

February 5, 2015

West Virginia Department of Air Quality  
Permitting Section  
601 57<sup>th</sup> Street,  
SE Charleston, West Virginia 25304

**Subject: New Source Review (NSR) Amendment  
NALCO Company  
Buckhannon Facility Upshur County, West Virginia  
DAQ ID No: 09700059**

Dear Section Manager:

On behalf of NALCO Company, (previously Champion Technologies), RECES, LLC is submitting this New Source Review (NSR) Amendment application to authorize storage and loading at its Buckhannon facility. This submission is to modify the current NSR permit number R13-2804. Included in this package are the Montana Air Quality NSR Application form and documents in compliance with 45CSR 13. All other supporting information is included with this submission.

The \$300 NSR application fee is included with this submission and Appendix B of the enclosed NSR Amendment package contains a copy of the NSR Registration fee payment.

Should you have any question or comments, or need additional information, please feel free to contact me at (281) 529-5087 or Mr. Emilio Ramos of NALCO at (713) 332-1703.

Sincerely,



Kevin Moin, P.E.  
Principal  
RECES, LLC

cc: Emilio Ramos – NALCO

**West Virginia Department of Environmental Protection**

**Air Permit Amendment Application  
New Source Review (NSR) Permit**

***NALCO Company***  
***Buckhannon, WV Facility***  
WVDAQ Plant ID No. 097-00059

**193 Weatherford Blvd Buckhannon, WV 26201**

Prepared for:



Prepared by:

**RECES**  
Environmental Consulting

RECES, LLC  
1127 Eldridge Pkwy, STE 300-118  
Houston, TX 77077  
(713) 364-5855  
contact@reces-llc.com

**February 2015**

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## **Introduction**

## **1.0 INTRODUCTION**

NALCO Company (NALCO) who recently acquired Champion Technologies, will own and operate the existing specialty chemical distribution facility (Buckhannon Facility) in Upshur County. The Buckhannon facility is currently authorized to operate under West Virginia Department of Environmental Protection (DEP) New Source Review (NSR) Permit No. R13-2804.

The existing air permit No. R13-2804 issued in 2009 authorized the construction of ten (10) 6,300 gallon vertical fixed roof storage tanks, of which only seven (7) were constructed. NALCO is proposing to replace one of the existing poly tanks with stainless steel tank, and construct two new 6,000 gallon stainless steel storage tanks. NALCO is also proposing to increase the site annual throughput and transfer of new product blends.

Under Code 45CSR 13 of West Virginia Department of Environmental Protection, NALCO is hereby submitting this NSR permit amendment application which consists of WVDEP attachment forms A, C, D, E, F, G, H, I, J, K, L, N, O, P and all supporting information, emission calculations, tables and figures.

The permit application fee is included with this submission and a copy of the transaction is provided in Appendix B.



WEST VIRGINIA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION  
**DIVISION OF AIR QUALITY**

601 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
(304) 926-0475  
[www.dep.wv.gov/daq](http://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): NALCO Company		2. Federal Employer ID No. (FEIN): 3 6 1 5 2 0 4 8 0	
3. Name of facility (if different from above): Buckhannon, WV Distribution Facility		4. The applicant is the: <input type="checkbox"/> OWNER <input type="checkbox"/> OPERATOR <input checked="" type="checkbox"/> BOTH	
5A. Applicant's mailing address: 3200 Southwest Freeway, Suite 2700  Houston, TX 77027		5B. Facility's present physical address: 193 Weatherford Blvd  Buckhannon, WV 26201	
6. <b>West Virginia Business Registration.</b> Is the applicant a resident of the State of West Virginia? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If <b>YES</b> , provide a copy of the <b>Certificate of Incorporation/Organization/Limited Partnership</b> (one page) including any name change amendments or other Business Registration Certificate as <b>Attachment A</b> . – If <b>NO</b> , provide a copy of the <b>Certificate of Authority/Authority of L.L.C./Registration</b> (one page) including any name change amendments or other Business Certificate as <b>Attachment A</b> .			
7. If applicant is a subsidiary corporation, please provide the name of parent corporation:			
8. Does the applicant own, lease, have an option to buy or otherwise have control of the <i>proposed site</i> ? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO – If <b>YES</b> , please explain:    NALCO Company owns and operates the existing facility.  – If <b>NO</b> , you are not eligible for a permit for this source.			
9. Type of plant or facility (stationary source) to be <b>constructed, modified, relocated, administratively updated</b> or <b>temporarily permitted</b> (e.g., coal preparation plant, primary crusher, etc.): Specialty Chemical Distribution Facility		10. North American Industry Classification System (NAICS) code for the facility:  42469	
11A. DAQ Plant ID No. (for existing facilities only): 0 9 7 – 0 0 0 5 9		11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only): R13-2804	

**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 <b>Modifications, Administrative Updates or Temporary permits</b> at an existing facility, please provide directions to the <i>present location</i> of the facility from the nearest state road; – For <b>Construction or Relocation permits</b> , please provide directions to the <i>proposed new site location</i> from the nearest state road. Include a <b>MAP</b> as <b>Attachment B</b> .  From the junction of Route-119 and Corridor H Head northeast on Corridor H E for 0.8 miles Take the 1st left onto Weatherford and in 0.2 miles the facility will be on the left		
12.B. New site address (if applicable):	12C. Nearest city or town: Buckhannon, WV	12D. County: Upshur
12.E. UTM Northing (KM): 4317536	12F. UTM Easting (KM): 567717	12G. UTM Zone: 17 S
13. Briefly describe the proposed change(s) at the facility: There will be one 6,014 gallon tank replacement, and two 6,014 gallon tanks constructed. New products and increased throughput.		
14A. Provide the date of anticipated installation or change: 3/7/2015 – If this is an <b>After-The-Fact</b> permit application, provide the date upon which the proposed change did happen:        /        /		14B. Date of anticipated Start-Up if a permit is granted: 3/7/2015
14C. Provide a <b>Schedule</b> of the planned <b>Installation of/Change to</b> and <b>Start-Up</b> of each of the units proposed in this permit application as <b>Attachment C</b> (if more than one unit is involved).		
15. Provide maximum projected <b>Operating Schedule</b> of activity/activities outlined in this application: Hours Per Day 12                   Days Per Week 6                   Weeks Per Year 52		
16. Is demolition or physical renovation at an existing facility involved? <input type="checkbox"/> <b>YES</b> <input checked="" type="checkbox"/> <b>NO</b>		
17. <b>Risk Management Plans.</b> If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see <a href="http://www.epa.gov/ceppo">www.epa.gov/ceppo</a> ), submit your <b>Risk Management Plan (RMP)</b> to U. S. EPA Region III.		
18. <b>Regulatory Discussion.</b> List all Federal and State air pollution control regulations that you believe are applicable to the proposed process ( <i>if known</i> ). 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 ( <i>if known</i> ). Provide this information as <b>Attachment D</b> .		
<b>Section II. Additional attachments and supporting documents.</b>		
19. Include a check payable to WVDEP – Division of Air Quality with the appropriate <b>application fee</b> (per 45CSR22 and 45CSR13).		
20. Include a <b>Table of Contents</b> as the first page of your application package.		
21. Provide a <b>Plot Plan</b> , 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 <b>Attachment E</b> (Refer to <b>Plot Plan Guidance</b> ) . – Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).		
22. Provide a <b>Detailed Process Flow Diagram(s)</b> showing each proposed or modified emissions unit, emission point and control device as <b>Attachment F</b> .		
23. Provide a <b>Process Description</b> as <b>Attachment G</b> . – Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).		
<b>All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.</b>		

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:

<input checked="" type="checkbox"/> Bulk Liquid Transfer Operations	<input checked="" type="checkbox"/> Haul Road Emissions	<input type="checkbox"/> Quarry
<input checked="" type="checkbox"/> Chemical Processes	<input type="checkbox"/> Hot Mix Asphalt Plant	<input type="checkbox"/> Solid Materials Sizing, Handling and Storage Facilities
<input type="checkbox"/> Concrete Batch Plant	<input type="checkbox"/> Incinerator	<input checked="" type="checkbox"/> Storage Tanks
<input type="checkbox"/> Grey Iron and Steel Foundry	<input type="checkbox"/> Indirect Heat Exchanger	
<input type="checkbox"/> General Emission Unit, specify		

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

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

<input type="checkbox"/> Absorption Systems	<input type="checkbox"/> Baghouse	<input type="checkbox"/> Flare
<input type="checkbox"/> Adsorption Systems	<input type="checkbox"/> Condenser	<input type="checkbox"/> Mechanical Collector
<input type="checkbox"/> Afterburner	<input type="checkbox"/> Electrostatic Precipitator	<input type="checkbox"/> Wet Collecting System
<input type="checkbox"/> 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:

<input type="checkbox"/> Authority of Corporation or Other Business Entity	<input type="checkbox"/> Authority of Partnership
<input type="checkbox"/> Authority of Governmental Agency	<input type="checkbox"/> 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 \_\_\_\_\_

(Please use blue ink)

DATE: \_\_\_\_\_

(Please use blue ink)

35B. Printed name of signer: Emilio Ramos

35C. Title: QHSSE Advisor

35D. E-mail: emilio.ramos@champ-tech.com

36E Phone: 713-332--1703

36F FAX:

36A. Printed name of contact person (if different from above):

36B. Title:

36C. E-mail:

36D Phone:

36E FAX:

**PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:**

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



## Certificate

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

**NALCO COMPANY**

a corporation formed under the laws of Delaware filed an application to be registered as a foreign corporation authorizing it to transact business in West Virginia. The application was found to conform to law and a "Certificate of Authority" was issued by the West Virginia Secretary of State on December 10, 1954.

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

Accordingly, I hereby issue this

## CERTIFICATE OF AUTHORIZATION

**Validation ID:1WV16\_M2SA5**



*Given under my hand and the  
Great Seal of the State of  
West Virginia on this day of  
January 23, 2015*

*Natalie E. Tennant*  
Secretary of State

**Attachment B**  
**Maps**

**(Not Applicable)**

**Attachment C**  
**Schedule of Installation**

## **Schedule of Installation and Startup**

NALCO Buckhannon, WV facility will be constructing two new stainless steel tanks on or about April 1, 2015. NALCO will also be replacing one existing 6,300 gallon poly tank with stainless steel 6,014 gallon tank on or about April 1, 2015.

**Attachment D**  
**Regulatory Discussion**

# **Regulatory Discussion**

## **Applicable State Regulations**

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

**[45CSR§4-3.1 State-Enforceable only.]**

**Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.

**[45CSR§13-10.5.]**

**Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45 C.S.R. 11.

**[45CSR§11-5.2.]**

**Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.

**[45CSR§6-3.1.]**

**Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.

**[45CSR§6-3.2.]**

## **Federal Regulations**

### **40 CFR 60 New Source Performance Standards (NSPS):**

Federal NSPS regulations will not be applicable

### **40 CFR 61 - National Emission Standards for Hazardous Air Pollutants (NESHAP):**

These regulations do not apply, as the site will not be a major source for HAP emissions

### **40 CFR 63 - Maximum Achievable Control Technologies (MACT):**

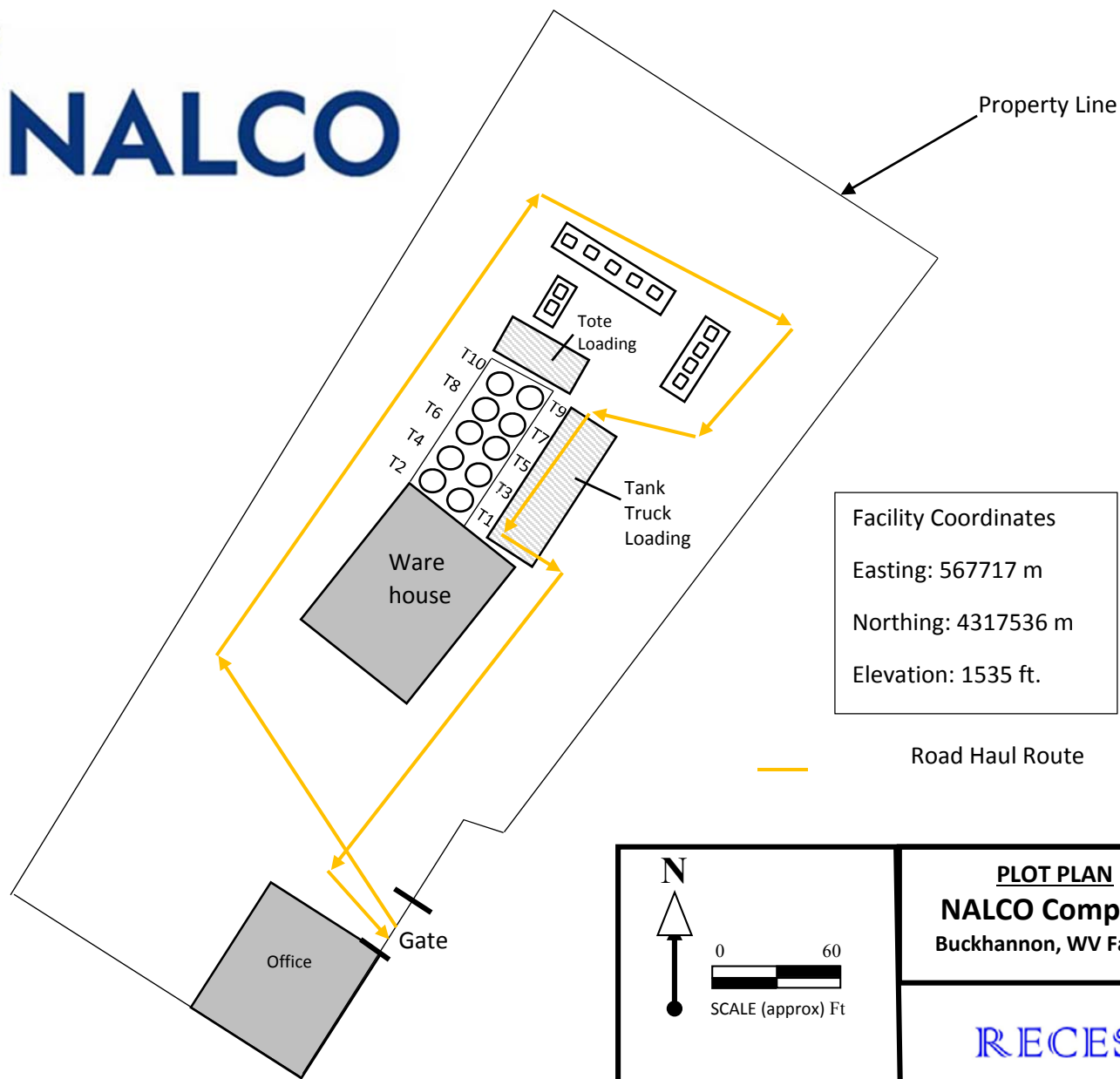
This regulation does not apply, as the facility will not be a major source of emissions

### **Prevention of Significant Deterioration (PSD) Permitting Requirements:**

This permitting action does not trigger PSD permitting requirements, as NALCO will not be constructing any major sources or a major modification that has the potential to emit criteria pollutants in excess of the threshold values.



**Attachment E**  
**Plot Plan**



Facility Coordinates

Easting: 567717 m

Northing: 4317536 m

Elevation: 1535 ft.

Road Haul Route

N



SCALE (approx) Ft

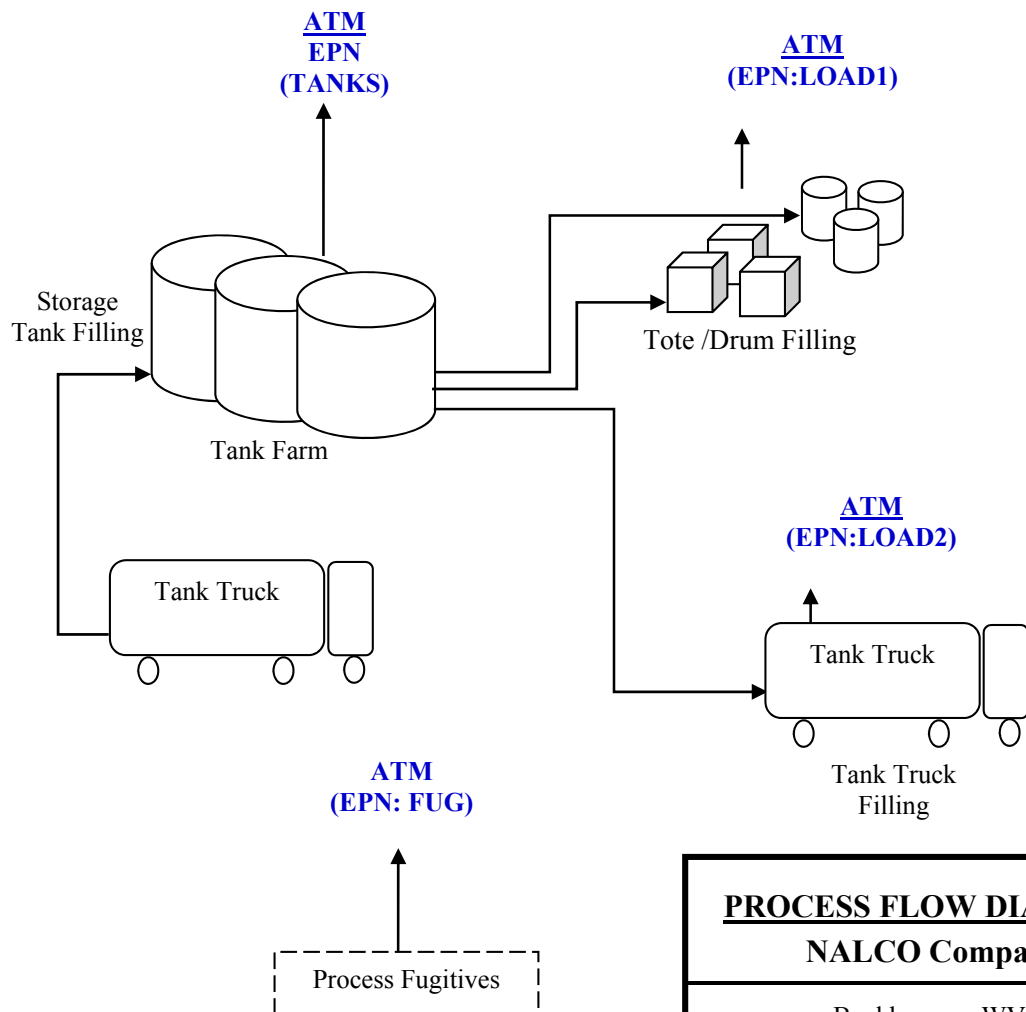
PLOT PLAN

**NALCO Company**  
Buckhannon, WV Facility

RECES

**Attachment F**  
**Process Flow Diagram**

## Process Flow Diagram



### PROCESS FLOW DIAGRAM

**NALCO Company**

Buckhannon, WV

February 2015

**RECES**

**Attachment G**  
**Process Description**

## **Process Description**

NACLO's Buckhannon facility receives bulk chemicals in tank trucks which are transferred to the on-site storage tanks. Chemicals may also be delivered to the facility in drums or totes. Chemicals handled at the Buckhannon facility include a variety of organic compounds for use in the oilfield industry and as customer demands change, different products may be stored, blended or loaded as needed.

NALCO is proposing that the Buckhannon facility to have the operational flexibility to handle any product not to exceed the worst-case product emissions scenario as represented in Attachment J of this document. To demonstrate this, maximum potential to emit (PTE) is based on a product, with the max molecular weight and vapor pressure (MxP) product.

All Bulk storage tanks in VOC service will be vertical fixed roof tanks and will utilize bottom fill method. The facility will also transfer raw materials from tank, tote or drum to the blend tank for mixing new product formulations. The finished product may then be transferred to bulk tank or tote/drum for transport offsite. To reduce vapor loss, all filling/loading operations will utilize submerged or bottom-fill method.

**Attachment H**  
**MSDS**

## Material Safety Data Sheet

### Assure® HI-18

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

**Product name** Assure® HI-18  
**Product use** Hydrate Inhibitor  
**Manufacturer** Champion Technologies, Inc.  
P.O. Box 450499  
Houston, TX, 77245  
USA  
**Telephone** 1-281-431-2561 (Champion)  
**In case of emergency** 1-800-424-9300 (CHEMTREC)  
1-703-527-3887 (CHEMTREC - International)

#### SECTION 2. HAZARDS IDENTIFICATION

##### Emergency Overview

**Signal Word** Danger  
**Hazard Summary** Highly flammable. Irritant.  
**Physical state** liquid  
**Color** Clear. yellow.  
**Odor** slight, sweet  
**Primary Routes of Entry** Inhalation. Skin.

##### Potential Health Effects

**Inhalation** No known significant effects or critical hazards.  
**Skin** Causes skin irritation.  
**Eyes** Causes eye irritation.  
**Ingestion** May cause blindness if swallowed.  
**Chronic Exposure** No known significant effects or critical hazards.  
**Medical conditions aggravated by over-exposure** Skin disorders

##### Environmental hazards

**Environmental effects** No known significant effects or critical hazards.

See toxicological information (section 11)

#### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

##### Hazardous ingredients

<u>Name</u>	<u>CAS no.</u>	<u>Weight %</u>
Methanol	67-56-1	60 - 100
2-Butoxyethanol	111-76-2	0.1 - 1

#### SECTION 4. FIRST AID MEASURES



<b>General advice</b>	If you feel unwell, seek medical advice (show the label when possible). No action shall be taken involving any personal risk or without suitable training.
<b>Inhalation</b>	Move exposed person to fresh air.
<b>Skin contact</b>	Take off contaminated clothing and shoes immediately. Flush contaminated skin with plenty of water. If symptoms persist, call a physician.
<b>Eye contact</b>	Immediately flush eye(s) with plenty of water. Remove contact lenses. Keep eye wide open while rinsing. Protect unharmed eye. If eye irritation persists, consult a specialist.
<b>Ingestion</b>	Rinse mouth with water. Drink plenty of water. Obtain medical attention. Never give anything by mouth to an unconscious person.
<b>Notes to physician</b>	No information available.

## SECTION 5. FIRE-FIGHTING MEASURES

<b>Fire Hazard</b>	Flammable or combustible, may be ignited by heat, sparks or flames. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
<b>Flash point</b>	52 °F (11.1 °C) Tagliabue. closed cup
<b>Autoignition temperature</b>	Not available.
<b>Flammable limits</b>	Lower: Not available. Upper: Not available.
<b><u>Extinguishing media</u></b>	
<b>Suitable</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<b>Hazardous combustion products</b>	Carbon oxides.
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
<b>Further information</b>	Use water spray to cool unopened containers. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
<b>Explosion hazard</b>	Risk of explosion of the product in the presence of mechanical impact: Not available.  Risk of explosion of the product in the presence of static discharge: Not available.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Shut off all ignition sources. Ensure adequate ventilation. Avoid breathing vapor or mist. Do not touch or walk through spilled material. Keep people away from and upwind of spill/leak. Put on appropriate personal protective equipment (see section 8).
<b>Environmental precautions</b>	Avoid contact of spilled material with soil and prevent runoff entering surface waterways.
<b>Methods for cleaning up</b>	For large spills, dike spilled material or otherwise contain it to ensure runoff does not reach a waterway. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

## SECTION 7. HANDLING AND STORAGE

<b>Handling</b>	Eliminate all ignition sources. Use only with adequate ventilation. Put on appropriate personal protective equipment (see section 8). Do not get in eyes or on skin or clothing. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Open drum carefully as content may be under pressure. Do not enter storage areas and confined spaces unless adequately ventilated. Workers should wash hands and face before eating, drinking and smoking.
<b>Storage</b>	Keep container closed when not in use. Keep container in a well-ventilated area. Separate from oxidizing materials.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Personal Protection

<b>Hand protection</b>	Impervious butyl rubber gloves. Nitrile rubber. Neoprene gloves. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
<b>Eye protection</b>	Safety goggles.
<b>Skin and body protection</b>	Wear as appropriate: Chemical-resistant apron. Long sleeved clothing. Footwear protecting against chemicals.
<b>Respiratory protection</b>	In the case of vapor formation use a respirator with an approved filter. Approved/certified respirator with organic vapor cartridge.

### Occupational Exposure Limits

<u>Component</u>	<u>Source</u>	<u>Type</u>	<u>PPM</u>	<u>MG/M3</u>	<u>Note</u>
Methanol	ACGIH	TWA	200 ppm		SKIN
	ACGIH	STEL	250 ppm		SKIN
	NIOSH REL	TWA	200 ppm	260 mg/m3	SKIN
	NIOSH REL	STEL	250 ppm	325 mg/m3	SKIN
	OSHA Z-1	TWA	200 ppm	260 mg/m3	
2-Butoxyethanol	ACGIH	TWA	20 ppm		
	NIOSH REL	TWA	5 ppm	24 mg/m3	SKIN
	OSHA Z-1	TWA	50 ppm	240 mg/m3	SKIN

SKIN - Skin absorption can contribute significantly to overall exposure.

### Immediately Dangerous to Life or Health Concentrations (IDLH)

<u>Substance name</u>	<u>CAS-No.</u>	<u>Control parameters</u>
Methanol	67-56-1	6000 ppm
2-Butoxyethanol	111-76-2	700 ppm

<b>Engineering measures</b>	Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
<b>Hygiene measures</b>	Handle in accordance with good industrial hygiene and safety practice. Use only with adequate ventilation. Avoid contact with skin, eyes and clothing. Remove contaminated clothing and protective equipment before entering eating areas. Wash hands before breaks and immediately after handling the product.

<b>Protective measures</b>	Emergency baths, showers, or other equipment appropriate for the potential level of exposure should be located close to the workstation location. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state</b>	liquid
<b>Color</b>	Clear. yellow.
<b>Odor</b>	slight, sweet
<b>Odor Threshold</b>	Not available.
<b>Melting/freezing point</b>	Not available.
<b>Pour point</b>	-60 °F (-51.1 °C)
<b>Boiling/condensation point</b>	Not available.
<b>Flash point</b>	52 °F (11.1 °C) Tagliabue. closed cup
<b>pH</b>	5.5 - 6.5 (neat)
<b>Solubility</b>	Water
<b>Relative density</b>	0.7938 - 0.8239 at 68 °F (20.0 °C)
<b>Vapor pressure</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Viscosity</b>	3 - 4 cPs
<b>Partition coefficient: n-octanol/water</b>	Not available.

Note: Typical values only - not to be interpreted as sales specifications

## SECTION 10. STABILITY AND REACTIVITY

<b>Chemical stability</b>	Stable under normal conditions.
<b>Conditions to avoid</b>	Heat, flames and sparks.
<b>Materials to avoid</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.
<b>Hazardous reactions</b>	No dangerous reaction known under conditions of normal use.

## SECTION 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

<u>Substance</u>	<u>Test</u>	<u>Species</u>	<u>Dose</u>	<u>Classification</u>
Methanol	LD50 Oral	rat	5,600 mg/kg	not applicable
	LD50 Oral	mouse	5,800 mg/kg	not applicable
	LD50 Oral	rabbit	14,200 mg/kg	not applicable
	LC50 Inhalation	mouse	41000 ppm	not applicable
	LC50 Inhalation	rat	64000 ppm	not applicable
	LC50 Inhalation	rabbit	81,000 mg/m3	not applicable
	LD50 Dermal	rabbit	15,800 mg/kg	not applicable

### Irritation/Corrosion

No data is available on the product itself.

### **Sensitization**

No data is available on the product itself.

### **Chronic toxicity**

No data is available on the product itself.

### **Target organ effects**

**Methanol:** Ingestion may cause blindness.

### **Carcinogenicity**

No data is available on the product itself.

<b><u>Regulation</u></b>	<b><u>Rating</u></b>	<b><u>Component</u></b>
<b>NTP</b>	-	-
<b>IARC</b>	-	-
<b>OSHA</b>	-	-
<b>ACGIH</b>	A3	2-Butoxyethanol

### **Mutagenicity**

No data is available on the product itself.

### **Teratogenicity**

No data is available on the product itself.

### **Reproductive toxicity**

No data is available on the product itself.

## **SECTION 12. ECOLOGICAL INFORMATION**

**Environmental effects** No known significant effects or critical hazards.

### **Aquatic ecotoxicity**

No data is available on the product itself.

### **Biodegradation**

No data is available on the product itself.

### **Bioaccumulation**

No data is available on the product itself.

**Octanol/water partition coefficient (LogPow)** Not available.

## **SECTION 13. DISPOSAL CONSIDERATIONS**

**Waste disposal** Dispose of wastes in an approved waste disposal facility. Empty containers or liners may retain some product residues. If recycling is not practicable, dispose of in compliance with local regulations.

**Contaminated packaging** Dispose of as unused product.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## **SECTION 14. TRANSPORT INFORMATION**

### **DOT**

UN Number: 1230  
Description of the goods: METHANOL  
  
Class: 3  
Packing group: II  
Labels: 3

Emergency Response 131  
Guidebook Number  
Environmentally hazardous yes (Methanol)

#### **IATA**

UN number 1230  
Description of the goods METHANOL

Class 3  
Packing group II  
Labels 3 (6.1)

#### **IMDG**

UN number 1230  
Description of the goods METHANOL

Class 3  
Packing group II  
Labels 3 (6.1)  
Marine pollutant no

### **SECTION 15. REGULATORY INFORMATION**

#### **U.S. Federal regulations**

##### **CERCLA: Hazardous substances - Reportable quantity:**

<u>Substance</u>	<u>Reportable quantity</u>
Methanol	5000 lbs

<u>Product</u>	<u>Reportable quantity</u>	<u>Substance</u>
5210 lbs		Methanol

Product spills equal to or exceeding the threshold above trigger the reporting requirements under CERCLA for the listed hazardous substance. Report the spill or release to the National Response Center (NRC) at (800) 424-8802.

##### **SARA 311/312 MSDS distribution - chemical inventory - hazard identification:**

Fire Hazard  
Acute Health Hazard

##### **SARA 313 - Supplier notification**

<u>Component</u>	<u>CAS no.</u>	<u>Weight %</u>
Methanol	67-56-1	60 - 100

**Clean Water Act (CWA) 307:** None of the components are listed.

**Clean Water Act (CWA) 311:** None of the components are listed.

**Clean Air Act (CAA) 112 accidental release prevention:** None of the components are listed.

#### **State regulations**

**Massachusetts Substances:** The following components are listed: Methanol 2-Butoxyethanol

**Pennsylvania RTK Hazardous Substances:** The following components are listed: Methanol 2-Butoxyethanol

**New Jersey Hazardous Substances:** The following components are listed: Methanol 2-Butoxyethanol

#### **California Prop. 65:**

WARNING! This product contains a chemical known in the State of California to cause cancer. Formaldehyde.

WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm. Ethanol.

#### **International regulations**

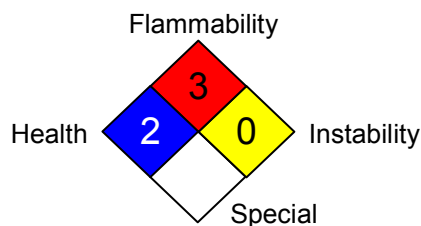
**United States inventory (TSCA 8b):** On the inventory, or in compliance with the inventory

**Canada inventory (DSL):** This product contains one or more components listed on the Canadian NDSL. All other components are on the Canadian DSL.

**Australia inventory (AICS)** Not in compliance with the inventory

#### SECTION 16. OTHER INFORMATION

##### National Fire Protection Association (U.S.A.):



**Prepared by** Product Stewardship (1-281-431-2561)  
**Date of issue** 07/19/2012  
**Date of previous issue** 00/00/0000  
**Version** 4.0

##### Disclaimer

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

## Material Safety Data Sheet

### Bactron® K-87 Microbiocide

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Product name</b>	Bactron® K-87 Microbiocide
<b>Product use</b>	Biocide
<b>Manufacturer</b>	CorsiTech P.O. Box 27727 Houston, TX 77227-7727 USA
<b>Telephone</b>	1-800-477-5353 (CorsiTech)
<b>In case of emergency</b>	1-800-424-9300 (CHEMTREC) 1-703-527-3887 (CHEMTREC - International)

#### SECTION 2. HAZARDS IDENTIFICATION

##### Emergency Overview

<b>Signal Word</b>	<b>Danger</b>
<b>Hazard Summary</b>	Corrosive. Harmful. May cause sensitization by inhalation. May cause sensitization by skin contact.
<b>Physical state</b>	liquid
<b>Color</b>	Clear. colorless.
<b>Odor</b>	sharp, acrid
<b>Primary Routes of Entry</b>	Inhalation. Skin.

##### Potential Health Effects

<b>Inhalation</b>	Harmful if inhaled. Vapors, spray or mists may be very irritating or corrosive to the respiratory system. May cause allergic respiratory reaction.
<b>Skin</b>	Causes skin burns. May cause allergic skin reaction.
<b>Eyes</b>	Causes eye burns. May cause permanent eye injury.
<b>Ingestion</b>	Harmful if swallowed. Causes digestive tract burns.
<b>Chronic Exposure</b>	No known significant effects or critical hazards.
<b>Medical conditions aggravated by over-exposure</b>	Asthma Skin disorders

##### Environmental hazards

<b>Environmental effects</b>	Dangerous for the environment Very toxic to aquatic organisms.
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See toxicological information (section 11)

#### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

##### Hazardous ingredients

<u>Name</u>	<u>CAS no.</u>	<u>Weight %</u>
Glutaraldehyde	111-30-8	10 - 30
Alkyl dimethyl benzyl ammonium chloride (C12-18)	68391-01-5	5 - 10

Alkyldimethyl(ethylbenzyl) ammonium chloride (C12-18)  
Alkylamine halide salt

68956-79-6  
Proprietary

5 - 10  
1 - 5

#### SECTION 4. FIRST AID MEASURES

<b>General advice</b>	If you feel unwell, seek medical advice (show the label when possible). No action shall be taken involving any personal risk or without suitable training.
<b>Inhalation</b>	Move exposed person to fresh air. Call a physician or poison control center immediately. If unconscious place in recovery position and seek medical advice. Keep respiratory tract clear.
<b>Skin contact</b>	Take off contaminated clothing and shoes immediately. Flush contaminated skin with plenty of water. Get medical attention immediately.
<b>Eye contact</b>	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses. Continue rinsing eyes during transport to hospital. Keep eye wide open while rinsing. Protect unharmed eye.
<b>Ingestion</b>	Rinse mouth with water. Drink plenty of water. Call a physician or poison control center immediately. Take victim immediately to hospital. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.
<b>Notes to physician</b>	No information available.

#### SECTION 5. FIRE-FIGHTING MEASURES

<b>Fire Hazard</b>	No specific fire or explosion hazard.
<b>Flash point</b>	> 200 °F (> 93.3 °C) Pensky-Martens. closed cup
<b>Autoignition temperature</b>	Not available.
<b>Flammable limits</b>	Lower: Not available. Upper: Not available.
<b><u>Extinguishing media</u></b>	
<b>Suitable</b>	Use an extinguishing agent suitable for the surrounding fire.
<b>Hazardous combustion products</b>	Carbon oxides. nitrogen oxides
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Fire-fighters' protective clothing will only provide limited protection.
<b>Further information</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
<b>Explosion hazard</b>	Risk of explosion of the product in the presence of mechanical impact: Not available.
	Risk of explosion of the product in the presence of static discharge: Not available.

#### SECTION 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Ensure adequate ventilation. Avoid breathing vapor or mist. Do not touch or walk through spilled material. Keep people away from and upwind of spill/leak. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
<b>Environmental precautions</b>	Avoid contact of spilled material with soil and prevent runoff entering surface waterways.



**Methods for cleaning up** For large spills, dike spilled material or otherwise contain it to ensure runoff does not reach a waterway. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Do not flush into surface water or sanitary sewer system. Keep in suitable, closed containers for disposal.

## SECTION 7. HANDLING AND STORAGE

**Handling** Use only with adequate ventilation. Put on appropriate personal protective equipment (see section 8). Do not get in eyes or on skin or clothing. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Do not enter storage areas and confined spaces unless adequately ventilated. Workers should wash hands and face before eating, drinking and smoking.

**Storage** Keep container closed when not in use. Keep container in a well-ventilated area.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Personal Protection

**Hand protection** Impervious butyl rubber gloves. Neoprene gloves. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

**Eye protection** Safety goggles. Face-shield.

**Skin and body protection** Wear as appropriate: Chemical-resistant protective suit. Long sleeved clothing. Footwear protecting against chemicals.

**Respiratory protection** In the case of vapor formation use a respirator with an approved filter.

### Occupational Exposure Limits

<u>Component</u>	<u>Source</u>	<u>Type</u>	<u>PPM</u>	<u>MG/M3</u>	<u>Note</u>
Glutaraldehyde	NIOSH REL	C	0.2 ppm	0.8 mg/m3	
	ACGIH	C	0.05 ppm		

**Engineering measures** Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

**Hygiene measures** Handle in accordance with good industrial hygiene and safety practice. Use only with adequate ventilation. Avoid contact with skin, eyes and clothing. Remove contaminated clothing and protective equipment before entering eating areas. Wash hands before breaks and immediately after handling the product.

**Protective measures** Emergency baths, showers, or other equipment appropriate for the potential level of exposure should be located close to the workstation location. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state</b>	liquid
<b>Color</b>	Clear. colorless.
<b>Odor</b>	sharp, acrid
<b>Odor Threshold</b>	Not available.
<b>Melting/freezing point</b>	Not available.
<b>Pour point</b>	15 °F (-9.4 °C)

<b>Boiling/condensation point</b>	Not available.
<b>Flash point</b>	> 200 °F (> 93.3 °C) Pensky-Martens. closed cup
<b>pH</b>	3.5 - 5.5 (neat)
<b>Solubility</b>	Water
<b>Relative density</b>	1.0539 - 1.0839 at 60 °F (15.6 °C)
<b>Vapor pressure</b>	Not available.
<b>Relative vapor density</b>	no data available
<b>Evaporation rate</b>	(no data available)
<b>Viscosity</b>	10 - 20 cPs at 75 °F (23.9 °C)
<b>Partition coefficient: n-octanol/water</b>	Not available.

Note: Typical values only - not to be interpreted as sales specifications

#### SECTION 10. STABILITY AND REACTIVITY

<b>Chemical stability</b>	Stable under normal conditions.
<b>Conditions to avoid</b>	No specific data.
<b>Materials to avoid</b>	No specific data.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.
<b>Hazardous reactions</b>	No dangerous reaction known under conditions of normal use.

#### SECTION 11. TOXICOLOGICAL INFORMATION

##### Acute toxicity

<u>Substance</u>	<u>Test</u>	<u>Species</u>	<u>Dose</u>	<u>Classification</u>
Glutaraldehyde	LD50 Oral	mouse	100 mg/kg	not applicable
	LD50 Oral	rat	134 mg/kg	not applicable
	LD50 Dermal	rat	> 2,500 mg/kg	not applicable

##### Irritation/Corrosion

No data is available on the product itself.

##### Sensitization

No data is available on the product itself.

##### Chronic toxicity

No data is available on the product itself.

##### Target organ effects

No data is available on the product itself.

##### Carcinogenicity

No data is available on the product itself.  
None of the components are listed.

##### Mutagenicity

No data is available on the product itself.

##### Teratogenicity

No data is available on the product itself.

### **Reproductive toxicity**

No data is available on the product itself.

## **SECTION 12. ECOLOGICAL INFORMATION**

**Environmental effects** Dangerous for the environment Very toxic to aquatic organisms.

### **Aquatic ecotoxicity**

No data is available on the product itself.

### **Biodegradation**

No data is available on the product itself.

### **Bioaccumulation**

No data is available on the product itself.

**Octanol/water partition coefficient (LogPow)** Not available.

## **SECTION 13. DISPOSAL CONSIDERATIONS**

**Waste disposal** The product should not be allowed to enter drains, water courses or the soil. Dispose of wastes in an approved waste disposal facility. Empty containers or liners may retain some product residues. If recycling is not practicable, dispose of in compliance with local regulations.

**Contaminated packaging** Dispose of as unused product.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## **SECTION 14. TRANSPORT INFORMATION**

### **DOT**

UN Number:	3265
Description of the goods	Corrosive liquid, acidic, organic, n.o.s.(Glutaraldehyde, Quaternary ammonium compounds)
Class	8
Packing group	III
Labels	8
Emergency Response	153
Guidebook Number	
Environmentally hazardous	no

### **IATA**

UN number	3265
Description of the goods	Corrosive liquid, acidic, organic, n.o.s.(Glutaraldehyde, Quaternary ammonium compounds)
Class	8
Packing group	III
Labels	8

### **IMDG**

UN number	3265
Description of the goods	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(Glutaraldehyde, Quaternary ammonium compounds)
Class	8
Packing group	III
Labels	8
Marine pollutant	yes (Glutaraldehyde, Quaternary ammonium compounds)

## SECTION 15. REGULATORY INFORMATION

### U.S. Federal regulations

#### FIFRA Classification:

**EPA Registration Number:** 8133-34

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law.

**Biocide Label Signal word:** DANGER

**Biocide Label Hazard statements:** Corrosive. Causes severe eye and skin damage. May cause skin sensitization. Harmful or fatal if swallowed. This pesticide is toxic to fish.

#### CERCLA: Hazardous substances - Reportable quantity:

None of the components are listed.

#### SARA 311/312 MSDS distribution - chemical inventory - hazard identification:

Acute Health Hazard

#### SARA 313 - Supplier notification

None of the components are listed.

**Clean Water Act (CWA) 307:** None of the components are listed.

**Clean Water Act (CWA) 311:** None of the components are listed.

**Clean Air Act (CAA) 112 accidental release prevention:** None of the components are listed.

### State regulations

**Massachusetts Substances:** The following components are listed: Glutaraldehyde

**Pennsylvania RTK Hazardous Substances:** The following components are listed: Glutaraldehyde

**New Jersey Hazardous Substances:** The following components are listed: Glutaraldehyde

#### California Prop. 65:

WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm. Ethanol.

### International regulations

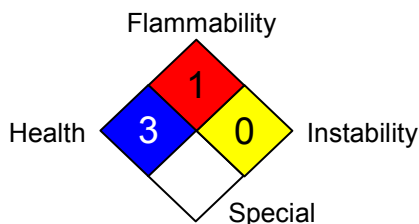
**United States inventory (TSCA 8b):** On TSCA Inventory

**Canada inventory (DSL):** All components of this product are on the Canadian DSL list.

**Australia inventory (AICS)** On the inventory, or in compliance with the inventory

## SECTION 16. OTHER INFORMATION

### National Fire Protection Association (U.S.A.):



**Prepared by** Product Stewardship (1-281-431-2561)  
**Date of issue** 09/27/2012

**Date of previous issue** 09/12/2012  
**Version** 4.1

**Disclaimer**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

## Material Safety Data Sheet

### Bactron® K-139

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Bactron® K-139
Product use	Biocide
Manufacturer	Champion Technologies, Inc. P.O. Box 450499 Houston, TX, 77245 USA
Telephone	1-281-431-2561 (Champion)
In case of emergency	1-800-424-9300 (CHEMTREC) 1-703-527-3887 (CHEMTREC - International)

#### SECTION 2. HAZARDS IDENTIFICATION

##### Emergency Overview

Signal Word	<b>Danger</b>
Hazard Summary	Harmful. Causes serious eye damage. May cause sensitization by inhalation and skin contact. Irritating to skin.
Physical state	liquid
Color	Clear. colorless.
Odor	sharp, pungent
Primary Routes of Entry	Inhalation. Skin.

##### Potential Health Effects

Inhalation	May cause allergic respiratory reaction.
Skin	Causes skin irritation. May cause sensitization by skin contact.
Eyes	Causes serious eye damage.
Ingestion	Harmful if swallowed.
Chronic Exposure	No known significant effects or critical hazards.
Medical conditions aggravated by over-exposure	Asthma Skin disorders

##### Environmental hazards

Environmental effects	No known significant effects or critical hazards.
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See toxicological information (section 11)

#### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

##### Hazardous ingredients

<u>Name</u>	<u>CAS no.</u>	<u>Weight %</u>
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	10 - 30
Glutaraldehyde	111-30-8	5 - 10

Ethanol

64-17-5

1 - 5

#### SECTION 4. FIRST AID MEASURES

<b>General advice</b>	If you feel unwell, seek medical advice (show the label when possible). No action shall be taken involving any personal risk or without suitable training.
<b>Inhalation</b>	Move exposed person to fresh air. If symptoms persist, call a physician.
<b>Skin contact</b>	Take off contaminated clothing and shoes immediately. Flush contaminated skin with plenty of water. If symptoms persist, call a physician.
<b>Eye contact</b>	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses. Continue rinsing eyes during transport to hospital. Keep eye wide open while rinsing. Protect unharmed eye. If eye irritation persists, consult a specialist.
<b>Ingestion</b>	Rinse mouth with water. Drink plenty of water. Obtain medical attention. Never give anything by mouth to an unconscious person.
<b>Notes to physician</b>	No information available.

#### SECTION 5. FIRE-FIGHTING MEASURES

<b>Fire Hazard</b>	No specific fire or explosion hazard.
<b>Flash point</b>	> 200 °F (> 93.3 °C) Pensky-Martens. closed cup
<b>Autoignition temperature</b>	Not available.
<b>Flammable limits</b>	Lower: Not available. Upper: Not available.
<b><u>Extinguishing media</u></b>	
<b>Suitable</b>	Use an extinguishing agent suitable for the surrounding fire.
<b>Hazardous combustion products</b>	Carbon oxides.
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
<b>Further information</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
<b>Explosion hazard</b>	Risk of explosion of the product in the presence of mechanical impact: Not available.  Risk of explosion of the product in the presence of static discharge: Not available.

#### SECTION 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Ensure adequate ventilation. Avoid breathing vapor or mist. Do not touch or walk through spilled material. Keep people away from and upwind of spill/leak. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
<b>Environmental precautions</b>	Avoid contact of spilled material with soil and prevent runoff entering surface waterways.
<b>Methods for cleaning up</b>	For large spills, dike spilled material or otherwise contain it to ensure runoff does not reach a waterway. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

Keep in suitable, closed containers for disposal.

## SECTION 7. HANDLING AND STORAGE

<b>Handling</b>	Use only with adequate ventilation. Put on appropriate personal protective equipment (see section 8). Do not get in eyes or on skin or clothing. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Do not enter storage areas and confined spaces unless adequately ventilated. Workers should wash hands and face before eating, drinking and smoking.
<b>Storage</b>	Keep container closed when not in use. Keep container in a well-ventilated area.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Personal Protection

<b>Hand protection</b>	Impervious butyl rubber gloves. Nitrile rubber. Neoprene gloves. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
<b>Eye protection</b>	Safety goggles.
<b>Skin and body protection</b>	Wear as appropriate: Chemical-resistant apron. Long sleeved clothing. Footwear protecting against chemicals.
<b>Respiratory protection</b>	In the case of vapor formation use a respirator with an approved filter.

### Occupational Exposure Limits

<u>Component</u>	<u>Source</u>	<u>Type</u>	<u>PPM</u>	<u>MG/M3</u>	<u>Note</u>
Glutaraldehyde	NIOSH REL	C	0.2 ppm	0.8 mg/m3	
	ACGIH	C	0.05 ppm		
Ethanol	ACGIH	TWA	1,000 ppm		
	NIOSH REL	TWA	1,000 ppm	1,900 mg/m3	
	OSHA Z-1	TWA	1,000 ppm	1,900 mg/m3	

### Immediately Dangerous to Life or Health Concentrations (IDLH)

<u>Substance name</u>	<u>CAS-No.</u>	<u>Control parameters</u>
Ethanol	64-17-5	3300 ppm

<b>Engineering measures</b>	Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
<b>Hygiene measures</b>	Handle in accordance with good industrial hygiene and safety practice. Use only with adequate ventilation. Avoid contact with skin, eyes and clothing. Remove contaminated clothing and protective equipment before entering eating areas. Wash hands before breaks and immediately after handling the product.
<b>Protective measures</b>	Emergency baths, showers, or other equipment appropriate for the potential level of exposure should be located close to the workstation location. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state</b>	liquid
<b>Color</b>	Clear. colorless.
<b>Odor</b>	sharp, pungent



<b>Odor Threshold</b>	Not available.
<b>Melting/freezing point</b>	Not available.
<b>Pour point</b>	< 32 °F (< 0.0 °C)
<b>Boiling/condensation point</b>	Not available.
<b>Flash point</b>	> 200 °F (> 93.3 °C) Pensky-Martens. closed cup
<b>pH</b>	5.0 - 6.5 at 25 °C (77 °F) (neat)
<b>Solubility</b>	Water
<b>Relative density</b>	1.0052 at 20 °C (68 °F)
<b>Vapor pressure</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Viscosity</b>	10 - 100 cPs
<b>Partition coefficient: n-octanol/water</b>	Not available.

Note: Typical values only - not to be interpreted as sales specifications

#### SECTION 10. STABILITY AND REACTIVITY

<b>Chemical stability</b>	Stable under normal conditions.
<b>Conditions to avoid</b>	No specific data.
<b>Materials to avoid</b>	No specific data.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.
<b>Hazardous reactions</b>	No dangerous reaction known under conditions of normal use.

#### SECTION 11. TOXICOLOGICAL INFORMATION

##### Acute toxicity

<u>Substance</u>	<u>Test type</u>	<u>Species</u>	<u>Dose</u>	<u>Classification</u>
Product	LD50 Oral	rat	511 mg/kg	Harmful
Product	LC50 Inhalation	rat	1.86 mg/l	Harmful
Product	LD50 Dermal	rat	2,020 mg/kg	Essentially non-hazardous.

##### Irritation/Corrosion

<u>Substance</u>	<u>Route</u>	<u>Species</u>	<u>Exposure time</u>	<u>Classification</u>
Product	SKIN	rabbit	4 h	irritating
Product	EYES	rabbit	24 h	Risk of serious damage to eyes.

##### Sensitization

<u>Substance</u>	<u>Test</u>	<u>Species</u>	<u>Classification</u>
Product	skin	guinea pig	Does not cause skin sensitization.

##### Chronic toxicity

No data is available on the product itself.

##### Target organ effects

No data is available on the product itself.

### **Carcinogenicity**

No data is available on the product itself.

<b><u>Regulation</u></b>	<b><u>Rating</u></b>	<b><u>Component</u></b>
NTP	-	-
IARC	-	-
OSHA	-	-
ACGIH	A3	Ethanol

### **Mutagenicity**

No data is available on the product itself.

### **Teratogenicity**

No data is available on the product itself.

### **Reproductive toxicity**

No data is available on the product itself.

## **SECTION 12. ECOLOGICAL INFORMATION**

**Environmental effects** No known significant effects or critical hazards.

### **Aquatic ecotoxicity**

No data is available on the product itself.

### **Biodegradation**

No data is available on the product itself.

### **Bioaccumulation**

No data is available on the product itself.

**Octanol/water partition coefficient (LogPow)** Not available.

## **SECTION 13. DISPOSAL CONSIDERATIONS**

**Waste disposal** Dispose of wastes in an approved waste disposal facility. Empty containers or liners may retain some product residues. If recycling is not practicable, dispose of in compliance with local regulations.

**Contaminated packaging** Dispose of as unused product.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## **SECTION 14. TRANSPORT INFORMATION**

### **DOT**

Not dangerous goods

### **TDG**

Not dangerous goods

### **IATA**

Not dangerous goods

### **IMDG**

Not dangerous goods

## **SECTION 15. REGULATORY INFORMATION**

### **U.S. Federal regulations**

**FIFRA Classification:**

**EPA Registration Number:** 8133-36

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law.

**Biocide Label Signal word:** DANGER

**Biocide Label Hazard statements:** Corrosive. Cause irreversible eye damage. Harmful if swallowed inhaled or absorbed through skin. This pesticide is toxic to fish.

**CERCLA: Hazardous substances - Reportable quantity:**

None of the components are listed.

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:**

Acute Health Hazard

**SARA 313 - Supplier notification**

None of the components are listed.

**Clean Water Act (CWA) 307:** None of the components are listed.

**Clean Water Act (CWA) 311:** None of the components are listed.

**Clean Air Act (CAA) 112 accidental release prevention:** None of the components are listed.

**State regulations**

**Massachusetts Substances:** The following components are listed: Glutaraldehyde Ethanol

**Pennsylvania RTK Hazardous Substances:** The following components are listed: Glutaraldehyde Ethanol

**New Jersey Hazardous Substances:** The following components are listed: Glutaraldehyde Ethanol

**California Prop. 65:**

WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm. Ethanol.

**International regulations**

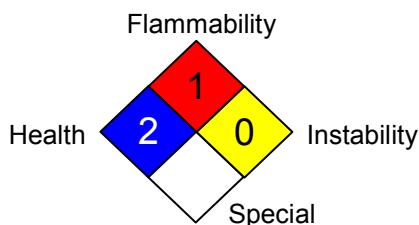
**United States inventory (TSCA 8b):** On TSCA Inventory

**Canada inventory (DSL):** All components of this product are on the Canadian DSL list.

**Australia inventory (AICS)** On the inventory, or in compliance with the inventory

**SECTION 16. OTHER INFORMATION**

**National Fire Protection Association (U.S.A.):**



**Prepared by** Product Stewardship (1-281-431-2561)

**Date of issue** 09/13/2012

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**Version** 4.0

**Disclaimer**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named

supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

## Material Safety Data Sheet

### Bactron® K-176

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Product name</b>	Bactron® K-176
<b>Product use</b>	Biocide
<b>Manufacturer</b>	Champion Technologies, Inc. P.O. Box 450499 Houston, TX, 77245 USA
<b>Telephone</b>	1-281-431-2561 (Champion)
<b>In case of emergency</b>	1-800-424-9300 (CHEMTREC) 1-703-527-3887 (CHEMTREC - International)

#### SECTION 2. HAZARDS IDENTIFICATION

##### Emergency Overview

<b>Signal Word</b>	<b>Danger</b>
<b>Hazard Summary</b>	Corrosive. Harmful. May cause sensitization by inhalation. May cause sensitization by skin contact. Combustible liquid.
<b>Physical state</b>	liquid
<b>Color</b>	Clear. yellow.
<b>Primary Routes of Entry</b>	Inhalation. Skin.

##### Potential Health Effects

<b>Inhalation</b>	May cause respiratory tract irritation. Harmful if inhaled. Vapors, spray or mists may be very irritating or corrosive to the respiratory system. May cause allergic respiratory reaction.
<b>Skin</b>	May cause allergic skin reaction. Causes skin burns. May cause allergic skin reaction.
<b>Eyes</b>	Causes eye burns. May cause permanent eye injury.
<b>Ingestion</b>	Harmful if swallowed. Causes digestive tract burns.
<b>Chronic Exposure</b>	No known significant effects or critical hazards.
<b>Medical conditions aggravated by over-exposure</b>	Asthma Skin disorders

##### Environmental hazards

<b>Environmental effects</b>	Dangerous for the environment Very toxic to aquatic organisms.
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See toxicological information (section 11)

#### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

##### Hazardous ingredients

<u>Name</u>	<u>CAS no.</u>	<u>Weight %</u>
Glutaraldehyde	111-30-8	10 - 30
1-Decanaminium, N-decyl-N,N-dimethyl-, chloride	7173-51-5	5 - 10

Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5 - 10
Ethanol	64-17-5	1 - 5

#### SECTION 4. FIRST AID MEASURES

<b>General advice</b>	If you feel unwell, seek medical advice (show the label when possible). No action shall be taken involving any personal risk or without suitable training.
<b>Inhalation</b>	Move exposed person to fresh air. Call a physician or poison control center immediately. If unconscious place in recovery position and seek medical advice. Keep respiratory tract clear.
<b>Skin contact</b>	Take off contaminated clothing and shoes immediately. Flush contaminated skin with plenty of water. Get medical attention immediately.
<b>Eye contact</b>	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses. Continue rinsing eyes during transport to hospital. Keep eye wide open while rinsing. Protect unharmed eye.
<b>Ingestion</b>	Rinse mouth with water. Drink plenty of water. Call a physician or poison control center immediately. Take victim immediately to hospital. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.
<b>Notes to physician</b>	No information available.

#### SECTION 5. FIRE-FIGHTING MEASURES

<b>Fire Hazard</b>	Flammable or combustible, may be ignited by heat, sparks or flames. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
<b>Flash point</b>	188 °F (86.7 °C) closed cup
<b>Autoignition temperature</b>	Not available.
<b>Flammable limits</b>	Lower: Not available. Upper: Not available.
<b><u>Extinguishing media</u></b>	
<b>Suitable</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<b>Hazardous combustion products</b>	Carbon oxides.
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Fire-fighters' protective clothing will only provide limited protection.
<b>Further information</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
<b>Explosion hazard</b>	Risk of explosion of the product in the presence of mechanical impact: Not available.
	Risk of explosion of the product in the presence of static discharge: Not available.

#### SECTION 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Shut off all ignition sources. Ensure adequate ventilation. Avoid breathing vapor or mist. Do not touch or walk through spilled material. Keep people away from and upwind of spill/leak. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
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<b>Environmental precautions</b>	Avoid contact of spilled material with soil and prevent runoff entering surface waterways.
<b>Methods for cleaning up</b>	For large spills, dike spilled material or otherwise contain it to ensure runoff does not reach a waterway. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Do not flush into surface water or sanitary sewer system. Keep in suitable, closed containers for disposal.

## SECTION 7. HANDLING AND STORAGE

<b>Handling</b>	Eliminate all ignition sources. Use only with adequate ventilation. Put on appropriate personal protective equipment (see section 8). Do not get in eyes or on skin or clothing. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Open drum carefully as content may be under pressure. Do not enter storage areas and confined spaces unless adequately ventilated. Workers should wash hands and face before eating, drinking and smoking.
<b>Storage</b>	Keep container closed when not in use. Keep container in a well-ventilated area. Separate from oxidizing materials.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Personal Protection

<b>Hand protection</b>	Impervious butyl rubber gloves. Neoprene gloves. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
<b>Eye protection</b>	Safety goggles. Face-shield.
<b>Skin and body protection</b>	Wear as appropriate: Chemical-resistant protective suit. Long sleeved clothing. Footwear protecting against chemicals.
<b>Respiratory protection</b>	In the case of vapor formation use a respirator with an approved filter.

### Occupational Exposure Limits

<u>Component</u>	<u>Source</u>	<u>Type</u>	<u>PPM</u>	<u>MG/M3</u>	<u>Note</u>
Glutaraldehyde	NIOSH REL	C	0.2 ppm	0.8 mg/m3	
	ACGIH	C	0.05 ppm		
Ethanol	ACGIH	TWA	1,000 ppm	1,900 mg/m3	
	NIOSH REL	TWA	1,000 ppm		
	OSHA Z-1	TWA	1,000 ppm		

### Immediately Dangerous to Life or Health Concentrations (IDLH)

<u>Substance name</u>	<u>CAS-No.</u>	<u>Control parameters</u>
Ethanol	64-17-5	3300 ppm

<b>Engineering measures</b>	Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
<b>Hygiene measures</b>	Handle in accordance with good industrial hygiene and safety practice. Use only with adequate ventilation. Avoid contact with skin, eyes and clothing. Remove contaminated clothing and protective equipment before entering eating areas. Wash hands before breaks and immediately after handling the product.

**Protective measures** Emergency baths, showers, or other equipment appropriate for the potential level of exposure should be located close to the workstation location. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state</b>	liquid
<b>Color</b>	Clear. yellow.
<b>Odor</b>	Not available.
<b>Odor Threshold</b>	Not available.
<b>Melting/freezing point</b>	Not available.
<b>Pour point</b>	Not available.
<b>Boiling/condensation point</b>	Not available.
<b>Flash point</b>	188 °F (86.7 °C) closed cup
<b>pH</b>	4.5
<b>Solubility</b>	Water
<b>Relative density</b>	1.0500 at 68 °F (20.0 °C)
<b>Vapor pressure</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Partition coefficient: n-octanol/water</b>	Not available.

Note: Typical values only - not to be interpreted as sales specifications

## SECTION 10. STABILITY AND REACTIVITY

<b>Chemical stability</b>	Stable under normal conditions.
<b>Conditions to avoid</b>	Heat, flames and sparks.
<b>Materials to avoid</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.
<b>Hazardous reactions</b>	No dangerous reaction known under conditions of normal use.

## SECTION 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

<u>Substance</u>	<u>Test</u>	<u>Species</u>	<u>Dose</u>	<u>Classification</u>
Glutaraldehyde	LD50 Oral	mouse	100 mg/kg	not applicable
	LD50 Oral	rat	134 mg/kg	not applicable
	LD50 Dermal	rat	> 2,500 mg/kg	not applicable
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides				
	LD50 Oral	rat	426 mg/kg	not applicable
	LD50 Oral	mouse	919 mg/kg	not applicable
Ethanol	LD50 Oral	mouse	3,450 mg/kg	not applicable
	LD50 Oral	guinea pig	5,560 mg/kg	not applicable
	LD50 Oral	rabbit	6,300 mg/kg	not applicable



LD50 Oral rat 7,060 mg/kg not applicable

**Irritation/Corrosion**

No data is available on the product itself.

**Sensitization**

No data is available on the product itself.

**Chronic toxicity**

No data is available on the product itself.

**Target organ effects**

No data is available on the product itself.

**Carcinogenicity**

No data is available on the product itself.

<b><u>Regulation</u></b>	<b><u>Rating</u></b>	<b><u>Component</u></b>
NTP	-	-
IARC	-	-
OSHA	-	-
ACGIH	A3	Ethanol

**Mutagenicity**

No data is available on the product itself.

**Teratogenicity**

No data is available on the product itself.

**Reproductive toxicity**

No data is available on the product itself.

**SECTION 12. ECOLOGICAL INFORMATION**

**Environmental effects** Dangerous for the environment Very toxic to aquatic organisms.

**Aquatic ecotoxicity**

No data is available on the product itself.

**Biodegradation**

No data is available on the product itself.

**Bioaccumulation**

No data is available on the product itself.

**Octanol/water partition coefficient (LogPow)** Not available.

**SECTION 13. DISPOSAL CONSIDERATIONS**

**Waste disposal** The product should not be allowed to enter drains, water courses or the soil. Dispose of wastes in an approved waste disposal facility. Empty containers or liners may retain some product residues. If recycling is not practicable, dispose of in compliance with local regulations.

**Contaminated packaging** Dispose of as unused product.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

**SECTION 14. TRANSPORT INFORMATION**

**DOT**

UN Number: 1903

Description of the goods	Disinfectants, liquid, corrosive n.o.s.(Glutaraldehyde, Didecyl dimethyl ammonium chloride)
Class	8
Packing group	II
Labels	8
Emergency Response	153
Guidebook Number	
Environmentally hazardous	no

#### IATA

UN number	2920
Description of the goods	Corrosive liquid, flammable, n.o.s.(Glutaraldehyde, Didecyl dimethyl ammonium chloride)
Class	8
Packing group	II
Labels	8 (3)

#### IMDG

UN number	2920
Description of the goods	CORROSIVE LIQUID, FLAMMABLE, N.O.S.(Glutaraldehyde, Didecyl dimethyl ammonium chloride)
Class	8
Packing group	II
Labels	8 (3)
Marine pollutant	yes (Glutaraldehyde, Didecyl dimethyl ammonium chloride)

### SECTION 15. REGULATORY INFORMATION

#### U.S. Federal regulations

##### FIFRA Classification:

**EPA Registration Number:** 1839-227-8133

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law.

**Biocide Label Signal word:** DANGER

**Biocide Label Hazard statements:** Corrosive. Causes irreversible eye damage and skin burns. Harmful if swallowed, or absorbed through the skin. This pesticide is toxic to fish and aquatic organisms. This product is strongly basic and an oxidizing agent.

##### CERCLA: Hazardous substances - Reportable quantity:

None of the components are listed.

##### SARA 311/312 MSDS distribution - chemical inventory - hazard identification:

Fire Hazard  
Acute Health Hazard

##### SARA 313 - Supplier notification

None of the components are listed.

**Clean Water Act (CWA) 307:** None of the components are listed.

**Clean Water Act (CWA) 311:** None of the components are listed.

**Clean Air Act (CAA) 112 accidental release prevention:** None of the components are listed.

#### State regulations

**Massachusetts Substances:** The following components are listed: Glutaraldehyde Ethanol

**Pennsylvania RTK Hazardous Substances:** The following components are listed: Glutaraldehyde Ethanol

**New Jersey Hazardous Substances:** The following components are listed: Glutaraldehyde Ethanol

**California Prop. 65:**

WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm. Ethanol.

**International regulations**

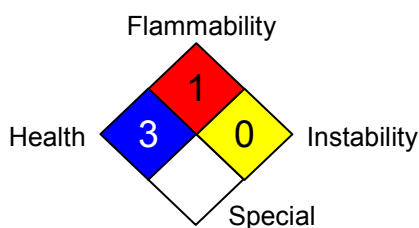
**United States inventory (TSCA 8b):** On TSCA Inventory

**Canada inventory (DSL):** All components of this product are on the Canadian DSL list.

**Australia inventory (AICS)** On the inventory, or in compliance with the inventory

**SECTION 16. OTHER INFORMATION**

**National Fire Protection Association (U.S.A.):**



**Prepared by** Product Stewardship (1-281-431-2561)

**Date of issue** 09/13/2012

**Date of previous issue** 00/00/0000

**Version** 4.0

**Disclaimer**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

## Material Safety Data Sheet

### Bactron® K-219

#### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Bactron® K-219
Product use	Biocide
Manufacturer	Champion Technologies, Inc. P.O. Box 450499 Houston, TX, 77245 USA
Telephone	1-281-431-2561 (Champion)
In case of emergency	1-800-424-9300 (CHEMTREC) 1-703-527-3887 (CHEMTREC - International)

#### SECTION 2. HAZARDS IDENTIFICATION

##### Emergency Overview

Signal Word	Danger
Hazard Summary	Flammable. Harmful. Causes serious eye damage. May cause sensitization by inhalation. May cause sensitization by skin contact.
Physical state	liquid
Color	clear colorless
Odor	sharp, pungent
Primary Routes of Entry	Inhalation. Skin.

##### Potential Health Effects

Inhalation	May cause respiratory tract irritation. May cause allergic respiratory reaction.
Skin	Causes skin irritation. May cause allergic skin reaction.
Eyes	Causes serious eye damage.
Ingestion	Harmful if swallowed. May cause blindness if swallowed.
Chronic Exposure	No known significant effects or critical hazards.
Medical conditions aggravated by over-exposure	Asthma Skin disorders

##### Environmental hazards

Environmental effects	Dangerous for the environment
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See toxicological information (section 11)

#### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

##### Hazardous ingredients

<u>Name</u>	<u>CAS no.</u>	<u>Weight %</u>
Methanol	67-56-1	30 - 60
Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	10 - 30

Glutaraldehyde

111-30-8

5 - 10

#### SECTION 4. FIRST AID MEASURES

<b>General advice</b>	If you feel unwell, seek medical advice (show the label when possible). No action shall be taken involving any personal risk or without suitable training.
<b>Inhalation</b>	Move exposed person to fresh air. If symptoms persist, call a physician.
<b>Skin contact</b>	Take off contaminated clothing and shoes immediately. Flush contaminated skin with plenty of water. If symptoms persist, call a physician.
<b>Eye contact</b>	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Remove contact lenses. Continue rinsing eyes during transport to hospital. Keep eye wide open while rinsing. Protect unharmed eye. If eye irritation persists, consult a specialist.
<b>Ingestion</b>	Rinse mouth with water. Drink plenty of water. Obtain medical attention. Never give anything by mouth to an unconscious person.
<b>Notes to physician</b>	No information available.

#### SECTION 5. FIRE-FIGHTING MEASURES

<b>Fire Hazard</b>	Flammable or combustible, may be ignited by heat, sparks or flames. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
<b>Flash point</b>	83 °F (28.3 °C) Pensky-Martens.
<b>Autoignition temperature</b>	Not available.
<b>Flammable limits</b>	Lower: Not available. Upper: Not available.
<b><u>Extinguishing media</u></b>	
<b>Suitable</b>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<b>Hazardous combustion products</b>	Carbon oxides.
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
<b>Further information</b>	Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
<b>Explosion hazard</b>	Risk of explosion of the product in the presence of mechanical impact: Not available.  Risk of explosion of the product in the presence of static discharge: Not available.

#### SECTION 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Shut off all ignition sources. Ensure adequate ventilation. Avoid breathing vapor or mist. Do not touch or walk through spilled material. Keep people away from and upwind of spill/leak. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
<b>Environmental precautions</b>	Avoid contact of spilled material with soil and prevent runoff entering surface waterways.
<b>Methods for cleaning up</b>	For large spills, dike spilled material or otherwise contain it to ensure runoff does

not reach a waterway. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Do not flush into surface water or sanitary sewer system. Keep in suitable, closed containers for disposal.

## SECTION 7. HANDLING AND STORAGE

<b>Handling</b>	Eliminate all ignition sources. Use only with adequate ventilation. Put on appropriate personal protective equipment (see section 8). Do not get in eyes or on skin or clothing. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Open drum carefully as content may be under pressure. Do not enter storage areas and confined spaces unless adequately ventilated. Workers should wash hands and face before eating, drinking and smoking.
<b>Storage</b>	Keep container closed when not in use. Keep container in a well-ventilated area. Separate from oxidizing materials.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Personal Protection

<b>Hand protection</b>	Impervious butyl rubber gloves. Nitrile rubber. Neoprene gloves. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
<b>Eye protection</b>	Safety goggles.
<b>Skin and body protection</b>	Wear as appropriate: Chemical-resistant apron. Long sleeved clothing. Footwear protecting against chemicals.
<b>Respiratory protection</b>	In the case of vapor formation use a respirator with an approved filter. Approved/certified respirator with organic vapor cartridge.

### Occupational Exposure Limits

<u>Component</u>	<u>Source</u>	<u>Type</u>	<u>PPM</u>	<u>MG/M3</u>	<u>Note</u>
Methanol	ACGIH	TWA	200 ppm		SKIN
	ACGIH	STEL	250 ppm		SKIN
	NIOSH REL	TWA	200 ppm	260 mg/m3	SKIN
	NIOSH REL	STEL	250 ppm	325 mg/m3	SKIN
	OSHA Z-1	TWA	200 ppm	260 mg/m3	
Glutaraldehyde	NIOSH REL	C	0.2 ppm	0.8 mg/m3	
	ACGIH	C	0.05 ppm		

SKIN - Skin absorption can contribute significantly to overall exposure.

### Immediately Dangerous to Life or Health Concentrations (IDLH)

<u>Substance name</u>	<u>CAS-No.</u>	<u>Control parameters</u>
Methanol	67-56-1	6000 ppm

<b>Engineering measures</b>	Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
-----------------------------	---

<b>Hygiene measures</b>	Handle in accordance with good industrial hygiene and safety practice. Use only with adequate ventilation. Avoid contact with skin, eyes and clothing. Remove contaminated clothing and protective equipment before entering eating areas. Wash hands before breaks and immediately after handling the product.
<b>Protective measures</b>	Emergency baths, showers, or other equipment appropriate for the potential level of exposure should be located close to the workstation location. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state</b>	liquid
<b>Color</b>	clear colorless
<b>Odor</b>	sharp, pungent
<b>Odor Threshold</b>	Not available.
<b>Melting/freezing point</b>	Not available.
<b>Pour point</b>	-10 °F (-23.3 °C)
<b>Boiling/condensation point</b>	Not available.
<b>Flash point</b>	83 °F (28.3 °C) Pensky-Martens.
<b>pH</b>	4.2 - 6.2 (neat)
<b>Solubility</b>	Water
<b>Relative density</b>	0.9216 - 0.9617 at 68 °F (20.0 °C)
<b>Vapor pressure</b>	Not available.
<b>Evaporation rate</b>	Not available.
<b>Viscosity</b>	1 - 8.3 cPs
<b>Partition coefficient: n-octanol/water</b>	Not available.

Note: Typical values only - not to be interpreted as sales specifications

## SECTION 10. STABILITY AND REACTIVITY

<b>Chemical stability</b>	Stable under normal conditions.
<b>Conditions to avoid</b>	Heat, flames and sparks.
<b>Materials to avoid</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	No hazardous decomposition products are known.
<b>Hazardous reactions</b>	No dangerous reaction known under conditions of normal use.

## SECTION 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

<u>Substance</u>	<u>Test type</u>	<u>Species</u>	<u>Dose</u>	<u>Classification</u>
Similar Product / Read-across	LD50 Oral	rat	511 mg/kg	Harmful
Similar Product / Read-across	LC50 (dust/mist) Inhalation	rat	1.86 mg/l	Harmful
Similar Product / Read-across	LD50 Dermal	rat	> 2,020 mg/kg	Essentially non-hazardous.

### **Irritation/Corrosion**

<b><u>Substance</u></b>	<b><u>Route</u></b>	<b><u>Species</u></b>	<b><u>Exposure time</u></b>	<b><u>Classification</u></b>
Similar Product / Read-across	SKIN	rabbit	4 h	irritating
Similar Product / Read-across	EYES	rabbit	24 h	Risk of serious damage to eyes.

### **Sensitization**

<b><u>Substance</u></b>	<b><u>Test</u></b>	<b><u>Species</u></b>	<b><u>Classification</u></b>
Similar Product / Read-across	Buehler Test	guinea pig	Does not cause skin sensitization.

### **Chronic toxicity**

No data is available on the product itself.

### **Target organ effects**

**Methanol:** Ingestion may cause blindness.

### **Carcinogenicity**

No data is available on the product itself.

None of the components are listed.

### **Mutagenicity**

No data is available on the product itself.

### **Teratogenicity**

No data is available on the product itself.

### **Reproductive toxicity**

No data is available on the product itself.

## **SECTION 12. ECOLOGICAL INFORMATION**

**Environmental effects** Dangerous for the environment

### **Aquatic ecotoxicity**

No data is available on the product itself.

### **Biodegradation**

No data is available on the product itself.

### **Bioaccumulation**

No data is available on the product itself.

**Octanol/water partition coefficient (LogPow)** Not available.

## **SECTION 13. DISPOSAL CONSIDERATIONS**

**Waste disposal** The product should not be allowed to enter drains, water courses or the soil. Dispose of wastes in an approved waste disposal facility. Empty containers or liners may retain some product residues. If recycling is not practicable, dispose of in compliance with local regulations.

**Contaminated packaging** Dispose of as unused product.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## **SECTION 14. TRANSPORT INFORMATION**



#### DOT

UN Number: 1993  
Description of the goods: Flammable liquids, n.o.s.(Methanol)  
  
Class: 3  
Packing group: III  
Labels: 3  
Emergency Response: 128  
Guidebook Number:  
Environmentally hazardous: yes (Methanol)

#### IATA

UN number: 1993  
Description of the goods: Flammable liquid, n.o.s.(Methanol)  
  
Class: 3  
Packing group: III  
Labels: 3

#### IMDG

UN number: 1993  
Description of the goods: FLAMMABLE LIQUID, N.O.S.(Methanol)  
  
Class: 3  
Packing group: III  
Labels: 3  
Marine pollutant: no

### SECTION 15. REGULATORY INFORMATION

#### U.S. Federal regulations

##### FIFRA Classification:

**EPA Registration Number:** 8133-36

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law.

**Biocide Label Signal word:** DANGER

**Biocide Label Hazard statements:** Corrosive. Cause irreversible eye damage. Harmful if swallowed inhaled or absorbed through skin. This pesticide is toxic to fish.

##### CERCLA: Hazardous substances - Reportable quantity:

<u>Substance</u>	<u>Reportable quantity</u>
Methanol	5000 lbs

<u>Product</u>	<u>Reportable quantity</u>	<u>Substance</u>
14286 lbs		Methanol

Product spills equal to or exceeding the threshold above trigger the reporting requirements under CERCLA for the listed hazardous substance. Report the spill or release to the National Response Center (NRC) at (800) 424-8802.

##### SARA 311/312 MSDS distribution - chemical inventory - hazard identification:

Fire Hazard  
Acute Health Hazard

##### SARA 313 - Supplier notification

<u>Component</u>	<u>CAS no.</u>	<u>Weight %</u>
Methanol	67-56-1	30 - 60

**Clean Water Act (CWA) 307:** None of the components are listed.

**Clean Water Act (CWA) 311:** None of the components are listed.

**Clean Air Act (CAA) 112 accidental release prevention:** None of the components are listed.

**State regulations**

**Massachusetts Substances:** The following components are listed: Methanol Glutaraldehyde

**Pennsylvania RTK Hazardous Substances:** The following components are listed: Methanol Glutaraldehyde

**New Jersey Hazardous Substances:** The following components are listed: Methanol Glutaraldehyde

**California Prop. 65:**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**International regulations**

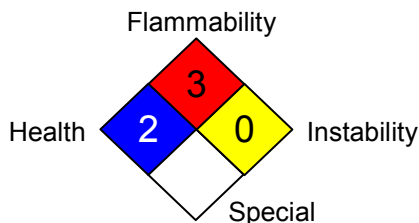
**United States inventory (TSCA 8b):** On TSCA Inventory

**Canada inventory (DSL):** All components of this product are on the Canadian DSL list.

**Australia inventory (AICS)** On the inventory, or in compliance with the inventory

**SECTION 16. OTHER INFORMATION**

**National Fire Protection Association (U.S.A.):**



**Prepared by** Product Stewardship (1-281-431-2561)

**Date of issue** 04/23/2013

**Date of previous issue** 09/13/2012

**Version** 4.1

**Disclaimer**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

**Attachment I**  
**Emissions 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)

Emission Unit ID <sup>1</sup>	Emission Point ID <sup>2</sup>	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type <sup>3</sup> and Date of Change	Control Device <sup>4</sup>
1S	T1	Storage Tank	2009	6,300		
2S	T2	Storage Tank	2009	6,300		
3S	T3	Storage Tank	2009	6,300		
4S	T4	Storage Tank	2009	6,300		
5S	T5	Storage Tank	2009	6,300		
6S	T6	Storage Tank	2015	6,014	New, 4/1/2015	
7S	T7	Storage Tank	2015	6,014	New, 4/1/2015	
8S	T8	Storage Tank	2015	6,014	New, 4/1/2015	
9S	LOAD1	Bulk Tank to Tote Transfers	2009	N/A		
10S	LOAD 2	Bulk Tank to Tank Truck Transfers	2009	N/A		
11S	FUG	Fugitive Emissions	2009	N/A		

<sup>1</sup> For Emission Units (or Sources) use the following numbering system: 1S, 2S, 3S,... or other appropriate designation.

<sup>2</sup> For Emission Points use the following numbering system: 1E, 2E, 3E, ... or other appropriate designation.

<sup>3</sup> New, modification, removal

<sup>4</sup> For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

**Attachment J**  
**Emissions Points Data Summary Sheet**

**Attachment J**  
**EMISSION POINTS DATA SUMMARY SHEET**

Table 1: Emissions Data															
Emission Point ID No. <i>(Must match Emission Units Table &amp; Plot Plan)</i>	Emission Point Type <sup>1</sup>	Emission Unit Vented Through This Point <i>(Must match Emission Units Table &amp; Plot Plan)</i>		Air Pollution Control Device <i>(Must match Emission Units Table &amp; Plot Plan)</i>		Vent Time for Emission Unit <i>(chemical processes only)</i>		All Regulated Pollutants - Chemical Name/CAS <sup>3</sup>  <i>(Speciate VOCs &amp; HAPS)</i>	Maximum Potential Uncontrolled Emissions <sup>4</sup>		Maximum Potential Controlled Emissions <sup>5</sup>		Emission Form or Phase  <i>(At exit conditions, Solid, Liquid or Gas/Vapor)</i>	Est. Method Used <sup>6</sup>	Emission Concentration <sup>7</sup> (ppmv or mg/m <sup>4</sup> )
		ID No.	Source	ID No.	Device Type	Short Term <sup>2</sup>	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
T1	Upward Vertical Stack	1S	T1					Glutaraldehyde <b>111-30-8</b> Alkyl dimethyl benzyl ammonium chloride (C12-18) <b>68391-01-5</b> Alkyldimethyl(ethylbenzyl) ammonium chloride (C12-18) <b>68956-79-6</b> Alkylamine halide salt <b>(Proprietary)</b>	9.34	0.346			Gas/Vapor	AP-42	
T2	Upward Vertical Stack	2S	T2					Quaternary ammonium compounds, benzyl-C12-16-alkylmethyl, chlorides <b>68424-85-1</b> Glutaraldehyde <b>111-30-8</b> Ethanol <b>64-17-5</b>	8.17	0.366			Gas/Vapor	AP-42	

T3	Upward Vertical Stack	3S	T3					Glutaraldehyde <b>111-30-8</b> Alkyl dimethyl benzyl ammonium chloride (C12-18) <b>68391-01-5</b> Alkyldimethyl(eth ylbenzyl) ammonium chloride (C12-18) <b>68956-79-6</b> Alkylamine halide salt <b>(Proprietary)</b>	8.17	0.366			Gas/Vapor	AP-42	
T4	Upward Vertical Stack	4S	T4					Quaternary ammonium compounds, benzyl-C12-16- alkylmethyl, chlorides <b>68424-85-1</b> Glutaraldehyde <b>111-30-8</b> Ethanol <b>64-17-5</b>	8.17	0.366			Gas/Vapor	AP-42	
T5	Upward Vertical Stack	5S	T5					Methanol <b>67-56-1</b> 2-Butoxyethanol <b>111-76-2</b>	7.07	0.291			Gas/Vapor	AP-42	
T6	Upward Vertical Stack	6S	T6					Methanol <b>67-56-1</b> 2-Butoxyethanol <b>111-76-2</b>	5.17	0.248			Gas/Vapor	AP-42	
T7	Upward Vertical Stack	7S	T7					Methanol <b>67-56-1</b>	5.93	0.153			Gas/Vapor	AP-42	

T8	Upward Vertical Stack	8S	T8					Methanol 67-56-1	5.93	0.153			Gas/Vapor	AP-42	
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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.

- <sup>1</sup> Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.
- <sup>2</sup> Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).
- <sup>3</sup> List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, all applicable Greenhouse Gases (including CO<sub>2</sub> and methane), etc. **DO NOT LIST** H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.
- <sup>4</sup> 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).
- <sup>5</sup> 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).
- <sup>6</sup> 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).
- <sup>7</sup> 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/m<sup>3</sup>) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO<sub>2</sub>, use units of ppmv (See 45CSR10).

## Attachment J

### EMISSION POINTS DATA SUMMARY SHEET

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 <sup>1</sup> (acfm) at operating conditions	Velocity (fps)	Ground Level (Height above mean sea level)	Stack Height <sup>2</sup> (Release height of emissions above ground level)	Northing	Easting
T1	0.3	70	10.69	0.01	1535	15	4317540	567715
T2	0.3	70	10.69	0.01	1535	15	4317541	567712
T3	0.3	70	10.69	0.01	1535	15	4317543	567717
T4	0.3	70	10.69	0.01	1535	15	4317545	567715
T5	0.3	70	10.69	0.01	1535	15	4317546	567721
T6	0.3	70	10.69	0.01	1535	16	4317548	567717
T7	0.3	70	10.69	0.01	1535	16	4317550	567721



T8	0.3	70	10.69	0.01	1535	16	4317551	567719
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<sup>1</sup> Give at operating conditions. Include inerts.

<sup>2</sup> 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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.)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> 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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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 <sup>1</sup>	Maximum Potential Uncontrolled Emissions <sup>2</sup>		Maximum Potential Controlled Emissions <sup>3</sup>		Est. Method Used <sup>4</sup>
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads	Particulate Matter	1.86	0.72			AP-42
Unpaved Haul Roads						
Storage Pile Emissions						
Loading/Unloading Operations						
Wastewater Treatment Evaporation & Operations						
Equipment Leaks	Glutaraldehyde (CAS 111-30-8) Alkyl dimethyl benzyl ammonium chloride (C12-18) (CAS 68391-01-5) Alkyldimethyl(ethylbenzyl) ammonium chloride (C12-18) (CAS 68956-79-6) Alkylamine halide salt (CAS Proprietary) Quaternary ammonium compounds, benzyl-C12-16-alkylmethyl, chlorides (CAS 68424-85-1) Ethanol (CAS 64-17-5) Methanol (CAS 67-56-1) 2-Butoxyethanol (CAS 111-76-2)	Does not apply	0.76	Does not apply		AP-42

General Clean-up VOC Emissions						
Other						

<sup>1</sup> List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS<sub>2</sub>, VOCs, H<sub>2</sub>S, Inorganics, Lead, Organics, O<sub>3</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub>, SO<sub>3</sub>, all applicable Greenhouse Gases (including CO<sub>2</sub> and methane), etc. DO NOT LIST H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.

<sup>2</sup> 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).

<sup>3</sup> 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).

<sup>4</sup> 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**  
**Emissions Unit Data**

## **Bulk Liquid Transfer Operations**

**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 <i>Equipment List Form</i> ):				
1. Loading Area Name: LOAD 1				
2. Type of cargo vessels accommodated at this rack or transfer point (check as many as apply):				
<input type="checkbox"/> Drums <input type="checkbox"/> Marine Vessels <input type="checkbox"/> Rail Tank Cars <input checked="" type="checkbox"/> Tank Trucks				
3. Loading Rack or Transfer Point Data:				
Number of pumps		2		
Number of liquids loaded				
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?				
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Does not apply				
5. Describe cleaning location, compounds and procedure for cargo vessels using this transfer point:				
6. Are cargo vessels pressure tested for leaks at this or any other location?				
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
If YES, describe:				
7. Projected Maximum Operating Schedule (for rack or transfer point as a whole):				
Maximum	Jan. - Mar.	Apr. - June	July - Sept.	Oct. - Dec.
hours/day	10	10	10	10
days/week	6	6	6	6



weeks/quarter	12	12	12	12
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8. Bulk Liquid Data <i>(add pages as necessary):</i>						
Pump ID No.		LOAD 1				
Liquid Name		Organic Chemicals				
Max. daily throughput (1000 gal/day)		2.67				
Max. annual throughput (1000 gal/yr)		975				
Loading Method <sup>1</sup>		BF, SUB				
Max. Fill Rate (gal/min)		30				
Average Fill Time (min/loading)		11				
Max. Bulk Liquid Temperature (°F)		95				
True Vapor Pressure <sup>2</sup>		3.5954				
Cargo Vessel Condition <sup>3</sup>		C				
Control Equipment or Method <sup>4</sup>						
Minimum control efficiency (%)						
Maximum Emission Rate	Loading (lb/hr)					
	Annual (lb/yr)					
Estimation Method <sup>5</sup>		EPA				
<sup>1</sup> BF = Bottom Fill      SP = Splash Fill      SUB = Submerged Fill						
<sup>2</sup> At maximum bulk liquid temperature						
<sup>3</sup> B = Ballasted Vessel, C = Cleaned, U = Uncleaned (dedicated service), O = other (describe)						
<sup>4</sup> List as many as apply (complete and submit appropriate <i>Air Pollution Control Device Sheets</i> ): CA = Carbon Adsorption      LOA = Lean Oil Adsorption CO = 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 (describe)						
<sup>5</sup> 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

#### RECORDKEEPING

NALCO Company will maintain monthly and rolling 12 month throughput and emissions records.

#### REPORTING

#### 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

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

N/A

**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 <i>Equipment List Form</i> ): S10				
1. Loading Area Name: LOAD 2				
2. Type of cargo vessels accommodated at this rack or transfer point (check as many as apply): <input type="checkbox"/> Drums <input type="checkbox"/> Marine Vessels <input type="checkbox"/> Rail Tank Cars <input checked="" type="checkbox"/> Tank Trucks				
3. Loading Rack or Transfer Point Data:				
Number of pumps	2			
Number of liquids loaded				
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? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Does not apply				
5. Describe cleaning location, compounds and procedure for cargo vessels using this transfer point:				
6. Are cargo vessels pressure tested for leaks at this or any other location? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If YES, describe:				
7. Projected Maximum Operating Schedule (for rack or transfer point as a whole):				
Maximum	Jan. - Mar.	Apr. - June	July - Sept.	Oct. - Dec.
hours/day	10	10	10	10
days/week	6	6	6	6

weeks/quarter	12	12	12	12
---------------	----	----	----	----

8. Bulk Liquid Data <i>(add pages as necessary):</i>							
Pump ID No.		LOAD 2					
Liquid Name		Organic Chemicals					
Max. daily throughput (1000 gal/day)		2.67					
Max. annual throughput (1000 gal/yr)		975					
Loading Method <sup>1</sup>		BF, SUB					
Max. Fill Rate (gal/min)		80					
Average Fill Time (min/loading)		100					
Max. Bulk Liquid Temperature (°F)		95					
True Vapor Pressure <sup>2</sup>		3.5954					
Cargo Vessel Condition <sup>3</sup>		C					
Control Equipment or Method <sup>4</sup>							
Minimum control efficiency (%)							
Maximum Emission Rate							
Estimation Method <sup>5</sup>		EPA					
<sup>1</sup> BF = Bottom Fill      SP = Splash Fill      SUB = Submerged Fill							
<sup>2</sup> At maximum bulk liquid temperature							
<sup>3</sup> B = Ballasted Vessel, C = Cleaned, U = Uncleaned (dedicated service), O = other (describe)							
<sup>4</sup> List as many as apply (complete and submit appropriate <i>Air Pollution Control Device Sheets</i> ): CA = Carbon Adsorption      LOA = Lean Oil Adsorption CO = 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 (describe)							
<sup>5</sup> 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**

**RECORDKEEPING**

NALCO Company will maintain monthly and 12 month rolling throughput and emissions records.

**REPORTING**

**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

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT/AIR POLLUTION CONTROL DEVICE.

10. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty

N/A

## **Chemical Processes**



# Attachment L

## EMISSIONS UNIT DATA SHEET

### CHEMICAL PROCESS

For chemical processes please fill out this sheet and all supplementary forms (see below) that apply. Please check all supplementary forms that have been completed.

- ☐ *Emergency Vent Summary Sheet*  
☒ *Leak Sources Data Sheet*  
☐ *Toxicology Data Sheet*  
☐ *Reactor Data Sheet*  
☐ *Distillation Column Data Sheet*

1. Chemical process area name and equipment ID number (as shown in *Equipment List Form*)  
 Tank farm

2. Standard Industrial Classification Codes (SICs) for process(es)  
 5169

3. List raw materials and ☒ attach MSDSs  
 Glutaraldehyde, Alkyl dimethyl benzyl ammonium chloride (C12-18), Alkyldimethyl(ethylbenzyl) ammonium chloride (C12-18), Alkylamine halide salt, Quaternary ammonium compounds, benzyl-C12-16-alkylmethyl, chlorides, Ethanol, Methanol, 2-Butoxyethanol, Water

4. List Products and Maximum Production and ☒ attach MSDSs

Description and CAS Number	Maximum Hourly (lb/hr)	Maximum Annual (ton/year)
Bactron K-87	9.34	0.712
Bactron K-139	8.17	0.732
Assure HI-18	7.07	0.482
Methanol	5.93	0.306

5. Complete the *Emergency Vent Summary Sheet* for all emergency relief devices.

6. Complete the *Leak Source Data Sheet* and describe below or attach to application the leak detection or maintenance program to minimize fugitive emissions. Include detection instruments, calibration gases or methods, planned inspection frequency, and record-keeping, and similar pertinent information. If subject to a rule requirement (e.g. 40CFR60, Subpart VV), please list those here.

7. Clearly describe below or attach to application Accident Procedures to be followed in the event of an accidental spill or release.

8A. Complete the <i>Toxicology Data Sheet</i> or attach to application a toxicology report (an up-to-date material safety data sheets (MSDS) may be used) outlining the currently known acute and chronic health effects of each compound or chemical entity emitted to the air. If these compounds have already been listed in Item 3, then a duplicate MSDS sheet is not required. Include data such as the OSHA time weighted average (TWA) or mutagenicity, teratogenicity, irritation, and other known or suspected effects should be addressed. Indicate where these are unknown, and provide references.			
8B. Describe any health effects testing or epidemiological studies on these compounds that are being or may be conducted by the company or required under TSCA, RCRA or other federal regulations. Discuss the persistence in the environment of any emission (e.g. pesticides, etc.).			
9. <b>Waste Products</b> - Waste products status: (If source is subject to RCRA or 45CSR25, please contact the Hazardous Waste Section of WVDEP, OAQ at (304) 926-3647.)			
9A. Types and amounts of wastes to be disposed:			
9B. Method of disposal and location of waste disposal facilities: Carrier: _____ Phone: _____			
9C. Check here if approved USEPA/State Hazardous Waste Landfill will be used <input type="checkbox"/>			
10. Maximum and Projected Typical Operating Schedule for process or project as a whole (circle appropriate units).			
circle units:	(hrs/day) (hr/batch)	(days), (batches/day), (batches/week)	(days/yr), (weeks/year)
10A. Maximum			
10B. Typical			
11. Complete a <i>Reactor Data Sheet</i> for each reactor in this chemical process.			
12. Complete a <i>Distillation Column Data Sheet</i> for each distillation column in this chemical process.			
13. <b>Proposed Monitoring, Recordkeeping, Reporting, and Testing</b> 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		RECORDKEEPING	
REPORTING		TESTING	
<b>MONITORING.</b> 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 or air pollution control			
<b>RECORDKEEPING.</b> Please describe the proposed recordkeeping that will accompany the monitoring.			
<b>REPORTING.</b> Please describe the proposed frequency of reporting of the recordkeeping.			
<b>TESTING.</b> Please describe any proposed emissions testing for this process equipment or air pollution control			
14. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty			

## INFORMATION REQUIRED FOR CHEMICAL PROCESSES

The notes listed below for chemical processes are intended to help the applicant submit a complete application to the OAQ; these notes are not intended to be all inclusive. The requirements for a complete application for a permit issued under 45CSR13 are designed to provide enough information for a permit reviewer to begin a technical review. Additional information beyond that identified may be required to complete the technical review of any individual application.

### Process Description

Please keep these points in mind when completing your process description as part of this permit application.

1. Provide a general process overview. This brief, but complete, process description should include chemical or registered trademark names of chemical products, intermediates, and/or raw materials to be produced or consumed, and the ultimate use(s) of the product(s). A list of the various chemical compounds is helpful.
2. Describe each process step. Include the process chemistry and stoichiometrically balanced reaction equation or material mass balance on all components.
3. Describe the methods and equipment used to receive, store, handle, and charge raw materials.
4. Describe the methods and equipment used to handle, store, or package final products and intermediates.
5. Provide process flow diagrams or equipment layout drawings which clearly show the process flow relationships among all pieces of process and control equipment. Identify all air emission discharge points. Discuss instrumentation and controls for the process.
6. Discuss the possibilities of process upsets, the duration and frequency of upsets, and consequences (including air emissions) of these upsets. Include a description of rupture discs, pressure relief valves, and secondary containment systems.
7. Discuss any fugitive emissions and the methods used to minimize them.
8. Include the following plans for the process if available:
  - a. preventative maintenance and malfunction abatement plan (recommended for all control equipment).
  - b. continuous emissions (in-stack) monitoring plan
  - c. ambient monitoring plan
  - d. emergency response plan

### Regulatory Discussion

The following state and federal air pollution control regulations may be applicable to your chemical process. You should review these regulations carefully to determine if they apply to your process. Please summarize the results of your review in your permit application along with any other regulations you believe are applicable.

- Title 45 Legislative Rule Division of Environmental Protection, Office of Air Quality contains West Virginia's air pollution control regulations, including the following promulgated rules which may require emissions reductions or control technologies for your chemical process:
  - a. 45CSR27 - Best Available Technology (BAT) for Toxic Air Pollutants (TAPs)
  - b. 45CSR21 - VOC emissions controls for ozone maintenance in Kanawha, Cabell, Putnam, Wayne, and Wood counties.
  - c. 45CSR13 (Table 45-13A) - plantwide emission thresholds for permitting for certain pollutants.
- Federal Guidelines for case-by-case MACT determinations under section 112(g) of the 1990 CAAA for individual and total HAPs greater than 10 and 25 tons per year, respectively.
- There are also subparts of the federal Standards of Performance for New Stationary Sources (NSPS), 40CFR60, and the National Emission Standards for Hazardous Air Pollutants (NESHAP) at 40CFR61 and 40CFR63, which apply to various chemical and nonchemical processes. These subparts are too numerous to list here, but these areas of the federal regulations should be consulted carefully to determine applicability to your process.

### Emissions Summary and Calculations

Please keep these points in mind when submitting your emissions calculations as part of this permit application.

1. For each pollutant, provide the basis for the emissions estimate and for all emission reduction(s) or control efficiency(ies) claimed.
2. For all batch processes provide the following
  - a. Emissions of each pollutant in pound(s) per batch, from each process step
  - b. Annual emissions based on number of batches requested per year
  - c. The total time for each process step and the duration of the emissions during the process step
  - d. Total batch time, total emissions per batch (or per day), and annual emissions based on the number of batches requested per year.

## EMERGENCY VENT SUMMARY SHEET

List below all emergency relief devices, rupture disks, safety relief valves, and similar openings that will vent only under abnormal conditions.

[illegible]

All routine vents (non-emergency) should be listed on the *Emission Points Data Summary Sheet*.

<sup>1</sup> Indicate the emission point, if any, to which source equipment normally vents. Do not assign emission point ID numbers to each emergency relief vent or device.

<sup>2</sup> List all emergency relief devices next to the piece of equipment from which they control releases.

## LEAK SOURCE DATA SHEET

Source Category	Pollutant	Number of Source Components <sup>1</sup>	Number of Components Monitored by Frequency <sup>2</sup>	Average Time to Repair (days) <sup>3</sup>	Estimated Annual Emission Rate (lb/yr) <sup>4</sup>
Pumps <sup>5</sup>	light liquid VOC <sup>6,7</sup>	2	0		0.381
	heavy liquid VOC <sup>8</sup>				
	Non-VOC <sup>9</sup>				
Valves <sup>10</sup>	Gas VOC				
	Light Liquid VOC	24	0		0.3679
	Heavy Liquid VOC				
	Non-VOC				
Safety Relief Valves <sup>11</sup>	Gas VOC				
	Non VOC				
Open-ended Lines <sup>12</sup>	VOC				
	Non-VOC				
Sampling Connections <sup>13</sup>	VOC				
	Non-VOC				
Compressors	VOC				
	Non-VOC				
Flanges	VOC	24	0		0.0526
	Non-VOC				
Other	VOC				
	Non-VOC				

<sup>1 - 13</sup> See notes on the following page.

## Notes for Leak Source Data Sheet

1. For VOC sources include components on streams and equipment that contain greater than 10% w/w VOC, including feed streams, reaction/separation facilities, and product/by-product delivery lines. Do not include certain leakless equipment as defined below by category.
2. By monitoring frequency, give the number of sources routinely monitored for leaks, using a portable detection device that measures concentration in ppm. Do not include monitoring by visual or soap-bubble leak detection methods. "M/Q(M)/Q/SA/A/O" means the time period between inspections as follows:

Monthly/Quarterly, with Monthly follow-up of repaired leakers/Quarterly/Semi-annual/Annually/Other (specify time period)

If source category is not monitored, a single zero in the space will suffice. For example, if 50 gas-service valves are monitored quarterly, with monthly follow-up of those repaired, 75 are monitored semi-annually, and 50 are checked bimonthly (alternate months), with none checked at any other frequency, you would put in the category "valves, gas service:" 0/50/0/75/0/50 (bimonthly).

3. Give the average number of days, after a leak is discovered, that an attempt will be made to repair the leak.
4. Note the method used: MB - material balance; EE - engineering estimate; EPA - emission factors established by EPA (cite document used); O - other method, such as in-house emission factor (specify).
5. Do not include in the equipment count sealless pumps (canned motor or diaphragm) or those with enclosed venting to a control device. (Emissions from vented equipment should be included in the estimates given in the Emission Points Data Sheet.)
6. Volatile organic compounds (VOC) means the term as defined in 40 CFR §51.100 (s).
7. A light liquid is defined as a fluid with vapor pressure equal to or greater than 0.04 psi (0.3 Kpa) at 20°C. For mixtures, if 20% w/w or more of the stream is composed of fluids with vapor pressures greater than 0.04 psi (0.3 Kpa) at 20 °C, then the fluid is defined as a light liquid.
8. A heavy liquid is defined as a fluid with a vapor pressure less than 0.04 psi (0.3 Kpa) at 20°C. For mixtures, if less than 20% w/w of the stream is composed of fluids with vapor pressures greater than 0.04 psi (0.3 Kpa) at 20 °C, then the fluid is defined as a heavy liquid.
9. LIST CO, H<sub>2</sub>S, mineral acids, NO, NO<sub>2</sub>, SO<sub>3</sub>, etc. DO NOT LIST CO<sub>2</sub>, H<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>, O<sub>2</sub>, and Noble Gases.
10. Include all process valves whether in-line or on an open-ended line such as sample, drain and purge valves. Do not include safety-relief valves, or leakless valves such as check, diaphragm, and bellows seal valves.
11. Do not include a safety-relief valve if there is a rupture disk in place upstream of the valve, or if the valve vents to a control device.
12. Open-ended lines include purge, drain and vent lines. Do not include sampling connections, or lines sealed by plugs, caps, blinds or second valves.
13. Do not include closed-purge sampling connections.

## TOXICOLOGY DATA SHEET<sup>1</sup>

[illegible]

<sup>1</sup> Indicate by "ND" where no data exists, in company's knowledge.

<sup>2</sup> Time Weighted Average, Ceiling Limit, or other, with units.

<sup>3</sup> If inhalation data is not available, provide other data as available.

<sup>4</sup> Relying on animal or human studies, indicate if any data suggests: C = carcinogenicity, M = mutagenicity, T = teratogenicity, O = oncogenicity.

<sup>5</sup> Indicate if there are dermal or eye irritation effects and whether they are considered to be low, moderate, or severe.

## REACTOR DATA SHEET

Provide the following information for each piece of equipment that is a potential or actual source of emissions as shown on the *Equipment List Form* and other parts of application.

Identification Number (as shown on <i>Equipment List Form</i> ):							
1. Name and type of equipment (e.g. CSTR, plug flow, batch, etc.)							
2. Type of operation <input type="checkbox"/> Batch <input type="checkbox"/> Continuous <input type="checkbox"/> Semi-batch							
3. Projected Actual Equipment Operating Schedule (complete appropriate lines):							
hrs/day		days/week		weeks/year			
hrs/batch		batches/day, weeks (Circle one)		day, weeks/yr (Circle one)			
4. Feed Data      Flow In =      gal/hr, or gal/batch							
Material Name & CAS No.	Phase <sup>a</sup>	Specific Gravity	Vapor Pressure <sup>b</sup>	Charge Rate			Fill Time (min/batch, run) <sup>c</sup>
				Normal	Max	Units	
a. S = Solid, L = Liquid, G = gas or vapor b. At feed conditions c. Total time that equipment is filling per batch or run (start-up), for tank or vessel-type equipment.							
5. Provide all <b>chemical reactions</b> that will be involved (if applicable), including the residence time and any side reactions that may occur as well as gases that may be generated during these reactions. Indicate if the reaction(s) are exothermic or endothermic.							



6. Maximum Temperature  <div style="text-align: right;">°C</div> <div style="text-align: right;">°F</div>				7A. Maximum Pressure 7B. Max. Set Pressure for venting  <div style="text-align: right;">mmHg</div> <div style="text-align: right;">mmHg</div> <div style="text-align: right;">psig</div> <div style="text-align: right;">psig</div>		
---	--	--	--	--	--	--

8. Output Data      Flow Out = <span style="float: right;">gal/hr or gal/batch</span>						
Material Name and CAS No.	Phase	Specific Gravity	Vapor Pressure	Hourly or Batch Output Rate		Units
				Normal	Maximum	

9. Complete the following emission data for equipment connected to a header exhaust system, giving emissions levels before entering header system (i.e. before control equipment).  
☐ Check here if not applicable  
 Emission Point ID (exhaust point of header system):

Material Name and CAS No.	Maximum Potential Emission Rate (lb/hr)	Method **

\*\* MB - material balance: EE - Engineering Estimate: TM - Test Measurement (submit test data): O - other (Explain)

10. Provide the following information pertaining to each condenser that may be attached to this reactor. Attach additional pages as necessary if more than one condenser is used for this reactor. Complete the Condenser Air Pollution Control Device Sheet if necessary.

☐ Check here if not applicable

10A. Cooling material

10B. Minimum and Maximum flowrate of cooling material (gal/hr)

10C. Inlet temperature of cooling material (°F)

10D. Outlet temperature of cooling material (°F)

10E. Pressure drop of gas to be condensed from inlet to outlet (psig)

10F. Inlet temperature of gas stream (°F)

10G. Outlet temperature of gas stream (°F)

10H. Number of passes

10I. Cooling surface area

11. Provide the following pertaining to auxiliary equipment that burns fuel (heaters, dryers, etc.):

☐ Check here if not applicable

11A. Type of fuel and maximum fuel burn rate, per hour:

11B. Provide maximum percent sulfur (S), ash content of fuel, and the energy content using appropriate units:

%S

% Ash

BTU/lb, std. ft<sup>3</sup>/day, gal

(circle one)

11C. Theoretical combustion air requirement in SCFD per unit of fuel (circle appropriate unit) @ 70°F and 14.7 PSIA:

SCFD/lb, SCFD, gal (circle one)

11D. Percent excess air: %

11E. Type, amount, and BTU rating of burners and all other firing equipment that are planned to be used:

11F. Total maximum design heat input: ×10<sup>6</sup> BTU/hr.

**12. 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

RECORDKEEPING

REPORTING

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 OR AIR POLLUTION CONTROL DEVICE.

**RECORDKEEPING.** PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.

**REPORTING.** PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.

**TESTING.** PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT OR AIR POLLUTION CONTROL DEVICE.

**13. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty**

NOTE: An *AIR POLLUTION CONTROL DEVICE SHEET* must be completed for any air pollution device(s) (except emergency relief devices) used to control emissions from this reactor.

## DISTILLATION COLUMN DATA SHEET

Identification Number (as assigned on <i>Equipment List Form</i> ):			
1. Name and type of equipment			
#. Projected actual equipment operating schedule (complete appropriate lines):			
hrs/day	days/week	weeks/year	
hrs/batch	batches/day, batches/week		days/yr,
weeks/yr			
2. Number of stages (plates), excluding condenser			
3. Number of feed plates and stage location			
4. Specify details of any reheating, recycling, or stage conditioning along with the stage locations			
5. Specify reflux ratio, R (where R is defined as the ratio of the reflux to the overhead product, given symbolically as $R=L/D$ , where L = liquid down column, D = distillation product)			
6. Specify the fraction of feed which is vaporized, f (where f is the molal fraction of the feed that leaves the feed plate continuously as vapor).			
7A. Type of condenser used: <input type="checkbox"/> total <input type="checkbox"/> partial <input type="checkbox"/> multiple <input type="checkbox"/> other			
7B. For each condenser provide process operating details including all inlet and outlet temperatures, pressures, and compositions.			
8. Feed Characteristics			
A. Molar composition			
B. Individual vapor pressure of each component			
C. Total feed stage pressure			
D. Total feed stage temperature			
E. Total mass flow rate of each stream into the system			
9. Overhead Product			
A. Molar composition of components			
B. Vapor pressure of components			
C. Total mass flow rate of all streams leaving the system as overhead products			
10. Bottom Product			
A. Molar composition of all components			
B. Total mass flow rate of all streams leaving the system as bottom products			

11. General Information A. Distillation column diameter B. Distillation column height C. Type of plates D. Plate spacing E. Murphree plate efficiency F. Any other information necessary of describe the operation of this distillation column.	
12. <b>Proposed Monitoring, Recordkeeping, Reporting, and Testing</b> 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	RECORDKEEPING
REPORTING	TESTING
<p><b>MONITORING.</b> 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 OR AIR POLLUTION CONTROL DEVICE.</p> <p><b>RECORDKEEPING.</b> PLEASE DESCRIBE THE PROPOSED RECORDKEEPING THAT WILL ACCOMPANY THE MONITORING.</p> <p><b>REPORTING.</b> PLEASE DESCRIBE THE PROPOSED FREQUENCY OF REPORTING OF THE RECORDKEEPING.</p> <p><b>TESTING.</b> PLEASE DESCRIBE ANY PROPOSED EMISSIONS TESTING FOR THIS PROCESS EQUIPMENT OR AIR POLLUTION CONTROL DEVICE.</p>	
13. Describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty	

NOTE: An *AIR POLLUTION CONTROL DEVICE SHEET* must be completed for any air pollution device(s) (except emergency relief devices) used to control emissions from this distillation column.

## **Haul Road Emissions**

## Attachment L

### FUGITIVE EMISSIONS FROM UNPAVED HAULROADS

*UNPAVED HAULROADS (including all equipment traffic involved in process, haul trucks, endloaders, etc.)*

		PM	PM-10
k =	Particle size multiplier	0.80	0.36
s =	Silt content of road surface material (%)		
p =	Number of days per year with precipitation >0.01 in.		

Item Number	Description	Number of Wheels	Mean Vehicle Weight (tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximum Trips per Hour	Maximum Trips per Year	Control Device ID Number	Control Efficiency (%)
1									
2									
3									
4									
5									
6									
7									
8									

**Source:** AP-42 Fifth Edition – 13.2.2 Unpaved Roads

$$E = k \times 5.9 \times (s \div 12) \times (S \div 30) \times (W \div 3)^{0.7} \times (w \div 4)^{0.5} \times ((365 - p) \div 365) = \text{lb/Vehicle Mile Traveled (VMT)}$$

Where:

		PM	PM-10
k =	Particle size multiplier	0.80	0.36
s =	Silt content of road surface material (%)		
S =	Mean vehicle speed (mph)		
W =	Mean vehicle weight (tons)		
w =	Mean number of wheels per vehicle		
p =	Number of days per year with precipitation >0.01 in.		

For lb/hr:  $[\text{lb} \div \text{VMT}] \times [\text{VMT} \div \text{trip}] \times [\text{Trips} \div \text{Hour}] = \text{lb/hr}$

For TPY:  $[\text{lb} \div \text{VMT}] \times [\text{VMT} \div \text{trip}] \times [\text{Trips} \div \text{Hour}] \times [\text{Ton} \div 2000 \text{ lb}] = \text{Tons/year}$

#### SUMMARY OF UNPAVED HAULROAD EMISSIONS

Item No.	PM				PM-10			
	Uncontrolled lb/hr		Controlled lb/hr		Uncontrolled lb/hr		Controlled lb/hr	
		TPY		TPY		TPY		TPY
1								
2								
3								
4								
5								
6								
7								
8								
TOTALS								

## FUGITIVE EMISSIONS FROM PAVED HAULROADS

**INDUSTRIAL PAVED HAULROADS** (including all equipment traffic involved in process, haul trucks, endloaders, etc.)

I =	Industrial augmentation factor (dimensionless)	
n =	Number of traffic lanes	1
s =	Surface material silt content (%)	4.3
L =	Surface dust loading (lb/mile)	

Item Number	Description	Mean Vehicle Weight (tons)	Miles per Trip	Maximum Trips per Hour	Maximum Trips per Year	Control Device ID Number	Control Efficiency (%)
1	Tanker Truck	45	0.306	2	1560		
2							
3							
4							
5							
6							
7							
8							

**Source:** AP-42 Fifth Edition – 11.2.6 Industrial Paved Roads

$$E = 0.077 \times I \times (4 \div n) \times (s \div 10) \times (L \div 1000) \times (W \div 3)^{0.7} = \text{lb/Vehicle Mile Traveled (VMT)}$$

Where:

I =	Industrial augmentation factor (dimensionless)	
n =	Number of traffic lanes	1
s =	Surface material silt content (%)	4.3
L =	Surface dust loading (lb/mile)	
W =	Average vehicle weight (tons)	45

For lb/hr:  $[lb \div VMT] \times [VMT \div trip] \times [Trips \div Hour] = \text{lb/hr}$

For TPY:  $[lb \div VMT] \times [VMT \div trip] \times [Trips \div Hour] \times [Ton \div 2000 lb] = \text{Tons/year}$

### SUMMARY OF PAVED HAULROAD EMISSIONS

Item No.	Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY
1	1.86	0.72		
2				
3				
4				
5				
6				
7				
8				
TOTALS	1.86	0.72		



## **Storage Tanks**

## 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](http://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 Tank Farm	2. Tank Name Tank 6
3. Tank Equipment Identification No. (as assigned on <i>Equipment List Form</i> ) T6	4. Emission Point Identification No. (as assigned on <i>Equipment List Form</i> ) 6S
5. Date of Commencement of Construction (for existing tanks) April 1st, 2015	
6. Type of change <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> New Stored Material <input checked="" type="checkbox"/> Other Tank Modification	
7. Description of Tank Modification (if applicable) 6,014 gallon Vertical Fixed Roof Storage Tank.	
7A. Does the tank have more than one mode of operation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (e.g. Is there more than one product stored in the tank?)	
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.):	

### II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. <div style="text-align: right;">6,014 gallons</div>	
9A. Tank Internal Diameter (ft) <div style="text-align: center;">8</div>	9B. Tank Internal Height (or Length) (ft) <div style="text-align: center;">16</div>
10A. Maximum Liquid Height (ft) <div style="text-align: center;">15</div>	10B. Average Liquid Height (ft) <div style="text-align: center;">8</div>
11A. Maximum Vapor Space Height (ft) <div style="text-align: center;">15</div>	11B. Average Vapor Space Height (ft) <div style="text-align: center;">8</div>
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. <div style="text-align: right;">804 cubic feet</div>	

13A. Maximum annual throughput (gal/yr) 300,000	13B. Maximum daily throughput (gal/day) 20,000
14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume) 53.2	
15. Maximum tank fill rate (gal/min) 80	
16. Tank fill method <input checked="" type="checkbox"/> Submerged <input type="checkbox"/> Splash <input checked="" type="checkbox"/> Bottom Loading	
17. Complete 17A and 17B for Variable Vapor Space Tank Systems <input checked="" type="checkbox"/> 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): <input checked="" type="checkbox"/> Fixed Roof    X vertical      ___ horizontal      ___ flat roof      X cone roof      ___ dome roof ___ other (describe) <input type="checkbox"/> External Floating Roof      ___ pontoon roof      ___ double deck roof <input type="checkbox"/> Domed External (or Covered) Floating Roof <input type="checkbox"/> Internal Floating Roof      ___ vertical column support      ___ self-supporting <input type="checkbox"/> Variable Vapor Space      ___ lifter roof      ___ diaphragm <input type="checkbox"/> Pressurized      ___ spherical      ___ cylindrical <input type="checkbox"/> Underground <input type="checkbox"/> Other (describe)	

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

19. Tank Shell Construction: <b>SEE APPENDIX C</b> <input type="checkbox"/> Riveted <input type="checkbox"/> Gunitite lined <input type="checkbox"/> Epoxy-coated rivets <input type="checkbox"/> Other (describe)		
20A. Shell Color	20B. Roof Color	20C. Year Last Painted
21. Shell Condition (if metal and unlined): <input type="checkbox"/> No Rust <input type="checkbox"/> Light Rust <input type="checkbox"/> Dense Rust <input type="checkbox"/> Not applicable		
22A. Is the tank heated? <input type="checkbox"/> YES <input type="checkbox"/> 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 <b>Vertical Fixed Roof Tanks</b> <input type="checkbox"/> 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 <b>Floating Roof Tanks</b> <input type="checkbox"/> Does Not Apply		
25A. Year Internal Floaters Installed:		
25B. Primary Seal Type: <input type="checkbox"/> Metallic (Mechanical) Shoe Seal <input type="checkbox"/> Liquid Mounted Resilient Seal <input type="checkbox"/> Vapor Mounted Resilient Seal <input type="checkbox"/> Other (describe):		
25C. Is the Floating Roof equipped with a Secondary Seal? <input type="checkbox"/> YES <input type="checkbox"/> NO		
25D. If YES, how is the secondary seal mounted? (check one) <input type="checkbox"/> Shoe <input type="checkbox"/> Rim <input type="checkbox"/> Other (describe):		
25E. Is the Floating Roof equipped with a weather shield? <input type="checkbox"/> YES <input type="checkbox"/> 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 <span style="float: right;"><input type="checkbox"/> Does Not Apply</span>	
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: <input type="checkbox"/> Continuous sheet construction 5 feet wide <input type="checkbox"/> Continuous sheet construction 6 feet wide <input type="checkbox"/> Continuous sheet construction 7 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 7.5 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 12 feet wide <input type="checkbox"/> Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft <sup>2</sup> )
For column supported tanks:	26G. Diameter of each column:
26F. Number of columns:	

**IV. SITE INFORMATION** (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. <b>SEE APPENDIX C</b>
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 <sup>2</sup> ·day))
33. Atmospheric Pressure (psia)

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

34. Average daily temperature range of bulk liquid: <b>SEE APPENDIX C</b>	
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 necessary.	
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<sup>1</sup>

☐ Condenser<sup>1</sup>

☐ Conservation Vent (psig)

Vacuum Setting

Pressure Setting

☐ Emergency Relief Valve (psig)

☐ Inert Gas Blanket of

☐ Insulation of Tank with

☐ Liquid Absorption (scrubber)<sup>1</sup>

☐ Refrigeration of Tank

☐ Rupture Disc (psig)

☐ Vent to Incinerator<sup>1</sup>

☐ Other<sup>1</sup> (describe):

<sup>1</sup> Complete appropriate Air Pollution Control Device Sheet.

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

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss		Annual Loss (lb/yr)	Estimation Method <sup>1</sup>
		Amount	Units		
Methanol 67-56-1	0.019	326.49	lbs/yr	492	AP-42
2-Butoxyethanol 111-76-2	0.0002	3.30	lbs/yr	4.96	AP-42

<sup>1</sup> 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](http://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 Tank Farm	2. Tank Name Tank 7
3. Tank Equipment Identification No. (as assigned on <i>Equipment List Form</i> ) T7	4. Emission Point Identification No. (as assigned on <i>Equipment List Form</i> ) 7S
5. Date of Commencement of Construction (for existing tanks) April 1st, 2015	
6. Type of change <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> New Stored Material <input checked="" type="checkbox"/> Other Tank Modification	
7. Description of Tank Modification (if applicable) 6,014 gallon Vertical Fixed Roof Storage Tank.	
7A. Does the tank have more than one mode of operation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (e.g. Is there more than one product stored in the tank?)	
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.):	

### II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. <div style="text-align: right;">6,014 gallons</div>	
9A. Tank Internal Diameter (ft) <div style="text-align: center;">8</div>	9B. Tank Internal Height (or Length) (ft) <div style="text-align: center;">16</div>
10A. Maximum Liquid Height (ft) <div style="text-align: center;">15</div>	10B. Average Liquid Height (ft) <div style="text-align: center;">8</div>
11A. Maximum Vapor Space Height (ft) <div style="text-align: center;">15</div>	11B. Average Vapor Space Height (ft) <div style="text-align: center;">8</div>
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. <div style="text-align: right;">804 cubic feet</div>	

13A. Maximum annual throughput (gal/yr) 250,000	13B. Maximum daily throughput (gal/day) 20,000
14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume) 44.3	
15. Maximum tank fill rate (gal/min) 80	
16. Tank fill method <input checked="" type="checkbox"/> Submerged <input type="checkbox"/> Splash <input checked="" type="checkbox"/> Bottom Loading	
17. Complete 17A and 17B for Variable Vapor Space Tank Systems <input checked="" type="checkbox"/> 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): <input checked="" type="checkbox"/> Fixed Roof    X vertical      ___ horizontal      ___ flat roof      X cone roof      ___ dome roof ___ other (describe) <input type="checkbox"/> External Floating Roof      ___ pontoon roof      ___ double deck roof <input type="checkbox"/> Domed External (or Covered) Floating Roof <input type="checkbox"/> Internal Floating Roof      ___ vertical column support      ___ self-supporting <input type="checkbox"/> Variable Vapor Space      ___ lifter roof      ___ diaphragm <input type="checkbox"/> Pressurized      ___ spherical      ___ cylindrical <input type="checkbox"/> Underground <input type="checkbox"/> Other (describe)	

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

19. Tank Shell Construction: <b>SEE APPENDIX C</b> <input type="checkbox"/> Riveted <input type="checkbox"/> Gunitite lined <input type="checkbox"/> Epoxy-coated rivets <input type="checkbox"/> Other (describe)		
20A. Shell Color	20B. Roof Color	20C. Year Last Painted
21. Shell Condition (if metal and unlined): <input type="checkbox"/> No Rust <input type="checkbox"/> Light Rust <input type="checkbox"/> Dense Rust <input type="checkbox"/> Not applicable		
22A. Is the tank heated? <input type="checkbox"/> YES <input type="checkbox"/> 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 <b>Vertical Fixed Roof Tanks</b> <input type="checkbox"/> 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 <b>Floating Roof Tanks</b> <input type="checkbox"/> Does Not Apply		
25A. Year Internal Floaters Installed:		
25B. Primary Seal Type: <input type="checkbox"/> Metallic (Mechanical) Shoe Seal <input type="checkbox"/> Liquid Mounted Resilient Seal <input type="checkbox"/> Vapor Mounted Resilient Seal <input type="checkbox"/> Other (describe):		
25C. Is the Floating Roof equipped with a Secondary Seal? <input type="checkbox"/> YES <input type="checkbox"/> NO		
25D. If YES, how is the secondary seal mounted? (check one) <input type="checkbox"/> Shoe <input type="checkbox"/> Rim <input type="checkbox"/> Other (describe):		
25E. Is the Floating Roof equipped with a weather shield? <input type="checkbox"/> YES <input type="checkbox"/> 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 <span style="float: right;"><input type="checkbox"/> Does Not Apply</span>	
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: <input type="checkbox"/> Continuous sheet construction 5 feet wide <input type="checkbox"/> Continuous sheet construction 6 feet wide <input type="checkbox"/> Continuous sheet construction 7 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 7.5 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 12 feet wide <input type="checkbox"/> Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft <sup>2</sup> )
For column supported tanks:	26G. Diameter of each column:
26F. Number of columns:	

**IV. SITE INFORMATION** (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. <b>SEE APPENDIX C</b>
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 <sup>2</sup> ·day))
33. Atmospheric Pressure (psia)

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

34. Average daily temperature range of bulk liquid: <b>SEE APPENDIX C</b>	
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 necessary.	
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<sup>1</sup>

☐ Condenser<sup>1</sup>

☐ Conservation Vent (psig)

Vacuum Setting

Pressure Setting

☐ Emergency Relief Valve (psig)

☐ Inert Gas Blanket of

☐ Insulation of Tank with

☐ Liquid Absorption (scrubber)<sup>1</sup>

☐ Refrigeration of Tank

☐ Rupture Disc (psig)

☐ Vent to Incinerator<sup>1</sup>

☐ Other<sup>1</sup> (describe):

<sup>1</sup> Complete appropriate Air Pollution Control Device Sheet.

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

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss		Annual Loss (lb/yr)	Estimation Method <sup>1</sup>
		Amount	Units		
Methanol 67-56-1	0.0088	228.98	lbs/yr	306	AP-42

<sup>1</sup> 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](http://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 Tank Farm	2. Tank Name Tank 8
3. Tank Equipment Identification No. (as assigned on <i>Equipment List Form</i> ) T8	4. Emission Point Identification No. (as assigned on <i>Equipment List Form</i> ) 8S
5. Date of Commencement of Construction (for existing tanks) April 1st, 2015	
6. Type of change <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> New Stored Material <input checked="" type="checkbox"/> Other Tank Modification	
7. Description of Tank Modification (if applicable) 6,014 gallon Vertical Fixed Roof Storage Tank.	
7A. Does the tank have more than one mode of operation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (e.g. Is there more than one product stored in the tank?)	
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.):	

### II. TANK INFORMATION (required)

8. Design Capacity (specify barrels or gallons). Use the internal cross-sectional area multiplied by internal height. <div style="text-align: right;">6,014 gallons</div>	
9A. Tank Internal Diameter (ft) <div style="text-align: center;">8</div>	9B. Tank Internal Height (or Length) (ft) <div style="text-align: center;">16</div>
10A. Maximum Liquid Height (ft) <div style="text-align: center;">15</div>	10B. Average Liquid Height (ft) <div style="text-align: center;">8</div>
11A. Maximum Vapor Space Height (ft) <div style="text-align: center;">15</div>	11B. Average Vapor Space Height (ft) <div style="text-align: center;">8</div>
12. Nominal Capacity (specify barrels or gallons). This is also known as "working volume" and considers design liquid levels and overflow valve heights. <div style="text-align: right;">804 cubic feet</div>	

13A. Maximum annual throughput (gal/yr) 250,000	13B. Maximum daily throughput (gal/day) 20,000
14. Number of Turnovers per year (annual net throughput/maximum tank liquid volume) 44.3	
15. Maximum tank fill rate (gal/min) 80	
16. Tank fill method <input checked="" type="checkbox"/> Submerged <input type="checkbox"/> Splash <input checked="" type="checkbox"/> Bottom Loading	
17. Complete 17A and 17B for Variable Vapor Space Tank Systems <input checked="" type="checkbox"/> 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): <input checked="" type="checkbox"/> Fixed Roof    X vertical      ___ horizontal      ___ flat roof      X cone roof      ___ dome roof ___ other (describe) <input type="checkbox"/> External Floating Roof      ___ pontoon roof      ___ double deck roof <input type="checkbox"/> Domed External (or Covered) Floating Roof <input type="checkbox"/> Internal Floating Roof      ___ vertical column support      ___ self-supporting <input type="checkbox"/> Variable Vapor Space      ___ lifter roof      ___ diaphragm <input type="checkbox"/> Pressurized      ___ spherical      ___ cylindrical <input type="checkbox"/> Underground <input type="checkbox"/> Other (describe)	

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

19. Tank Shell Construction: <b>SEE APPENDIX C</b> <input type="checkbox"/> Riveted <input type="checkbox"/> Gunitite lined <input type="checkbox"/> Epoxy-coated rivets <input type="checkbox"/> Other (describe)		
20A. Shell Color	20B. Roof Color	20C. Year Last Painted
21. Shell Condition (if metal and unlined): <input type="checkbox"/> No Rust <input type="checkbox"/> Light Rust <input type="checkbox"/> Dense Rust <input type="checkbox"/> Not applicable		
22A. Is the tank heated? <input type="checkbox"/> YES <input type="checkbox"/> 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 <b>Vertical Fixed Roof Tanks</b> <input type="checkbox"/> 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 <b>Floating Roof Tanks</b> <input type="checkbox"/> Does Not Apply		
25A. Year Internal Floaters Installed:		
25B. Primary Seal Type: <input type="checkbox"/> Metallic (Mechanical) Shoe Seal <input type="checkbox"/> Liquid Mounted Resilient Seal <input type="checkbox"/> Vapor Mounted Resilient Seal <input type="checkbox"/> Other (describe):		
25C. Is the Floating Roof equipped with a Secondary Seal? <input type="checkbox"/> YES <input type="checkbox"/> NO		
25D. If YES, how is the secondary seal mounted? (check one) <input type="checkbox"/> Shoe <input type="checkbox"/> Rim <input type="checkbox"/> Other (describe):		
25E. Is the Floating Roof equipped with a weather shield? <input type="checkbox"/> YES <input type="checkbox"/> 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 <input type="checkbox"/> Does Not Apply	
26A. Deck Type: <input type="checkbox"/> Bolted <input type="checkbox"/> Welded	
26B. For Bolted decks, provide deck construction:	
26C. Deck seam: <input type="checkbox"/> Continuous sheet construction 5 feet wide <input type="checkbox"/> Continuous sheet construction 6 feet wide <input type="checkbox"/> Continuous sheet construction 7 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 7.5 feet wide <input type="checkbox"/> Continuous sheet construction 5 × 12 feet wide <input type="checkbox"/> Other (describe)	
26D. Deck seam length (ft)	26E. Area of deck (ft <sup>2</sup> )
For column supported tanks:	26G. Diameter of each column:
26F. Number of columns:	

**IV. SITE INFORMATION** (optional if providing TANKS Summary Sheets)

27. Provide the city and state on which the data in this section are based. <b>SEE APPENDIX C</b>
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 <sup>2</sup> ·day))
33. Atmospheric Pressure (psia)

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

34. Average daily temperature range of bulk liquid: <b>SEE APPENDIX C</b>	
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 necessary.	
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<sup>1</sup>

☐ Condenser<sup>1</sup>

☐ Conservation Vent (psig)

Vacuum Setting

Pressure Setting

☐ Emergency Relief Valve (psig)

☐ Inert Gas Blanket of

☐ Insulation of Tank with

☐ Liquid Absorption (scrubber)<sup>1</sup>

☐ Refrigeration of Tank

☐ Rupture Disc (psig)

☐ Vent to Incinerator<sup>1</sup>

☐ Other<sup>1</sup> (describe):

<sup>1</sup> Complete appropriate Air Pollution Control Device Sheet.

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

Material Name & CAS No.	Breathing Loss (lb/hr)	Working Loss		Annual Loss (lb/yr)	Estimation Method <sup>1</sup>
		Amount	Units		
Methanol 67-56-1	0.0088	228.98	lbs/yr	306	AP-42

<sup>1</sup> 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 M**  
**Vapor Control**

**(Not Applicable)**

**Attachment N**  
**Supporting Emissions Calculations**

## Site Product List

Product	Status
Bactron	Existing
Gyptron	Existing
Scortron	Existing
Surfatron	Existing
Methanol	Proposed
Assure HI-18	Proposed

**NALCO Buckhannon, WV Facility  
Site Emissions Summary Table**

**Proposed Emissions (February 2015)**

Emission Source (EPN)	PM		PM10		VOC		HAP	
	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
T1	-	-	-	-	9.34	0.346	0	0
T2	-	-	-	-	8.17	0.366	0	0
T3	-	-	-	-	8.17	0.366	0	0
T4	-	-	-	-	8.17	0.366	0	0
T5	-	-	-	-	7.07	0.291	6.99	0.29
T6	-	-	-	-	5.17	0.248	5.12	0.25
T7	-	-	-	-	5.93	0.153	5.93	0.15
T8	-	-	-	-	5.93	0.153	5.93	0.15
Bulk Tank to Tote or Drum	-	-	-	-	2.79	0.243	2.79	0.22
Bulk Tank to Tank Truck	-	-	-	-	7.45	0.243	7.45	0.22
Equipment Leaks	-	-	-	-	0.17	0.759	0.09	0.38
Paved Haul Road	1.28	0.50	0.58	0.22	-	-	-	-

<b>Total</b>	<b>1.279</b>	<b>0.499</b>	<b>0.576</b>	<b>0.224</b>	<b>16.963</b>	<b>3.534</b>	<b>14.529</b>	<b>1.655</b>
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*\*The VOC calculation includes water emissions*

*\* T5 includes emissions from standing losses, breathing losses & blending losses*

**Proposed Emissions (February 2015)**

Allowable Emissions	PM		PM10		VOC		HAP	
	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
Storage Tanks					9.34	2.29	6.99	0.84
Truck, Drum & Tote Filling					7.45	0.49	7.45	0.44
Equipment Leaks					0.17	0.76	0.09	0.38
Paved Haul Road	1.28	0.50	0.58	0.22				

<b>Total</b>	<b>1.28</b>	<b>0.50</b>	<b>0.58</b>	<b>0.22</b>	<b>16.96</b>	<b>3.53</b>	<b>14.53</b>	<b>1.65</b>
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**Existing Permit No. R13-2804**

**Issued October 9, 2009**

Allowable Emissions	PM		PM10		VOC		HAP	
	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
Storage Tanks					5.55	0.07	2.55	0.03
Truck, Drum & Tote Filling					19.01	0.28	8.01	0.13
Equipment Leaks					0.29	1.29	0.04	0.17
Paved Haul Road	16.01	0.49	3.12	0.1				

**New & Increased Emissions**

Allowable Emissions	PM		PM10		VOC		HAP	
	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy	lbs/hr	tpy
Storage Tanks					-3.79	2.22	4.44	0.81
Truck, Drum & Tote Filling					-11.56	0.21	-0.56	0.31
Equipment Leaks					-0.12	-0.53	0.05	0.21
Paved Haul Road	-14.73	0.01	-2.54	0.12				

## Storage Tank Emission Calculation Methodology

NALCO specializes in blend formulations for use in the oilfield industry. Because of rapidly changing market demands, and in order to obtain an operational flexibility to handle various products, emissions presented in this section are conservatively based on the product with the highest emissions. All products handled at the site are determined from a not-to-exceed provision based on the worst-case emissions scenario. Therefore, maximum potential to emit (PTE) emissions are based on handling the product with the highest molecular weight and vapor pressure (MxP). A confidential list of approved products with each respective maximum vapor pressure and molecular weight is provided in this section.

Annual emissions from storage tanks have been estimated using the Environmental Protection Agency (EPA) TANKS4.09d software. TANKS4.09d output results are included in Attachment L of this permit application. Annual emissions are equal to the sum of the working losses plus the standing losses. Working losses occur as vapors in tank are displaced to the atmosphere by the liquid being filled into the tanks.

$$\text{Annual Emissions (TPY)} = (L_w + L_s) / (2000 \text{ lbs/ton})$$

Where,

$L_w$  = Working Losses, lbs/yr

$L_s$  = Standing Losses, lbs/yr

$$\text{Max Hourly emissions (lbs/hr)} = (L_{MAX} * FRM) / (N * TCG)$$

Where,

$L_w$  = Working Losses, lbs/mo

FRM = Maximum filling rate (gal/hr)

N = No. of Turnovers

TCG = Tank Capacity (gals)

## Storage Tanks Worst-Case Product Emissions (Highest M\*P)

Product Info			Storage Tank Info								Tank #	Product
Product	Highest M*P (lb/lb-mo * psia)		Tank Description	No. of Tanks in VOC Service	Tank Diameter	Tank Height	Tank Volume	Tank Capacity (T <sub>co</sub> )	Max Tank Thruput per Tank	Filling Rate (F <sub>RM</sub> )		
Name	AVG	Max	Name	#	(ft)	(ft)	(ft <sup>3</sup> )	(gal)	(gal/yr)	gal/hr		
Highest M*P <sup>1</sup> Product	8	17	VFR Bulk Product Tank	3	8.5	15	851	6,364	250,000	4,800	T2, T3, T4	K87, K139
Highest M*P <sup>1</sup> Product	8	17	VFR Bulk Product Tank	1	8.5	15	851	6,364	200,000	4,800	T1	K87
Highest M*P <sup>2</sup> Product	63	115	VFR Bulk Product Tank	1	8.5	15	851	6,364	200,000	4,800	T5	HI-18
Highest M*P <sup>2</sup> Product	63	115	VFR Bulk Product Tank	1	8	16	804	6,014	300,000	4,800	T6	HI-18
Methanol	63	115	VFR Bulk Product Tank	2	8	16	804	6,014	250,000	4,800	T7, T8	Methanol

*Note:* highest M\*P<sup>1</sup> is based on product K-87 with avg vapor pressure of 0.2438 psia, max vapor pressure of 0.5034 psia and molecular weight of 33.7 lb/lb-mol

*Note:* highest M\*P<sup>2</sup> is based on product HI-18 with avg vapor pressure of 1.9746 psia, max vapor pressure of 3.5862 psia and molecular weight of 32.0 lb/lb-mol

EPA Tanks 4.0.9d Emissions								Tank #	Product
Annual Emissions per Tank				Hourly Emissions Per Tank					
Turnovers per year	Working Losses (L <sub>w</sub> )	Standing Losses (L <sub>s</sub> )	Total Annual Emissions	Working Losses (LW)	Standing Losses (LS)	Total Losses (L <sub>max</sub> )	Max Hourly Emissions		
N	lbs/yr	lbs/yr	tons/yr	lbs/mo	lbs/mo	lbs/yr	lbs/hr*		
42.1	430.27	301.47	0.366	430.27	25.55	455.82	8.17	T2, T3, T4	K87, K139
33.7	391.24	301.47	0.346	391.24	25.55	416.79	9.34	T1	K87
33.7	300.89	167.75	0.234	300.89	14.34	315.23	7.07	T5	HI-18
53.2	329.79	166.28	0.248	329.79	14.65	344.44	5.17	T6	HI-18
44.3	228.98	77.51	0.153	317.78	11.25	329.03	5.93	T7, T8	Methanol

*Note:* Emissions are based on worst-case product emissions derived from EPA TANKS 4.0.9d

Total Annual Throughput (gal/yr) =	1,950,000
Total Annual Emissions (tons/yr) =	2.23
Maximum Hourly VOC Emissions (lbs/hr) =	9.34

## Transfer Operations (Filling / Loading) Emission Calculation Methodology

Volatile Organic Compound (VOC) emissions occur as a result of the displacement of vapors during the loading process. Filling / loading operations include:

- Tote filling (LOAD1)
- Tanker truck filling (LOAD2)

Maximum hourly emissions of VOCs are based on the maximum filling rates for each loading operation. Vapor loss is minimized by utilizing submerged or bottom-filling. As demonstrated in the loading emission calculations on the next page, the worst case scenario resulting in the maximum potential to emit is based on loading of the product with the highest molecular weight and vapor pressure (M\*P product).

### Loading Losses Emission Factor Equation

The emission factors for loading products into bulk tank trucks are based on AP-42, Volume I, Fifth Edition -- January 1995, Section 5.2, Transportation and Marketing of Petroleum Liquids. The emissions from loading operations use equation 5.2.2.1.1(1) as follows:

Where

$$L_L = 12.46 \left( \frac{\text{SPM}}{\text{T}} \right)$$

$L_L$  = loading loss, (lb/1000 gallons) of liquid loaded  
 $S$  = saturation factor  
 $P$  = true vapor pressure of liquid (psia)  
 $M$  = molecular weight of vapors (lb/lb-mole)  
 $T$  = temperature of bulk liquids stored ( $^{\circ}\text{R}$ )

### Annual and Maximum Hourly Emission Rate Equations

$$\text{Annual Emissions (tons/yr)} = (L_L) * (\text{Annual Throughput}) * (1 \text{ ton}/2000 \text{ lbs})$$
$$\text{Max Hourly Emissions (lbs/hr)} = (L_L) * (\text{Maximum Hourly Loading Rate})$$

Displaced vapors from tank truck loading will be collected with 98.7% efficiency (NSPS XX Leak Checked) and routed to the onsite scrubber/CAS system (EPN:S1) for control with 99% removal efficiency.



### Loading (Transfers) Emissions Calculations Tables

(LOAD1) Transfers from Bulk Tank to Drum or Tote				Loading Loss (LL)		Loading Rate		Emission Rate	
liquid	MW	Avg VP @ 70F	Max VP @95F	Avg (lb/Mgal)	Max (lb/Mgal)	gal/hr	gal/yr	lbs/hr	tons/yr
K-87	33.69	0.24	0.5034	0.1159	0.2284	1,800	243,750	0.411	0.014
K-139	21.14	0.30	0.6172	0.0904	0.1758	1,800	243,750	0.316	0.011
HI-18	32.04	1.97	3.5862	0.8925	1.5478	1,800	243,750	2.786	0.109
Methanol	32.04	1.98	3.5954	0.8949	1.5517	1,800	243,750	2.793	0.109
<b>TOTAL</b>							<b>975,000</b>	<b>2.79</b>	<b>0.2430</b>

(LOAD2) Transfers from Bulk Tank to Tank Truck				Loading Loss (LL)		Loading Rate		Emission Rate	
liquid	MW	Avg VP @ 70F	Max VP @95F	Avg (lb/Mgal)	Max (lb/Mgal)	gal/hr	gal/yr	lbs/hr	tons/yr
K-87	33.69	0.24	0.5034	0.1159	0.2284	4,800	243,750	1.097	0.014
K-139	21.14	0.30	0.6172	0.0904	0.1758	4,800	243,750	0.844	0.011
HI-18	32.04	1.97	3.5862	0.8925	1.5478	4,800	243,750	7.430	0.109
Methanol	32.04	1.98	3.5954	0.8949	1.5517	4,800	243,750	7.448	0.109
<b>TOTAL</b>							<b>975,000</b>	<b>7.45</b>	<b>0.2430</b>

Total Loading Throughput (gal/yr)	1,950,000
Total Loading Emissions (tons/yr)	0.4859

## Blender Mixing Emissions Calculations Table

### Ideal Gas Law and vapor/liquid equilibrium relationships

Ideal Gas Law Constant (R):	1.3144	ft <sup>3</sup> ·atm/lb-mol·K
Temperature (T):	311	K
Conversion Factors (1 ft <sup>3</sup> ):	7.48	gal
1 atm :	14.7	psi
Scrubber/CAS Removal Efficiency:	99.0%	%

### Blender Mixing (T18B, T19B, T20B, T21B) Emissions Calculations:

Vessel	Product	Annual Throughput	Hourly Rate	Molecular Weight	VP @ 70 F	VP @ 95 F	Uncontrolled Emissions		Total Water Emissions (Highest M*P 60% water)		Total VOC Emissions per Product	
ID	ID	gal/yr	gal/hr	lb/lb-mol	psia (avg)	psia (max)	lb/hr	tpy	lbs/hr	tons/yr	lbs/hr	tons/yr
T-5	HI-18	200,000	4800	32.04	1.9746	3.586	12.271	0.141	7.363	0.084	4.908	0.056

Assumptions for Filled Vessels:

The gas is saturated with the vapors of the liquid over which it is flowing,

The displaced gas will fit the conditions of an ideal gas, therefore the ideal gas law is used.

Max lbs/hr = 4.908

tons/yr = 0.056

### Methodology:

EPA Guidance document: Control of Volatile Organic Compound Emissions from Batch Processes (dated February 1994)

Ideal Gas Law and vapor/liquid equilibrium relationships

1) Emission rate of VOCs in exit gas:

$$E_R = \frac{(Y_i) * (V_r) * (P_T) * (M)}{(R) * (T)} \quad (\text{Eq. 3-7})$$

where,

$E_R$ : mass emission rate  
 $Y_i$ : mole fraction in vapor phase (use Eq. 3-9)  
 $V_r$ : volumetric gas displacement rate  
 $P_T$ : pressure of the vessel vapor space  
 $M$ : molecular weight of the VOC  
 $R$ : ideal gas law constant  
 $T$ : temperature of the vessel vapor space

2) General equation for Raoult's Law

$$Y_i = \frac{P_i}{P_T} = \frac{X_i * P_{i*}}{P_T} \quad (\text{Eq. 3-9})$$

where,

$Y_i$ :	mole fraction of i in the vapor
$P_i$ :	partial pressure of component i
$X_i$ :	mole fraction of component i in the liquid
$P_{i*}$ :	vapor pressure of component i at temperature T
$P_T$ :	the total pressure in the vessel vapor space

3) Substitute Eq. 3-9 into Eq. 3-7 to solve for the hourly/annual emission rates

$$E_R = \frac{(M \times P_i) * (V_r)}{(R) * (T)}$$

## Road Haul Fugitive Emissions

WV DEP Methodology

Equation

$$E = k * 5.9 * (s/12) * (S/30) * (W/3)^{0.3} * (w/4)^{0.5} * ((365-p)/365) = \text{lb/VMT}$$

Case 1 Light Duty Truck			PM	PM10	miles/trip	d	0.306
	particle size mult.	k	0.8	0.36	trips/day		6
	Silt Content (%)	s	4.3		trips/yr		1560
	Days/yr percipitation (>.01in)	p	151		trips/hr		2
	Mean Vehicle Speed (mph)	S	15				
	Mean Vehicle Weight (tons)	W	45				
	Mean # wheels per vehicle	w	14				
		E	2.09	0.94	lb/VMT		
	Vehicle Mile Traveled	VMT	477.36				
	Total Emissions	FUG	<b>0.50</b>	<b>0.22</b>	ton/yr		
			<b>1.28</b>	<b>0.58</b>	lb/hr		

	PM	PM10	
<b>Site Totals</b>	<b>0.50</b>	<b>0.22</b>	ton/yr
	<b>1.28</b>	<b>0.58</b>	lbs/hr

## **Fugitive Emission Calculation Methodology**

Fugitive emission losses are based on the facilities' equipment and piping component count estimates. The calculations use the SOCFI without ethylene emission factors to estimate uncontrolled fugitive emissions.

The annual emissions are based on each component being in service for 8760 hours per year. The maximum hourly emissions are based on each component in service for one hour.

$$\text{Annual Emissions (tons/yr)} = \text{NC} * \text{EF} * (1 - \text{CE}) * 8760 / 2000$$

$$\text{Max Hourly Emissions (lb/hr)} = \text{NC} * \text{Emission Factor} * (1 - \text{CE})$$

where,

NC = number of like component counts (components)

EF = SOCFI w/out ethylene Factors, (lb/hr/component)

CE = Control Efficiency based on LDAR program, (%)

## Process Component Fugitive Emission Calculations

Estimated Fugitive Emissions - Basis: Average SOCMI w/o C<sub>2</sub> Emission Factors

Annual Hours of Service: **8,760**

Component Type	Item Count	EPA Fugitive Emission Factors <sup>1</sup> (lb/hr/component)	Maximum Uncontrolled Emission Rate (lbs/hr)	Control Efficiency	Total Emissions (Tons/yr)
Valves					
Gas/Vapor	0	0.0089	0.00	0%	0.0000
Light Liquid	24	0.0035	0.08	0%	0.3679
Heavy Liquid	0	0.0007	0.00	0%	0.0000
Pumps					
Light Liquid	2	0.0386	0.08	0%	0.3381
Heavy Liquid	0	0.0161	0.00	0%	0.0000
Flanges					
Gas/Vapor	0	0.0029	0.00	0%	0.0000
Light Liquid	24	0.0005	0.01	0%	0.0526
Heavy Liquid	0	0.00007	0.00	0%	0.0000
Other					
Compressors	0	0.5027	0.00	0%	0.0000
Relief Valves	0	0.2293	0.00	0%	0.0000
Open-ended Lines <sup>2</sup>	0	0.0040	0.00	100%	0.0000
Sampling Connections	0	0.0330	0.00	0%	0.0000
Total Emissions (tons/yr):					<b>0.76</b>
Total Emissions (lbs/hr):					<b>0.17</b>

### Fugitive Emission Calculations Methodology:

<sup>1</sup> All factors are in Lb/hr/component. Factors are taken from EPA 453/R-95-017

Emissions (tons/yr) = (item count) \* (emission factor) \* (1-control efficiency)  
\* (8760 hrs/yr) / (2000 lbs/ton)

Emissions (lbs/hr) = (item count) \* (emission factor) \* (1-control efficiency)

<sup>2</sup> Open ended lines will be capped or plugged when not in use.

4 Bulk Products	
<b>0.190</b>	tons/yr/product
<b>0.043</b>	lbs/hr/product

**Attachment O**  
**Monitoring, Recordkeeping, Reporting and Testing  
Plans**

## **Monitoring, Recordkeeping, Reporting and Testing Requirements**

### **1. Monitoring Requirements**

Nalco will perform daily AVO site inspection and immediately note any abnormal operating conditions and make necessary correction or repair immediately.

(not applicable)

### **2. Recordkeeping Requirements**

Nalco will maintain monthly and rolling 12-month records of throughput and VOC/HAP emissions which will be readily available upon request. All records will be retained for a minimum of two years.

### **3. Reporting Requirements**

(not applicable)



**Attachment P**  
**Legal Advertising  
& Affidavit of Publication**

### **Public Notice for Newspaper Publication**

Notice is given that NALCO Company has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Construction Permit Amendment for a specialty chemical distribution facility located approximately 1 miles East of Corridor H off Route-119, near the city of Buckhannon in Upshur County, West Virginia. The latitude and longitude coordinates are (39° 0'15.20"N, 80°13'4.56"W).

The applicant estimates that the potential to discharge the following Regulated Air Pollutants will be:

<b>Regulated Air Pollutants</b>	<b>Quantity</b>
Hazardous Air Pollutants (HAP)	1.655 tons/yr
Volatile Organic Compounds (VOC)	3.534 tons/yr
Particulate Matter 10 (PM10)	0.224 tons/yr
Particulate Matter (PM)	0.499 tons/yr

Start of new construction is planned to begin on or about the 1<sup>st</sup> of April, 2015. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57<sup>th</sup> 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 1227, during normal business hours.

Dated the 29<sup>th</sup> day of January, 2015

By: NALCO Company  
Derek Purvis  
SH&E Manager  
3200 Southwest Freeway, Suite 2700  
Houston, TX 77027

## **Affidavit of Publication**

**Appendix A**  
**Copy of Existing Permit R13-2804**

**APPLICATION FOR CERTIFICATE TO OPERATE****Operating Year**

July 1, 2009 - June 30, 2010

Date Due:

PRIOR TO START-UP

Facility/Source

Category:

9M

**Facility/Source Description:**

All other sources (excluding indirect affected sources) subject to air emission rules, permit, and/or registration requirements

**Amount Due: \$200.00****Make check payable to WVDEP-  
Division of Air Quality and mail  
to the above address.**

- For Office Use Only -

Ck # \_\_\_\_\_

Date \_\_\_\_\_

Ck Amt \_\_\_\_\_

FIMS # \_\_\_\_\_

Date \_\_\_\_\_

Amt Correct \_\_\_\_\_

**1. COMPANY, FACILITY/SOURCE AND DAQ IDENTIFICATION NUMBER**

Company Name: CHAMPION TECHNOLOGIES INC.

Facility/Source: BUCKHANNON DISTRIBUTION FACILITY

DAQ ID No.: 09700059

**2. MAILING INFORMATION**TONY WELLS  
BUCKHANNON DISTRIBUTION FACILITY  
16656 STATE HWY 76  
HEALDTON OK 73438**3. PLEASE INDICATE ANY ADDITIONS OR CORRECTIONS TO THE ABOVE  
INFORMATION IN THE SPACE PROVIDED:****4. STATUS OF FACILITY:**Is this facility currently operating? YES ☐ NO ☐ If no, check the status of the facility:☐ Under Construction ☐ Temporary Shutdown ☐ Permanent Shutdown

Give the estimated date (month/year) of (Re)Activation: \_\_\_\_\_

**5. CERTIFICATION:**

Name (Print or Type)

Signature

Title

Telephone No.

Date

**AUTHORITY**

Pursuant to the authority vested in the Division of Air Quality by WV Code 22-5-4 and Rule 45CSR22, "Air Quality Management Fee Program," no person may operate nor cause to operate a facility or stationary source of air pollution without first obtaining and having in current effect a Certificate to Operate. Continuing to operate a facility or source without said certificate is unlawful and may result in penalties and further legal action.

**GENERAL INFORMATION**

**FEE ASSESSMENTS:** Assessment of fees is based on the fee schedule contained in Section 4.4 of Rule 45CSR22 (see reverse). In the event that multiple class descriptions apply to a single facility/source, only the higher of the fees is required. Fees are non-refundable.

**REGISTRATION STATUS:** This operating certificate application contains your current registration status. If you have changed ownership, legal entity or permanently discontinued operation of the facility/source described above, provide pertinent remarks and/or corrections in Blocks 3 or 4 and return the signed application to the above address.

**FAILURE TO PAY:** Failure to pay on or before the date due will result in a penalty of five percent (5%) of the fee for each month the payment is overdue. Any fee or penalty due the WVDEP-Division of Air Quality is a debt due the State of West Virginia and may be collected pursuant to law.



west virginia department of environmental protection

Division of Air Quality  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304  
Phone: (304) 926-0475 • FAX: (304) 926-0479

OCT 19 2009

Joe Manchin III, Governor  
Randy C. Huffman, Cabinet Secretary  
www.wvdep.org

October 9, 2009

CERTIFIED MAIL  
91 7108 2133 3936 1555 5526

Tony Wells, District Manager  
16656 State Hwy 76  
Heraldton, OK 73438

Re: Champion Technologies, Inc.  
Buckhannon Distribution Plant  
Permit No. R13-2804  
Plant ID No. 097-00059

Dear Mr. Wells:

Your application for a permit as required by Section 5 of 45CSR13 - "Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permit, General Permit, and Procedures for Evaluation" has been approved. The enclosed permit R13-2804 is hereby issued pursuant to Subsection 5.7 of 45CSR13. Please be aware of the notification requirements in the permit which pertain to commencement of construction, modification, or relocation activities; startup of operations; and suspension of operations.

In accordance with 45CSR22 - Air Quality Management Fee Program, enclosed with this permit is an Application for a Certificate to Operate (CTO), from the date of initial startup through the following June 30. Said application and the appropriate fee shall be submitted to this office no later than 30 days prior to the date of initial startup. For any startup date other than July 1, the permittee shall pay a fee or prorated fee in accordance with the Section 4.5 of 45CSR22. A copy of this schedule may be found on the reverse side of the Application for a Certificate to Operate (CTO).

Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §§22-5-14.

Should you have any questions or comments, please contact me at (304) 926-0499, extension 1218.

Sincerely,

Steven R. Pursley, PE  
Engineer

Enclosures

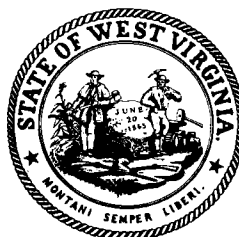
**West Virginia Department of Environmental Protection**

**Division of Air Quality**

*Joe Manchin, III*  
Governor

*Randy C. Huffman*  
Cabinet Secretary

# Permit to Construct



**R13-2804**

*This permit is issued in accordance with the West Virginia Air Pollution Control Act (West Virginia Code §§ 22-5-1 et seq.) and 45 C.S.R. 13 — Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation. The permittee identified at the facility listed below is authorized to construct the stationary sources of air pollutants identified herein in accordance with all terms and conditions of this permit.*

Issued to:

**Champion Technologies Inc.**  
**Buckhannon Distribution Plant**  
**097-00059**

  
\_\_\_\_\_  
**John A. Benedict**  
Director

*Issued: October 9, 2009 • Effective: October 9, 2009*

This permit will supercede and replace Permit R13-2804.

Facility Location: Buckhannon, Upsher County, West Virginia

Mailing Address: 16656 St. Hwy 76  
Healdton, OK 73438

Facility Description: Chemical Distribution Facility

SIC Codes: 5169

UTM Coordinates: 567.696 km Easting • 4,317.284 km Northing • Zone 17

Permit Type: Construction

*Any person whose interest may be affected, including, but not necessarily limited to, the applicant and any person who participated in the public comment process, by a permit issued, modified or denied by the Secretary may appeal such action of the Secretary to the Air Quality Board pursuant to article one [§§ 22B-1-1 et seq.], Chapter 22B of the Code of West Virginia. West Virginia Code §22-5-14.*

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*The source is not subject to 45CSR30.*



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**1.0 Emission Units**

<b>Emission Unit ID</b>	<b>Emission Point ID</b>	<b>Emission Unit Description</b>	<b>Year Installed</b>	<b>Design Capacity</b>	<b>Control Device</b>
TK1	E-TK1	Tank 1	2009	6,300 GAL	N
TK2	E-TK2	Tank 2	2009	6,300 GAL	N
TK3	E-TK3	Tank 3	2009	6,300 GAL	N
TK4	E-TK4	Tank 4	2009	6,300 GAL	N
TK5	E-TK5	Tank 5	TBD	6,300 GAL	N
TK6	E-TK6	Tank 6	TBD	6,300 GAL	N
TK7	E-TK7	Tank 7	TBD	6,300 GAL	N
TK8	E-TK8	Tank 8	TBD	6,300 GAL	N
TK9	E-TK9	Tank 9	TBD	6,300 GAL	N
TK10	E-TK10	Tank 10	TBD	6,300 GAL	N

## 2.0. General Conditions

### 2.1. Definitions

- 2.1.1. All references to the "West Virginia Air Pollution Control Act" or the "Air Pollution Control Act" mean those provisions contained in W.Va. Code §§ 22-5-1 to 22-5-18.
- 2.1.2. The "Clean Air Act" means those provisions contained in 42 U.S.C. §§ 7401 to 7671q, and regulations promulgated thereunder.
- 2.1.3. "Secretary" means the Secretary of the Department of Environmental Protection or such other person to whom the Secretary has delegated authority or duties pursuant to W.Va. Code §§ 22-1-6 or 22-1-8 (45 CSR § 30-2.12.). The Director of the Division of Air Quality is the Secretary's designated representative for the purposes of this permit.

### 2.2. Acronyms

<b>CAAA</b>	Clean Air Act Amendments	<b>NO<sub>x</sub></b>	Nitrogen Oxides
<b>CBI</b>	Confidential Business Information	<b>NSPS</b>	New Source Performance Standards
<b>CEM</b>	Continuous Emission Monitor	<b>PM</b>	Particulate Matter
<b>CES</b>	Certified Emission Statement	<b>PM<sub>2.5</sub></b>	Particulate Matter less than 2.5µm in diameter
<b>C.F.R. or CFR</b>	Code of Federal Regulations	<b>PM<sub>10</sub></b>	Particulate Matter less than 10µm in diameter
<b>CO</b>	Carbon Monoxide	<b>Ppb</b>	Pounds per Batch
<b>C.S.R. or CSR</b>	Codes of State Rules	<b>pph</b>	Pounds per Hour
<b>DAQ</b>	Division of Air Quality	<b>ppm</b>	Parts per Million
<b>DEP</b>	Department of Environmental Protection	<b>Ppmv or ppmv</b>	Parts per million by volume
<b>dscm</b>	Dry Standard Cubic Meter	<b>PSD</b>	Prevention of Significant Deterioration
<b>FOIA</b>	Freedom of Information Act	<b>psi</b>	Pounds per Square Inch
<b>HAP</b>	Hazardous Air Pollutant	<b>SIC</b>	Standard Industrial Classification
<b>HON</b>	Hazardous Organic NESHAP	<b>SIP</b>	State Implementation Plan
<b>HP</b>	Horsepower	<b>SO<sub>2</sub></b>	Sulfur Dioxide
<b>lbs/hr</b>	Pounds per Hour	<b>TAP</b>	Toxic Air Pollutant
<b>LDAR</b>	Leak Detection and Repair	<b>TPY</b>	Tons per Year
<b>M</b>	Thousand	<b>TRS</b>	Total Reduced Sulfur
<b>MACT</b>	Maximum Achievable Control Technology	<b>TSP</b>	Total Suspended Particulate
<b>MDHI</b>	Maximum Design Heat Input	<b>USEPA</b>	United States Environmental Protection Agency
<b>MM</b>	Million	<b>UTM</b>	Universal Transverse Mercator
<b>MMBtu/hr or mmbtu/hr</b>	Million British Thermal Units per Hour	<b>VEE</b>	Visual Emissions Evaluation
<b>MMCF/hr or mmcf/hr</b>	Million Cubic Feet per Hour	<b>VOC</b>	Volatile Organic Compounds
<b>NA</b>	Not Applicable	<b>VOL</b>	Volatile Organic Liquids
<b>NAAQS</b>	National Ambient Air Quality Standards		
<b>NESHAPS</b>	National Emissions Standards for Hazardous Air Pollutants		

### **2.3. Authority**

This permit is issued in accordance with West Virginia Air Pollution Control Law W.Va. Code §§22-5-1 et seq. and the following Legislative Rules promulgated thereunder:

- 2.3.1. 45CSR13 – *Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Temporary Permits, General Permits and Procedures for Evaluation;*

### **2.4. Term and Renewal**

- 2.4.1. This permit shall remain valid, continuous and in effect unless it is revised, suspended, revoked or otherwise changed under an applicable provision of 45CSR13 or any applicable legislative rule.

### **2.5. Duty to Comply**

- 2.5.1. The permitted facility shall be constructed and operated in accordance with the plans and specifications filed in Permit Application R13-2804 and any modifications, administrative updates, or amendments thereto. The Secretary may suspend or revoke a permit if the plans and specifications upon which the approval was based are not adhered to;  
[45CSR§§13-5.11 and 13-10.3]
- 2.5.2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the West Virginia Code and the Clean Air Act and is grounds for enforcement action by the Secretary or USEPA;
- 2.5.3. Violations of any of the conditions contained in this permit, or incorporated herein by reference, may subject the permittee to civil and/or criminal penalties for each violation and further action or remedies as provided by West Virginia Code 22-5-6 and 22-5-7;
- 2.5.4. Approval of this permit does not relieve the permittee herein of the responsibility to apply for and obtain all other permits, licenses and/or approvals from other agencies; i.e., local, state and federal, which may have jurisdiction over the construction and/or operation of the source(s) and/or facility herein permitted.

### **2.6. Duty to Provide Information**

The permittee shall furnish to the Secretary within a reasonable time any information the Secretary may request in writing to determine whether cause exists for administratively updating, modifying, revoking or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Secretary copies of records to be kept by the permittee. For information claimed to be confidential, the permittee shall furnish such records to the Secretary along with a claim of confidentiality in accordance with 45CSR31. If confidential information is to be sent to USEPA, the permittee shall directly provide such information to USEPA along with a claim of confidentiality in accordance with 40 C.F.R. Part 2.

**2.7. Duty to Supplement and Correct Information**

Upon becoming aware of a failure to submit any relevant facts or a submittal of incorrect information in any permit application, the permittee shall promptly submit to the Secretary such supplemental facts or corrected information.

**2.8. Administrative Update**

The permittee may request an administrative update to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-4]

**2.9. Permit Modification**

The permittee may request a minor modification to this permit as defined in and according to the procedures specified in 45CSR13.

[45CSR§13-5.4.]

**2.10. Major Permit Modification**

The permittee may request a major modification as defined in and according to the procedures specified in 45CSR14 or 45CSR19, as appropriate.

[45CSR§13-5.1]

**2.11. Inspection and Entry**

The permittee shall allow any authorized representative of the Secretary, upon the presentation of credentials and other documents as may be required by law, to perform the following:

- a. At all reasonable times (including all times in which the facility is in operation) enter upon the permittee's premises where a source is located or emissions related activity is conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times (including all times in which the facility is in operation) any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit;
- d. Sample or monitor at reasonable times substances or parameters to determine compliance with the permit or applicable requirements or ascertain the amounts and types of air pollutants discharged.

**2.12. Emergency**

- 2.12.1. An "emergency" means any situation arising from sudden and reasonable unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission

limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

- 2.12.2. Effect of any emergency. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of Section 2.12.3 are not met.
- 2.12.3. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:
- a. An emergency occurred and that the permittee can identify the cause(s) of the emergency;
  - b. The permitted facility was at the time being properly operated;
  - c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and,
  - d. The permittee submitted notice of the emergency to the Secretary within one (1) working day of the time when emission limitations were exceeded due to the emergency and made a request for variance, and as applicable rules provide. This notice must contain a detailed description of the emergency, any steps taken to mitigate emission, and corrective actions taken.
- 2.12.4. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.
- 2.12.5. The provisions of this section are in addition to any emergency or upset provision contained in any applicable requirement.

## **2.13. Need to Halt or Reduce Activity Not a Defense**

It shall not be a defense for a permittee in an enforcement action that it should have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in determining penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continued operations.

## **2.14. Suspension of Activities**

In the event the permittee should deem it necessary to suspend, for a period in excess of sixty (60) consecutive calendar days, the operations authorized by this permit, the permittee shall notify the Secretary, in writing, within two (2) calendar weeks of the passing of the sixtieth (60) day of the suspension period.

## **2.15. Property Rights**

This permit does not convey any property rights of any sort or any exclusive privilege.

**2.16. Severability**

The provisions of this permit are severable and should any provision(s) be declared by a court of competent jurisdiction to be invalid or unenforceable, all other provisions shall remain in full force and effect.

**2.17. Transferability**

This permit is transferable in accordance with the requirements outlined in Section 10.1 of 45CSR13.  
[45CSR§13-10.1]

**2.18. Notification Requirements**

The permittee shall notify the Secretary, in writing, no later than thirty (30) calendar days after the actual startup of the operations authorized under this permit.

**2.19. Credible Evidence**

Nothing in this permit shall alter or affect the ability of any person to establish compliance with, or a violation of, any applicable requirement through the use of credible evidence to the extent authorized by law. Nothing in this permit shall be construed to waive any defense otherwise available to the permittee including, but not limited to, any challenge to the credible evidence rule in the context of any future proceeding.

### **3.0. Facility-Wide Requirements**

#### **3.1. Limitations and Standards**

- 3.1.1. **Open burning.** The open burning of refuse by any person, firm, corporation, association or public agency is prohibited except as noted in 45CSR§6-3.1.  
[45CSR§6-3.1.]
- 3.1.2. **Open burning exemptions.** The exemptions listed in 45CSR§6-3.1 are subject to the following stipulation: Upon notification by the Secretary, no person shall cause, suffer, allow or permit any form of open burning during existing or predicted periods of atmospheric stagnation. Notification shall be made by such means as the Secretary may deem necessary and feasible.  
[45CSR§6-3.2.]
- 3.1.3. **Asbestos.** The permittee is responsible for thoroughly inspecting the facility, or part of the facility, prior to commencement of demolition or renovation for the presence of asbestos and complying with 40 C.F.R. § 61.145, 40 C.F.R. § 61.148, and 40 C.F.R. § 61.150. The permittee, owner, or operator must notify the Secretary at least ten (10) working days prior to the commencement of any asbestos removal on the forms prescribed by the Secretary if the permittee is subject to the notification requirements of 40 C.F.R. § 61.145(b)(3)(i). The USEPA, the Division of Waste Management and the Bureau for Public Health - Environmental Health require a copy of this notice to be sent to them.  
[40CFR§61.145(b) and 45CSR§15]
- 3.1.4. **Odor.** No person shall cause, suffer, allow or permit the discharge of air pollutants which cause or contribute to an objectionable odor at any location occupied by the public.  
[45CSR§4-3.1 State-Enforceable only.]
- 3.1.5. **Permanent shutdown.** A source which has not operated at least 500 hours in one 12-month period within the previous five (5) year time period may be considered permanently shutdown, unless such source can provide to the Secretary, with reasonable specificity, information to the contrary. All permits may be modified or revoked and/or reapplication or application for new permits may be required for any source determined to be permanently shutdown.  
[45CSR§13-10.5.]
- 3.1.6. **Standby plan for reducing emissions.** When requested by the Secretary, the permittee shall prepare standby plans for reducing the emissions of air pollutants in accordance with the objectives set forth in Tables I, II, and III of 45 C.S.R. 11.  
[45CSR§11-5.2.]

#### **3.2. Monitoring Requirements**

[Reserved]

#### **3.3. Testing Requirements**

- 3.3.1. **Stack testing.** As per provisions set forth in this permit or as otherwise required by the Secretary, in accordance with the West Virginia Code, underlying regulations, permits and orders, the permittee shall conduct test(s) to determine compliance with the emission limitations set forth in



this permit and/or established or set forth in underlying documents. The Secretary, or his duly authorized representative, may at his option witness or conduct such test(s). Should the Secretary exercise his option to conduct such test(s), the operator shall provide all necessary sampling connections and sampling ports to be located in such manner as the Secretary may require, power for test equipment and the required safety equipment, such as scaffolding, railings and ladders, to comply with generally accepted good safety practices. Such tests shall be conducted in accordance with the methods and procedures set forth in this permit or as otherwise approved or specified by the Secretary in accordance with the following:

- a. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with 40 C.F.R. Parts 60, 61, and 63 in accordance with the Secretary's delegated authority and any established equivalency determination methods which are applicable. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4 or 45CSR§13-5.4 as applicable.
- b. The Secretary may on a source-specific basis approve or specify additional testing or alternative testing to the test methods specified in the permit for demonstrating compliance with applicable requirements which do not involve federal delegation. In specifying or approving such alternative testing to the test methods, the Secretary, to the extent possible, shall utilize the same equivalency criteria as would be used in approving such changes under Section 3.3.1.a. of this permit. If a testing method is specified or approved which effectively replaces a test method specified in the permit, the permit may be revised in accordance with 45CSR§13-4 or 45CSR§13-5.4 as applicable.
- c. All periodic tests to determine mass emission limits from or air pollutant concentrations in discharge stacks and such other tests as specified in this permit shall be conducted in accordance with an approved test protocol. Unless previously approved, such protocols shall be submitted to the Secretary in writing at least thirty (30) days prior to any testing and shall contain the information set forth by the Secretary. In addition, the permittee shall notify the Secretary at least fifteen (15) days prior to any testing so the Secretary may have the opportunity to observe such tests. This notification shall include the actual date and time during which the test will be conducted and, if appropriate, verification that the tests will fully conform to a referenced protocol previously approved by the Secretary.

[WV Code § 22-5-4(a)(15)]

### **3.4. Recordkeeping Requirements**

- 3.4.1. **Retention of records.** The permittee shall maintain records of all information (including monitoring data, support information, reports and notifications) required by this permit recorded in a form suitable and readily available for expeditious inspection and review. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation. The files shall be maintained for at least five (5) years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two (2) years of data shall be maintained on site. The remaining three (3) years of data may be maintained off site, but must remain accessible within a reasonable time. Where appropriate, the permittee may maintain records electronically (on a computer, on computer floppy disks, CDs, DVDs, or magnetic tape disks), on microfilm, or on microfiche.

- 3.4.2. **Odors.** For the purposes of 45CSR4, the permittee shall maintain a record of all odor complaints received, any investigation performed in response to such a complaint, and any responsive action(s) taken.

[45CSR§4. *State-Enforceable only.*]

### 3.5. Reporting Requirements

- 3.5.1. **Responsible official.** Any application form, report, or compliance certification required by this permit to be submitted to the DAQ and/or USEPA shall contain a certification by the responsible official that states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.
- 3.5.2. **Confidential information.** A permittee may request confidential treatment for the submission of reporting required by this permit pursuant to the limitations and procedures of W. Va. Code § 22-5-10 and 45CSR31.
- 3.5.3. **Correspondence.** All notices, requests, demands, submissions and other communications required or permitted to be made to the Secretary of DEP and/or USEPA shall be made in writing and shall be deemed to have been duly given when delivered by hand, or mailed first class with postage prepaid to the address(es) set forth below or to such other person or address as the Secretary of the Department of Environmental Protection may designate:

**If to the DAQ:**

Director  
WVDEP  
Division of Air Quality  
601 57th Street, SE  
Charleston, WV 25304-2345

**If to the USEPA:**

Associate Director  
Office of Enforcement and Permits Review  
(3AP12)  
U. S. Environmental Protection Agency  
Region III  
1650 Arch Street  
Philadelphia, PA 19103-2029

3.5.4. **Operating Fee.**

- 3.5.4.1. In accordance with 45CSR22 – Air Quality Management Fee Program, the permittee shall not operate nor cause to operate the permitted facility or other associated facilities on the same or contiguous sites comprising the plant without first obtaining and having in current effect a Certificate to Operate (CTO). Such Certificate to Operate (CTO) shall be renewed annually, shall be maintained on the premises for which the certificate has been issued, and shall be made immediately available for inspection by the Secretary or his/her duly authorized representative.
- 3.5.4.2. In accordance with 45CSR22 – Air Quality Management Fee Program, enclosed with this permit is an Application for a Certificate to Operate (CTO), from the date of initial startup through the following June 30. Said application and the appropriate fee shall be submitted to this office no later than 30 days prior to the date of initial startup. For any startup date other than July 1, the permittee shall pay a fee or prorated fee in accordance with Section 4.5 of 45CSR22. A copy of this schedule may be found on the reverse side of the application for a Certificate to Operate (CTO).

- 3.5.5. **Emission inventory.** At such time(s) as the Secretary may designate, the permittee herein shall prepare and submit an emission inventory for the previous year, addressing the emissions from the facility and/or process(es) authorized herein, in accordance with the emission inventory submittal requirements of the Division of Air Quality. After the initial submittal, the Secretary may, based upon the type and quantity of the pollutants emitted, establish a frequency other than on an annual basis.

#### 4.0. Source-Specific Requirements

##### 4.1. Limitations and Standards

4.1.1. Emissions from the facility shall not exceed the following:

	PM		PM <sub>10</sub>		VOC		HAP	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Storage Tanks	--	--	--	--	5.55	0.07	2.55	0.03
Truck, Drum & Tote Filling	--	--	--	--	19.01	0.28	8.01	0.13
Equipment Leaks	--	--	--	--	0.29	1.29	0.04	0.17
Paved Haul Road	16.01	0.49	3.12	0.10	--	--	--	--
Total	16.01	0.49	3.12	0.1	24.85	1.64	10.6	0.33

4.1.2 Facility wide throughput shall not exceed the following (based on a rolling 12 month total):

Product	Gallons Per Year
Bactron	250,000
Gyptron	100,000
Scortron	75,000
Surfatron	190,000

4.1.3 Only those materials listed in condition 4.1.2 of this permit shall be stored in tanks TK1-TK10.

4.1.4. **Operation and Maintenance of Air Pollution Control Equipment.** The permittee shall, to the extent practicable, install, maintain, and operate all pollution control equipment listed in Section 1.0 and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions, or comply with any more stringent limits set forth in this permit or as set forth by any State rule, Federal regulation, or alternative control plan approved by the Secretary.

[45CSR§13-5.11.]

##### 4.2. Testing Requirements

[Reserved]

### 4.3. Monitoring and Recordkeeping Requirements

- 4.3.1. **Record of Monitoring.** The permittee shall keep records of monitoring information that include the following:
- a. The date, place as defined in this permit and time of sampling or measurements;
  - b. The date(s) analyses were performed;
  - c. The company or entity that performed the analyses;
  - d. The analytical techniques or methods used;
  - e. The results of the analyses; and
  - f. The operating conditions existing at the time of sampling or measurement.
- 4.3.2. **Record of Maintenance of Air Pollution Control Equipment.** For all pollution control equipment listed in Section 1.0, the permittee shall maintain accurate records of all required pollution control equipment inspection and/or preventative maintenance procedures.
- 4.3.3. **Record of Malfunctions of Air Pollution Control Equipment.** For all air pollution control equipment listed in Section 1.0, the permittee shall maintain records of the occurrence and duration of any malfunction or operational shutdown of the air pollution control equipment during which excess emissions occur. For each such case, the following information shall be recorded:
- a. The equipment involved.
  - b. Steps taken to minimize emissions during the event.
  - c. The duration of the event.
  - d. The estimated increase in emissions during the event.
- For each such case associated with an equipment malfunction, the additional information shall also be recorded:
- e. The cause of the malfunction.
  - f. Steps taken to correct the malfunction.
  - g. Any changes or modifications to equipment or procedures that would help prevent future recurrences of the malfunction.
- 4.3.4. In order to determine compliance with section 4.1.2 of this permit, the permittee shall maintain daily records of the amount of each product transferred into the facility.
- 4.3.5. The permittee shall maintain records of the HAP and VOC content of each product stored in tanks TK1-TK10.

### CERTIFICATION OF DATA ACCURACY

I, the undersigned, hereby certify that, based on information and belief formed after reasonable inquiry, all information contained in the attached \_\_\_\_\_, representing the period beginning \_\_\_\_\_ and ending \_\_\_\_\_, and any supporting documents appended hereto, is true, accurate, and complete.

Signature<sup>1</sup>

(please use blue ink)

\_\_\_\_\_  
Responsible Official or Authorized Representative

\_\_\_\_\_  
Date

Name and Title

(please print or type)

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title

Telephone No. \_\_\_\_\_

Fax No. \_\_\_\_\_

<sup>1</sup> This form shall be signed by a "Responsible Official." "Responsible Official" means one of the following:

- a. For a corporation: The president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
  - (I) the facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), or
  - (ii) the delegation of authority to such representative is approved in advance by the Director;
- b. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;
- c. For a municipality, State, Federal, or other public entity: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of USEPA); or
- d. The designated representative delegated with such authority and approved in advance by the Director.

**Appendix B**  
**Copy of Application Fee**

RECES

2498

JPMorgan  
Private Bank

JPMorgan Chase Bank, N.A.  
Dallas, Texas

RECES, LLC  
1127 Eldridge Pkwy., Ste 300-118  
Houston, Texas 77077

32-61-1110

2/6/2015

PAY  
TO THE  
ORDER OF

WVDEP- Division of Air Quality

\$ \*\*300.00

Three Hundred and 00/100\*\*\*\*\* DOLLARS

WVDEP- Division of Air Quality

MEMO

NALCO Company - Buckhannon Facility - DAQ ID NO: 09700059

*K. Main*  
AUTHORIZED SIGNATURE

⑈002498⑈ ⑆1110000614⑆ 91253282865⑈

RECES, LLC

2498

WVDEP- Division of Air Quality

Date	Type	Reference	Original Amt.	Balance Due	2/6/2015 Discount	Payment
2/6/2015	Bill	DAQ ID No: 09700059	300.00	300.00		300.00
				Check Amount		300.00

RECES Chase

NALCO Company - Buckhannon Facility - DAQ ID NO: 09700059

300.00



**Appendix C**  
**TANKS 4.09d Output**

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

**Identification**

User Identification:	NALCO Buckhannon 6.3k gal Product Tank
City:	Buckhannon
State:	West Virginia
Company:	NALCO
Type of Tank:	Vertical Fixed Roof Tank
Description:	6,364 gallon VFR Product Tank

**Tank Dimensions**

Shell Height (ft):	15.00
Diameter (ft):	8.50
Liquid Height (ft) :	14.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	5,942.77
Turnovers:	33.65
Net Throughput(gal/yr):	200,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

**Roof Characteristics**

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

**Breather Vent Settings**

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

Meterological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

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

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Highest M*P1 Product	All	56.67	51.31	62.04	55.00	2.4380	2.4380	5.0340	33.7000			0.00	

## TANKS 4.0.9d

### Emissions Report - Detail Format

### Detail Calculations (AP-42)

#### NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank Buckhannon, West Virginia

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	301.4656
Vapor Space Volume (cu ft):	430.6119
Vapor Density (lb/cu ft):	0.0148
Vapor Space Expansion Factor:	0.2562
Vented Vapor Saturation Factor:	0.5049
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	430.6119
Tank Diameter (ft):	8.5000
Vapor Space Outage (ft):	7.5885
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	7.5000
Roof Outage (ft):	0.0885
<b>Roof Outage (Cone Roof)</b>	
Roof Outage (ft):	0.0885
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	4.2500
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0148
Vapor Molecular Weight (lb/lb-mole):	33.7000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.4380
Daily Avg. Liquid Surface Temp. (deg. R):	516.3441
Daily Average Ambient Temp. (deg. F):	54.9833
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	514.6733
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,250.5726
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.2562
Daily Vapor Temperature Range (deg. R):	21.4567
Daily Vapor Pressure Range (psia):	2.5960
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.4380
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.4380
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	5.0340
Daily Avg. Liquid Surface Temp. (deg R):	516.3441
Daily Min. Liquid Surface Temp. (deg R):	510.9799
Daily Max. Liquid Surface Temp. (deg R):	521.7082
Daily Ambient Temp. Range (deg. R):	21.5333
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.5049
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.4380
Vapor Space Outage (ft):	7.5885

Working Losses (lb):	391.2410
Vapor Molecular Weight (lb/lb-mole):	33.7000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	2.4380
Annual Net Throughput (gal/yr.):	200,000.0000
Annual Turnovers:	33.6543
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	5,942.7706
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	8.5000
Working Loss Product Factor:	1.0000
 Total Losses (lb):	 692.7065

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

**Emissions Report for: Annual**

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Highest M*P1 Product	391.24	301.47	692.71

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

**Identification**

User Identification:	NALCO Buckhannon 6.3k gal Product Tank
City:	Buckhannon
State:	West Virginia
Company:	NALCO
Type of Tank:	Vertical Fixed Roof Tank
Description:	6,364 gallon VFR Product Tank

**Tank Dimensions**

Shell Height (ft):	15.00
Diameter (ft):	8.50
Liquid Height (ft) :	14.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	5,942.77
Turnovers:	33.65
Net Throughput(gal/yr):	200,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

**Roof Characteristics**

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

**Breather Vent Settings**

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

Meterological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

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

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Highest M*P1 Product	Jul	66.29	60.27	72.31	55.00	2.4380	2.4380	5.0340	33.7000			0.00	



## TANKS 4.0.9d

### Emissions Report - Detail Format

### Detail Calculations (AP-42)

#### NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank Buckhannon, West Virginia

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							25.5506					
Vapor Space Volume (cu ft):							430.6119					
Vapor Density (lb/cu ft):							0.0146					
Vapor Space Expansion Factor:							0.2604					
Vented Vapor Saturation Factor:							0.5049					
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							430.6119					
Tank Diameter (ft):							8.5000					
Vapor Space Outage (ft):							7.5885					
Tank Shell Height (ft):							15.0000					
Average Liquid Height (ft):							7.5000					
Roof Outage (ft):							0.0885					
Roof Outage (Cone Roof)												
Roof Outage (ft):							0.0885					
Roof Height (ft):							0.0000					
Roof Slope (ft/ft):							0.0625					
Shell Radius (ft):							4.2500					
Vapor Density												
Vapor Density (lb/cu ft):							0.0146					
Vapor Molecular Weight (lb/lb-mole):							33.7000					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							2.4380					
Daily Avg. Liquid Surface Temp. (deg. R):							525.9609					
Daily Average Ambient Temp. (deg. F):							75.0500					
Ideal Gas Constant R												
(psia cu ft / (lb-mol-deg R)):							10.731					
Liquid Bulk Temperature (deg. R):							514.6733					
Tank Paint Solar Absorptance (Shell):							0.1700					
Tank Paint Solar Absorptance (Roof):							0.1700					
Daily Total Solar Insulation												
Factor (Btu/sqft day):							1,836.9933					
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.2604					
Daily Vapor Temperature Range (deg. R):							24.0801					
Daily Vapor Pressure Range (psia):							2.5960					
Breather Vent Press. Setting Range(psia):							0.0600					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							2.4380					
Vapor Pressure at Daily Minimum Liquid												
Surface Temperature (psia):							2.4380					
Vapor Pressure at Daily Maximum Liquid												
Surface Temperature (psia):							5.0340					
Daily Avg. Liquid Surface Temp. (deg R):							525.9609					
Daily Min. Liquid Surface Temp. (deg R):							519.9409					
Daily Max. Liquid Surface Temp. (deg R):							531.9810					
Daily Ambient Temp. Range (deg. R):							21.3000					
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.5049					
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):							2.4380					
Vapor Space Outage (ft):							7.5885					

Working Losses (lb):	391.2410
Vapor Molecular Weight (lb/lb-mole):	33.7000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	2.4380
Net Throughput (gal/mo.):	200,000.0000
Annual Turnovers:	33.6543
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	5,942.7706
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	8.5000
Working Loss Product Factor:	1.0000
 Total Losses (lb):	 416.7915

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

**Emissions Report for: July**

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Highest M*P1 Product	391.24	25.55	416.79

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

**Identification**

User Identification:	NALCO Buckhannon 6.3k gal Product Tank
City:	Buckhannon
State:	West Virginia
Company:	NALCO
Type of Tank:	Vertical Fixed Roof Tank
Description:	6,364 gallon VFR Product Tank

**Tank Dimensions**

Shell Height (ft):	15.00
Diameter (ft):	8.50
Liquid Height (ft) :	14.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	5,942.77
Turnovers:	42.07
Net Throughput(gal/yr):	250,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

**Roof Characteristics**

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

**Breather Vent Settings**

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

Meterological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

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

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Highest M*P1 Product	All	56.67	51.31	62.04	55.00	2.4380	2.4380	5.0340	33.7000			0.00	

## TANKS 4.0.9d

### Emissions Report - Detail Format

### Detail Calculations (AP-42)

#### NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank Buckhannon, West Virginia

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	301.4656
Vapor Space Volume (cu ft):	430.6119
Vapor Density (lb/cu ft):	0.0148
Vapor Space Expansion Factor:	0.2562
Vented Vapor Saturation Factor:	0.5049
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	430.6119
Tank Diameter (ft):	8.5000
Vapor Space Outage (ft):	7.5885
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	7.5000
Roof Outage (ft):	0.0885
<b>Roof Outage (Cone Roof)</b>	
Roof Outage (ft):	0.0885
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	4.2500
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0148
Vapor Molecular Weight (lb/lb-mole):	33.7000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.4380
Daily Avg. Liquid Surface Temp. (deg. R):	516.3441
Daily Average Ambient Temp. (deg. F):	54.9833
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	514.6733
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,250.5726
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.2562
Daily Vapor Temperature Range (deg. R):	21.4567
Daily Vapor Pressure Range (psia):	2.5960
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.4380
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	2.4380
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	5.0340
Daily Avg. Liquid Surface Temp. (deg R):	516.3441
Daily Min. Liquid Surface Temp. (deg R):	510.9799
Daily Max. Liquid Surface Temp. (deg R):	521.7082
Daily Ambient Temp. Range (deg. R):	21.5333
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.5049
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	2.4380
Vapor Space Outage (ft):	7.5885

Working Losses (lb):	430.2668
Vapor Molecular Weight (lb/lb-mole):	33.7000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	2.4380
Annual Net Throughput (gal/yr.):	250,000.0000
Annual Turnovers:	42.0679
Turnover Factor:	0.8798
Maximum Liquid Volume (gal):	5,942.7706
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	8.5000
Working Loss Product Factor:	1.0000
 Total Losses (lb):	 731.7324

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

**Emissions Report for: Annual**

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Highest M*P1 Product	430.27	301.47	731.73



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

**Identification**

User Identification:	NALCO Buckhannon 6.3k gal Product Tank
City:	Buckhannon
State:	West Virginia
Company:	NALCO
Type of Tank:	Vertical Fixed Roof Tank
Description:	6,364 gallon VFR Product Tank

**Tank Dimensions**

Shell Height (ft):	15.00
Diameter (ft):	8.50
Liquid Height (ft) :	14.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	5,942.77
Turnovers:	42.07
Net Throughput(gal/yr):	250,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

**Roof Characteristics**

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

**Breather Vent Settings**

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

Meterological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

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

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Highest M*P1 Product	Jul	66.29	60.27	72.31	55.00	2.4380	2.4380	5.0340	33.7000			0.00	

## TANKS 4.0.9d

### Emissions Report - Detail Format

### Detail Calculations (AP-42)

#### NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank Buckhannon, West Virginia

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							25.5506					
Vapor Space Volume (cu ft):							430.6119					
Vapor Density (lb/cu ft):							0.0146					
Vapor Space Expansion Factor:							0.2604					
Vented Vapor Saturation Factor:							0.5049					
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							430.6119					
Tank Diameter (ft):							8.5000					
Vapor Space Outage (ft):							7.5885					
Tank Shell Height (ft):							15.0000					
Average Liquid Height (ft):							7.5000					
Roof Outage (ft):							0.0885					
Roof Outage (Cone Roof)												
Roof Outage (ft):							0.0885					
Roof Height (ft):							0.0000					
Roof Slope (ft/ft):							0.0625					
Shell Radius (ft):							4.2500					
Vapor Density												
Vapor Density (lb/cu ft):							0.0146					
Vapor Molecular Weight (lb/lb-mole):							33.7000					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							2.4380					
Daily Avg. Liquid Surface Temp. (deg. R):							525.9609					
Daily Average Ambient Temp. (deg. F):							75.0500					
Ideal Gas Constant R												
(psia cu ft / (lb-mol-deg R)):							10.731					
Liquid Bulk Temperature (deg. R):							514.6733					
Tank Paint Solar Absorptance (Shell):							0.1700					
Tank Paint Solar Absorptance (Roof):							0.1700					
Daily Total Solar Insulation												
Factor (Btu/sqft day):							1,836.9933					
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.2604					
Daily Vapor Temperature Range (deg. R):							24.0801					
Daily Vapor Pressure Range (psia):							2.5960					
Breather Vent Press. Setting Range(psia):							0.0600					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							2.4380					
Vapor Pressure at Daily Minimum Liquid												
Surface Temperature (psia):							2.4380					
Vapor Pressure at Daily Maximum Liquid												
Surface Temperature (psia):							5.0340					
Daily Avg. Liquid Surface Temp. (deg R):							525.9609					
Daily Min. Liquid Surface Temp. (deg R):							519.9409					
Daily Max. Liquid Surface Temp. (deg R):							531.9810					
Daily Ambient Temp. Range (deg. R):							21.3000					
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.5049					
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):							2.4380					
Vapor Space Outage (ft):							7.5885					

Working Losses (lb):	430.2668
Vapor Molecular Weight (lb/lb-mole):	33.7000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	2.4380
Net Throughput (gal/mo.):	250,000.0000
Annual Turnovers:	42.0679
Turnover Factor:	0.8798
Maximum Liquid Volume (gal):	5,942.7706
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	8.5000
Working Loss Product Factor:	1.0000
 Total Losses (lb):	 455.8174

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

**Emissions Report for: July**

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Highest M*P1 Product	430.27	25.55	455.82

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

**Identification**

User Identification:	NALCO Buckhannon 6.3k gal Product Tank
City:	Buckhannon
State:	West Virginia
Company:	NALCO
Type of Tank:	Vertical Fixed Roof Tank
Description:	6,364 gallon VFR Product Tank

**Tank Dimensions**

Shell Height (ft):	15.00
Diameter (ft):	8.50
Liquid Height (ft) :	14.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	5,942.77
Turnovers:	33.65
Net Throughput(gal/yr):	200,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

**Roof Characteristics**

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

**Breather Vent Settings**

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

Meterological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

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

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Highest M*P2 Product	All	56.67	51.31	62.04	55.00	1.9746	1.9746	3.5862	32.0000			0.00	

## TANKS 4.0.9d

### Emissions Report - Detail Format

### Detail Calculations (AP-42)

#### NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank Buckhannon, West Virginia

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	167.7501
Vapor Space Volume (cu ft):	430.6119
Vapor Density (lb/cu ft):	0.0114
Vapor Space Expansion Factor:	0.1679
Vented Vapor Saturation Factor:	0.5574
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	430.6119
Tank Diameter (ft):	8.5000
Vapor Space Outage (ft):	7.5885
Tank Shell Height (ft):	15.0000
Average Liquid Height (ft):	7.5000
Roof Outage (ft):	0.0885
<b>Roof Outage (Cone Roof)</b>	
Roof Outage (ft):	0.0885
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	4.2500
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0114
Vapor Molecular Weight (lb/lb-mole):	32.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.9746
Daily Avg. Liquid Surface Temp. (deg. R):	516.3441
Daily Average Ambient Temp. (deg. F):	54.9833
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	514.6733
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sqft day):	1,250.5726
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.1679
Daily Vapor Temperature Range (deg. R):	21.4567
Daily Vapor Pressure Range (psia):	1.6116
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.9746
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	1.9746
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	3.5862
Daily Avg. Liquid Surface Temp. (deg R):	516.3441
Daily Min. Liquid Surface Temp. (deg R):	510.9799
Daily Max. Liquid Surface Temp. (deg R):	521.7082
Daily Ambient Temp. Range (deg. R):	21.5333
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.5574
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.9746
Vapor Space Outage (ft):	7.5885



Working Losses (lb):	300.8914
Vapor Molecular Weight (lb/lb-mole):	32.0000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	1.9746
Annual Net Throughput (gal/yr.):	200,000.0000
Annual Turnovers:	33.6543
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	5,942.7706
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	8.5000
Working Loss Product Factor:	1.0000
 Total Losses (lb):	 468.6416

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

**Emissions Report for: Annual**

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Highest M*P2 Product	300.89	167.75	468.64

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

**Identification**

User Identification:	NALCO Buckhannon 6.3k gal Product Tank
City:	Buckhannon
State:	West Virginia
Company:	NALCO
Type of Tank:	Vertical Fixed Roof Tank
Description:	6,364 gallon VFR Product Tank

**Tank Dimensions**

Shell Height (ft):	15.00
Diameter (ft):	8.50
Liquid Height (ft) :	14.00
Avg. Liquid Height (ft):	7.50
Volume (gallons):	5,942.77
Turnovers:	33.65
Net Throughput(gal/yr):	200,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	White/White
Shell Condition	Good
Roof Color/Shade:	White/White
Roof Condition:	Good

**Roof Characteristics**

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

**Breather Vent Settings**

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

Meterological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

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

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Highest M*P2 Product	Jul	66.29	60.27	72.31	55.00	1.9746	1.9746	3.5862	32.0000			0.00	

## TANKS 4.0.9d

### Emissions Report - Detail Format

### Detail Calculations (AP-42)

#### NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank Buckhannon, West Virginia

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							14.3389					
Vapor Space Volume (cu ft):							430.6119					
Vapor Density (lb/cu ft):							0.0112					
Vapor Space Expansion Factor:							0.1721					
Vented Vapor Saturation Factor:							0.5574					
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							430.6119					
Tank Diameter (ft):							8.5000					
Vapor Space Outage (ft):							7.5885					
Tank Shell Height (ft):							15.0000					
Average Liquid Height (ft):							7.5000					
Roof Outage (ft):							0.0885					
Roof Outage (Cone Roof)												
Roof Outage (ft):							0.0885					
Roof Height (ft):							0.0000					
Roof Slope (ft/ft):							0.0625					
Shell Radius (ft):							4.2500					
Vapor Density												
Vapor Density (lb/cu ft):							0.0112					
Vapor Molecular Weight (lb/lb-mole):							32.0000					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							1.9746					
Daily Avg. Liquid Surface Temp. (deg. R):							525.9609					
Daily Average Ambient Temp. (deg. F):							75.0500					
Ideal Gas Constant R												
(psia cu ft / (lb-mol-deg R)):							10.731					
Liquid Bulk Temperature (deg. R):							514.6733					
Tank Paint Solar Absorptance (Shell):							0.1700					
Tank Paint Solar Absorptance (Roof):							0.1700					
Daily Total Solar Insulation												
Factor (Btu/sqft day):							1,836.9933					
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.1721					
Daily Vapor Temperature Range (deg. R):							24.0801					
Daily Vapor Pressure Range (psia):							1.6116					
Breather Vent Press. Setting Range(psia):							0.0600					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							1.9746					
Vapor Pressure at Daily Minimum Liquid												
Surface Temperature (psia):							1.9746					
Vapor Pressure at Daily Maximum Liquid												
Surface Temperature (psia):							3.5862					
Daily Avg. Liquid Surface Temp. (deg R):							525.9609					
Daily Min. Liquid Surface Temp. (deg R):							519.9409					
Daily Max. Liquid Surface Temp. (deg R):							531.9810					
Daily Ambient Temp. Range (deg. R):							21.3000					
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.5574					
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):							1.9746					
Vapor Space Outage (ft):							7.5885					

Working Losses (lb):	300.8914
Vapor Molecular Weight (lb/lb-mole):	32.0000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	1.9746
Net Throughput (gal/mo.):	200,000.0000
Annual Turnovers:	33.6543
Turnover Factor:	1.0000
Maximum Liquid Volume (gal):	5,942.7706
Maximum Liquid Height (ft):	14.0000
Tank Diameter (ft):	8.5000
Working Loss Product Factor:	1.0000
 Total Losses (lb):	 315.2304

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

**Emissions Report for: July**

**NALCO Buckhannon 6.3k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Highest M*P2 Product	300.89	14.34	315.23

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

**Identification**

User Identification:	NALCO Buckhannon 6k gal Product Tank
City:	Buckhannon
State:	West Virginia
Company:	NALCO
Type of Tank:	Vertical Fixed Roof Tank
Description:	6,014 gallon VFR Product Tank

**Tank Dimensions**

Shell Height (ft):	16.00
Diameter (ft):	8.00
Liquid Height (ft) :	15.00
Avg. Liquid Height (ft):	8.00
Volume (gallons):	5,640.20
Turnovers:	53.19
Net Throughput(gal/yr):	300,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Aluminum/Specular
Shell Condition	Good
Roof Color/Shade:	Aluminum/Specular
Roof Condition:	Good

**Roof Characteristics**

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

**Breather Vent Settings**

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

Meterological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)



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

**NALCO Buckhannon 6k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Highest M*P2 Product	All	59.59	52.30	66.88	56.32	1.9746	1.9746	3.5862	32.0000			0.00	

## TANKS 4.0.9d

### Emissions Report - Detail Format

### Detail Calculations (AP-42)

#### NALCO Buckhannon 6k gal Product Tank - Vertical Fixed Roof Tank Buckhannon, West Virginia

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	166.2846
Vapor Space Volume (cu ft):	406.3126
Vapor Density (lb/cu ft):	0.0113
Vapor Space Expansion Factor:	0.1825
Vented Vapor Saturation Factor:	0.5417
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	406.3126
Tank Diameter (ft):	8.0000
Vapor Space Outage (ft):	8.0833
Tank Shell Height (ft):	16.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.0833
<b>Roof Outage (Cone Roof)</b>	
Roof Outage (ft):	0.0833
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	4.0000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0113
Vapor Molecular Weight (lb/lb-mole):	32.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.9746
Daily Avg. Liquid Surface Temp. (deg. R):	519.2567
Daily Average Ambient Temp. (deg. F):	54.9833
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	515.9933
Tank Paint Solar Absorptance (Shell):	0.3900
Tank Paint Solar Absorptance (Roof):	0.3900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,250.5726
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.1825
Daily Vapor Temperature Range (deg. R):	29.1603
Daily Vapor Pressure Range (psia):	1.6116
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.9746
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	1.9746
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	3.5862
Daily Avg. Liquid Surface Temp. (deg R):	519.2567
Daily Min. Liquid Surface Temp. (deg R):	511.9667
Daily Max. Liquid Surface Temp. (deg R):	526.5468
Daily Ambient Temp. Range (deg. R):	21.5333
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.5417
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.9746
Vapor Space Outage (ft):	8.0833

Working Losses (lb):	329.7859
Vapor Molecular Weight (lb/lb-mole):	32.0000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	1.9746
Annual Net Throughput (gal/yr.):	300,000.0000
Annual Turnovers:	53.1896
Turnover Factor:	0.7307
Maximum Liquid Volume (gal):	5,640.1975
Maximum Liquid Height (ft):	15.0000
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
 Total Losses (lb):	 496.0705

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

**Emissions Report for: Annual**

**NALCO Buckhannon 6k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Highest M*P2 Product	329.79	166.28	496.07

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

**Identification**

User Identification:	NALCO Buckhannon 6k gal Product Tank
City:	Buckhannon
State:	West Virginia
Company:	NALCO
Type of Tank:	Vertical Fixed Roof Tank
Description:	6,014 gallon VFR Product Tank

**Tank Dimensions**

Shell Height (ft):	16.00
Diameter (ft):	8.00
Liquid Height (ft) :	15.00
Avg. Liquid Height (ft):	8.00
Volume (gallons):	5,640.20
Turnovers:	53.19
Net Throughput(gal/yr):	300,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Aluminum/Specular
Shell Condition	Good
Roof Color/Shade:	Aluminum/Specular
Roof Condition:	Good

**Roof Characteristics**

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

**Breather Vent Settings**

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

Meterological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

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

**NALCO Buckhannon 6k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Highest M*P2 Product	Jul	70.22	61.37	79.07	56.32	1.9746	1.9746	3.5862	32.0000			0.00	

## TANKS 4.0.9d

### Emissions Report - Detail Format

### Detail Calculations (AP-42)

#### NALCO Buckhannon 6k gal Product Tank - Vertical Fixed Roof Tank Buckhannon, West Virginia

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							14.6461					
Vapor Space Volume (cu ft):							406.3126					
Vapor Density (lb/cu ft):							0.0111					
Vapor Space Expansion Factor:							0.1932					
Vented Vapor Saturation Factor:							0.5417					
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							406.3126					
Tank Diameter (ft):							8.0000					
Vapor Space Outage (ft):							8.0833					
Tank Shell Height (ft):							16.0000					
Average Liquid Height (ft):							8.0000					
Roof Outage (ft):							0.0833					
Roof Outage (Cone Roof)												
Roof Outage (ft):							0.0833					
Roof Height (ft):							0.0000					
Roof Slope (ft/ft):							0.0625					
Shell Radius (ft):							4.0000					
Vapor Density												
Vapor Density (lb/cu ft):							0.0111					
Vapor Molecular Weight (lb/lb-mole):							32.0000					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							1.9746					
Daily Avg. Liquid Surface Temp. (deg. R):							529.8928					
Daily Average Ambient Temp. (deg. F):							75.0500					
Ideal Gas Constant R												
(psia cu ft / (lb-mol-deg R)):							10.731					
Liquid Bulk Temperature (deg. R):							515.9933					
Tank Paint Solar Absorptance (Shell):							0.3900					
Tank Paint Solar Absorptance (Roof):							0.3900					
Daily Total Solar Insulation												
Factor (Btu/sqft day):							1,836.9933					
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.1932					
Daily Vapor Temperature Range (deg. R):							35.3960					
Daily Vapor Pressure Range (psia):							1.6116					
Breather Vent Press. Setting Range(psia):							0.0600					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							1.9746					
Vapor Pressure at Daily Minimum Liquid												
Surface Temperature (psia):							1.9746					
Vapor Pressure at Daily Maximum Liquid												
Surface Temperature (psia):							3.5862					
Daily Avg. Liquid Surface Temp. (deg R):							529.8928					
Daily Min. Liquid Surface Temp. (deg R):							521.0439					
Daily Max. Liquid Surface Temp. (deg R):							538.7418					
Daily Ambient Temp. Range (deg. R):							21.3000					
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.5417					
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):							1.9746					
Vapor Space Outage (ft):							8.0833					

Working Losses (lb):	329.7859
Vapor Molecular Weight (lb/lb-mole):	32.0000
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	1.9746
Net Throughput (gal/mo.):	300,000.0000
Annual Turnovers:	53.1896
Turnover Factor:	0.7307
Maximum Liquid Volume (gal):	5,640.1975
Maximum Liquid Height (ft):	15.0000
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
 Total Losses (lb):	 344.4321



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

**Emissions Report for: July**

**NALCO Buckhannon 6k gal Product Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Highest M*P2 Product	329.79	14.65	344.43

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

**Identification**

User Identification:	NALCO Buckhannon 6k gal Methanol Tank
City:	Buckhannon
State:	West Virginia
Company:	NALCO
Type of Tank:	Vertical Fixed Roof Tank
Description:	6,014 gallon VFR Methanol Tank

**Tank Dimensions**

Shell Height (ft):	16.00
Diameter (ft):	8.00
Liquid Height (ft) :	15.00
Avg. Liquid Height (ft):	8.00
Volume (gallons):	5,640.20
Turnovers:	44.32
Net Throughput(gal/yr):	250,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Aluminum/Specular
Shell Condition	Good
Roof Color/Shade:	Aluminum/Specular
Roof Condition:	Good

**Roof Characteristics**

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

**Breather Vent Settings**

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

Meterological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

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

**NALCO Buckhannon 6k gal Methanol Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Methyl alcohol	All	59.59	52.30	66.88	56.32	1.4235	1.1266	1.7849	32.0400			32.04	Option 2: A=7.897, B=1474.08, C=229.13

## TANKS 4.0.9d

### Emissions Report - Detail Format

### Detail Calculations (AP-42)

#### NALCO Buckhannon 6k gal Methanol Tank - Vertical Fixed Roof Tank Buckhannon, West Virginia

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	77.5094
Vapor Space Volume (cu ft):	406.3126
Vapor Density (lb/cu ft):	0.0082
Vapor Space Expansion Factor:	0.1028
Vented Vapor Saturation Factor:	0.6212
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	406.3126
Tank Diameter (ft):	8.0000
Vapor Space Outage (ft):	8.0833
Tank Shell Height (ft):	16.0000
Average Liquid Height (ft):	8.0000
Roof Outage (ft):	0.0833
<b>Roof Outage (Cone Roof)</b>	
Roof Outage (ft):	0.0833
Roof Height (ft):	0.0000
Roof Slope (ft/ft):	0.0625
Shell Radius (ft):	4.0000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0082
Vapor Molecular Weight (lb/lb-mole):	32.0400
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.4235
Daily Avg. Liquid Surface Temp. (deg. R):	519.2567
Daily Average Ambient Temp. (deg. F):	54.9833
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R)):	10.731
Liquid Bulk Temperature (deg. R):	515.9933
Tank Paint Solar Absorptance (Shell):	0.3900
Tank Paint Solar Absorptance (Roof):	0.3900
Daily Total Solar Insulation Factor (Btu/sqft day):	1,250.5726
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.1028
Daily Vapor Temperature Range (deg. R):	29.1603
Daily Vapor Pressure Range (psia):	0.6583
Breather Vent Press. Setting Range (psia):	0.0600
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.4235
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	1.1266
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	1.7849
Daily Avg. Liquid Surface Temp. (deg R):	519.2567
Daily Min. Liquid Surface Temp. (deg R):	511.9667
Daily Max. Liquid Surface Temp. (deg R):	526.5468
Daily Ambient Temp. Range (deg. R):	21.5333
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.6212
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1.4235
Vapor Space Outage (ft):	8.0833

Working Losses (lb):	228.9844
Vapor Molecular Weight (lb/lb-mole):	32.0400
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	1.4235
Annual Net Throughput (gal/yr.):	250,000.0000
Annual Turnovers:	44.3247
Turnover Factor:	0.8435
Maximum Liquid Volume (gal):	5,640.1975
Maximum Liquid Height (ft):	15.0000
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
 Total Losses (lb):	 306.4939

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

**Emissions Report for: Annual**

**NALCO Buckhannon 6k gal Methanol Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Methyl alcohol	228.98	77.51	306.49

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

**Identification**

User Identification:	NALCO Buckhannon 6k gal Methanol Tank
City:	Buckhannon
State:	West Virginia
Company:	NALCO
Type of Tank:	Vertical Fixed Roof Tank
Description:	6,014 gallon VFR Methanol Tank

**Tank Dimensions**

Shell Height (ft):	16.00
Diameter (ft):	8.00
Liquid Height (ft) :	15.00
Avg. Liquid Height (ft):	8.00
Volume (gallons):	5,640.20
Turnovers:	44.32
Net Throughput(gal/yr):	250,000.00
Is Tank Heated (y/n):	N

**Paint Characteristics**

Shell Color/Shade:	Aluminum/Specular
Shell Condition	Good
Roof Color/Shade:	Aluminum/Specular
Roof Condition:	Good

**Roof Characteristics**

Type:	Cone
Height (ft)	0.00
Slope (ft/ft) (Cone Roof)	0.06

**Breather Vent Settings**

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

Meterological Data used in Emissions Calculations: Charleston, West Virginia (Avg Atmospheric Pressure = 14.25 psia)

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

**NALCO Buckhannon 6k gal Methanol Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
		Avg.	Min.	Max.		Avg.	Min.	Max.					
Methyl alcohol	Jul	70.22	61.37	79.07	56.32	1.9754	1.5057	2.5647	32.0400			32.04	Option 2: A=7.897, B=1474.08, C=229.13



## TANKS 4.0.9d

### Emissions Report - Detail Format

### Detail Calculations (AP-42)

#### NALCO Buckhannon 6k gal Methanol Tank - Vertical Fixed Roof Tank Buckhannon, West Virginia

Month:	January	February	March	April	May	June	July	August	September	October	November	December
Standing Losses (lb):							11.2511					
Vapor Space Volume (cu ft):							406.3126					
Vapor Density (lb/cu ft):							0.0111					
Vapor Space Expansion Factor:							0.1482					
Vented Vapor Saturation Factor:							0.5416					
Tank Vapor Space Volume:												
Vapor Space Volume (cu ft):							406.3126					
Tank Diameter (ft):							8.0000					
Vapor Space Outage (ft):							8.0833					
Tank Shell Height (ft):							16.0000					
Average Liquid Height (ft):							8.0000					
Roof Outage (ft):							0.0833					
Roof Outage (Cone Roof)												
Roof Outage (ft):							0.0833					
Roof Height (ft):							0.0000					
Roof Slope (ft/ft):							0.0625					
Shell Radius (ft):							4.0000					
Vapor Density												
Vapor Density (lb/cu ft):							0.0111					
Vapor Molecular Weight (lb/lb-mole):							32.0400					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							1.9754					
Daily Avg. Liquid Surface Temp. (deg. R):							529.8928					
Daily Average Ambient Temp. (deg. F):							75.0500					
Ideal Gas Constant R												
(psia cu ft / (lb-mol-deg R)):							10.731					
Liquid Bulk Temperature (deg. R):							515.9933					
Tank Paint Solar Absorptance (Shell):							0.3900					
Tank Paint Solar Absorptance (Roof):							0.3900					
Daily Total Solar Insulation												
Factor (Btu/sqft day):							1,836.9933					
Vapor Space Expansion Factor												
Vapor Space Expansion Factor:							0.1482					
Daily Vapor Temperature Range (deg. R):							35.3960					
Daily Vapor Pressure Range (psia):							1.0591					
Breather Vent Press. Setting Range(psia):							0.0600					
Vapor Pressure at Daily Average Liquid												
Surface Temperature (psia):							1.9754					
Vapor Pressure at Daily Minimum Liquid												
Surface Temperature (psia):							1.5057					
Vapor Pressure at Daily Maximum Liquid												
Surface Temperature (psia):							2.5647					
Daily Avg. Liquid Surface Temp. (deg R):							529.8928					
Daily Min. Liquid Surface Temp. (deg R):							521.0439					
Daily Max. Liquid Surface Temp. (deg R):							538.7418					
Daily Ambient Temp. Range (deg. R):							21.3000					
Vented Vapor Saturation Factor												
Vented Vapor Saturation Factor:							0.5416					
Vapor Pressure at Daily Average Liquid:												
Surface Temperature (psia):							1.9754					
Vapor Space Outage (ft):							8.0833					

Working Losses (lb):	317.7773
Vapor Molecular Weight (lb/lb-mole):	32.0400
Vapor Pressure at Daily Average Liquid	
Surface Temperature (psia):	1.9754
Net Throughput (gal/mo.):	250,000.0000
Annual Turnovers:	44.3247
Turnover Factor:	0.8435
Maximum Liquid Volume (gal):	5,640.1975
Maximum Liquid Height (ft):	15.0000
Tank Diameter (ft):	8.0000
Working Loss Product Factor:	1.0000
 Total Losses (lb):	 329.0285

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

**Emissions Report for: July**

**NALCO Buckhannon 6k gal Methanol Tank - Vertical Fixed Roof Tank**  
**Buckhannon, West Virginia**

	Losses(lbs)		
Components	Working Loss	Breathing Loss	Total Emissions
Methyl alcohol	317.78	11.25	329.03