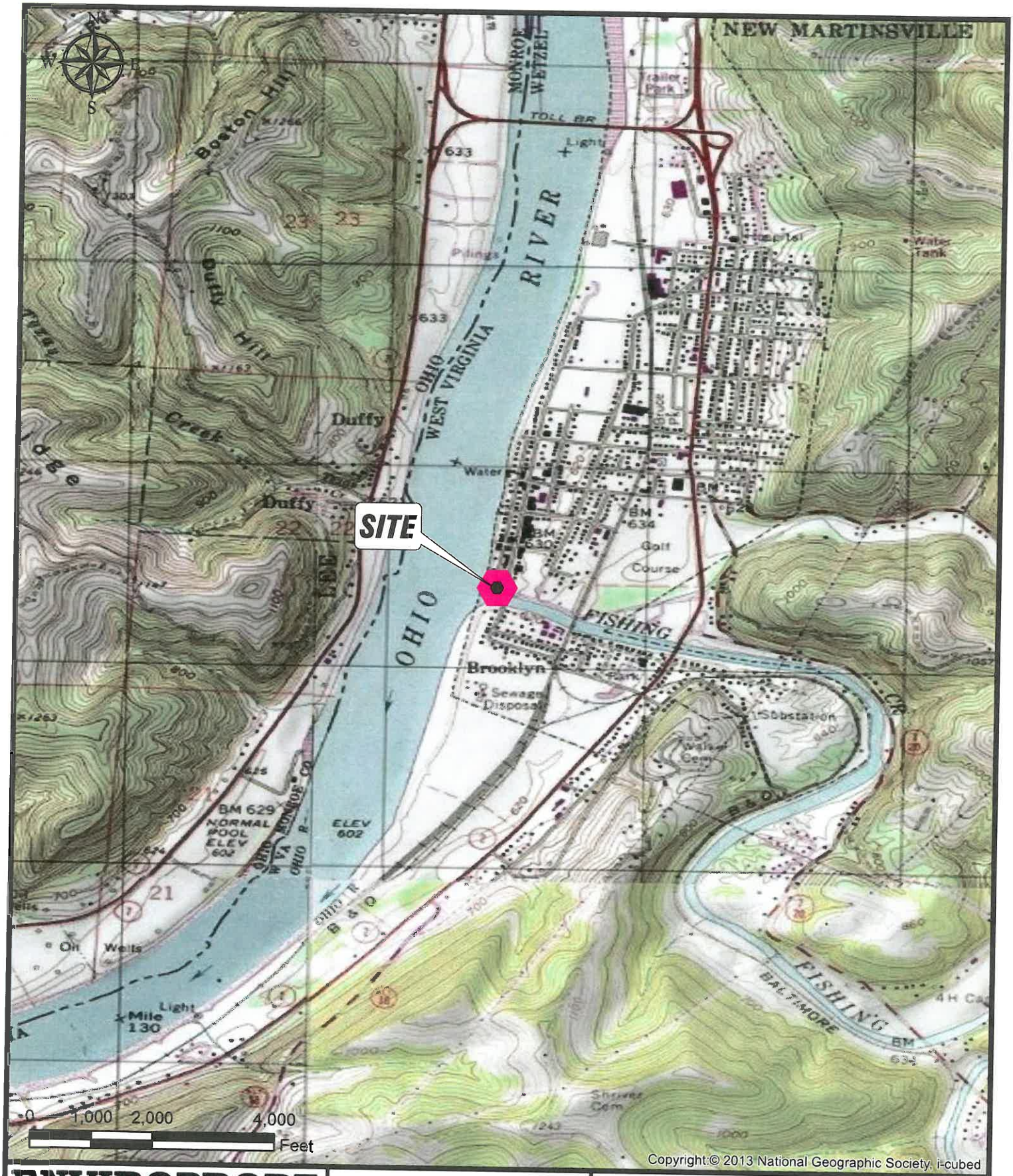
Validation ID:4WV3E_S2PM3

Given under my hand and the Great Seal of the State of West Virginia on this day of December 14, 2015

Secretary of State

ATTACHMENT B

AREA MAP



ENVIROPROBE
INTEGRATED SOLUTIONS, INC.
DRILLING ENGINEERING ENVIRONMENTAL PROFESSIONALS
630 CROSS LANES DRIVE
NITRO, WEST VIRGINIA, 25143
(304) 776-6717 OFFICE
(304) 776-6769 FAX

SCALE: 1" = 2000'
DATE: 02/06/2016
PROJECT NO.: 15-0322
\\Epserv\gis\Projects\2015 Projects\15-0322 Tri State Petroleum\Map Documents\ FIGURE 1 DAQ GENERAL PERMIT SITE LOCATION MAP.mxd

ATTACHMENT E-1 - SITE LOCATION MAP
WV DAQ GENERAL PERMIT
TRI-STATE PETROLEUM
98 SOUTH MAIN STREET
NEW MARTINSVILLE, WV 26155

ATTACHMENT C

INSTALLATION AND START UP SCHEDULE

ATTACHMENT C

INSTALLATION AND STARTUP SCHEDULE

The facility was installed in November 2015. Startup/filling and shipping gasoline will occur with the issuance of the air permit.

ATTACHMENT D

REGULATORY DISCUSSION

ATTACHMENT D
REGULATORY DISCUSSION

The facility proposed herein is subject to the following rules:

1. **45CSR4, To Prevent and Control the Discharge of Air Pollutants into the Open Air Which Causes or Contributes to an Objectionable Odor or Odors.**

   No person shall cause, suffer, allow, or permit the discharge of air pollutants which cause or contribute to objectionable odor at any location occupied by the public.

2. **45CSR13, Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, Permission to Commence Construction, and Procedures for Evaluation.**

   This rule requires the facility to operate within the limits of the permit and in accordance with the permit application.

The following regulations do not apply to the source:

1. **40CFR60, Subpart Kb - Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984.**

   Source: 52 FR 11429, Apr. 8, 1987

   §60.110b Applicability and designation of affected facility.

   (a) Except as provided in paragraph (b) of this section, the affected facility to which this subpart applies is each storage vessel with a capacity greater than or equal to 75 cubic meters (m^3) that is used to store volatile organic liquids (VOL) for which construction, reconstruction, or modification is commenced after July 23, 1984.

   (b) This subpart does not apply to storage vessels with a capacity greater than or equal to 151 m^3 storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa.

   Subpart Kb does not apply to Tri-State Petroleum since the tanks are less than the size threshold for applicability at 75 m^3. The 12,000 gallon (45.42 m^3) tanks and the 15,000 gallon (56.78 m^3) are all less than < 75 m^3 per (a).

2. 40CFR63, Subpart BBBBBB—National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities.

Source: 73 FR 1933, Jan. 10, 2008

§63.11081 Am I subject to the requirements in this subpart?

(a) The affected source to which this subpart applies is each area source bulk gasoline terminal, pipeline breakout station, pipeline pumping station, and bulk gasoline plant identified in paragraphs (a)(1) through (4) of this section. You are subject to the requirements in this subpart if you own or operate one or more of the affected area sources identified in paragraphs (a)(1) through (4) of this section.

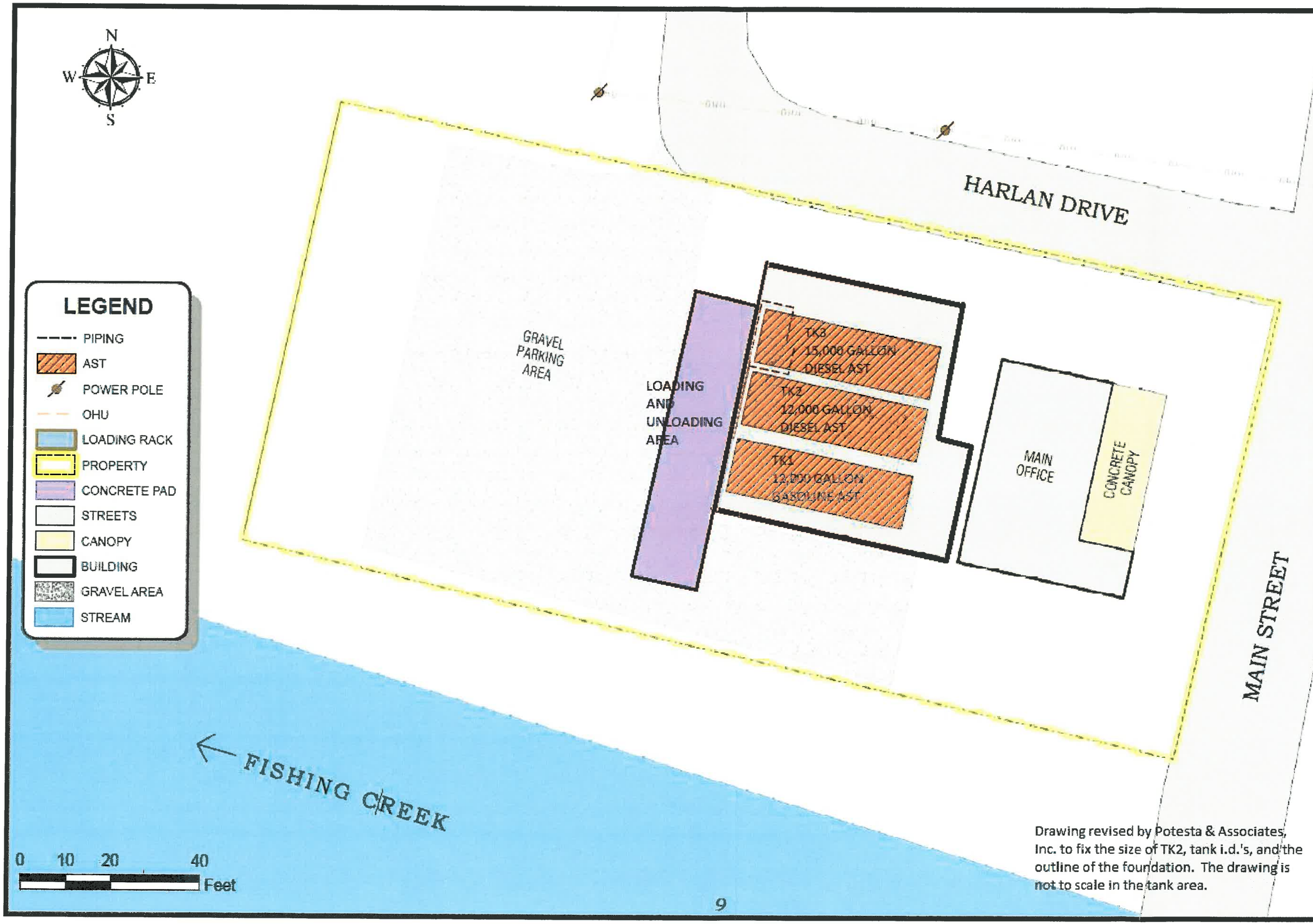
This source is a gasoline terminal but the daily throughput of gasoline is less than the requirement under the definition to be called a bulk gasoline terminal. The definition is:

Bulk gasoline terminal means any gasoline storage and distribution facility that receives gasoline by pipeline, ship or barge, or cargo tank and has a gasoline throughput of 20,000 gallons per day or greater. Gasoline throughput shall be the maximum calculated design throughput as may be limited by compliance with an enforceable condition under Federal, State, or local law and discoverable by the Administrator and any other person.

Therefore, this facility is not subject to this rule.

ATTACHMENT E

PLOT PLAN



Drawing revised by Potesta & Associates, Inc. to fix the size of TK2, tank i.d.'s, and the outline of the foundation. The drawing is not to scale in the tank area.

Scale: 1" = 20'
Date: 02/04/2016
Project No.: 15-0322
Drawn: DAE
Checked: BEG
Approved:

ENVIROPROBE INTEGRATED SOLUTIONS, INC.
DETAILED ENGINEERING • INVESTIGATIONS • PROFESSIONAL SERVICES
630 CROSS LANES DRIVE
NITRO, WEST VIRGINIA 25143

Client
TRI-STATE PETROLEUM
2627 VANCE AVENUE
WHEELING, WV 26003

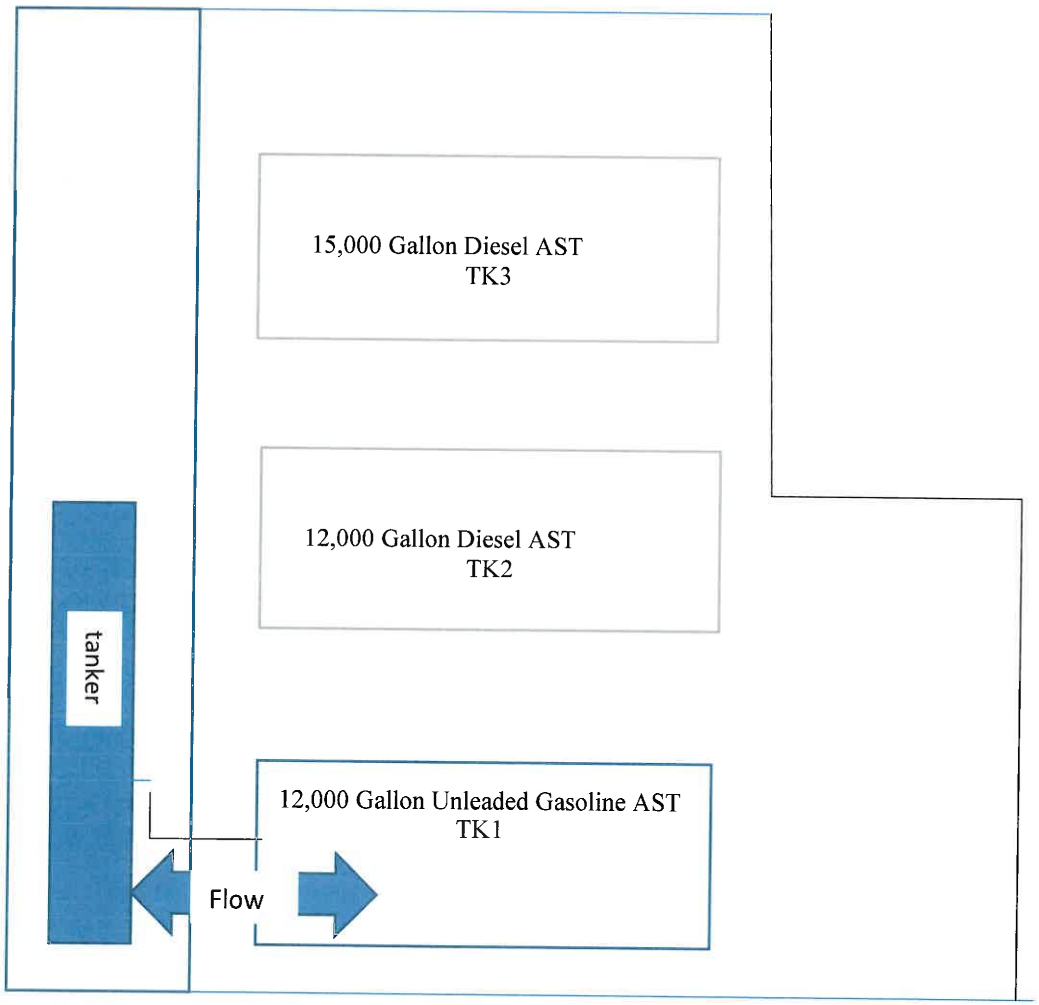
ATTACHMENT E-2 - PLOT PLAN
WV DAQ GENERAL PERMIT
TRI-STATE PETROLEUM
98 SOUTH MAIN STREET
NEW MARTINSVILLE, WV 26155

E

ATTACHMENT F

DETAILED PROCESS FLOW DIAGRAM

ATTACHMENT F
PROCESS FLOW DIAGRAM



NOTE: One truck loading or unloading at a time.

Revised by Potesta & Associates, Inc.

ATTACHMENT G

PROCESS DESCRIPTION

ATTACHMENT G
PROCESS DESCRIPTION

General Process Description

Tri-State Petroleum (Tri-State) is a distributor of gasoline and diesel fuel. Gasoline and diesel (on-road and off-road) are delivered to three (3) tanks at the site by fuel suppliers. Tri-State then loads the fuel to their own delivery service trucks and delivers the fuel to their customers. The fuel is then placed in the customers' fuel tanks for use on the customers' industrial properties.

Fuel is delivered in loads of up to 8,500 gallons for gasoline and 7,500 gallons for diesels. The trucks pull onto the loading/unloading pad and connect to the tank fill lines. The trucks use their own on-board pump to transfer the fuel to the elevated tanks. There are no vapor return lines on any of the tanks. Vapor is released as the tanks are filled. The tank filling rate is about 120 gallons per minute but would vary depending on pump performance.

Fuel trucks which are being filled from the tanks are filled by gravity flow. The horizontal storage tanks are elevated and slightly slanted to allow flow from the tanks to the trucks. A submerged fill line is placed into the tank on the truck to within six (6) inches of the bottom of the tank. The tank is filled with the required quantity of fuel for delivery to the customer. Typically, loads range in size depending on the customer's needs. Tanks on the vehicles can hold from 2,720 to 4,200 gallons for diesel and 2,800 to 4,500 gallons for gasoline. While the truck tank is being filled, the vapor is released from the fill port. This is gravity flow and has been timed at approximately 50 gallons per minute; however, the flow will vary depending on conditions at the site.

The total yearly fuel throughput being requested in the permit is 500,000 gallons for gasoline, 750,000 gallons of on-road diesel, and 1,500,000 gallons of off-road diesel. We also request a daily throughput limit on gasoline of less than 20,000 gallons per day to remove applicability of 40CFR63, Subpart BBBBBB. Material safety data sheets are provided for each of these fuels in Attachment H.

Emissions Estimates

Emissions have been estimated from the tanks, the truck loading, equipment leaks, and vehicle activity. Tank emissions of volatile organic compounds (VOC) emissions, including speciated emissions and hazardous air pollutants (HAPS), have been estimated using Tanks 4.0.9. The vapor results from Tanks 4.0.9. have also been used to speciate the vapor emissions from truck loading and leak sources. AP-42, Section 5.2.2.1.1 was used to estimate VOC emissions from loading trucks. AP-42, Section 5, Protocol for Equipment Leaks Emissions Estimates, Table 2-2 was used to estimate VOC emissions from leaks on the gasoline and diesel system based on source counts of the types of fittings. These VOC emissions were then speciated based on the vapor characteristics from the tank emissions estimates. Vehicle emissions for traveling on the roadway to deliver and remove fuel from the site are based on AP-42, Section 13.2.1 for paved roadways. The trucks travel approximately 160 feet on paved areas to deliver and remove the fuel. Ancillary vehicle activities, such as parking of trucks or other vehicles at the site for storage while not being used, have not been estimated.

ATTACHMENT H

MATERIAL SAFETY DATA SHEETS (MSDS)

SAFETY DATA SHEET

SDS ID NO.: 0127MAR019
Revision Date: 05/14/2015

1. IDENTIFICATION

Product Name: Marathon Petroleum Regular Unleaded Gasoline

Synonym: Conventional Regular Unleaded Gasoline
Chemical Family: Complex Hydrocarbon Substance

Recommended Use: Fuel.
Use Restrictions: All others.

Supplier Name and Address:
MARATHON PETROLEUM COMPANY LP
539 South Main Street
Findlay, OH 45840

SDS information: 1-419-421-3070

Emergency Telephone: 1-877-627-5463

2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 1
Skin corrosion/irritation	Category 2
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1B
Reproductive toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Aspiration toxicity	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Hazards Not Otherwise Classified (HNOC)
Static accumulating flammable liquid

Label elements

EMERGENCY OVERVIEW

Danger

EXTREMELY FLAMMABLE LIQUID AND VAPOR
May accumulate electrostatic charge and ignite or explode

May be fatal if swallowed and enters airways
Causes skin irritation
May cause genetic defects
May cause cancer
Suspected of damaging fertility or the unborn child
May cause respiratory irritation
May cause drowsiness or dizziness
Toxic to aquatic life with long lasting effects

Appearance Clear or Colored Liquid **Physical State** Liquid **Odor** Strong Hydrocarbon

Precautionary Statements - Prevention
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Do not eat, drink or smoke when using this product
Do not breathe mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wash hands thoroughly after handling
Avoid release to the environment

Precautionary Statements - Response
IF exposed or concerned: Get medical attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
If skin irritation occurs: Get medical attention
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell
IF SWALLOWED: Immediately call a POISON CENTER or doctor
Do NOT induce vomiting
In case of fire: Use water spray, fog or regular foam for extinction

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Keep cool
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container at an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Gasoline is a complex combination of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons having molecular chains ranging in length from four to ten carbons. May contain small amounts of dye and other additives (>0.02%) which are not considered hazardous at the concentrations used.

Composition Information:

Name	CAS Number	Weight %
Gasoline	86290-81-5	100
Toluene	108-88-3	1-15
Xylene (mixed isomers)	1330-20-7	2-10
1,2,4-Trimethylbenzene	95-63-6	1-5
Benzene	71-43-2	0.5-3.5
n-Hexane	110-54-3	0-3
Ethylbenzene	100-41-4	0.5-2.0
Naphthalene	91-20-3	0.1-0.5

4. FIRST AID MEASURES

First Aid Measures

General advice

In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

Inhalation:

Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear, give oxygen and continue to monitor. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Skin Contact:

Immediately wash exposed skin with plenty of soap and water while removing contaminated clothing and shoes. May be absorbed through the skin in harmful amounts. Get medical attention if irritation persists. Any injection injury from high pressure equipment should be evaluated immediately by a physician as potentially serious (See NOTES TO PHYSICIAN).

Place contaminated clothing in closed container until cleaned or discarded. If clothing is to be laundered, inform the person performing the operation of contaminant's hazardous properties. Destroy contaminated, non-chemical resistant footwear.

Eye Contact:

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Gently remove contacts while flushing. Get medical attention if irritation persists.

Ingestion:

Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips, or if patient is lying down, turn body and head to side to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Most important signs and symptoms, both short-term and delayed with overexposure

Adverse Effects:

Acute: Headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue.
Delayed: Dry skin and possible irritation with repeated or prolonged exposure.

Indication of any immediate medical attention and special treatment needed

NOTES TO PHYSICIAN:

INHALATION: This material (or a component) sensitizes the myocardium to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

SKIN: Leaks or accidents involving high-pressure equipment may inject a stream of material through the skin and initially produce an injury that may not appear serious. Only a small puncture wound may appear on the skin surface but, without proper treatment and depending on the nature, original pressure, volume, and location of the injected material, can compromise blood supply to an affected body part. Prompt surgical debridement of the wound may be necessary to prevent irreversible loss of function and/or the affected body part. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES.

INGESTION: This material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Unsuitable extinguishing media
Do not use straight water streams to avoid spreading fire.

Specific hazards arising from the chemical
This product has been determined to be an extremely flammable liquid per the OSHA Hazard Communication Standard and should be handled accordingly. May accumulate electrostatic charge and ignite or explode. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information, see NFPA 30 or the North American Emergency Response Guide 128.

Hazardous combustion products
Smoke, carbon monoxide, and other products of incomplete combustion.

Explosion data
Sensitivity to Mechanical Impact No.
Sensitivity to Static Discharge Yes.

Special protective equipment and precautions for firefighters
Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water may be ineffective in extinguishing low flash point fires, but can be used to cool exposed surfaces. Avoid excessive water spray application. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Keep run-off water out of sewers and water sources.

NFPA:	Health 1	Flammability 3	Instability 0	Special Hazards -

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources.

Protective Equipment: Use personal protection measures as recommended in Section 8.

Emergency Procedures: Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate.

Environmental precautions: Avoid release to the environment. Avoid subsoil penetration.

Methods and materials for containment: Contain liquid with sand or soil.

Methods and materials for cleaning up: Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. Recover and return free product to proper containers. When recovering free liquids ensure all equipment is grounded and bonded. Use only non-sparking tools.

7. HANDLING AND STORAGE

Safe Handling Precautions:

NEVER SIPHON THIS PRODUCT BY MOUTH. Use appropriate grounding and bonding practices. Static accumulating flammable liquid. Bonding and grounding may be insufficient to eliminate the hazard from static electricity. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking. Avoid repeated and prolonged skin contact. Use personal protection measures as recommended in Section 8. Use only non-sparking tools. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Refer to applicable EPA, OSHA, NFPA and consistent state and local requirements.

Hydrocarbons are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering, pumping at high flow rates or loading and transfer operations. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids. Sudden release of hot organic chemical vapors or mists from process equipment operating under elevated temperature and pressure, or sudden ingress of air into vacuum equipment may result in ignition of vapors or mists without the presence of obvious ignition sources. Nozzle spouts must be kept in contact with the containers or tank during the entire filling operation.

Portable containers should never be filled while in or on a motor vehicle or marine craft. Containers should be placed on the ground. Static electric discharge can ignite fuel vapors when filling non-grounded containers or vehicles on trailers. The nozzle spout must be kept in contact with the container before and during the entire filling operation. Use only approved containers.

A buildup of static electricity can occur upon re-entry into a vehicle during fueling especially in cold or dry climate conditions. The charge is generated by the action of dissimilar fabrics (i.e., clothing and upholstery) rubbing across each other as a person enters/exits the vehicle. A flash fire can result from this discharge if sufficient flammable vapors are present. Therefore, do not get back in your vehicle while refueling.

Cellular phones and other electronic devices may have the potential to emit electrical charges (sparks). Sparks in potentially explosive atmospheres (including fueling areas such as gas stations) could cause an explosion if sufficient flammable vapors are present. Therefore, turn off cellular phones and other electronic devices when working in potentially explosive atmospheres or keep devices inside your vehicle during refueling.

High-pressure injection of any material through the skin is a serious medical emergency even though the small entrance wound at the injection site may not initially appear serious. These injection injuries can occur from high-pressure equipment such as paint spray or grease or guns, fuel injectors, or pinhole leaks in hoses or hydraulic lines and should all be considered serious. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES (See First Aid Section 4).

Storage Conditions: Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area.

Incompatible materials Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	ACGIH TLV	OSHA PELS:	OSHA - Vacated PELs	NIOSH IDLH
Gasoline 86290-81-5	300 ppm TWA 500 ppm STEL	-	300 ppm TWA 900 mg/m³ TWA 500 ppm STEL 1500 mg/m³ STEL	-
Toluene 108-88-3	20 ppm TWA	TWA: 200 ppm Ceiling: 300 ppm	100 ppm TWA 375 mg/m³ TWA 150 ppm STEL 560 mg/m³ STEL	500 ppm
Xylene (mixed isomers) 1330-20-7	100 ppm TWA 150 ppm STEL	TWA: 100 ppm TWA: 435 mg/m³	100 ppm TWA 435 mg/m³ TWA 150 ppm STEL 655 mg/m³ STEL	900 ppm
1,2,4-Trimethylbenzene 95-63-6	25 ppm TWA	-	25 ppm TWA 125 mg/m³ TWA	-
Benzene 71-43-2	0.5 ppm TWA 2.5 ppm STEL Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm (applies to industry segments exempt from the benzene standard at 29 CFR 1910.1028) TWA: 1 ppm STEL: 5 ppm (see 29 CFR 1910.1028)	25 ppm Ceiling 1 ppm TWA 5 ppm STEL	500 ppm
n-Hexane 110-54-3	50 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 500 ppm TWA: 1800 mg/m³	50 ppm TWA 180 mg/m³ TWA	1100 ppm
Ethylbenzene 100-41-4	20 ppm TWA	TWA: 100 ppm TWA: 435 mg/m³	100 ppm TWA 435 mg/m³ TWA 125 ppm STEL 545 mg/m³ STEL	800 ppm
Naphthalene 91-20-3	10 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm TWA: 50 mg/m³	10 ppm TWA 50 mg/m³ TWA 15 ppm STEL 75 mg/m³ STEL	250 ppm

Notes: The manufacturer has voluntarily elected to provide exposure limits contained in OSHA's 1989 air contaminants standard in its SDSs, even though certain of those exposure limits were vacated in 1992.

Engineering measures: Local or general exhaust required in an enclosed area or when there is inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof.

Personal protective equipment

Eye protection: Use goggles or face-shield if the potential for splashing exists.

Skin and body protection: Use nitrile rubber, viton or PVA gloves for repeated or prolonged skin exposure. Glove suitability is based on workplace conditions and usage. Contact the glove manufacturer for specific advice on glove selection and breakthrough times.

Respiratory protection: Approved organic vapor chemical cartridge or supplied air respirators should be worn for exposures to any components exceeding the established exposure limits. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 29 CFR 1910.134. Self-contained breathing apparatus should be used for fire fighting.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Clear or Colored Liquid
Color	Clear or Colored
Odor	Strong Hydrocarbon
Odor Threshold	No available data.

Property	Values (Method)
Melting Point / Freezing Point	No available data.
Initial Boiling Point / Boiling Range	32-225 °C / 90-437 °F
Flash Point	-45.5 °C / -50 °F
Evaporation Rate	No available data.
Flammability (solid, gas)	Not applicable.
Flammability Limit in Air (%)	
Upper Flammability Limit:	7.6
Lower Flammability Limit:	1.4
Vapor Pressure	403-776 mm Hg@ 100°F
Vapor Density	3-4
Specific Gravity / Relative Density	0.70-0.77
Water Solubility	Negligible
Solubility in other solvents	No available data.
Partition Coefficient	2.13-4.5
Decomposition temperature:	No available data.
pH:	Not applicable
Autoignition Temperature	C.A. 257 °C / 495 °F
Kinematic Viscosity	No available data.
Dynamic Viscosity	No available data.
Explosive Properties	No available data.
Softening Point	No available data.
VOC Content (%)	100%
Density	5.9-6.3 lbs/gal
Bulk Density	Not applicable.

10. STABILITY AND REACTIVITY

Reactivity	The product is non-reactive under normal conditions.
Chemical stability	The material is stable at 70°F, 760 mmHg pressure.
Possibility of hazardous reactions	None under normal processing.
Hazardous polymerization	Will not occur.
Conditions to avoid	Excessive heat, sources of ignition, open flame.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	None known under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

Potential short-term adverse effects from overexposures

Inhalation	Irritating to the respiratory system. May cause drowsiness or dizziness. Breathing high concentrations of this material in a confined space or by intentional abuse can cause irregular heartbeats which can cause death.
Eye contact	Causes mild eye irritation.

Skin contact Causes skin irritation. Effects may become more serious with repeated or prolonged contact. May be absorbed through the skin in harmful amounts.

Ingestion May be fatal if swallowed or vomited and enters airways. May cause irritation of the mouth, throat and gastrointestinal tract.

Acute Toxicological data

Name	Oral LD50	Dermal LD50	Inhalation LC50
Gasoline 86290-81-5	14000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h
Toluene 108-88-3	> 2000 mg/kg (Rat)	8390 mg/kg (Rabbit)	12.5 mg/L (Rat) 4 h
Xylene (mixed isomers) 1330-20-7	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.04 mg/L (Rat) 4 h
1,2,4-Trimethylbenzene 95-63-6	3280 mg/kg (Rat)	> 3160 mg/kg (Rabbit)	18,000 mg/m^3 (Rat) 4 h
Benzene 71-43-2	> 2000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 20 mg/l (Rat) 4 h
n-Hexane 110-54-3	15000 mg/kg (Rat)	3000 mg/kg (Rabbit)	48000 ppm (Rat) 4 h
Ethylbenzene 100-41-4	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	17.2 mg/L (Rat) 4 h
Naphthalene 91-20-3	490 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 340 mg/m^3 (Rat) 1 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

BENZENE: Studies of workers exposed to benzene show clear evidence that overexposure can cause cancer and other diseases of the blood forming organs including Acute Myelogenous Leukemia (AML), and Aplastic Anemia (AA), an often fatal disease. Some studies suggest overexposure to benzene may also be associated with Myelodysplastic Syndrome (MDS). Findings from a case control study of workers exposed to benzene was reported during the 2009 Benzene Symposium in Munich included an increase in Acute Myeloid Leukemias and Non-Hodgkins Lymphoid Neoplasms (NHLN) of the subtype follicular lymphoma (FL) in some occupational categories. Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes. One study of women workers exposed to benzene suggested a weak association with irregular menstruation. However, other studies of workers exposed to benzene have not demonstrated clear evidence of an effect on fertility or reproductive outcome in humans. Benzene can cross the placenta and affect the developing fetus. Cases of AA have been reported in the offspring of persons severely overexposed to benzene. Studies in laboratory animals indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems. Studies in laboratory animals show evidence of adverse effects on male reproductive organs following high levels of exposure but no significant effects on reproduction have been observed. Embryotoxicity has been reported in studies of laboratory animals but effects were limited to reduced fetal weight and minor skeletal variations. Benzene has been classified as a proven human carcinogen by OSHA and a Group 1 (Carcinogenic to Humans) material by IARC. The current proposed IARC classification for benzene is summarized as follows: Sufficient evidence for Acute Myeloid Leukemia; limited evidence for Acute Lymphatic Leukemia, Chronic Lymphatic Leukemia, Non-Hodgkin Lymphoma, and Multiple Myeloma.

NAPHTHAS: In a large epidemiological study on over 15,000 employees at several petroleum refineries and amongst residents located near these refineries, no increased risk of kidney cancer was observed in association with gasoline exposures (a similar material). In a similar study, no increased risk of kidney cancer was observed among petroleum refinery workers, but there was a slight trend in the incidence of kidney cancers among service station employees, especially after a 30-year latency period. Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffer's Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, in-depth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

TOLUENE: Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Abuse of toluene at high concentrations (e.g., glue sniffing and solvent abuse) has been associated with adverse effects on the liver, kidney and nervous system, and can cause CNS depression, cardiac arrhythmias, and death. Studies of workers indicate longterm exposure may be related to impaired color vision and hearing. Some studies of workers suggest longterm exposure may be related to neurobehavioral and cognitive changes. Some of these effects have been observed in laboratory animals following repeated exposure to high levels of toluene. Several studies of workers suggest longterm exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. However, the weight of evidence does not indicate toluene is a reproductive hazard to humans. Studies in laboratory animals indicate some changes in reproductive organs following high levels of exposure, but no significant effects on mating performance or reproduction were observed. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Findings in laboratory animals have been largely negative. Positive findings include small increases in minor skeletal and visceral malformations and developmental delays following very high levels of maternal exposure. Studies of workers indicate long-term exposure may be related to effects on the liver, kidney and blood, but these appear to be limited to changes in serum enzymes and decreased leukocyte counts. Adverse effects on the liver, kidney, thymus and nervous system were observed in animal

studies following very high levels of exposure. The relevance of these findings to humans is not clear at this time.

ETHYLBENZENE: Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). The incidence of tumors was also elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure with evidence of maternal toxicity. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals have demonstrated evidence of ototoxicity (hearing loss) following exposure levels as low as 300 ppm for 5 days. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

XYLENES, ALL ISOMERS: Overexposure to xylene may cause upper respiratory tract irritation, headache, cyanosis, blood serum changes, nervous system damage and narcosis. Effects may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross overexposure. Effects from Prolonged or Repeated Exposure: Impaired neurological function was reported in workers exposed to solvents including xylene. Studies in laboratory animals have shown evidence of impaired hearing following high levels of exposure. Studies in laboratory animals suggest some changes in reproductive organs following high levels of exposure but no significant effects on reproduction were observed. Studies in laboratory animals indicate skeletal and visceral malformations, developmental delays, and increased fetal resorptions following extremely high levels of maternal exposure with evidence of maternal toxicity. The relevance of these observations to humans is not clear at this time. Adverse effects on the liver, kidney, bone marrow (changes in blood cell parameters) were observed in laboratory animals following high levels of exposure. The relevance of these observations to humans is not clear at this time.

C9 AROMATIC HYDROCARBONS: A developmental inhalation study was conducted in laboratory mice. Increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate were observed at the highest exposure level (1,500 ppm). This exposure level was extremely toxic to pregnant female mice (44% mortality). Reduced fetal body weights were also observed at 500 ppm. A multi-generation reproduction inhalation study was conducted in laboratory rats. Reductions in pup weights, pup weight gain, litter size, and pup survival were observed at 1,500 ppm, an exposure level at which significant maternal toxicity was observed. Reduced pup weight gain was also observed at 500 ppm.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.

N-HEXANE: Long-term or repeated exposure to n-hexane can cause peripheral nerve

damage. Initial symptoms are numbness of the fingers and toes. Also, motor weakness can occur in the digits, but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure. Testicular atrophy and partial to full loss of the germ cell line were observed in sub-chronic high-dose inhalation studies of laboratory rodents. These effects appeared irreversible. Rodent reproduction studies have shown evidence of reduced fetal weight but no frank malformations.

PENTANES: Studies of pentane isomers in laboratory animals indicate exposure to extremely high levels (roughly 10 vol.%) may induce cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

CARBON MONOXIDE: is a chemical asphyxiant with no warning properties (such as odor). At 400-500 ppm for 1 hour headache and dyspnea may occur. If activity is increased, symptoms of overexposure may include nausea, irritability, increased respiration, tinnitus, sweating, chest pain, confusion, impaired judgement, dizziness, weakness, drowsiness, ataxia, irregular heart beat, cyanosis and pallor. Levels in excess of 1000 ppm can result in collapse, loss of conciousness, respiratory failure and death. Extremely high concentrations (12,800 ppm) can cause immediate unconsciousness and death in 1-3 minutes. Repeated anoxia can lead to central nervous system damage and peripheral neuropathy, with loss of sensation in the fingers, amnesia, and mental deterioration and possible congestive heart failure. Damage may also occur to the fetus, lung, liver, kidney, spleen, cardiovascular system and other organs.

COMBUSTION ENGINE EXHAUST: Chronic inhalation studies of gasoline engine exhaust in mice, rats and hamsters did not produce any carcinogenic effects. Condensates/extracts of gasoline engine exhaust produced an increase in tumors compared to controls when testing by skin painting, subcutaneous injection, intratracheal instillation or implantation into the lungs.

Adverse effects related to the physical, chemical and toxicological characteristics

Signs & Symptoms Nausea, vomiting, signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue.

Sensitization Not expected to be a skin or respiratory sensitizer.

Mutagenic effects May cause genetic defects.

Carcinogenicity Cancer designations are listed in the table below.

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
Gasoline 86290-81-5	Confirmed animal carcinogen (A3)	Possibly Carcinogenic (2B)	Not Listed	Not Listed
Toluene 108-88-3	Not Classifiable (A4)	Not Classifiable (3)	Not Listed	Not Listed
Xylene (mixed isomers) 1330-20-7	Not Classifiable (A4)	Not Classifiable (3)	Not Listed	Not Listed
1,2,4-Trimethylbenzene 95-63-6	Not Listed	Not Listed	Not Listed	Not Listed
Benzene 71-43-2	Confirmed human carcinogen (A1)	Carcinogenic to humans (1)	Known to be human carcinogen	Known carcinogen
n-Hexane 110-54-3	Not Listed	Not Listed	Not Listed	Not Listed
Ethylbenzene 100-41-4	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Not Listed	Not Listed
Naphthalene 91-20-3	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not Listed

Reproductive toxicity Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity (STOT) - single exposure Respiratory system. Central nervous system.

Specific Target Organ Toxicity (STOT) - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed or vomited and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity This product should be considered toxic to aquatic organisms, with the potential to cause long lasting adverse effects in the aquatic environment.

Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Gasoline 86290-81-5	72-hr EC50 = 56 mg/l Algae	96-hr LC50 = 11 mg/l Rainbow trout (static)	-	48-hr LC50 = 7.6 mg/l Daphnia magna
Toluene 108-88-3	72-hr EC50 = 12.5 mg/l Algae	96-hr LC50 <= 10 mg/l Rainbow trout	-	48-hr EC50 = 5.46-9.83 mg/l Daphnia magna 48-hr EC50 = 11.5 mg/l Daphnia magna (Static)
Xylene (mixed isomers) 1330-20-7	72-hr EC50 = 11 mg/l Algae	96-hr LC50 = 8 mg/l Rainbow trout	-	48-hr LC50 = 3.82 mg/l Daphnia magna
1,2,4-Trimethylbenzene 95-63-6	-	96-hr LC50 = 7.19-8.28 mg/l Fathead minnow (flow-through)	-	48-hr EC50 = 6.14 mg/L Daphnia magna
Benzene 71-43-2	72-hr EC50 = 29 mg/l Algae	96-hr LC50 = 5.3 mg/l Rainbow trout (flow-through)	-	48-hr EC50 = 8.76-15.6 mg/l Daphnia magna (Static)
n-Hexane 110-54-3	-	96-hr LC50 = 2.5 mg/l Fathead minnow	-	-
Ethylbenzene 100-41-4	72-hr EC50 = 1.7-7.6 mg/l Algae	96-hr LC50 = 4 mg/L Rainbow trout	-	48-hr EC50 = 1-4 mg/L Daphnia magna
Naphthalene 91-20-3	-	96-hr LC50 = 0.91-2.82 mg/l Rainbow trout (static) 96-hr LC50 = 1.99 mg/l Fathead minnow (static)	-	48-hr LC50 = 1.6 mg/l Daphnia magna

Persistence and degradability Expected to be inherently biodegradable.

Bioaccummulation Has the potential to bioaccumulate.

Mobility in soil May partition into air, soil and water.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Description of Waste Residues
This material may be a flammable liquid waste.

Safe Handling of Wastes
Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required. Use appropriate grounding and bonding practices. Use only non-sparking tools. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking.

Disposal of Wastes / Methods of Disposal
The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

Methods of Contaminated Packaging Disposal
Empty containers should be completely drained and then discarded or recycled, if possible. Do not cut, drill, grind or weld on empty containers since explosive residues may be present. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT (49 CFR 172.101):

UN Proper shipping name:	Gasoline
UN/Identification No:	UN 1203
Transport Hazard Class(es):	3
Packing group:	II

TDG (Canada):

UN Proper shipping name:	Gasoline
UN/Identification No:	UN 1203
Transport Hazard Class(es):	3
Packing group:	II

15. REGULATORY INFORMATION

US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product does not contain any component(s) included on EPA's Extremely Hazardous Substance (EHS) List.

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Gasoline	NA
Toluene	NA
Xylene (mixed isomers)	NA
1,2,4-Trimethylbenzene	NA
Benzene	NA
n-Hexane	NA
Ethylbenzene	NA
Naphthalene	NA

SARA Section 304: This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	CERCLA/SARA - Hazardous Substances and their Reportable Quantities
Gasoline	NA
Toluene	1000 lb final RQ 454 kg final RQ
Xylene (mixed isomers)	100 lb final RQ 45.4 kg final RQ
1,2,4-Trimethylbenzene	NA
Benzene	10 lb final RQ 4.54 kg final RQ
n-Hexane	5000 lb final RQ 2270 kg final RQ
Ethylbenzene	1000 lb final RQ 454 kg final RQ

Naphthalene	100 lb final RQ 45.4 kg final RQ

SARA: The following EPA hazard categories apply to this product:

Acute Health Hazard
Chronic Health Hazard
Fire Hazard

SARA Section 313: This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting:
Gasoline	None
Toluene	1.0 % de minimis concentration
Xylene (mixed isomers)	1.0 % de minimis concentration
1,2,4-Trimethylbenzene	None
Benzene	0.1 % de minimis concentration
n-Hexane	1.0 % de minimis concentration
Ethylbenzene	0.1 % de minimis concentration
Naphthalene	0.1 % de minimis concentration

State and Community Right-To-Know Regulations:
The following component(s) of this material are identified on the regulatory lists below:

Gasoline

Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	SN 0957
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed.
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0957 TPQ: 10000 lb (Under N.J.A.C. 7:1G, environmental hazardous substances in mixtures such as gasoline or new and used petroleum oil may be reported under these categories)
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.

Toluene

Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Developmental toxicity, initial date 1/1/91 Female reproductive toxicity, initial date 8/7/09
New Jersey Right-To-Know:	SN 1866
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Flammable - third degree; Teratogen

New Jersey - Environmental Hazardous Substances List:	SN 1866 TPQ: 500 lb
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)
Xylene (mixed isomers)	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	SN 2014
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold all isomers
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 2014 TPQ: 500 lb
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)
1,2,4-Trimethylbenzene	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	SN 1929
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Not Listed.
New Jersey - Environmental Hazardous Substances List:	Not Listed.
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed.
Benzene	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Carcinogen, initial date 2/27/87 Developmental toxicity, initial date 12/26/97 Male reproductive toxicity, initial date 12/26/97
New Jersey Right-To-Know:	SN 0197
Pennsylvania Right-To-Know:	Environmental hazard; Special hazardous substance
Massachusetts Right-To Know:	Carcinogen; Extraordinarily hazardous
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin); Carcinogen (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Carcinogen; Extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Present
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree; Mutagen
New Jersey - Environmental Hazardous Substances List:	SN 0197 TPQ: 500 lb

Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	10 lb RQ (air); 1 lb RQ (land/water)
n-Hexane	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Not Listed.
New Jersey Right-To-Know:	SN 1340
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 1340 TPQ: 500 lb
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1 lb RQ (air); 1 lb RQ (land/water)
Ethylbenzene	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Carcinogen, initial date 6/11/04
New Jersey Right-To-Know:	SN 0851
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Carcinogen; flammable - Third degree
New Jersey - Environmental Hazardous Substances List:	SN 0851 TPQ: 500 lb
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)
Naphthalene	
Louisiana Right-To-Know:	Not Listed.
California Proposition 65:	Carcinogen, initial date 4/19/02
New Jersey Right-To-Know:	SN 1322 SN 3758
Pennsylvania Right-To-Know:	Environmental hazard Present (particulate)
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed.
California - Regulated Carcinogens:	Not Listed.
Pennsylvania RTK - Special Hazardous Substances:	Not Listed.
New Jersey - Special Hazardous Substances:	Carcinogen
New Jersey - Environmental Hazardous Substances List:	SN 1322 TPQ: 500 lb (Reportable at the de minimis quantity of >0.1%)
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 1 lb RQ (land/water)

Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Canadian Regulatory Information: "This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations."

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Gasoline	B2,D2A,D2B	0.1%
Toluene	B2,D2A,D2B	0.1%
Xylene (mixed isomers)	B2,D2A,D2B	m-, o-isomers 1.0%; p-isomer 0.1%
1,2,4-Trimethylbenzene	B3	1
Benzene	B2,D2A,D2B	0.1%
n-Hexane	B2,D2A,D2B	1%
Ethylbenzene	B2,D2A,D2B	0.1%
Naphthalene	B4,D2A	0.1%

NOTE: Not Applicable.

16. OTHER INFORMATION

Prepared By Toxicology and Product Safety
Revision Date: 05/14/2015

Revision Note:

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Material Safety Data Sheet

MSDS ID NO.: 0116MAR019
Revision date: 07/25/2006

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name: Marathon No. 2 High Sulfur Fuel Oil Dyed 3000 ppm Sulfur Max
Synonym: Fuel Oil No. 2 Non-Road Use, Dyed; No. 2 Fuel Oil Dyed (0.3% Sulfur Max); No. 2 NR 3000 HS Fuel Oil; No. 2 Fuel Oil Dyed 0.3% Sulfur Max; HS No. 2 Fuel Oil, Non-Road Use, Dyed
Chemical Family: Petroleum Hydrocarbon
Formula: Mixture

Manufacturer:
Marathon Petroleum Company LLC
539 South Main Street
Findlay OH 45840

Other information: 419-421-3070
Emergency telephone number: 877-627-5463

2. COMPOSITION/INFORMATION ON INGREDIENTS

No. 2 Fuel Oil is a complex mixture of paraffins, cycloparaffins, olefins and aromatic hydrocarbons having hydrocarbon chain lengths predominantly in the range of C11 through C20. May contain a trace amount of benzene (<0.01%). Can contain small amounts of dye and other additives (<0.15%) which are not considered hazardous at the concentrations used.

Product information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Marathon No. 2 Fuel Oil Dyed (0.3% Sulfur Max)	68476-30-2	100	= 100 mg/m³ TWA vapor and aerosol, as total hydrocarbons skin - potential for cutaneous absorption (as total hydrocarbons)		

Component Information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Saturated Hydrocarbons	Mixture	54-85			
Aromatic Hydrocarbons	Mixture	15-45			
Unsaturated Hydrocarbons	Mixture	1-6			
Naphthalene	91-20-3	0.01-0.5	Skin - potential significant contribution to overall exposure by the cutaneous route = 10 ppm TWA = 15 ppm STEL	= 10 ppm TWA = 50 mg/m³ TWA = 15 ppm STEL = 75 mg/m³ STEL	

Notes:

The manufacturer has voluntarily elected to reflect exposure limits contained in OSHA's 1989 air contaminants standard in its MSDS's, even though certain of those exposure limits were vacated in 1992.

EMERGENCY OVERVIEW

FUEL OIL IS A RED COLORED LIQUID. THIS PRODUCT IS CONSIDERED TO BE A COMBUSTIBLE LIQUID PER THE OSHA HAZARD COMMUNICATION STANDARD AND SHOULD BE KEPT AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. NEVER SIPHON THIS PRODUCT BY MOUTH. IF SWALLOWED, THIS PRODUCT MAY GET SUCKED INTO THE LUNGS (ASPIRATED) AND CAUSE LUNG DAMAGE OR EVEN DEATH. PROLONGED OR REPEATED SKIN CONTACT CAN CAUSE DEFATTING AND DRYING OF THE SKIN WHICH MAY PRODUCE SEVERE IRRITATION OR DERMATITIS.

OSHA WARNING LABEL:

WARNING.
COMBUSTIBLE LIQUID.
ASPIRATION (INADVERTENT SUCTION) OF LIQUID INTO THE LUNGS CAN PRODUCE CHEMICAL PNEUMONIA OR EVEN DEATH.
PRODUCES SKIN IRRITATION UPON PROLONGED OR REPEATED CONTACT.

CONSUMER WARNING LABEL:

A CONSUMER WARNING LABEL IS NOT APPLICABLE FOR THIS PRODUCT.

Inhalation: Exposure to high vapor concentrations may produce headache, giddiness, vertigo, and anesthetic stupor.

Ingestion: Ingestion may result in nausea, vomiting, diarrhea and restlessness. Aspiration (inadvertent suction) of liquid into the lungs must be avoided as even small quantities in the lungs can produce chemical pneumonitis, pulmonary edema/hemorrhage and even death.

Skin contact: Prolonged and repeated liquid contact can cause defatting and drying of the skin and can lead to irritation and/or dermatitis.

Eye contact: Produces little or no irritation on direct contact with the eye.

Carcinogenic Evaluation:

Product information:

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
Marathon No. 2 Fuel Oil Dyed (0.3% Sulfur Max) 68476-30-2	NE		A3 - Animal Carcinogen (as total hydrocarbons)	

Notes: The International Agency for Research on Cancer (IARC) has determined that there is inadequate evidence for the carcinogenicity of diesel fuel/fuel oil in humans. IARC determined that there was limited evidence for the carcinogenicity of marine diesel fuel in animals. Distillate (light) diesel fuels were not classifiable as to their carcinogenicity to humans (Group 3A).

IARC has determined that there is sufficient evidence for the carcinogenicity in experimental animals of diesel engine exhaust and extracts of diesel engine exhaust particles. IARC determined that there is only limited evidence for the carcinogenicity in humans of diesel engine exhaust. However, IARC's overall evaluation has resulted in the IARC designation of diesel engine exhaust as probably carcinogenic to humans (Group 2A) because of the presence of certain engine exhaust components.

Component Information:

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
Naphthalene 91-20-3	Monograph 82, 2002	Reasonably Anticipated To Be A Carcinogen Listed	A4 - Not Classifiable as a Human Carcinogen	Present

Notes: The International Agency for Research on Cancer (IARC) and the Environmental Protection Agency (EPA) have determined that naphthalene could be a possible human carcinogen.

4. FIRST AID MEASURES

Inhalation: If affected, move person to fresh air. If breathing is difficult, administer oxygen. If not breathing or if no heartbeat, give artificial respiration or cardiopulmonary resuscitation (CPR).

Skin contact: Wash with soap and large amounts of water. Remove contaminated clothing. If symptoms or irritation occur, call a physician.

Ingestion: If swallowed, do not induce vomiting and do not give liquids. Immediately call a physician.

Eye contact: Flush eyes with large amounts of tepid water for at least 15 minutes. If symptoms or irritation occur, call a physician.

Medical conditions aggravated by exposure: Pre-existing skin conditions and respiratory disorders may be aggravated by exposures to components of this product.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media: For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFT/ATC) can be used. Fire fighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Specific hazards: This product is not a combustible liquid per the OSHA Hazard Communication Standard, but will ignite and burn at temperatures exceeding the flash point. For additional fire related information, see NFPA 30 or the North American Emergency Response Guide 128.

Special protective equipment for firefighters: Avoid using straight water streams. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Avoid excessive water spray application. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Keep run-off water out of sewers and water sources.

Flash point: 130-190 F
Autoignition temperature: 637 F
Flammable limits in air - lower (%): 0.7
Flammable limits in air - upper (%): 5.0

NFPA rating:
Health: 1
Flammability: 2
Reactivity: 1

HMIS classification:
Health: 1
Flammability: 2
Reactivity: 1

Other: -

Special: *See Section 8 for guidance in selection of personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources. Advise authorities and National Response Center (800-424-8802) if substance has entered a watercourse or sewer. Notify local health and pollution control agencies, if appropriate. Contain liquid with sand or soil. Recover and return free product to proper containers. Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids.

7. HANDLING AND STORAGE

Handling:

Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements. Use appropriate grounding and bonding practices. Store in properly closed containers that are appropriately labeled and in a cool well-ventilated area. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Do not cut, drill, grind or weld on empty containers since they may contain explosive residues.

Avoid repeated and prolonged skin contact. Never siphon this product by mouth. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

Engineering measures: Local or general exhaust required when using at elevated temperatures that generate vapors or mists.

Respiratory protection: Use approved organic vapor chemical cartridge or supplied air respirators when material produces vapors that exceed permissible limits or excessive vapors are generated. Observe respirator protection factor criteria cited in ANSI Z88.2. Self-contained breathing apparatus should be used for fire fighting.

Skin and body protection: Neoprene, nitrile, polyvinyl alcohol (PVA), polyvinyl chloride and polyurethane gloves to prevent skin contact.

Eye protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields.

Hygiene measures: No special protective clothing is normally required. Select protective clothing depending on industrial operations. Use mechanical ventilation equipment that is explosion-proof.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance:	Red Liquid
Physical state (Solid/Liquid/Gas):	Liquid
Substance type (Pure/Mixture):	Mixture
Color:	Red
Odor:	Slight Hydrocarbon
Molecular weight:	180
pH:	Neutral
Boiling point/range (5-95%):	400-640 F
Melting point/range:	No disponible.
Decomposition temperature:	Not applicable.

Specific gravity:	Not determined
Density:	6.76 lbs/gal
Bulk density:	No data available.
Vapor density:	4-5
Vapor pressure:	1-10 mm Hg @ 100 F
Evaporation rate:	No data available.
Solubility:	Negligible
Solubility in other solvents:	No data available.
Partition coefficient (n-octanol/water):	No data available.
VOC content(%):	10%
Viscosity:	1.9-3.4 @ 40 C

10. STABILITY AND REACTIVITY

Stability:	The material is stable at 70 F, 760 mm pressure.
Polymerization:	Will not occur.
Hazardous decomposition products:	Combustion produces carbon monoxide, aldehydes, aromatic and other hydrocarbons.
Materials to avoid:	Strong oxidizers such as nitrates, perchlorates, chlorine, fluorine.
Conditions to avoid:	Excessive heat, sources of igition and open flames.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Product information:

Name	CAS Number	Inhalation:	Dermal:	Oral:
Marathon No. 2 Fuel Oil Dyed (0.3% Sulfur Max)	68476-30-2	>2 mg/l for 4 hr [Dog]	>5 ml/kg [Rabbit]	9-16 ml/kg [Rat]

Lifetime skin painting studies in animals with similar distillate fuels have produced weak to moderate carcinogenic activity following prolonged and repeated exposure. Similar middle distillates, when tested at nonirritating dose levels, did not show any significant carcinogenic activity indicating that this tumorigenic response is likely related to chronic irritation and not to dose. Repeated dermal application has produced severe irritation and systemic toxicity in subacute toxicity studies. Some components of this product, have been shown to produce a species specific, sex hormonal dependent kidney lesion in male rats from repeated oral or inhalation exposure. Subsequent research has shown that the kidney damage develops via the formation of a alpha-2μ-globulin, a mechanism unique to the male rat. Humans do not form alpha-2μ-globulin, therefore, the kidney effects resulting from this mechanism are not relevant in humans. Some components of this product were found to be positive in a few mutagenicity tests while negative in the majority of others. The exact relationship between these results and human health is not known.

Summary of health effect data on distillate fuel components:

This product may contain >0.1% naphthalene. Exposure to naphthalene at 30 ppm for two years caused lung tumors in female mice. Male mice with the same exposure did not develop tumors. Exposure to 10-60 ppm naphthalene for 2 years caused tumors in the tissue lining of the nose and respiratory tract in male and female rats. Oral administration of 133-267 mg/kg/day of naphthalene in mice for up to 90 days did not produce mortality, systemic toxicity, adversely affect organ or body weight or produce changes in blood. Repeated oral administration of naphthalene produced an anemia in dogs. Repeated intraperitoneal doses of naphthalene produced lung damage in mice. Repeated high doses of naphthalene has caused the formation of cataracts and retinotoxicity in the eyes of rats and rabbits due to accumulation of 1,2-naphthoquinone, a toxic metabolite. Effects in human eyes is uncertain and not well documented. Pregnant rats administered intraperitoneal doses of naphthalene during gestation gave birth to offspring that had delayed heart and bone development. Pregnant mice given near lethal doses of naphthalene showed no significant maternal toxicity and a reduction in the number of pups per litter, but no gross abnormalities in offspring. Suppressed spermatogenesis and progeny development have been reported in mice, rats and guinea pigs after exposure to high concentrations of naphthalene in their drinking water. Certain groups or individuals, i.e., infants, Semites, Arabs, Asians and Blacks, with a certain blood enzyme deficiency (glucose-6-phosphate dehydrogenase) are particularly susceptible to hemolytic agents and can rapidly develop hemolytic anemia and systemic poisoning from ingestion or inhalation of naphthalene.

Summary of health effect information on diesel engine exhaust:

Chronic inhalation studies of whole diesel engine exhaust in mice and rats produced a significant increase in lung tumors. Combustion of kerosene and/or diesel fuels produces gases and particulates which include carbon monoxide, carbon dioxide, oxides of nitrogen and/or sulfur and hydrocarbons. Significant exposure to carbon monoxide vapors decreases the oxygen carrying capacity of the blood and may cause tissue hypoxia via formation of carboxyhemoglobin.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects:

Product can be toxic to aquatic life and cause fouling of the shoreline at high concentrations. The 96 hour LL50 values for an accomadated fraction (WAF) of fuel oil ranged from 3.2 to 65 mg/l in fish and 2-210 mg/l in invertebrates. EL50 values for inhibition of algal growth ranged from 1.8 to 2.9 mg/l for No. 2 fuel oil and from 10 to 78 mg/l for diesel fuel. This product does not concentrate or accumulate in the food chain. If released to soil and water, this product is expected to biodegrade under both aerobic and anaerobic conditions.

13. DISPOSAL CONSIDERATIONS

Cleanup Considerations:

This product as produced is not specifically listed as an EPA RCRA hazardous waste according to federal regulations (40 CFR 261). However, when discarded or disposed of, it may meet the criteria of an "characteristic" hazardous waste. This material could become a hazardous waste if mixed or contaminated with a hazardous waste or other substance(s). It is the responsibility of the user to determine if disposal material is hazardous according to federal, state and local regulations.

14. TRANSPORT INFORMATION

49 CFR 172.101:

DOT:

Transport Information: This material when transported via US commerce would be regulated by DOT Regulations.

Proper shipping name:	Fuel Oil, No. 2
UN/Identification No:	NA 1993
Hazard Class:	3
Packing group:	III
DOT reportable quantity (lbs):	Not applicable.

TDG (Canada):

Proper shipping name:	Fuel Oil, No. 2
UN/Identification No:	NA 1993
Hazard Class:	3
Packing group:	III
Regulated substances:	Not applicable.

15. REGULATORY INFORMATION

Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

OSHA Hazard Communication Standard: This product has been evaluated and determined to be hazardous as defined in OSHA's Hazard Communication Standard.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product contains the following component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Saturated Hydrocarbons	NA
Aromatic Hydrocarbons	NA
Unsaturated Hydrocarbons	NA
Naphthalene	NA

SARA Section 304: This product contains the following component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	CERCLA/SARA - Hazardous Substances and their Reportable Quantities
Saturated Hydrocarbons	NA
Aromatic Hydrocarbons	NA
Unsaturated Hydrocarbons	NA
Naphthalene	= 0.454 kg final RQ **= 1 lb final RQ** = 100 lb final RQ = 45.4 kg final RQ

SARA Section 311/312: The following EPA hazard categories apply to this product:

Acute Health Hazard
Fire Hazard

SARA Section 313: This product contains the following component(s) that may be subject to reporting on the Toxic Release Inventory (TRI) From R:

Name	CERCLA/SARA 313 Emission reporting:
Saturated Hydrocarbons	None
Aromatic Hydrocarbons	None
Unsaturated Hydrocarbons	None
Naphthalene	= 0.1 % de minimis concentration

State and Community Right-To-Know Regulations:
The following component(s) of this material are identified on the regulatory lists below:

Saturated Hydrocarbons

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Aromatic Hydrocarbons

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Unsaturated Hydrocarbons

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.

Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Naphthalene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Listed
New Jersey Right-To-Know:	Listed
Pennsylvania Right-To-Know:	Listed
Massachusetts Right-To Know:	Listed
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Listed
Illinois - Toxic Air Contaminants	Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Listed

Canadian Regulatory Information:

Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Naphthalene	B4, D2A	1 %

16. OTHER INFORMATION

Additional Information: No data available.

Prepared by: Craig M. Parker Manager, Toxicology and Product Safety

The information and recommendations contained herein are based upon tests believed to be reliable. However, Marathon Petroleum Company LLC (MPC) does not guarantee their accuracy or completeness nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of the goods, the merchantability of the goods, or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage maybe required. MPC assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied.

End of Safety Data Sheet

Material Safety Data Sheet

MSDS ID NO.: 0127MAR019
Revision date: 07/20/2006

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name: Marathon Regular Unleaded Gasoline
Synonym: Conventional Regular Unleaded Gasoline
Chemical Family: Petroleum Hydrocarbon
Formula: Mixture

Manufacturer:
Marathon Petroleum Company LLC
539 South Main Street
Findlay OH 45840

Other information: 419-421-3070
Emergency telephone number: 877-627-5463

2. COMPOSITION/INFORMATION ON INGREDIENTS

Gasoline is a complex combination of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons having carbon numbers predominantly greater than C3 and boiling in the range of 85-500 F. Can contain small amounts of dye and other additives (>0.02%) which are not considered hazardous at the concentrations used.

Product information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Marathon Regular Unleaded Gasoline	86290-81-5	100	300 ppm TWA; 500 ppm STEL		

Component Information:

Name	CAS Number	Weight %	ACGIH Exposure Limits:	OSHA - Vacated PELs - Time Weighted Ave	Other:
Saturated Hydrocarbons	Mixture	55-85			
Aromatic Hydrocarbons	Mixture	10-40			
Unsaturated Hydrocarbons	Mixture	1-15			
Toluene	108-88-3	1-15	= 50 ppm TWA skin - potential for cutaneous absorption	= 100 ppm TWA = 150 ppm STEL = 375 mg/m³ TWA = 560 mg/m³ STEL	
Xylene	1330-20-7	2-10	= 100 ppm TWA = 150 ppm STEL	= 100 ppm TWA = 150 ppm STEL = 435 mg/m³ TWA = 655 mg/m³ STEL	
1,2,4-Trimethylbenzene	95-63-6	1-5	= 25 ppm TWA	= 125 mg/m³ TWA = 25 ppm TWA	
Benzene	71-43-2	0.5-3.5	= 0.5 ppm TWA = 2.5 ppm STEL skin - potential for cutaneous absorption	= 10 ppm TWA unless specified in 1910.1028 = 25 ppm Ceiling unless specified in 1910.1028 = 50 ppm STEL 10 min, unless specified in 1910.1028	OSHA Exposure Limit as specified in 1910.1028: =1.0 ppm TWA = 5 ppm STEL = 0.5 ppm Action Level
Hexane	110-54-3	0-3	= 1000 ppm STEL = 50 ppm TWA = 500 ppm TWA skin - potential for cutaneous absorption		
Ethyl Benzene	100-41-4	0.5-2.0	= 100 ppm TWA = 125 ppm STEL	= 100 ppm TWA = 125 ppm STEL = 435 mg/m³ TWA = 545 mg/m³ STEL	
Naphthalene	91-20-3	0.1-0.5	Skin - potential significant contribution to overall exposure by the cutaneous route = 10 ppm TWA = 15 ppm STEL	= 10 ppm TWA = 50 mg/m³ TWA = 15 ppm STEL = 75 mg/m³ STEL	

Notes:

The manufacturer has voluntarily elected to reflect exposure limits contained in OSHA's 1989 air contaminants standard in its MSDS's, even though certain of those exposure limits were vacated in 1992.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

GASOLINE IS A CLEAR OR COLORED LIQUID WITH A STRONG HYDROCARBON ODOR. IT IS A VOLATILE AND EXTREMELY FLAMMABLE LIQUID THAT MAY CAUSE FLASH FIRES. KEEP AWAY FROM HEAT, SPARKS AND OPEN FLAME. THIS PRODUCT CONTAINS BENZENE WHICH MAY CAUSE CANCER OR BE TOXIC TO BLOOD-FORMING ORGANS. CONTAINS MATERIAL THAT HAS CAUSED CANCER BASED ON ANIMAL DATA. NEVER SIPHON THIS PRODUCT BY MOUTH. IF SWALLOWED, THIS PRODUCT MAY GET SUCKED INTO THE LUNGS (ASPIRATED) AND CAUSE LUNG DAMAGE OR EVEN DEATH.

OSHA WARNING LABEL:

DANGER!
EXTREMELY FLAMMABLE.
ASPIRATION (INADVERTENT SUCTION) OF LIQUID INTO THE LUNGS CAN PRODUCE CHEMICAL PNEUMONIA OR EVEN DEATH.
CONTAINS BENZENE WHICH MAY CAUSE CANCER OR BE TOXIC TO BLOOD-FORMING ORGANS.
CONTAINS MATERIAL THAT HAS CAUSED CANCER BASED ON ANIMAL DATA.

CONSUMER WARNING LABEL:

GASOLINE HEALTH AND SAFETY WARNING STATEMENT:

EXTREMELY FLAMMABLE, VAPORS MAY EXPLODE.
HARMFUL OR FATAL IF SWALLOWED.
LONG TERM EXPOSURE TO VAPORS HAS CAUSED CANCER IN LABORATORY ANIMALS.
KEEP FACE AWAY FROM NOZZLE WHILE FILLING.
KEEP NOZZLE AWAY FROM EYES AND SKIN.
NEVER SIPHON BY MOUTH.
DON'T OVERFILL TANK.
FOR USE AS A MOTOR FUEL ONLY.

STATIC ELECTRICITY, SPARK EXPLOSION, ELECTRONIC DEVICES WARNING:

DO NOT GET BACK IN YOUR VEHICLE WHILE REFUELING.
RE-ENTRY COULD CAUSE STATIC ELECTRICITY BUILD UP.
USE APPROVED CONTAINER.
PUT CONTAINER ON GROUND (NEVER ON OR IN A VEHICLE).
KEEP NOZZLE IN CONTACT WITH CONTAINER.
KEEP CELLULAR PHONES OR OTHER DEVICES IN YOUR VEHICLE DURING REFUELING.

Inhalation:

Exposure to vapor concentrations of gasoline exceeding 1,000 ppm can cause respiratory irritation, headache, dizziness, nausea and loss of coordination. Higher concentrations may cause loss of consciousness, cardiac sensitization, coma and death resulting from respiratory failure.
Intentional overexposure to high concentrations of product vapors (such as huffing) can cause nervous system and brain damage, convulsions and sudden death from cardiac arrest.

Ingestion:

Ingestion may result in nausea, vomiting, diarrhea and restlessness. Aspiration (inadvertent suction) of liquid into the lungs must be avoided as even small quantities in the lungs can produce chemical pneumonitis, pulmonary edema/hemorrhage and even death.

Skin contact:

Prolonged and repeated liquid contact can cause defatting and drying of the skin and can lead to irritation and/or dermatitis.

Eye contact: Eye irritation may result from contact with the liquid or exposure to the vapor at concentrations above the TLV.

Carcinogenic Evaluation:

Product information:

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
Marathon Regular Unleaded Gasoline 86290-81-5	A2 - Possible Human Carcinogen		A3 - Animal Carcinogen	

Notes: The International Agency for Research on Cancer (IARC) has determined that there is inadequate evidence for the carcinogenicity of gasoline in humans. IARC determined that limited evidence of carcinogenicity in animals exists. IARC`s overall evaluation of gasoline, in spite of limited carcinogenicity evidence, has resulted in the IARC designation of gasoline as possibly carcinogenic to humans (Group 2B) because gasoline contains benzene.

IARC has determined that there is inadequate evidence for the carcinogenicity of gasoline engine exhaust in humans or animals. However, IARC`s overall evaluation on gasoline engine exhaust, in spite of the absence of carcinogenicity data, has resulted in the IARC designation of gasoline engine exhaust as possibly carcinogenic to humans (Group 2B) because of the presence of certain engine exhaust components.

Component Information:

Name	IARC Carcinogens:	NTP Carcinogens:	ACGIH - Carcinogens:	OSHA - Select Carcinogens:
Toluene 108-88-3			A4 - Not Classifiable as a Human Carcinogen	
Xylene 1330-20-7			A4 - Not Classifiable as a Human Carcinogen	
Benzene 71-43-2	Supplement 7, 1987; Monograph 29, 1982	Known Carcinogen Reasonably Anticipated To Be A Carcinogen	A1 - Confirmed Human Carcinogen	Present
Ethyl Benzene 100-41-4	Monograph 77, 2000		A3 - Animal Carcinogen	
Naphthalene 91-20-3	Monograph 82, 2002	Reasonably Anticipated To Be A Carcinogen Listed	A4 - Not Classifiable as a Human Carcinogen	Present

Notes: The International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), and OSHA have determined that there is sufficient evidence for the carcinogenicity of benzene in humans (Group 1A).

The International Agency for Research on Cancer (IARC) has concluded that ethyl benzene is possibly carcinogenic to humans (Group 2B).

The International Agency for Research on Cancer (IARC) and the Environmental Protection Agency (EPA) have determined that naphthalene could be a possible human carcinogen.

4. FIRST AID MEASURES

Inhalation: If affected, move person to fresh air. If breathing is difficult, administer oxygen. If not breathing or if no heartbeat, give artificial respiration or cardiopulmonary resuscitation (CPR). Immediately call a physician. If symptoms or irritation occur with any exposure, call a physician.

Skin contact: Wash with soap and large amounts of water. Remove contaminated clothing. If symptoms or irritation occur, call a physician.

Ingestion:	If swallowed, do not induce vomiting and do not give liquids. Immediately call a physician.
Eye contact:	Flush eyes with large amounts of tepid water for at least 15 minutes. If symptoms or irritation occur, call a physician.
Medical conditions aggravated by exposure:	Pre-existing eye, skin, respiratory, liver and/or kidney disorders may be aggravated by exposure to components of this product.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media:	For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFT/ATC) can be used. Fire fighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.
Specific hazards:	This product has been determined to be a flammable liquid per the OSHA Hazard Communication Standard, and should be handled accordingly. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information, see NFPA 30 or the North American Emergency Response Guide 128.
Special protective equipment for firefighters:	Avoid using straight water streams. Water may be ineffective in extinguishing low flash point fires, but can be used to cool exposed surfaces. Avoid excessive water spray application. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Keep run-off water out of sewers and water sources.

Flash point:	-50
Autoignition temperature:	CA 495 F
Flammable limits in air - lower (%):	1.4
Flammable limits in air - upper (%):	7.6

NFPA rating:	**HMIS classification:**
Health: 1	Health: 1
Flammability: 3	Flammability: 3
Reactivity: 0	Reactivity: 0
Other: -	Special: *See Section 8 for guidance in selection of personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources. Advise authorities and National Response Center (800-424-8802) if substance has entered a watercourse or sewer. Notify local health and pollution control agencies, if appropriate. Contain liquid with sand or soil. Recover and return free product to proper containers. Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids.

7. HANDLING AND STORAGE

Handling:

Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements. Use appropriate grounding and bonding practices. Store in properly closed containers that are appropriately labeled and in a cool well-ventilated area. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Do not cut, drill, grind or weld on empty containers since they may contain explosive residues. Avoid skin contact. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water.

For use as a motor fuel only. Product should never be used as a solvent due to its flammable and potentially toxic properties. Siphoning by mouth can result in lung aspiration which can be harmful or fatal.

Portable containers of 12 gallons (45 liters) or less should never be filled while they are in or on a motor vehicle or marine craft. Static electric discharge can ignite fuel vapors when filling non-grounded containers or vehicles on trailers. Containers should be placed on the ground. The nozzle spout must be kept in contact with the container before and during the entire filling operation. Use only approved containers. A buildup of static electricity can occur upon re-entry into a vehicle during fueling especially in cold or dry climate conditions. The charge is generated by the action of dissimilar fabrics (i.e., clothing and upholstery) rubbing across each other as a person enters/exits the vehicle. A flash fire can result from this discharge if sufficient flammable vapors are present. Therefore, do not get back in your vehicle while refueling. Cellular phones and other electronic devices may have the potential to emit electrical charges (sparks). Sparks in potentially explosive atmospheres (including fueling areas such as gas stations) could cause an explosion if sufficient flammable vapors are present. Therefore, turn off cellular phones and other electronic devices when working in potentially explosive atmospheres or keep devices inside your vehicle during refueling.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

Engineering measures:	Local or general exhaust required in an enclosed area or when there is inadequate ventilation.
Respiratory protection:	Approved organic vapor chemical cartridge or supplied air respirators should be worn for exposures to any components exceeding the TLV or STEL. Observe respirator protection factor criteria cited in ANSI Z88.2. Self-contained breathing apparatus should be used for fire fighting.
Skin and body protection:	Use nitrile rubber, viton or PVA gloves for repeated or prolonged skin exposure.
Eye protection:	No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields.
Hygiene measures:	No special protective clothing is normally required. Select protective clothing depending on industrial operations. Use mechanical ventilation equipment that is explosion-proof.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance:	Clear Or Colored Liquid
Physical state (Solid/Liquid/Gas):	Liquid
Substance type (Pure/Mixture):	Mixture
Color:	Clear or Colored
Odor:	Strong Hydrocarbon
Molecular weight:	100
pH:	Neutral
Boiling point/range (5-95%):	90-437 F
Melting point/range:	Not determined.
Decomposition temperature:	Not applicable.
Specific gravity:	0.70-0.77

Density:	5.9-6.3 lbs/gal
Bulk density:	No data available.
Vapor density:	3-4
Vapor pressure:	Not determined.
Evaporation rate:	No data available.
Solubility:	Negligible
Solubility in other solvents:	No data available.
Partition coefficient (n-octanol/water):	2.13-4.5
VOC content(%):	100%
Viscosity:	No data available.

10. STABILITY AND REACTIVITY

Stability:	The material is stable at 70 F, 760 mm pressure.
Polymerization:	Will not occur.
Hazardous decomposition products:	Combustion produces carbon monoxide, aldehydes, aromatic and other hydrocarbons.
Materials to avoid:	Strong oxidizers such as nitrates, chlorates, peroxides.
Conditions to avoid:	Excessive heat, sources of ignition, open flame.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Product information:

Name	CAS Number	Inhalation:	Dermal:	Oral:
Marathon Regular Unleaded Gasoline	86290-81-5	>10,000 ppm [Dog]	>5 ml/kg [Rabbit]	>14 ml/kg [Rat]

Lifetime inhalation studies with full vaporized gasoline (67, 292 and 2,056 ppm) produced kidney damage and kidney tumors in male rats but not in female rats or male and female mice. Female mice developed a slightly higher incidence of liver tumors compared to controls at the highest exposure level. Results from separate studies with compounds producing similar effects, i.e., 1,4-dichlorobenzene and perchloroethylene, have shown that the kidney damage and kidney tumors develop via the formation of alpha-2u-globulin, a mechanism unique to the male rat. Humans do not form alpha-2u-globulin, therefore, tumors resulting from this mechanism are not relevant in humans. The biologic significance of the mouse liver tumor response with regard to human health risk is questionable.

Summary of health effect information on gasoline engine exhaust:

Chronic inhalation studies of gasoline engine exhaust in mice, rats and hamsters did not produce any carcinogenic effects. Condensates/extracts of gasoline engine exhaust produced an increase in tumors compared to controls when testing by skin painting, subcutaneous injection, intratracheal instillation or implantation into the lungs. Combustion of gasoline produces gases and particulates which include carbon monoxide, carbon dioxide, oxides of nitrogen and/or sulfur and hydrocarbons. Significant exposure to carbon monoxide vapors decreases the oxygen carrying capacity of the blood and may cause tissue hypoxia via formation of carboxyhemoglobin. Overexposure to CO can cause headache, nausea, nervous system depression, coma and death.

Summary of health effect data on gasoline components:

This product may contain benzene at a level of >0.1%. Repeated or prolonged exposure to benzene at concentrations in excess of the TLV may cause serious injury to blood-forming organs. Significant chronic exposure to benzene vapor has been reported to produce various blood disorders ranging from anemia to certain forms of leukemia (cancer) in man. Benzene produced tumors in rats and mice in lifetime chronic toxicity studies, but the response has not been consistent across species, strain, sex or route of exposure. Animal studies on benzene have demonstrated immune toxicity, chromosomal aberrations, testicular effects and alterations in reproductive cycles and embryo/fetotoxicity, but not teratogenicity.

This product contains >0.1% ethyl benzene (EB). Rats and mice exposed to 750 ppm EB for 6 hours/day, 5 days/week for two years developed kidney tumors in male and femmale rats and lung tumors in male mice and liver tumor in female mice.

This product contains>0.1% naphthalene. Exposure to naphthalene at 30 ppm for two years caused lung tumors in female mice. Male mice with the same exposure did not develop tumors. Exposure to 10-60 ppm naphthalene for 2 years caused tumors in the tissue lining of the nose and respiratory tract in male and female rats. Oral administration of 133-267 mg/kg/day of naphthalene in mice for up to 90 days did not produce mortality, systemic toxicity, adversely affect organ or body weight or produce changes in blood. Repeated oral administration of naphthalene produced an anemia in dogs. Repeated intraperitoneal doses of naphthalene produced lung damage in mice. Repeated high doses of naphthalene has caused the formation of cataracts and retinotoxicity in the eyes of rats and rabbits due to accumulation of 1,2-naphthoquinone, a toxic metabolite. Effects in human eyes is uncertain and not well documented. Pregnant rats administered intraperitoneal doses of naphthalene during gestation gave birth to offspring that had delayed heart and bone development. Pregnant mice given near lethal doses of naphthalene showed no significant maternal toxicity and a reduction in the number of pups per litter, but no gross abnormalities in offspring. Suppressed spermatogenesis and progeny development have been reported in mice, rats and guinea pigs after exposure to high concentrations of naphthalene in their drinking water. Certain groups or individuals, i.e., infants, Semites, Arabs, Asians and Blacks, with a certain blood enzyme deficiency (glucose-6-phosphate dehydrogenase) are particularly susceptible to hemolytic agents and can rapidly develop hemolytic anemia and systemic poisoning from ingestion or inhalation of naphthalene.

This product may contain hexane at a level of >1.0%. Studies in laboratory animals have produced systemic toxicity in blood, spleen and lungs. Fetotoxicity has been observed at hexane concentrations that produced maternal toxicity. Long term exposure to high concentrations of hexane has been shown to cause testicular effects and nervous system damage.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects:

Product can cause fouling of shoreline and may be harmful to aquatic life in low concentrations. This product does not concentrate or accumulate in the food chain.

The aquatic toxicity of gasoline is as follows:

FreshwaterToxicity:
LD50 is 8 ppm at 96 hours in bluegill.
TLM is 90 ppm at 24 hours in juvenile shad.

SaltwaterToxicity:
LC50 is 2 ppm at 96 hours in mullet.
LD50 is 1.5 ppm at 96 hours in grass shrimp.
LC50 is 2 ppm at 96 hours in menhaden.
TLM is 91 ppm at 24 hours in juvenile shad.

13. DISPOSAL CONSIDERATIONS

Cleanup Considerations:

This product as produced is not specifically listed as an EPA RCRA hazardous waste according to federal regulations (40 CFR 261). However, when discarded or disposed of, it may meet the criteria of an "characteristic" hazardous waste. This product could also contain benzene at >0.5 ppm and could exhibit the characteristics of "toxicity" as determined by the toxicity characteristic leaching procedure (TCLP). This material could become a hazardous waste if mixed or contaminated with a hazardous waste or other substance(s). It is the responsibility of the user to determine if disposal material is hazardous according to federal, state and local regulations.

14. TRANSPORT INFORMATION

49 CFR 172.101:

DOT:

Transport Information: This material when transported via US commerce would be regulated by DOT Regulations.

Proper shipping name:	Gasoline
UN/Identification No:	UN 1203
Hazard Class:	3
Packing group:	II
DOT reportable quantity (lbs):	Not applicable.

TDG (Canada):

Proper shipping name:	Gasoline
UN/Identification No:	UN 1203
Hazard Class:	3
Packing group:	II
Regulated substances:	Not applicable.

15. REGULATORY INFORMATION

Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

OSHA Hazard Communication Standard: This product has been evaluated and determined to be hazardous as defined in OSHA's Hazard Communication Standard.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product contains the following component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Saturated Hydrocarbons	NA
Aromatic Hydrocarbons	NA
Unsaturated Hydrocarbons	NA
Toluene	NA
Xylene	NA
1,2,4-Trimethylbenzene	NA
Benzene	NA
Hexane	NA
Ethyl Benzene	NA
Naphthalene	NA

SARA Section 304: This product contains the following component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	CERCLA/SARA - Hazardous Substances and their Reportable Quantities
Saturated Hydrocarbons	NA
Aromatic Hydrocarbons	NA
Unsaturated Hydrocarbons	NA
Toluene	= 0.454 kg final RQ = 1 lb final RQ = 10 lb final RQ = 100 lb final RQ = 1000 lb final RQ = 4.54 kg final RQ = 45.4 kg final RQ = 454 kg final RQ
Xylene	= 100 lb final RQ = 45.4 kg final RQ
1,2,4-Trimethylbenzene	NA
Benzene	= 0.454 kg final RQ = 0.454 kg statutory RQ = 1 lb final RQ = 1 lb statutory RQ = 10 lb final RQ = 10 lb final RQ receives an adjustable RQ of 10 lbs based on potential carcinogenicity in August 14, 1989 final rule = 100 lb final RQ = 4.54 kg final RQ = 4.54 kg final RQ receives an adjustable RQ of 10 lbs based on potential carcinogenicity in August 14, 1989 final rule = 45.4 kg final RQ
Hexane	= 2270 kg final RQ = 5000 lb final RQ
Ethyl Benzene	= 100 lb final RQ = 1000 lb final RQ = 45.4 kg final RQ = 454 kg final RQ
Naphthalene	= 0.454 kg final RQ = 1 lb final RQ = 100 lb final RQ = 45.4 kg final RQ

SARA Section 311/312: The following EPA hazard categories apply to this product:

Acute Health Hazard
Chronic Health Hazard
Fire Hazard

SARA Section 313: This product contains the following component(s) that may be subject to reporting on the Toxic Release Inventory (TRI) From R:

Name	CERCLA/SARA 313 Emission reporting:
Saturated Hydrocarbons	None
Aromatic Hydrocarbons	None
Unsaturated Hydrocarbons	None
Toluene	= 1.0 percent de minimis concentration
Xylene	= 1.0 percent de minimis concentration
1,2,4-Trimethylbenzene	= 1.0 percent de minimis concentration
Benzene	= 0.1 percent de minimis concentration
Hexane	= 1.0 percent de minimis concentration
Ethyl Benzene	= 0.1 percent de minimis concentration
Naphthalene	= 0.1 % de minimis concentration

State and Community Right-To-Know Regulations:
The following component(s) of this material are identified on the regulatory lists below:

Saturated Hydrocarbons

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Aromatic Hydrocarbons

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Unsaturated Hydrocarbons

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Toluene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	developmental toxicity; initial date 1/1/91
New Jersey Right-To-Know:	sn 1866
Pennsylvania Right-To-Know:	environmental hazard
Massachusetts Right-To Know:	Present
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic, Flammable; skin
Michigan critical materials register list:	Annual usage threshold = 100 pounds
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 1866
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	= 1 lb Land/Water RQ = 1,000 lbs Air RQ

Xylene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	sn 2014
Pennsylvania Right-To-Know:	environmental hazard
Massachusetts Right-To Know:	Present
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic, Flammable
Michigan critical materials register list:	Annual usage threshold = 100 pounds (all isomers)
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	flammable - third degree

New Jersey - Environmental Hazardous Substances List:	SN 2014
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	= 1 lb Land/Water RQ = 1,000 lbs Air RQ

1,2,4-Trimethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	sn 1929 sn 2716
Pennsylvania Right-To-Know:	[present] environmental hazard
Massachusetts Right-To Know:	Present
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	SN 2716
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Benzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	carcinogen; initial date 2/27/87 developmental toxicity; initial date 12/26/97 male reproductive toxicity; initial date 12/26/97
New Jersey Right-To-Know:	sn 0197
Pennsylvania Right-To-Know:	environmental hazard; special hazardous substance
Massachusetts Right-To Know:	Carcinogen; Extraordinarily hazardous
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic, Flammable, Carcinogen; skin
Michigan critical materials register list:	Annual usage threshold = 100 pounds
Massachusetts Extraordinarily Hazardous Substances:	carcinogen; extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	[present]
New Jersey - Special Hazardous Substances:	carcinogen; flammable - third degree; mutagen
New Jersey - Environmental Hazardous Substances List:	SN 0197
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	= 1 lb Land/Water RQ = 10 lbs Air RQ

Hexane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	Not Listed.
Pennsylvania Right-To-Know:	Not Listed.
Massachusetts Right-To Know:	Not Listed.
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Not Listed

Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Ethyl Benzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	sn 0851
Pennsylvania Right-To-Know:	environmental hazard
Massachusetts Right-To Know:	Present
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Toxic, Flammable
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0851
Illinois - Toxic Air Contaminants	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	= 1 lb Land/Water RQ = 1,000 lbs Air RQ

Naphthalene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Listed
New Jersey Right-To-Know:	Listed
Pennsylvania Right-To-Know:	Listed
Massachusetts Right-To Know:	Listed
Florida substance List:	Not Listed.
Rhode Island Right-To-Know:	Listed
Michigan critical materials register list:	Not Listed.
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Listed
Illinois - Toxic Air Contaminants	Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Listed

Canadian Regulatory Information:

Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Toluene	B2; D2A	1% (English Item 1578, French Item 1622)
Xylene	B2; D2A; D2B	
1,2,4-Trimethylbenzene	B3	0.1% (English Item 1640, French Item 1684) 1% (English Item 1638, French Item 1682)
Benzene	B2; D2A	0.1% (English Item 153, French Item 277)
Ethyl Benzene	B2; D2A; D2B	0.1% (English Item 697, French Item 854)
Naphthalene	B4, D2A	1 %

16. OTHER INFORMATION

Additional Information: No data available.

Prepared by: Craig M. Parker Manager, Toxicology and Product Safety

The information and recommendations contained herein are based upon tests believed to be reliable. However, Marathon Petroleum Company LLC (MPC) does not guarantee their accuracy or completeness nor shall any of this information constitute a warranty, whether expressed or implied, as to the safety of the goods, the merchantability of the goods, or the fitness of the goods for a particular purpose. Adjustment to conform to actual conditions of usage maybe required. MPC assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied.

End of Safety Data Sheet

ATTACHMENT I

EMISSION UNITS TABLE

Attachment I
Emission Units Table
(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)
New Equipment:

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
TK1	TK1	Gasoline AST	2015	12,000 gal	New November 2015	NA
TK2	TK2	Diesel AST	2015	12,000 gal	New November 2015	NA
TK3	TK3	Diesel AST	2015	15,000 gal	New November 2015	NA
LO	LO	Fuel Loadout	2015	Approximately 50 gpm	New November 2015	NA
VA	VA	Vehicle Activity	2015	NA	NA	NA
FL	FL	Fugitive Leaks	2015	NA	NA	NA

1 For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S,or other appropriate designation.
2 For Emission Points use the following numbering system: 1E, 2E, 3E, or other appropriate designation.
3 New, modification, removal
4 For Control Devices use the following numbering system: 1C, 2C, 3C, or other appropriate designation.

ATTACHMENT J

EMISSION POINTS DATA SUMMARY SHEET

Attachment J
Emission Points Data Summary Sheet

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions[4]		Maximum Potential Controlled Emissions[5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m[4])
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
TK1	Relief Vent	TK1	Gasoline AST	NA	None	NA	NA	VOC	75.61	1.97	75.61	1.97	Vapor	Tanks 4.0	NA
								Benzene	0.4025	0.0105	0.4025	0.0105			
								Cumene	0.0046	0.0002	0.0046	0.0002			
								Ethyl Benzene	0.0276	0.0008	0.0276	0.0008			
								Hexane	0.3708	0.0097	0.3708	0.0097			
								Toluene	0.4320	0.0113	0.4320	0.0113			
								Xylene	0.1150	0.0030	0.1150	0.0030			
								2,2,4 Trimethylpentane	0.4155	0.0109	0.4155	0.0109			
								HAPS Total	1.7680	0.0500	1.7680	0.0500			
TK2	Rain Cap	TK2	Diesel AST	NA	None	NA	NA	VOC	0.13	0.01	0.13	0.01	Vapor	Tanks 4.0	NA
								Benzene	0.0004	0.0001	0.0004	0.0001			
								Ethyl Benzene	0.0004	0.0001	0.0004	0.0001			
								Hexane	0.0002	0.0001	0.0002	0.0001			
								Toluene	0.0029	0.0002	0.0029	0.0002			
								Xylene	0.0071	0.0003	0.0071	0.0003			
								HAPS Total	0.0110	0.0008	0.0110	0.0008			
TK3	Rain Cap	TK3	Diesel AST	NA	None	NA	NA	VOC	0.12	0.01	0.12	0.01	Vapor	Tanks 4.0	NA
								Benzene	0.0002	0.0001	0.0002	0.0001			
								Ethyl Benzene	0.0003	0.0001	0.0003	0.0001			
								Hexane	0.0001	0.0001	0.0001	0.0001			
								Toluene	0.0027	0.0002	0.0027	0.0002			
								Xylene	0.0064	0.0004	0.0064	0.0004			
								HAPS Total	0.0097	0.0009	0.0097	0.0009			

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

1 Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

2 Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (i.e., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

3 List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS2, VOCs, H2S, Inorganics, Lead, Organics, O3, NO, NO2, SO2, SO3, all applicable Greenhouse Gases (including CO2 and methane), etc. DO NOT LIST H2, H2O, N2, O2, and Noble Gases.

4 Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

5 Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

6 Indicate the method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

7 Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO2, use units of ppmv (See 45CSR10).

Table 2: Release Parameter Data

Emission Point ID No. *(Must match Emission Units Table)*	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (°F)	Volumetric Flow [1] (acfm) *at operating conditions*	Velocity (fps)	Ground Level *(Height above mean sea level)*	Stack Height [2] *(Release height of emissions above ground level)*	Northing	Easting
TK1	NA	Ambient	NA	NA	~627	14 ft	4,387.612	511.445
TK2	NA	Ambient	NA	NA	~627	14 ft	4,387.612	511.445
TK3	NA	Ambient	NA	NA	~627	14 ft	4,387.612	511.445

[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.

ATTACHMENT K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

Attachment K – Fugitive Emissions Data Summary Sheet

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? ☒ Yes ☐ No ☐ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? ☐ Yes ☒ No ☐ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? ☒ Yes ☐ No ☒ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? ☒ Yes ☐ No ☐ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	PM PM10 PM2.5	0.029 0.007 0.003	0.008 0.002 0.002	0.029 0.007 0.003	0.008 0.002 0.002	AP-42
Unpaved Haul Roads						
Storage Pile Emissions						
Loading/Unloading Operations	VOC-Gasoline HAP Total – Gasoline VOC – Diesel HAP Total – Diesel	22.20 0.5193 0.05 0.0045	1.23 0.0291 0.02 0.0018	22.20 0.5193 0.05 0.0045	1.23 0.0291 0.02 0.0018	EE
Wastewater Treatment Evaporation & Operations						
Equipment Leaks	VOC – Gasoline HAP Total – Gasoline VOC – Diesel HAP Total – Diesel	Does Not Apply	0.43 0.0102 0.037 0.0030	Does Not Apply	0.43 0.0102 0.037 0.0030	EE
General Clean-up VOC Emissions						
Other						

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, all applicable Greenhouse Gases (including CO_2 and methane), etc. DO NOT LIST H_2, H_2O, N_2, O_2, and Noble Gases.

[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[3] Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

ATTACHMENT L

EMISSION UNIT DATA SHEETS

Attachment L
EMISSIONS UNIT DATA SHEET
BULK LIQUID TRANSFER OPERATIONS

Furnish the following information for each new or modified bulk liquid transfer area or loading rack, as shown on the *Equipment List Form* and other parts of this application. This form is to be used for bulk liquid transfer operations such as to and from drums, marine vessels, rail tank cars, and tank trucks.

Identification Number (as assigned on *Equipment List Form*): LO

1. Loading Area Name: Loading Out

2. Type of cargo vessels accommodated at this rack or transfer point (check as many as apply):
☐ Drums ☐ Marine Vessels ☐ Rail Tank Cars ☒ Tank Trucks

3. Loading Rack or Transfer Point Data:

Number of pumps	0 (gravity loadout)
Number of liquids loaded	3 (Gasoline, On-Road Diesel, Off-Road Diesel)
Maximum number of marine vessels, tank trucks, tank cars, and/or drums loading at one time	1

4. Does ballasting of marine vessels occur at this loading area?
☐ Yes ☐ No ☒Does not apply

5. Describe cleaning location, compounds and procedure for cargo vessels using this transfer point: Not Applicable

6. Are cargo vessels pressure tested for leaks at this or any other location?
☐ Yes ☒ No
If YES, describe: Not Applicable

7. Projected Maximum Operating Schedule (for rack or transfer point as a whole):

Maximum	Jan. - Mar.	Apr. - June	July - Sept.	Oct. - Dec.
hours/day	24	24	24	24
days/week	7	7	7	7
weeks/quarter	13	13	13	13

8. Bulk Liquid Data *(add pages as necessary):*							
Pump ID No.		No Pumps					
Liquid Name		Gasoline	Diesel (On-Road and Off-Road)				
Max. daily throughput (1000 gal/day)		5	5				
Max. annual throughput (1000 gal/yr)		500	2,250				
Loading Method [1]		SUB	SUB				
Max. Fill Rate (gal/min)		~50	~50				
Average Fill Time (min/loading)		~110	~110				
Max. Bulk Liquid Temperature (°F)		Ambient	Ambient				
True Vapor Pressure [2]		5.2	0.0074				
Cargo Vessel Condition [3]		U	U				
Control Equipment or Method [4]		NA	NA				
Minimum control efficiency (%)		NA	NA				
Maximum Emission Rate	Loading (lb/hr)	22.20	0.05				
	Annual (lb/yr)	2,460	40.0				
Estimation Method [5]		EE	EE				

[1] BF = Bottom Fill SP = Splash Fill SUB = Submerged Fill

[2] At maximum bulk liquid temperature

[3] B = Ballasted Vessel, C = Cleaned, U = Uncleaned (dedicated service), O = other (describe)

[4] List as many as apply (complete and submit appropriate *Air Pollution Control Device Sheets*):CA = Carbon Adsorption LOA = Lean Oil AdsorptionCO = Condensation SC = Scrubber (Absorption)CRA = Compressor-Refrigeration-Absorption TO = Thermal Oxidation or Incineration
CRC = Compression-Refrigeration-Condensation VB = Dedicated Vapor Balance (closed system)
O = other (descibe)

[5] EPA = EPA Emission Factor as stated in AP-42
MB = Material Balance
TM = Test Measurement based upon test data submittal
O = other (describe)

9. **Proposed Monitoring, Recordkeeping, Reporting, and Testing** Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.	
MONITORING No proposed monitoring.	RECORDKEEPING Proposed to maintain a record of the fuel loaded to truck for delivery.
REPORTING No proposed monitoring.	TESTING No proposed testing.
MONITORING. PLEASE LIST AND DESCRIBE THE PROCESS PARAMETERS AND RANGES THAT ARE PROPOSED TO BE MONITORED IN ORDER TO DEMONSTRATE COMPLIANCE WITH THE OPERATION OF THIS PROCESS EQUIPMENT OPERATION/AIR POLLUTION CONTROL DEVICE. Not Applicable	
RECORDKEEPING. PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING. Not Applicable	
REPORTING. PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING. Not Applicable	
TESTING. PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE. Not Applicable	
10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty None	

Attachment L
EMISSIONS UNIT DATA SHEET
STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT www.epa.gov/tnn/tanks.html), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (http://www.epa.gov/tnn/chief/).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name AST Area	2. Tank Name Gasoline AST TK1
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*) TK1	4. Emission Point Identification No. (as assigned on *Equipment List Form*) TK1
5. Date of Commencement of Construction (for existing tanks) November 2015	
6. Type of change ☒ New Construction ☐ New Stored Material ☐ Other Tank Modification	
7. Description of Tank Modification (if applicable) NA	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐ Yes ☒ No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode).	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): TK1 has a bottom fill port and is fully sealed with a pressure relief valve. Product is pumped in using the tanker truck pump. There are no pumps at the facility, trucks are gravity filled from the AST.	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 12,000 gallons	
9A. Tank Internal Diameter (ft) 8 ft	9B. Tank Internal Height (or Length) (ft) 32 ft
10A. Maximum Liquid Height (ft) 8 ft	10B. Average Liquid Height (ft) 4 ft (assuming ½ full)
11A. Maximum Vapor Space Height (ft) 4 ft (assuming ½ full)	11B. Average Vapor Space Height (ft) 4 ft (assuming ½ full)
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 12,000 gallons	

13A. Maximum annual throughput (gal/yr) 500,000 gal/yr	13B. Maximum daily throughput (gal/day) 5,000 gallons (estimated)

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume) 41.67

15. Maximum tank fill rate (gal/min)

16. Tank fill method ☐ Submerged ☐ Splash ☒ Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒ Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):

☒ Fixed Roof ___ vertical X horizontal ___ flat roof ___ cone roof ___ dome roof
___ other (describe)
☐ External Floating Roof ___ pontoon roof ___ double deck roof
☐ Domed External (or Covered) Floating Roof
☐ Internal Floating Roof ___ vertical column support ___ self-supporting
☐ Variable Vapor Space ___ lifter roof ___ diaphragm
☒ Pressurized ___ spherical X cylindrical
☐ Underground
☐ Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS

19. Tank Shell Construction: See Tanks Output Report
☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☐ Other (describe)

20A. Shell Color	20B. Roof Color	20C. Year Last Painted

21. Shell Condition (if metal and unlined):
☐ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable

22A. Is the tank heated? ☐ YES ☐ NO

22B. If YES, provide the operating temperature (°F)

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): to

24. Complete the following section for **Vertical Fixed Roof Tanks** ☒ Does Not Apply

24A. For dome roof, provide roof radius (ft)

24B. For cone roof, provide slope (ft/ft)

25. Complete the following section for **Floating Roof Tanks** ☒ Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: ☐ Metallic (Mechanical) Shoe Seal ☐ Liquid Mounted Resilient Seal (check one) ☐ Vapor Mounted Resilient Seal ☐ Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐ YES ☐ NO

25D. If YES, how is the secondary seal mounted? (check one) ☐ Shoe ☐ Rim ☐ Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐ YES ☐ NO

25F. Describe deck fittings; indicate the number of each type of fitting:		
ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks ☐ Does Not Apply	
26A. Deck Type: ☐ Bolted ☐ Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: ☐ Continuous sheet construction 5 feet wide ☐ Continuous sheet construction 6 feet wide ☐ Continuous sheet construction 7 feet wide ☐ Continuous sheet construction 5 × 7.5 feet wide ☐ Continuous sheet construction 5 × 12 feet wide ☐ Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft^2)
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. See TANKS summary sheets	
28. Daily Average Ambient Temperature (°F)	
29. Annual Average Maximum Temperature (°F)	
30. Annual Average Minimum Temperature (°F)	
31. Average Wind Speed (miles/hr)	
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	
33. Atmospheric Pressure (psia)	

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: See TANKS summary sheets	
34A. Minimum (°F)	34B. Maximum (°F)
35. Average operating pressure range of tank:	
35A. Minimum (psig)	35B. Maximum (psig)
36A. Minimum Liquid Surface Temperature (°F)	36B. Corresponding Vapor Pressure (psia)
37A. Average Liquid Surface Temperature (°F)	37B. Corresponding Vapor Pressure (psia)
38A. Maximum Liquid Surface Temperature (°F)	38B. Corresponding Vapor Pressure (psia)

39. Provide the following for each liquid or gas to be stored in tank. Add additional pages if

39A. Material Name or Composition			
39B. CAS Number			
39C. Liquid Density (lb/gal)			
39D. Liquid Molecular Weight (lb/lb-mole)			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)			
Months Storage per Year 39H. From 39I. To			

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☐ Does Not Apply

- ☐ Carbon Adsorption[1]
- ☐ Condenser[1]
- ☐ Conservation Vent (psig)
  - Vacuum Setting Pressure Setting
- ☐ Emergency Relief Valve (psig)
- ☐ Inert Gas Blanket of
- ☐ Insulation of Tank with
- ☐ Liquid Absorption (scrubber)[1]
- ☐ Refrigeration of Tank
- ☐ Rupture Disc (psig)
- ☐ Vent to Incinerator[1]

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amoun	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]

SEE TANKS 4.0.9.d. EMISSIONS REPORT

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☐ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L
EMISSIONS UNIT DATA SHEET
STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT www.epa.gov/tnn/tanks.html), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (http://www.epa.gov/tnn/chief/).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name AST Area	2. Tank Name Diesel AST TK2
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*)TK2	4. Emission Point Identification No. (as assigned on *Equipment List Form*)TK2
5. Date of Commencement of Construction (for existing tanks) November 2015	
6. Type of change ☒ New Construction ☐ New Stored Material ☐ Other Tank Modification	
7. Description of Tank Modification (if applicable) NA	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐ Yes ☒ No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode).	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): TK2 has a bottom fill port and open vented. Product is pumped in using the tanker truck pump. There are no pumps at the facility, trucks are gravity filled from the AST.	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 12,000 gallons	
9A. Tank Internal Diameter (ft) 8 ft	9B. Tank Internal Height (or Length) (ft) 32 ft
10A. Maximum Liquid Height (ft) 8 ft	10B. Average Liquid Height (ft) 4 ft (assuming ½ full)
11A. Maximum Vapor Space Height (ft) 4 ft (assuming ½ full)	11B. Average Vapor Space Height (ft) 4 ft (assuming ½ full)
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 12,000 gallons	

13A. Maximum annual throughput (gal/yr)	13B. Maximum daily throughput (gal/day)
750,000 gal/yr	5,000 gallons (estimated)

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume)
62.50

15. Maximum tank fill rate (gal/min)

16. Tank fill method ☐ Submerged ☐ Splash ☒ Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒ Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):
☒ Fixed Roof ___ vertical X horizontal ___ flat roof ___ cone roof ___ dome roof
___ other (describe)
☐ External Floating Roof ___ pontoon roof ___ double deck roof
☐ Domed External (or Covered) Floating Roof
☐ Internal Floating Roof ___ vertical column support ___ self-supporting
☐ Variable Vapor Space ___ lifter roof ___ diaphragm
☐ Pressurized ___ spherical _ cylindrical
☐ Underground
☐ Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS

19. Tank Shell Construction: See Tanks Output Report
☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☐ Other (describe)

20A. Shell Color	20B. Roof Color	20C. Year Last Painted

21. Shell Condition (if metal and unlined):
☐ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable

22A. Is the tank heated? ☐ YES ☐ NO

22B. If YES, provide the operating temperature (°F)

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): to

24. Complete the following section for **Vertical Fixed Roof Tanks** ☒ Does Not Apply

24A. For dome roof, provide roof radius (ft)

24B. For cone roof, provide slope (ft/ft)

25. Complete the following section for **Floating Roof Tanks** ☒ Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: ☐ Metallic (Mechanical) Shoe Seal ☐ Liquid Mounted Resilient Seal (check one) ☐ Vapor Mounted Resilient Seal ☐ Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐ YES ☐ NO

25D. If YES, how is the secondary seal mounted? (check one) ☐ Shoe ☐ Rim ☐ Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐ YES ☐ NO

25F. Describe deck fittings; indicate the number of each type of fitting:		
ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks ☐ Does Not Apply	
26A. Deck Type: ☐ Bolted ☐ Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: ☐ Continuous sheet construction 5 feet wide ☐ Continuous sheet construction 6 feet wide ☐ Continuous sheet construction 7 feet wide ☐ Continuous sheet construction 5 × 7.5 feet wide ☐ Continuous sheet construction 5 × 12 feet wide ☐ Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft^2)
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. See TANKS summary sheets	
28. Daily Average Ambient Temperature (°F)	
29. Annual Average Maximum Temperature (°F)	
30. Annual Average Minimum Temperature (°F)	
31. Average Wind Speed (miles/hr)	
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	
33. Atmospheric Pressure (psia)	

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: See TANKS summary sheets	
34A. Minimum (°F)	34B. Maximum (°F)
35. Average operating pressure range of tank:	
35A. Minimum (psig)	35B. Maximum (psig)
36A. Minimum Liquid Surface Temperature (°F)	36B. Corresponding Vapor Pressure (psia)
37A. Average Liquid Surface Temperature (°F)	37B. Corresponding Vapor Pressure (psia)
38A. Maximum Liquid Surface Temperature (°F)	38B. Corresponding Vapor Pressure (psia)

39. Provide the following for <u>each</u> liquid or gas to be stored in tank. Add additional pages if

39A. Material Name or Composition			
39B. CAS Number			
39C. Liquid Density (lb/gal)			
39D. Liquid Molecular Weight (lb/lb-mole)			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)			
Months Storage per Year 39H. From 39I. To			

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☐ Does Not Apply

- ☐ Carbon Adsorption[1]
- ☐ Condenser[1]
- ☐ Conservation Vent (psig)
  - Vacuum Setting Pressure Setting
- ☐ Emergency Relief Valve (psig)
- ☐ Inert Gas Blanket of
- ☐ Insulation of Tank with
- ☐ Liquid Absorption (scrubber)[1]
- ☐ Refrigeration of Tank
- ☐ Rupture Disc (psig)
- ☐ Vent to Incinerator[1]

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amoun	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]

SEE TANKS 4.0.9.d. EMISSIONS REPORT

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☐ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

Attachment L

EMISSIONS UNIT DATA SHEET
STORAGE TANKS

Provide the following information for each new or modified bulk liquid storage tank as shown on the *Equipment List Form* and other parts of this application. A tank is considered modified if the material to be stored in the tank is different from the existing stored liquid.

IF USING US EPA'S TANKS EMISSION ESTIMATION PROGRAM (AVAILABLE AT **www.epa.gov/tnn/tanks.html**), APPLICANT MAY ATTACH THE SUMMARY SHEETS IN LIEU OF COMPLETING SECTIONS III, IV, & V OF THIS FORM. HOWEVER, SECTIONS I, II, AND VI OF THIS FORM MUST BE COMPLETED. US EPA'S AP-42, SECTION 7.1, "ORGANIC LIQUID STORAGE TANKS," MAY ALSO BE USED TO ESTIMATE VOC AND HAP EMISSIONS (**http://www.epa.gov/tnn/chief/**).

I. GENERAL INFORMATION (required)

1. Bulk Storage Area Name AST Area	2. Tank Name Diesel AST TK3
3. Tank Equipment Identification No. (as assigned on *Equipment List Form*) TK3	4. Emission Point Identification No. (as assigned on *Equipment List Form*) TK3
5. Date of Commencement of Construction (for existing tanks) November 2015	
6. Type of change ☒ New Construction ☐ New Stored Material ☐ Other Tank Modification	
7. Description of Tank Modification (if applicable) NA	
7A. Does the tank have more than one mode of operation? (e.g. Is there more than one product stored in the tank?) ☐ Yes ☒ No	
7B. If YES, explain and identify which mode is covered by this application (Note: A separate form must be completed for each mode).	
7C. Provide any limitations on source operation affecting emissions, any work practice standards (e.g. production variation, etc.): TK3 has a bottom fill port and open vented. Product is pumped in using the tanker truck pump. There are no pumps at the facility, trucks are gravity filled from the AST.	

II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. 15,000 gallons	
9A. Tank Internal Diameter (ft) 10 ft	9B. Tank Internal Height (or Length) (ft) 26 ft
10A. Maximum Liquid Height (ft) 10 ft	10B. Average Liquid Height (ft) 5 ft (assuming ½ full)
11A. Maximum Vapor Space Height (ft) 5 ft (assuming ½ full)	11B. Average Vapor Space Height (ft) 5 ft (assuming ½ full)
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. 15,000 gallons	

13A. Maximum annual throughput (gal/yr) 1,500,000 gal/yr	13B. Maximum daily throughput (gal/day) 5,000 gallons (estimated)

14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume) 100

15. Maximum tank fill rate (gal/min)

16. Tank fill method ☐ Submerged ☐ Splash ☒ Bottom Loading

17. Complete 17A and 17B for Variable Vapor Space Tank Systems ☒ Does Not Apply

17A. Volume Expansion Capacity of System (gal)	17B. Number of transfers into system per year

18. Type of tank (check all that apply):

☒ Fixed Roof ___ vertical X horizontal ___ flat roof ___ cone roof ___ dome roof ___ other (describe)

☐ External Floating Roof ___ pontoon roof ___ double deck roof

☐ Domed External (or Covered) Floating Roof

☐ Internal Floating Roof ___ vertical column support ___ self-supporting

☐ Variable Vapor Space ___ lifter roof ___ diaphragm

☐ Pressurized ___ spherical _ cylindrical

☐ Underground

☐ Other (describe)

III. TANK CONSTRUCTION & OPERATION INFORMATION (optional if providing TANKS Summary Sheets)

19. Tank Shell Construction: See Tanks Output Report

☐ Riveted ☐ Gunite lined ☐ Epoxy-coated rivets ☐ Other (describe)

20A. Shell Color	20B. Roof Color	20C. Year Last Painted

21. Shell Condition (if metal and unlined):

☐ No Rust ☐ Light Rust ☐ Dense Rust ☐ Not applicable

22A. Is the tank heated? ☐ YES ☐ NO

22B. If YES, provide the operating temperature (°F)

22C. If YES, please describe how heat is provided to tank.

23. Operating Pressure Range (psig): to

24. Complete the following section for **Vertical Fixed Roof Tanks** ☒ Does Not Apply

24A. For dome roof, provide roof radius (ft)

24B. For cone roof, provide slope (ft/ft)

25. Complete the following section for **Floating Roof Tanks** ☒ Does Not Apply

25A. Year Internal Floaters Installed:

25B. Primary Seal Type: ☐ Metallic (Mechanical) Shoe Seal ☐ Liquid Mounted Resilient Seal (check one) ☐ Vapor Mounted Resilient Seal ☐ Other (describe):

25C. Is the Floating Roof equipped with a Secondary Seal? ☐ YES ☐ NO

25D. If YES, how is the secondary seal mounted? (check one) ☐ Shoe ☐ Rim ☐ Other (describe):

25E. Is the Floating Roof equipped with a weather shield? ☐ YES ☐ NO

25F. Describe deck fittings; indicate the number of each type of fitting:		
ACCESS HATCH		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
AUTOMATIC GAUGE FLOAT WELL		
BOLT COVER, GASKETED:	UNBOLTED COVER, GASKETED:	UNBOLTED COVER, UNGASKETED:
COLUMN WELL		
BUILT-UP COLUMN – SLIDING COVER, GASKETED:	BUILT-UP COLUMN – SLIDING COVER, UNGASKETED:	PIPE COLUMN – FLEXIBLE FABRIC SLEEVE SEAL:
LADDER WELL		
PIP COLUMN – SLIDING COVER, GASKETED:	PIPE COLUMN – SLIDING COVER, UNGASKETED:	
GAUGE-HATCH/SAMPLE PORT		
SLIDING COVER, GASKETED:	SLIDING COVER, UNGASKETED:	
ROOF LEG OR HANGER WELL		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	SAMPLE WELL-SLIT FABRIC SEAL (10% OPEN AREA)
VACUUM BREAKER		
WEIGHTED MECHANICAL ACTUATION, GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
RIM VENT		
WEIGHTED MECHANICAL ACTUATION GASKETED:	WEIGHTED MECHANICAL ACTUATION, UNGASKETED:	
DECK DRAIN (3-INCH DIAMETER)		
OPEN:	90% CLOSED:	
STUB DRAIN		
1-INCH DIAMETER:		
OTHER (DESCRIBE, ATTACH ADDITIONAL PAGES IF NECESSARY)		

26. Complete the following section for Internal Floating Roof Tanks ☐ Does Not Apply	
26A. Deck Type: ☐ Bolted ☐ Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: ☐ Continuous sheet construction 5 feet wide ☐ Continuous sheet construction 6 feet wide ☐ Continuous sheet construction 7 feet wide ☐ Continuous sheet construction 5 × 7.5 feet wide ☐ Continuous sheet construction 5 × 12 feet wide ☐ Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft^2)
For column supported tanks: 26F. Number of columns:	26G. Diameter of each column:

IV. SITE INFORMANTION (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. See TANKS summary sheets	
28. Daily Average Ambient Temperature (°F)	
29. Annual Average Maximum Temperature (°F)	
30. Annual Average Minimum Temperature (°F)	
31. Average Wind Speed (miles/hr)	
32. Annual Average Solar Insulation Factor (BTU/(ft^2·day))	
33. Atmospheric Pressure (psia)	

V. LIQUID INFORMATION (optional if providing TANKS Summary Sheets)

34. Average daily temperature range of bulk liquid: See TANKS summary sheets	
34A. Minimum (°F)	34B. Maximum (°F)
35. Average operating pressure range of tank:	
35A. Minimum (psig)	35B. Maximum (psig)
36A. Minimum Liquid Surface Temperature (°F)	36B. Corresponding Vapor Pressure (psia)
37A. Average Liquid Surface Temperature (°F)	37B. Corresponding Vapor Pressure (psia)
38A. Maximum Liquid Surface Temperature (°F)	38B. Corresponding Vapor Pressure (psia)

39. Provide the following for each liquid or gas to be stored in tank. Add additional pages if

39A. Material Name or Composition			
39B. CAS Number			
39C. Liquid Density (lb/gal)			
39D. Liquid Molecular Weight (lb/lb-			
39E. Vapor Molecular Weight (lb/lb-mole)			

Maximum Vapor Pressure 39F. True (psia) 39G. Reid (psia)			
Months Storage per Year 39H. From 39I. To			

VI. EMISSIONS AND CONTROL DEVICE DATA (required)

40. Emission Control Devices (check as many as apply): ☐ Does Not Apply

- ☐ Carbon Adsorption[1]
- ☐ Condenser[1]
- ☐ Conservation Vent (psig)
  - Vacuum Setting Pressure Setting
- ☐ Emergency Relief Valve (psig)
- ☐ Inert Gas Blanket of
- ☐ Insulation of Tank with
- ☐ Liquid Absorption (scrubber)[1]
- ☐ Refrigeration of Tank
- ☐ Rupture Disc (psig)
- ☐ Vent to Incinerator[1]

41. Expected Emission Rate (submit Test Data or Calculations here or elsewhere in the

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss Amoun	Working Loss Units	Annual Loss (lb/yr)	Estimation Method[1]

SEE TANKS 4.0.9.d. EMISSIONS REPORT

[1] EPA = EPA Emission Factor, MB = Material Balance, SS = Similar Source, ST = Similar Source Test, Throughput Data, O = Other (specify)

☐ Remember to attach emissions calculations, including TANKS Summary Sheets if applicable.

ATTACHMENT N

SUPPORTING EMISSIONS CALCULATIONS

Tri-State Petroleum
Bulk Plant #302

POTESTA & ASSOCIATES, INC.
Project No: 0101-16-0199

By: PEW
Date: 6/02/2016

Checked by: JJD
Date: 6/03/2016

Facility Summary				
Pollutant	Total Emissions			
	Uncontrolled		Controlled	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)
VOC	98.22	3.71	98.22	3.71
PM	0.029	0.008	0.029	0.008
PM_{10}	0.007	0.002	0.007	0.002
PM2.5	0.003	0.002	0.003	0.002
HAPs				
Benzene	0.5222	0.0202	0.5222	0.0202
Cumene (isopropyl benzene)	0.0061	0.0003	0.0061	0.0003
Ethyl Benzene	0.0368	0.0023	0.0368	0.0023
Hexane	0.4807	0.0187	0.4807	0.0187
Toluene	0.5665	0.0224	0.5665	0.0224
Xylenes	0.1658	0.0082	0.1658	0.0082
2,2,4 Trimethylpentane (isooctane)	0.5381	0.0201	0.5381	0.0201
HAP Total	2.3162	0.0958	2.3162	0.0958

Tri-State Petroleum
Bulk Plant #302

POTESTA & ASSOCIATES, INC.
Project No: 0101-16-0199

By: PEW
Date: 6/02/2016

Checked by: JJD
Date: 6/03/2016

VOC Sources with Speciated HAPS (HAPS are speciated for all sources based on Tanks 4 output for each fuel type)

Source	Tank Volume gal	Chemical	Pollutant	Throughput gpy	Turnovers per Year	Working lbs/yr	Breathing lbs/yr	Total lbs/yr	Emissions lb/hr(1)	Emissions ton/yr
Tank 1	12,000	Gasoline	VOC	500,000	41.67	3,150.30	787.89	3,938.19	75.61	1.97
			Benzene			16.77	4.20	20.97	0.4025	0.0105
			Cumene (isopropyl benzene)			0.19	0.05	0.24	0.0046	0.0002
			Ethyl Benzene			1.15	0.29	1.44	0.0276	0.0008
			Hexane			15.45	3.87	19.32	0.3708	0.0097
			Toluene			18.00	4.50	22.50	0.4320	0.0113
			Xylenes			4.79	1.20	5.99	0.1150	0.0030
			2,2,4 Trimethylpentane (isooctane)			17.31	4.33	21.64	0.4155	0.0109
			HAP Total			73.66	18.44	92.10	1.7680	0.0500
Tank 2	12,000	On-Road Diesel	VOC	750,000	62.50	8.08	1.85	9.93	0.13	0.01
			Benzene			0.02	0.01	0.03	0.0004	0.0001
			Ethyl Benzene			0.02	0.01	0.03	0.0004	0.0001
			Hexane			0.01	0.01	0.02	0.0002	0.0001
			Toluene			0.18	0.04	0.22	0.0029	0.0002
			Xylenes			0.44	0.10	0.54	0.0071	0.0003
			HAP Total			0.67	0.17	0.84	0.0110	0.0008
Tank 3	15,000	Off-Road (Dyed) Diesel	VOC	1,500,000	100.00	11.66	2.35	14.01	0.12	0.01
			Benzene			0.02	0.01	0.03	0.0002	0.0001
			Ethyl Benzene			0.03	0.01	0.04	0.0003	0.0001
			Hexane			0.01	0.01	0.02	0.0001	0.0001
			Toluene			0.27	0.05	0.32	0.0027	0.0002
			Xylenes			0.64	0.13	0.77	0.0064	0.0004
			HAP Total			0.97	0.21	1.18	0.0097	0.0009
GL	NA	Gasoline Loading	VOC	500,000					22.20	1.23
			Benzene						0.1182	0.0066
			Cumene (isopropyl benzene)						0.0014	0.0001
			Ethyl Benzene						0.0081	0.0005
			Hexane						0.1089	0.0061
			Toluene						0.1269	0.0071
			Xylenes						0.0338	0.0019
			2,2,4 Trimethylpentane (isooctane)						0.1220	0.0068
			HAP Total						0.5193	0.0291
DL	NA	Diesel Loading	VOC	2,250,000					0.05	0.02
			Benzene						0.0002	0.0002
			Ethyl Benzene						0.0002	0.0002
			Hexane						0.0001	0.0002
			Toluene						0.0012	0.0004
			Xylenes						0.0028	0.0008
			HAP Total						0.0045	0.0018
GF	NA	Gasoline Fugitives - Leaks	VOC						0.10	0.43
			Benzene						0.0006	0.0023
			Cumene (isopropyl benzene)						0.0001	0.0000
			Ethyl Benzene						0.0001	0.0002
			Hexane						0.0005	0.0021
			Toluene						0.0006	0.0025
			Xylenes						0.0002	0.0007
			2,2,4 Trimethylpentane (isooctane)						0.0006	0.0024
			HAP Total						0.0027	0.0102
DF	NA	Diesel Fugitives - Leaks	VOC						0.008	0.037
			Benzene						0.0001	0.0004
			Ethyl Benzene						0.0001	0.0004
			Hexane						0.0001	0.0004
			Toluene						0.0002	0.0007
			Xylenes						0.0005	0.0011
			HAP Total						0.0010	0.0030
		Totals	**VOC**						**98.22**	**3.71**
			Benzene						**0.5222**	**0.0202**
			Cumene (isopropyl benzene)						**0.0061**	**0.0003**
			Ethyl Benzene						**0.0368**	**0.0023**
			Hexane						**0.4807**	**0.0187**
			Toluene						**0.5665**	**0.0224**
			Xylenes						**0.1658**	**0.0082**
			2,2,4 Trimethylpentane (isooctane)						**0.5381**	**0.0201**
			HAP Total						**2.3162**	**0.0958**

Note 1: For each tank the hourly emissions are based on the total working losses divided by the number of turnovers per year.

Tri-State Petroleum
Bulk Plant #302

POTESTA & ASSOCIATES, INC.
Project No: 0101-16-0199

By: PEW
Date: 6/02/2016

Checked by: JJD
Date: 6/03/2016

Tank Truck Loadout - VOC Emissions

Fuel Type	Truck Load gal/hr	Control Efficiency %	Collection Efficiency %	Overall Reduction Efficiency	L_L (lb/10^3 gal)	Uncontrolled Emissions lb/hr	Uncontrolled Emissions ton/yr	Controlled Emissions lb/hr	Controlled Emissions ton/yr
Diesel	4,200	0	0	0	0.01	0.05	0.01	0.05	0.02
Gasoline	4,500	0	0	0	4.93	22.20	1.23	22.20	1.23
					Total	22.25	1.25	22.25	1.25

Gasoline throughput gal/yr = 500,000
Diesel throughput gal/yr = 2,250,000

$$L_L = 12.46 \frac{SPM}{T} (1\text{-eff}/100)$$

where:

L_L =	Loading Losses			
S =	Saturation Factor		0.60	Submerged loading: dedicated normal service AP42 Table 5.2-1
P =	True Vapor Pressure (psia)	Diesel	0.0065	at 60F
		Gasoline	5.2	at 60F
M =	Molecular Weight of Vapors (lb/lb mole)	Diesel	130	MW of #2 fuel oil
		Gasoline	66	MW of gasoline
T =	Temperature (degrees R)		520	R
eff =	Overall Reduction Efficiency (% control X % collection)			

Note: Physical properties for gasoline & # 2 fuel oil from AP42, Table 7.1-2

Equation from AP42 5.2.2.1.1, Transportation And Marketing Of Petroleum Liquids, Loading Losses.

Tri-State Petroleum
Bulk Plant #302

POTESTA & ASSOCIATES, INC.
Project No: 0101-16-0199

By: PEW
Date: 6/02/2016

Checked by: JJD
Date: 6/03/2016

Fugitive Losses from Leaks - VOC Emissions

Gasoline System Fugitives (Light Liquid)

Fugitives						
Source Type	**Number of Sources**	**Emission Factor(1) (kg/hr/source)**	**NMTOC Emissions (lb/hr)**	**NMTOC Emissions (ton/yr)**	**VOC Emissions (lb/hr)**	**VOC Emissions (ton/yr)**
Valves	4	0.0109	0.096	0.421	0.096	0.421
Pump Seals	0	0.114	0.000	0.000	0.000	0.000
Pressure Relief Valves	0	0.16	0.000	0.000	0.000	0.000
Connectors	4	0.00025	0.002	0.010	0.002	0.010
				Total VOC = TOC Emissions =	0.098	0.431

Diesel System Fugitives (Heavy Liquid)

Fugitives for All Sources with Gasoline						
Source Type	**Number of Sources**	**Emission Factor(1) (kg/hr/source)**	**NMTOC Emissions (lb/hr)**	**NMTOC Emissions (ton/yr)**	**VOC Emissions (lb/hr)**	**VOC Emissions (ton/yr)**
Valves	8	0.00023	0.004	0.018	0.004	0.018
Pump Seals	0	0.021	0.000	0.000	0.000	0.000
Pressure Relief Valves	0	0.16	0.000	0.000	0.000	0.000
Connectors	8	0.00025	0.004	0.019	0.004	0.019
				Total VOC = TOC Emissions =	0.008	0.037

Conversion:

lb/kg = 2.2046

1. AP42,Chapter 5, Protocol for Equipment Leak Emission Estimates, Table 2-2.

Tri-State Petroleum
Bulk Plant #302

POTESTA & ASSOCIATES, INC.
Project No: 0101-16-0199

By: PEW
Date: 6/02/2016

Checked by: JJD
Date: 6/03/2016

Vehicle Activity (VA)

Paved Roadway: Trucks delivering fuel to the site.

Emission Factor Equation from AP-42 Section 13.2.1, Paved Roads (January 2011):
E = [k * (sL/2)^0.65 * (W/3)^1.5 - C] * (1 - (P/4*N) = lb / Vehicle Mile Traveled (VMT)

	PM	PM10	PM2.5	
k =	0.011	0.0022	0.00054	dimensionless, particle size multiplier
sL =	9.7	9.7	9.7	surface material silt content (g/m^2)
W =	26.7	26.7	26.7	tons, mean vehicle weight
P =	157	157	157	no. days/year with 0.01 in of rain
C =	0.00047	0.00047	0.00047	factor for exhaust, brake wear and tire wear
e =	0.73	0.15	0.04	lb/VMT

Rounding to 3

Pollutant	No. of Vehicles		Miles Per Trip	Control Device		Emissions			
						Uncontrolled		Controlled	
	Per Hour	Per Year	(mi)	Type	Effic(%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	1	359	0.03	N	0	0.022	0.004	0.022	0.004
PM10	1	359	0.03	N	0	0.005	0.001	0.005	0.001
PM2.5	1	359	0.03	N	0	0.002	0.001	0.002	0.001

KAG or Other Delivery Tankers					
Product	Empty Weight lbs	Loaded Weight lbs	Gallons Per Load	Average Weight tons	Trucks Per Year
Diesel	27,000	79,575	7,500	26.644	300
Gasoline	27,000	79,700	8,500	26.675	59
		Mean Truck Weight =		26.659	
			Total Trucks Per Year =		359

Tri-State Petroleum
Bulk Plant #302

POTESTA & ASSOCIATES, INC.
Project No: 0101-16-0199

By: PEW
Date: 6/02/2016

Checked by: JJD
Date: 6/03/2016

Vehicle Activity (VA)

Paved Roadway: Trucks removing fuel from the site.

	PM	PM10	PM2.5	
k =	0.011	0.0022	0.00054	dimensionless, particle size multiplier
sL =	9.7	9.7	9.7	surface material silt content (g/m^2)
W =	12.5	12.5	12.5	tons, mean vehicle weight
P =	157	157	157	no. days/year with 0.01 in of rain
C =	0.00047	0.00047	0.00047	factor for exhaust, brake wear and tire wear
e =	0.23	0.05	0.01	lb/VMT

Rounding to 3

Pollutant	No. of Vehicles		Miles Per Trip	Control Device		Emissions			
						Uncontrolled		Controlled	
	Per Hour	Per Year	(mi)	Type	Effic(%)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	1	1,007	0.03	N	0	0.007	0.004	0.007	0.004
PM10	1	1,007	0.03	N	0	0.002	0.001	0.002	0.001
PM2.5	1	1,007	0.03	N	0	0.001	0.001	0.001	0.001

Trucks Leaving Site						
Trucks	Product	Empty Weight lbs	Loaded Weight lbs	Gallons Per Load	Average Weight tons	Trucks (1) Per Year
TSPC # 35	Diesel	13,800	33,000	2,738	11.700	
	Gasoline	13,800	31,160	2,800	11.240	
TSPC # 36	Diesel	13,600	33,000	2,767	11.650	
	Gasoline	13,600	30,960	2,800	11.140	
TSPC #37	Diesel	18,500	48,000	4,200	16.625	
	Gasoline	18,500	46,400	4,500	16.225	
TSPC #38	Diesel	13,900	33,000	2,720	11.725	828
	Gasoline	13,900	31,260	2,800	11.290	
TSPC # 45	Diesel	13,800	33,000	2,738	11.700	
	Gasoline	13,800	31,160	2,800	11.240	179
			Mean Truck Weight =		12.454	
				Total Trucks Per Year =		1,007

1. Based on smallest vehicle load hauling total fuel type.

Total Paved Roadway Emissions				
Pollutant	Uncontrolled		Controlled	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)
PM	0.029	0.008	0.029	0.008
PM10	0.007	0.002	0.007	0.002
PM2.5	0.003	0.002	0.003	0.002

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	12,000 Gasoline Tank
City:	New Martinsville
State:	West Virginia
Company:	Tri-State
Type of Tank:	Horizontal Tank
Description:	

Tank Dimensions

Shell Length (ft):		32.00
Diameter (ft):		8.00
Volume (gallons):		12,000.00
Turnovers:		41.67
Net Throughput(gal/yr):		500,000.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	-0.03
Pressure Settings (psig)	0.50

Meterological Data used in Emissions Calculations: Columbus, Ohio (Avg Atmospheric Pressure = 14.33 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

12,000 Gasoline Tank - Horizontal Tank
New Martinsville, West Virginia

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (RVP 10)	All	53.04	48.06	58.01	51.42	4.5223	4.0917	4.9885	66.0000			92.00	Option 4: RVP=10, ASTM Slope=3
1,2,4-Trimethylbenzene						0.0154	0.0125	0.0189	120.1900	0.0250	0.0001	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.9596	0.8307	1.1048	78.1100	0.0180	0.0053	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Cyclohexane						1.0000	0.8687	1.1475	84.1600	0.0024	0.0007	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethylbenzene						0.0848	0.0707	0.1012	106.1700	0.0140	0.0004	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						1.5916	1.3903	1.8163	86.1700	0.0100	0.0049	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Isooctane						0.4456	0.3533	0.5416	114.2200	0.0400	0.0055	114.22	Option 1: VP50 = .387 VP60 = .58
Isopropyl benzene						0.0392	0.0322	0.0474	120.2000	0.0050	0.0001	120.20	Option 2: A=6.963, B=1460.793, C=207.78
Toluene						0.2648	0.2252	0.3102	92.1300	0.0700	0.0057	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						5.7889	5.7686	5.7716	65.5387	0.7456	0.9758	89.36	
Xylene (-m)						0.0705	0.0587	0.0842	106.1700	0.0700	0.0015	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

12,000 Gasoline Tank - Horizontal Tank
New Martinsville, West Virginia

Annual Emission Calcaulations	
Standing Losses (lb):	787.8895
Vapor Space Volume (cu ft):	1,024.5194
Vapor Density (lb/cu ft):	0.0542
Vapor Space Expansion Factor:	0.0761
Vented Vapor Saturation Factor:	0.5105
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,024.5194
Tank Diameter (ft):	8.0000
Effective Diameter (ft):	18.0586
Vapor Space Outage (ft):	4.0000
Tank Shell Length (ft):	32.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0542
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.5223
Daily Avg. Liquid Surface Temp. (deg. R):	512.7055
Daily Average Ambient Temp. (deg. F):	51.3958
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	511.0858
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,212.5795
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0761
Daily Vapor Temperature Range (deg. R):	19.8899
Daily Vapor Pressure Range (psia):	0.8967
Breather Vent Press. Setting Range(psia):	0.5313
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.5223
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	4.0917
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	4.9885
Daily Avg. Liquid Surface Temp. (deg R):	512.7055
Daily Min. Liquid Surface Temp. (deg R):	507.7331
Daily Max. Liquid Surface Temp. (deg R):	517.6780
Daily Ambient Temp. Range (deg. R):	19.6083
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.5105
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	4.5223
Vapor Space Outage (ft):	4.0000
Working Losses (lb):	3,150.3042
Vapor Molecular Weight (lb/lb-mole):	66.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	4.5223
Annual Net Throughput (gal/yr.):	500,000.0000
Annual Turnovers:	41.6700
Turnover Factor:	0.8866
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	3,938.1937

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

12,000 Gasoline Tank - Horizontal Tank
New Martinsville, West Virginia

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Gasoline (RVP 10)	3,150.30	787.89	3,938.19
Hexane (-n)	15.45	3.87	19.32
Benzene	16.77	4.20	20.97
Isooctane	17.31	4.33	21.64
Toluene	18.00	4.50	22.50
Ethylbenzene	1.15	0.29	1.44
Xylene (-m)	4.79	1.20	5.99
Isopropyl benzene	0.19	0.05	0.24
1,2,4-Trimethylbenzene	0.37	0.09	0.47
Cyclohexane	2.33	0.58	2.91
Unidentified Components	3,073.93	768.79	3,842.72

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	12,000 Gallon Diesel Tank
City:	New Martinsville
State:	West Virginia
Company:	Tri-State
Type of Tank:	Horizontal Tank
Description:	

Tank Dimensions

Shell Length (ft):		32.00
Diameter (ft):		8.00
Volume (gallons):		12,000.00
Turnovers:		62.50
Net Throughput(gal/yr):		750,000.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meterological Data used in Emissions Calculations: Columbus, Ohio (Avg Atmospheric Pressure = 14.33 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

12,000 Gallon Diesel Tank - Horizontal Tank
New Martinsville, West Virginia

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	All	53.04	48.06	58.01	51.42	0.0054	0.0042	0.0068	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0074
1,2,4-Trimethylbenzene						0.0154	0.0125	0.0189	120.1900	0.0100	0.0413	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.9596	0.8307	1.1048	78.1100	0.0000	0.0021	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0848	0.0707	0.1012	106.1700	0.0001	0.0030	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						1.5916	1.3903	1.8163	86.1700	0.0000	0.0004	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.2648	0.2252	0.3102	92.1300	0.0003	0.0228	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0047	0.0043	0.0045	134.1868	0.9866	0.8755	189.60	
Xylene (-m)						0.0705	0.0587	0.0842	106.1700	0.0029	0.0549	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

12,000 Gallon Diesel Tank - Horizontal Tank
New Martinsville, West Virginia

Annual Emission Calculations	
Standing Losses (lb):	1.8507
Vapor Space Volume (cu ft):	1,024.5194
Vapor Density (lb/cu ft):	0.0001
Vapor Space Expansion Factor:	0.0390
Vented Vapor Saturation Factor:	0.9989
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,024.5194
Tank Diameter (ft):	8.0000
Effective Diameter (ft):	18.0586
Vapor Space Outage (ft):	4.0000
Tank Shell Length (ft):	32.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0054
Daily Avg. Liquid Surface Temp. (deg. R):	512.7055
Daily Average Ambient Temp. (deg. F):	51.3858
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	511.0858
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,212.5795
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0390
Daily Vapor Temperature Range (deg. R):	19.8899
Daily Vapor Pressure Range (psia):	0.0026
Breather Vent Press. Setting Range(psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0054
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0042
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0068
Daily Avg. Liquid Surface Temp. (deg R):	512.7055
Daily Min. Liquid Surface Temp. (deg R):	507.7331
Daily Max. Liquid Surface Temp. (deg R):	517.6780
Daily Ambient Temp. Range (deg. R):	19.6083
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9989
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0054
Vapor Space Outage (ft):	4.0000
Working Losses (lb):	8.0769
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0054
Annual Net Throughput (gal/yr.):	750,000.0000
Annual Turnovers:	62.5000
Turnover Factor:	0.6467
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	9.9276

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

12,000 Gallon Diesel Tank - Horizontal Tank
New Martinsville, West Virginia

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	8.08	1.85	9.93
Hexane (-n)	0.00	0.00	0.00
Benzene	0.02	0.00	0.02
Toluene	0.18	0.04	0.23
Ethylbenzene	0.02	0.01	0.03
Xylene (-m)	0.44	0.10	0.55
1,2,4-Trimethylbenzene	0.33	0.08	0.41
Unidentified Components	7.07	1.62	8.69

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	15,000 Diesel Tank
City:	New Martinsville
State:	West Virginia
Company:	Tri-State
Type of Tank:	Horizontal Tank
Description:	

Tank Dimensions

Shell Length (ft):		26.00
Diameter (ft):		10.00
Volume (gallons):		15,000.00
Turnovers:		100.00
Net Throughput(gal/yr):		1,500,000.00
Is Tank Heated (y/n):	N	
Is Tank Underground (y/n):	N	

Paint Characteristics

Shell Color/Shade:	White/White
Shell Condition	Good

Breather Vent Settings

Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meterological Data used in Emissions Calculations: Columbus, Ohio (Avg Atmospheric Pressure = 14.33 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

15,000 Diesel Tank - Horizontal Tank
New Martinsville, West Virginia

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Distillate fuel oil no. 2	All	53.04	48.06	58.01	51.42	0.0054	0.0042	0.0068	130.0000			188.00	Option 1: VP50 = .0045 VP60 = .0074
1,2,4-Trimethylbenzene						0.0154	0.0125	0.0189	120.1900	0.0100	0.0413	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						0.9596	0.8307	1.1048	78.1100	0.0000	0.0021	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Ethylbenzene						0.0848	0.0707	0.1012	106.1700	0.0001	0.0030	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						1.5916	1.3903	1.8163	86.1700	0.0000	0.0004	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Toluene						0.2648	0.2252	0.3102	92.1300	0.0003	0.0228	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						0.0047	0.0043	0.0045	134.1868	0.9866	0.8755	189.60	
Xylene (-m)						0.0705	0.0587	0.0842	106.1700	0.0029	0.0549	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

15,000 Diesel Tank - Horizontal Tank
New Martinsville, West Virginia

Annual Emission Calcaulations	
Standing Losses (lb):	2.3489
Vapor Space Volume (cu ft):	1,300.6594
Vapor Density (lb/cu ft):	0.0001
Vapor Space Expansion Factor:	0.0390
Vented Vapor Saturation Factor:	0.9986
Tank Vapor Space Volume:	
Vapor Space Volume (cu ft):	1,300.6594
Tank Diameter (ft):	10.0000
Effective Diameter (ft):	18.1992
Vapor Space Outage (ft):	5.0000
Tank Shell Length (ft):	26.0000
Vapor Density	
Vapor Density (lb/cu ft):	0.0001
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0054
Daily Avg. Liquid Surface Temp. (deg. R):	512.7055
Daily Average Ambient Temp. (deg. F):	51.3958
Ideal Gas Constant R (psia cuft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	511.0858
Tank Paint Solar Absorptance (Shell):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,212.5795
Vapor Space Expansion Factor	
Vapor Space Expansion Factor:	0.0390
Daily Vapor Temperature Range (deg. R):	19.8899
Daily Vapor Pressure Range (psia):	0.0026
Breather Vent Press. Setting Range(psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0054
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0042
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0068
Daily Avg. Liquid Surface Temp. (deg R):	512.7055
Daily Min. Liquid Surface Temp. (deg R):	507.7331
Daily Max. Liquid Surface Temp. (deg R):	517.6780
Daily Ambient Temp. Range (deg. R):	19.6083
Vented Vapor Saturation Factor	
Vented Vapor Saturation Factor:	0.9986
Vapor Pressure at Daily Average Liquid: Surface Temperature (psia):	0.0054
Vapor Space Outage (ft):	5.0000
Working Losses (lb):	11.6573
Vapor Molecular Weight (lb/lb-mole):	130.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0054
Annual Net Throughput (gal/yr.):	1,500,000.0000
Annual Turnovers:	100.0000
Turnover Factor:	0.4667
Tank Diameter (ft):	10.0000
Working Loss Product Factor:	1.0000
Total Losses (lb):	14.0062

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

15,000 Diesel Tank - Horizontal Tank
New Martinsville, West Virginia

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Distillate fuel oil no. 2	11.66	2.35	14.01
Hexane (-n)	0.00	0.00	0.01
Benzene	0.02	0.00	0.03
Toluene	0.27	0.05	0.32
Ethylbenzene	0.03	0.01	0.04
Xylene (-m)	0.64	0.13	0.77
1,2,4-Trimethylbenzene	0.48	0.10	0.58
Unidentified Components	10.21	2.06	12.26

ATTACHMENT O

MONITORING/RECORDKEEPING/REPORTING/TESTING PLANS

ATTACHMENT O

MONITORING/RECORDKEEPING/REPORTING/TESTING PLANS

Tri-State request that only recordkeeping of the amount of fuel delivered to the facility be required. We believe this is sufficient to determine compliance for this source.

ATTACHMENT P

PUBLIC NOTICE

Attachment P – Public Notice

AIR QUALITY PERMIT NOTICE

Notice of Application

Notice is given that Tri-State Petroleum has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a General Permit Registration for a Petroleum Bulk Storage Transfer Facility located on 98 South Main Street in New Martinsville in Wetzel County, West Virginia. The latitude and longitude coordinates are: 39.638215 and -80.866619.

The applicant estimates the potential to discharge the following Regulated Air Pollutants will be: Volatile Organic Compounds (VOC) of 3.71 tons per year (tpy), particulate matter (PM) of 0.008 tpy, PM10 of 0.002 tpy, PM2.5 of 0.002 tpy, benzene of 0.0202 tpy, cumene of 0.0003 tpy, ethylbenzene of 0.0023 tpy, hexane of 0.0187 tpy, toluene of 0.0224 tpy, xylenes of 0.0082 tpy and 2,2,4 trimethylpentane of 0.0201 tpy.

Startup of operation is planned to begin on or about the 1st day of April, 2016. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, Extension 1250, during normal business hours.

Dated this the 5th day of February, 2016.

By: Tri-State Petroleum Corporation
Edward Coyne
Chief Operating Officer
2627 Vance Avenue
Wheeling, WV 26003