

**Texas Commission on Environmental Quality
RAP-Compressor Application Instructions for
Readily Available Permit – Compressor Station**

Table of Contents

Overview 1

To Apply for a Readily Available Permit – Compressor Station (RAP-Compressor): 1

Instructions for RAP-Compressor Spreadsheet 3

I. Facility Information..... 3

II. Compressor Engine 4

III. Glycol Reboiler 5

IV. Fugitives 6

V. Oil Tank 8

VI. Dehydrator Vent..... 9

VII. Compressor Blowdowns..... 10

VIII. Flare 11

IX. Produced Water Tank..... 12

X. Truck Loading 13

XI. Tank Cleaning 14

XII. Tank Degassing 15

XIII. Miscellaneous MSS 16

XIV. BACT 18

XV. Emission Summary 19

Air Quality Analysis Reports for RAP Compressor Station 19

Overview

The Readily Available Permit (RAP)-Compressor is a New Source Review (NSR) initial permit to authorize operations of a compressor station. The RAP-Compressor application provides administrative and technical information needed by the Texas Commission on Environmental Quality (TCEQ) to evaluate operations of a compressor station. These instructions detail the steps the applicant must take to apply for a RAP-Compressor.

Facilities shall be constructed and operated as specified in the permit application for the permit. All representations regarding construction plans and operation requirements contained in the permit application (including the spreadsheet) shall be enforceable representations upon issuance of the permit.

The applicant must enter the required information, as detailed in these instructions, for each emission source included in the permit application.

For each emission source listed in the spreadsheet:

- The emission point is identified with a pre-assigned emission point identification number (EPN) which cannot be changed. The emission point is defined as the point from which air contaminants enter the ambient air.
- The applicant must enter the required information into the yellow cells within each tab that is applicable to their project. Some cells have drop-down selections. If a cell displays “Error,” turns red, or has a popup message indicating the value is not within the parameters, the project does not qualify for the RAP-Compressor or an error has been made on the entry.
- Best Available Control Technology (BACT) [Title 30 Texas Administrative Code § 116.111(a)(2)(C)] is provided by the TCEQ in the spreadsheet. The applicant must review the BACT with consideration given to the technical practicability and the economic reasonableness of reducing or eliminating emissions from the facility. The practices and controls listed for each emission source represent BACT for that specific unit. Acceptance of the BACT for each unit is confirmed on the Emission Summary tab.

To Apply for a Readily Available Permit – Compressor Station (RAP-Compressor):

1. Read the RAP-Compressor Qualifying Criteria to determine if the project meets the required specifications. The RAP-Compressor Qualifying Criteria can be found at: [RAP-Compressor Qualifying Criteria](#).
2. Read the RAP-Compressor Special Conditions to determine if the facility meets the permit conditions. The RAP-Compressor Conditions can be found at: [RAP-Compressor Special Conditions](#).
3. Read the RAP-Compressor Application Instructions and complete the RAP-Compressor Spreadsheet. The RAP-Compressor Spreadsheet can be found at: [RAP-Compressor Spreadsheet](#).
4. Complete the Form PI-1 (General Application Form), using the PI-1 Instructions. The applicant does not need to submit all additional items listed in the PI-1 Instructions, as they are included in the required spreadsheet. Only the following additional items as detailed below need to be submitted. The Form PI-1 can be found at: www.tceq.texas.gov/permitting/air/forms/newsourcereview/nsr_general_forms.html.
 - a. *Process Description:* Provide a process description to accompany the process flow diagram that discusses each step in the process and provides a step-by-step explanation of exactly

how your business operates. The description should assist the permit reviewer through the process with emphasis on where the emissions are generated, why the emissions must be generated, what air pollution controls are used (including process design features that minimize emissions), and where the emissions enter the atmosphere.

The process description must also explain how the facility or facilities will be operating when the maximum possible emissions are produced. For some source types, this will probably be the highest production rate. For other source types, the maximum emission rates may occur at partial load. When applicable, discuss cycle times, reaction times, temperatures, pressures, material flow rates, and production rates. Be specific, and do not use generalities such as a small amount, sometimes, and occasionally opened. The process description must also include how the facility is operated during periods of planned maintenance, startup, and shutdown (MSS) and what emission reduction techniques will be used to limit emissions, changes in character of emissions, and the frequency and duration of each type of planned MSS activity.

All information in the process description is an enforceable representation.

- b. *Process Flow Diagram*: Provide a process flow diagram for all permit applications so that the permit reviewer can verify all technical information regarding the affected facility. The process flow diagram should be sufficiently descriptive so the permit reviewer can determine the raw materials to be used in the process; all major processing steps and major equipment items; individual emission points associated with each process step; the location and identification of all emission abatement devices; and the location and identification of all waste streams (including wastewater streams that may have associated air emissions). Block flow diagrams generally are not sufficient.

Alternate material flows and changes in routing of emissions during periods of planned maintenance, startup, and shutdown (MSS) should be depicted as well as any alternate emission control devices that will be used during these periods.

- c. *Current Area Map*: An area map that is adequate for a person who has never visited the area to be able to find the proposed site and determine the nature of the surrounding land use. The area map must clearly show features present on a United States Geological Survey (USGS) map, which include: a true north arrow, an accurate scale, the entire plant property, the location of the property relative to prominent geographical features including, but not limited to, highways, roads, streams, and significant landmarks such as buildings, residences, schools, parks, hospitals, day care centers, and churches. The map must also include a circle with a 3,000 foot radius from the property boundary to ensure adequate coverage on all sides of the facility.
- d. *Plot Plan*: A plot plan that clearly shows a north arrow, an accurate scale, all property lines, all emission points, buildings, tanks, process vessels, other process equipment, and two bench mark locations (preferably Universal Transverse Mercator (UTM) coordinates). Should you submit the plot plan electronically, the preferred format to use are drawing interchange format (*.dxf), drawing format (*.dwg), or any other computer aided drawing format. **Identify all** emission points on the affected property.

5. Submit a hard-copy of the completed application materials listed below in accordance with the Form PI-1 Instructions. In addition, send the application materials electronically to the Air Permits Initial Review Team at apirt@tceq.texas.gov.

- a. Core Data Form (located at: www.tceq.texas.gov/permitting/central_registry/guidance.html);
- b. Form PI-1;

- c. RAP-Compressor Spreadsheet;
 - d. All additional information as described above (process flow diagram, process description, area map, and plot plan); and
 - e. [Table 30 \(Estimated Capital Cost and Fee Verification\)](#).
6. Do not begin construction until notified by the TCEQ. If the facility is already operating, an air authorization is still needed. Seek an authorization as soon as you become aware that this requirement applies.
7. **If the qualifying criteria are not met, or if the applicant does not agree with the RAP-Compressor Special Conditions, the applicant will receive notice that the application has been voided. If the application is voided for these reasons, the applicant should seek a different type of authorization as appropriate.**

Instructions for RAP-Compressor Spreadsheet

The instructions are categorized based upon each tab within the spreadsheet.

I. Facility Information

- A. Company or Other Legal Name: **This must match the Form PI-1.** Permits are issued to either the facility owner or operator, commonly referred to as the applicant or permit holder. List the legal name of the company, corporation, partnership, or person who is applying for the permit. We will verify the legal name with the Texas Secretary of State at (512) 463-5555 or at www.sos.state.tx.us. You may be asked to correct the name provided on the RAP-Compressor Spreadsheet and Form PI-1, if found to be different. In some cases, we may request a copy of the legal document forming the entity to verify the legal name; for example: general partnership or trust filed with the county.
- B. County: Provide the county the site will be located in. Select the county name from the drop-down menu in the cell.
- C. Customer Number (CN): If known, provide the CN number in the format: CNxxxxxxxx. This is a unique number given to each business, governmental body, association, individual, or other entity that owns, operates, is responsible for, or is affiliated with a regulated entity. We assign the CN when a Core Data Form is initially submitted to the Central Registry.

Important Note: The company information provided on the Core Data Form must be the same as provided on the Form PI-1 and the RAP-Compressor Spreadsheet.

- D. Regulated Entity Number (RN): If known, provide the RN number in the format: RNxxxxxxxx. This is a unique agency assigned number given to each person, organization, place, or thing that is of environmental interest to us and where regulated activities will occur. The RN is assigned when a Core Data Form is initially submitted to the Central Registry, if the agency has conducted an investigation, or if the agency has issued an enforcement action. The RN replaced air account numbers.

Important Note: The facility information provided on the Core Data Form must be the same as provided on the Form PI-1 and the RAP-Compressor Spreadsheet.

- E. Is this site an existing site? Select the response from the drop-down menu in this cell. This RAP is only for a greenfield site.
- F. Distance from the property line to the closest emission point (in meters): Enter the distance in meters. The minimum setback distance from the property line is 25 meters.

- G. Is there a school located within 3000 feet of the property line?: Select the response from the drop-down menu in this cell. The applicant must select in the spreadsheet whether there are any schools within 3,000 feet of the propertyline and plot the location of the schools on the area map.
- H. Number of units: Enter the number of units in the permit application for each source type. The maximum number of compressor engines is six unless the site will be located in a county listed below.

Harris	3 engines
Brooks, Cameron, Dimmit, Duval, El Paso, Hidalgo, Jim Hogg, Kenedy, Kinney, La Salle, McMullen, Maverick, Starr, Val Verde, Webb, Willacy, Zapata, Zavala	4 engines
Aransas, Atascosa, Bandera, Bee, Bexar, Calhoun, Comal, DeWitt, Edwards, Frio, Gillespie, Goliad, Gonzales, Guadalupe, Jackson, Jim Wells, Karnes, Kendall, Kerr, Kleberg, Lavaca, Live Oak, Medina, Nueces, Real, Refugio, San Patricio, Uvalde, Victoria, Wilson	5 engines

The other source types are limited as follows: one glycol reboiler, two oil tanks, one flare, and two produced water tanks.

II. Compressor Engine

Important Note: The maximum number of engines which can be authorized by the RAP-Compressor is dependent on the county. The information required for each engine must be entered into its own respective tab on the spreadsheet. Leave engine tabs that are not needed blank if you are applying for less than six.

- A. EPN: ENG1, ENG2, ENG3, ENG4, ENG5, and ENG6 are the assigned EPNs for these units.
- B. UTM Coordinates of Emission Point: Enter the Zone number, and the East and North coordinates (in meters) for the emission point. Identify emission point by UTM coordinates in meters using the North American Datum 1983 (NAD 83). UTM reference coordinates may be obtained from USGS topographical maps or others, if applicable. Accurate coordinates for each emission point are essential for air dispersion modeling activities
- C. Discharge Parameters: Enter the discharge parameters listed below for the unit. Entries must be greater than or equal to the values listed below.

Release height [feet (ft)]	30 ft
Diameter (ft)	1 ft
Temperature [degrees Fahrenheit (°F)]	992 °F
Velocity [feet per second (fps)]	107 fps

- D. Input Parameters: Enter the input parameters listed below for the unit. Entries may not exceed the values listed below.

Rated brake power of engine [horsepower (hp)]	1380 hp
Max heat rate [million British thermal units per hour (MMBtu/hr)]	10.08 MMBtu/hr
Hours operation per year (yr)	8760 hrs/yr
Sulfur content of natural gas [grains per 100 dry standard cubic feet (gr/100 dscf)]	0.2 gr/100 dscf*

*This input parameter is assigned and cannot be changed.

- E. Emission Rates:

- Enter the nitrogen oxide (NO_x) controlled emission factor. This may not exceed 0.7 grams (g)/hp-hr and must not exceed the manufacturer guarantee.
- The emission factor for Engines 2-6 match the Engine 1 entry.
- The following controlled emission factors are assigned and cannot be changed.

CO	0.5000 g/hp-hr
PM	0.0100 lb/MMBtu
PM ₁₀	0.0100 lb/MMBtu
PM _{2.5}	0.0100 lb/MMBtu
VOC	0.0300 g/hp-hr
SO ₂	0.0006 lb/MMBtu
CH ₂ O	0.0310 g/hp-hr

- The cells under columns “lb/hr” and “tpy” will populate automatically based upon the values entered in the yellow cells and the emission factors. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.

III. Glycol Reboiler

Important Note: A maximum of one glycol reboiler can be authorized by the RAP-Compressor. The information required for the glycol reboiler must be entered into its own respective tab on the spreadsheet. Leave the tab blank if you are not applying for a glycol reboiler.

- A. EPN: HEAT1 is the assigned EPN for this unit.
- B. UTM Coordinates of Emission Point: Enter the Zone number, and the East and North coordinates (in meters) for the emission point. Identify emission point by UTM coordinates in meters using the North American Datum 1983 (NAD 83). UTM reference coordinates may be obtained from USGS topographical maps or others, if applicable. Accurate coordinates for each emission point are essential for air dispersion modeling activities.

- C. Discharge Parameters: Enter the discharge parameters listed below for the unit. Entries must be greater than or equal to the values listed below.

Release height (ft)	20 ft
Diameter (ft)	0.65 ft
Temperature (°F)	200 °F
Velocity (fps)	5.2 fps

- D. Input Parameters: Enter the input parameters listed below for the unit. Entries may not exceed the values listed below.

Max heat rate (MMBtu/hr)	1.5 MMBtu/hr
Hours operation per year	8760 hrs/yr
Fuel heating value (Btu/scf)	1020 Btu/scf

- E. Emission Rates:

- Enter the controlled emission factor in pounds per million scf (lb/MMscf). Entries may not exceed the following:

NO _x	100 lb/MMscf
CO	84 lb/MMscf
PM	7.6 lb/MMscf
PM ₁₀	7.6 lb/MMscf
PM _{2.5}	7.6 lb/MMscf
VOC	5.5 lb/MMscf
SO ₂	0.6 lb/MMscf
CH ₂ O	0.075 lb/MMscf

- The cells under columns “lb/hr” and “tpy” will populate automatically based upon the values entered in the yellow cells and the emission factors. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.

IV. Fugitives

- A. EPN: FUG1 is the assigned EPN for these emissions.
- B. UTM Coordinates of Emission Point: Enter the Zone number, and the East and North coordinates (in meters) for the emission point. Identify emission point by UTM coordinates in meters using the North American Datum 1983 (NAD 83). UTM reference coordinates may be obtained from USGS topographical maps or others, if applicable. Accurate coordinates for each emission point are essential for air dispersion modeling activities.

- C. Discharge Parameter: Enter the discharge parameter listed below for the unit. Entry must be greater than or equal to the value listed below.

Release height (ft)	3 ft
---------------------	------

- D. Input Parameters and VOC Emission Rates: Enter the input parameters listed below for each equipment type.

- The source count; and
- The stream's volatile organic compound (VOC) content as a percent. Please note: justification must be provided when using any percent other than 100%.
- The gas and oil production operations pound (lb) VOC per hour per source are assigned and cannot be changed. They are consistent with TCEQ NSR guidance for equipment leak fugitives.

Valves-gas	0.00992 lb VOC/hr/source
Relief valve-gas	0.0194 lb VOC/hr/source
Open-ended lines-gas	0.00441 lb VOC/hr/source
Connectors-gas	0.00086 lb VOC/hr/source
Sampling connectors-gas	0.00044 lb VOC/hr/source
Valves-light oil	0.0055 lb VOC/hr/source
Open-ended lines-light oil	0.00309 lb VOC/hr/source
Connectors-light oil	0.000243 lb VOC/hr/source
Sampling connectors-light oil	0.000463 lb VOC/hr/source
Flanges-light oil	0.000243 lb VOC/hr/source

- The control efficiency percent for each equipment type is assigned and cannot be changed.

Valves-gas	97%
Relief valve-gas	97%
Open-ended lines-gas	97%
Connectors-gas	30%
Sampling connectors-gas	30%
Valves-light oil	97%
Open-ended lines-light oil	97%
Connectors-light oil	30%
Sampling connectors-light oil	30%
Flanges-light oil	30%

- The cells under columns "VOC lb/hr" and "VOC tpy" will populate automatically based upon the values entered in the yellow cells and the emission factors. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.

E. Speciated Emission Rates:

- Enter the weight percent of VOC for each species, corrected to remove non-VOC content.
- The cells under columns “lb/hr” and “tpy” will populate automatically based upon the values entered in the yellow cells and the emission factors. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.

V. Oil Tank

Important Notes:

- **The maximum number of oil tanks which can be authorized by the RAP-Compressor is two. The information required for each oil tank must be entered into its own respective tab on the spreadsheet. Leave oil tank tabs that are not needed blank if you are applying for less than two.**
- **All emissions from the oil tank(s) must be routed to the flare. Emission rate requirements listed on the flare tab must be adhered to.**
- **Speciated VOC emissions from this source should be determined using a tank emission program such as E&P Tank v2.0. A gas analysis should be conducted to determine factors used in the calculations. Output files of both analyses must be provided with the application.**

A. EPN: FLARE1 is the assigned EPN for these units.

B. Input Parameters: Enter the input parameters listed below for the unit. Entries may not exceed the values listed below.

Percent oil in throughput	100%*
Potential oil throughput [barrels (bbl)/day]	125 bbl/day
Capacity of oil tank [gallons (gal)]	25,000 gal
Days of operation per year	365 days
Short term margin percent for the waste stream to the flare	100%
Daily and annual throughput (bbl)	Calculated*
Daily and annual gas-oil ratio (scf/bbl)	NA
Daily and annual uncontrolled recovery - vapor (scf/time)	Calculated*
Daily and annual total emissions heat value (Btu/scf)	NA
Daily and annual total heat flow (Btu) per day	Calculated*
Daily and annual total heat flow (MMBtu/hr)	Calculated*

*This input parameter is assigned and cannot be changed.

C. Emission Rates:

- The following controlled emission factors are assigned and cannot be changed.

NO _x	0.138 lb/MMBtu
CO	0.2755 lb/MMBtu

- The cells under columns “uncontrolled lb/hr” and “uncontrolled tpy” will populate automatically for NO_x and carbon monoxide (CO) based upon the values entered in the yellow cells and the emission factors. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.
- Enter the uncontrolled lb/hr and uncontrolled tpy for VOC and the speciated VOC emission rates as determined by the tanks emission program.

VI. Dehydrator Vent

Important Notes:

- A maximum of one dehydrator can be authorized by the RAP-Compressor.**
- All emissions from the dehydrator must be routed to the flare. Emission rate requirements listed on the flare tab must be adhered to.**
- A gas analysis using a program such as GRI GLYCalc should be conducted to determine factors used in the calculations. Output files must be provided with the application.**

A. EPN: FLARE1 is the assigned EPN for this unit.

B. Input Parameters: Enter the input parameters listed below for the unit. Entries are not limited, but must meet the emission rates on the flare tab.

Dry gas throughput design (MMscf/day)	NA
Heat flow (MMBtu/hr)	NA
Flow rate (scf/hr)	NA
Dehydrator operation schedule (hrs/yr)	NA

C. Emission Rates:

- The following controlled emission factors are assigned and cannot be changed.

NO _x	0.138 lb/MMBtu
CO	0.2755 lb/MMBtu

- Enter the VOC emission factor as determined by the gas analysis.
- The cells under columns “uncontrolled lb/hr” and “uncontrolled tpy” for NO_x, CO, and VOC will populate automatically based upon the values entered in the yellow cells and the emission factors. Do not alter any preset values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.
- Enter the uncontrolled lb/hr and uncontrolled tpy emission rates as determined by the gas analysis.

VII. Compressor Blowdowns

Important Notes:

- A maximum of one blowdown per engine per year can be authorized by the RAP-Compressor.
- All emissions from the blowdowns must be routed to the flare. Emission rate requirements listed on the flare tab must be adhered to.

- A. EPN: FLARE1 is the assigned EPN for these emissions.
- B. Input Parameters: Enter the input parameters listed below for the unit. Entries may not exceed the values listed below.

Volume to be blown down (Mscf)	NA
Molecular weight of VOC [lb/lb-mole (mol)]	NA
Blowdowns per hour per engine	1 blowdown/hr*
Composition mole percent (% VOC/vapor)	100%
Gas heating value (Btu/scf)	NA
Ideal volume per lb-mol (scf/lb-mol)	379.4 scf/lb-mol*
Number of blowdowns per engine per year	12 blowdowns/engine/yr
Number of engines at site	Dependent on county**

*This input parameter is assigned and cannot be changed.

** No entry required. Data matches entry on a previous tab.

C. Emission Rates:

- The following controlled emission factors are assigned and cannot be changed.

NO _x	0.138 lb/MMBtu
CO	0.2755 lb/MMBtu

- The weight percentages of the speciated VOCs are consistent with the percentages used for fugitive emission calculations and do not need to be entered on this tab.
- The cells under columns “uncontrolled lb/hr” and “uncontrolled tpy” will populate automatically based upon the values entered in the yellow cells and the emission factors. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.

D. Calculations:

- Equations used to determine emission rates are included. No input from the applicant is required.

VIII. Flare

Important Notes:

- **A maximum of one flare can be authorized by the RAP-Compressor.**
- **Emissions from the oil tank(s), dehydrator, and blowdowns must be routed to the flare.**
- **A gas analysis using a program such as GRI GLYCalc should be conducted to determine factors used in the calculations. Output files must be provided with the application.**

- A. EPN: FLARE1 is the assigned EPN for this unit.
- B. UTM Coordinates of Emission Point: Enter the Zone number, and the East and North coordinates (in meters) for the emission point. Identify emission point by UTM coordinates in meters using the North American Datum 1983 (NAD 83). UTM reference coordinates may be obtained from USGS topographical maps or others, if applicable. Accurate coordinates for each emission point are essential for air dispersion modeling activities.
- C. Discharge Parameter: Enter the discharge parameter listed below for the unit. Entry must be greater than or equal to the value listed below.

Release height (ft)	25 ft
---------------------	-------

- D. Pilot Waste Stream Input Parameters: Enter the input parameters listed below for the unit. Entries may not exceed the values listed below.

Fuel type	Field Gas*
VOC molecular weight in field gas (lb/lb-mol)	21.87 lb/lb-mol*
Gas heating value (Btu/scf)	NA
Pilot heat rating (MMBtu/hr)	NA
Pilot flow rate (scf/hr)	Calculated*
Pilot hrs/yr (hrs)	8760 hrs*
Sulfur content of fuel (gr/MMscf)	2000 gr/MMscf*

*This input parameter is assigned and cannot be changed.

- E. Pilot Waste Stream Emission Rates:
- The following controlled emission factors are assigned and cannot be changed.

NO _x	0.138 lb/MMBtu
CO	0.2755 lb/MMBtu
SO ₂	2000 gr S/MMscf

- The cells under columns “uncontrolled lb/hr” and “uncontrolled tpy” will populate automatically based upon the values entered in the yellow cells and the emission factors for the pilot and all sources routed to the flare. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.

F. Calculation

- An equation used to determine emission rates is included. No input from the applicant is required.

G. Total Flare Emissions

- A VOC destruction rate efficiency of 98% is assigned and cannot be changed.
- Emission rates include totals from the oil tank(s), dehydrator, compressor blowdowns, and the pilot flame.
- The cells under columns “lb/hr” and “tpy” will populate automatically based upon the values entered in the yellow cells and the emission factors for the pilot and all sources routed to the flare. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.

IX. Produced Water Tank

Important Note: The maximum number of produced water tanks which can be authorized by the RAP-Compressor is two. The information required for each produced water tank must be entered into its own respective tab on the spreadsheet. Leave produced water tank tabs that are not needed blank if you are applying for less than two.

A. EPN: PWTANK1 and PWTANK2 are the assigned EPNs for these units.

B. UTM Coordinates of Emission Point: Enter the Zone number, and the East and North coordinates (in meters) for the emission point. Identify emission point by UTM coordinates in meters using the North American Datum 1983 (NAD 83). UTM reference coordinates may be obtained from USGS topographical maps or others, if applicable. Accurate coordinates for each emission point are essential for air dispersion modeling activities.

C. Discharge Parameter: Enter the discharge parameter listed below for the unit. Entry must be greater than or equal to the value listed below.

Release height (ft)	10 ft
---------------------	-------

D. Input Parameters: Enter the input parameters listed below for the unit. Entries may not exceed the values listed below.

Percent oil in water throughput	1%*
Potential water throughput (bbl/day)	125 bbl/day

*This input parameter is assigned and cannot be changed.

E. Emission Rates:

- The cells under columns “lb/hr” and “tpy” will populate automatically based upon 1% of Oil Tank 1 emission rates. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.

X. Truck Loading

Important Notes:

- **A maximum of one truck loading emission point can be authorized by the RAP-Compressor.**
- **Speciated VOC emissions from this source should be determined using a tank emission program such as E&P Tank v2.0. Output files of the analysis must be provided with the application.**

- A. EPN: LOAD1 is the assigned EPN for these emissions.
- B. (UTM Coordinates of Emission Point: Enter the Zone number, and the East and North coordinates (in meters) for the emission point. Identify emission point by UTM coordinates in meters using the North American Datum 1983 (NAD 83). UTM reference coordinates may be obtained from USGS topographical maps or others, if applicable. Accurate coordinates for each emission point are essential for air dispersion modeling activities.
- C. Discharge Parameter: Enter the discharge parameter listed below for the unit. Entry must be greater than or equal to the value listed below.

Release height (ft)	10 ft
---------------------	-------

- D. Input Parameters: Enter the input parameters listed below for the unit. Entries may not exceed the values listed below.

Molecular weight of vapors (lb/lb-mol)	46.15 lb/lb-mol
True vapor pressure at 95°F (pounds per square inch absolute (psia)	6.79 psia*
Max hourly fill rate (bbl/hr)	200 bbl/hr
True vapor pressure at T (psia)	NA
Temp of liquid loaded (°F)	NA
Potential throughput (bbl/yr)	NA
VOC hourly (lb/1000 gal)	Calculated*
VOC annual (lb/1000 gal)	Calculated*

*This input parameter is assigned and cannot be changed.

- E. Emission Rates:
- Enter the total VOC weight percent, corrected to remove non-VOC content for each species.
 - The cells under columns "lb/hr" and "tpy" will populate automatically based upon the values entered in the yellow cells and the emission factors. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.
- F. Calculations:
- Equations used to determine emission rates are included. No input from the applicant is required.

XI. Tank Cleaning

Important Notes:

- **A maximum of one tank cleaning emission point can be authorized by the RAP-Compressor.**
- **Emissions from this source should be determined using a tank emission program such as E&P Tank v2.0. Output files of the analysis must be provided with the application.**

- A. EPN: MSS-TC is the assigned EPN for these emissions.
- B. UTM Coordinates of Emission Point: Enter the Zone number, and the East and North coordinates (in meters) for the emission point. Identify emission point by UTM coordinates in meters using the North American Datum 1983 (NAD 83). UTM reference coordinates may be obtained from USGS topographical maps or others, if applicable. Accurate coordinates for each emission point are essential for air dispersion modeling activities.
- C. Discharge Parameter: Enter the discharge parameter listed below for the unit. Entry must be greater than or equal to the value listed below.

Release height (ft)	10 ft
---------------------	-------

- D. Input Parameters: Enter the input parameters listed below for the unit. Entries may not exceed the values listed below.

Tank volume of the largest tank (oil or produced water) (bbl)	500 bbl
Tank volume of the largest tank (oil or produced water) (gal)	Calculated*
Number of oil tanks	2 tanks**
Number of cleanings per year per oil tank	1 cleaning/tank/yr
Liquid heel (% volume of tank)	10%
M, Molecular weight of vapors (lb/lb-mol)	46.5 lb/lb-mol**
P, True vapor pressure at 90°F (psia)	6.2 psia
P, True vapor pressure at average annual temp of liquid loaded (psia)	4 psia
Ave annual temp of liquid loaded (°F)	66.36°F
VOC concentration for produced water tanks (%)	1%
Number of produced water tanks	2 tanks**
S, saturation factor	0.6*
Safety factor	2*
Number of vacuum trucks per tank per event	1 truck*
Vacuum truck loading duration (hr/truck)	1 hr/truck*
VOC hourly (lb/1000 gal)	Calculated*

VOC annual (lb/1000 gal)	Calculated*
--------------------------	-------------

*This input parameter is assigned and cannot be changed.

** No entry required. Data matches entry on a previous tab.

E. Emission Rates:

- The total VOC weight percentages match those entered on the loading tab.
- The cells under columns “lb/hr” and “tpy” will populate automatically based upon the values entered in the yellow cells and the emission factors. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.
- There are columns to show the cleaning emissions for the oil tank(s), the produced water tank(s), and the total. The total for all tanks is what will be included on the Maximum Allowable Emission Rate Table and cannot exceed the listed maximums.

F. Calculation:

- An equation used to determine emission rates is included. No input from the applicant is required.

XII. Tank Degassing

Important Notes:

- **A maximum of one tank degassing emission point can be authorized by the RAP-Compressor.**
- **Emissions from this source should be determined using a tank emission program such as E&P Tank v2.0. Output files of the analysis must be provided with the application.**

A. EPN: MSS-TD is the assigned EPN for this emission point.

B. UTM Coordinates of Emission Point: Enter the Zone number, and the East and North coordinates (in meters) for the emission point. Identify emission point by UTM coordinates in meters using the North American Datum 1983 (NAD 83). UTM reference coordinates may be obtained from USGS topographical maps or others, if applicable. Accurate coordinates for each emission point are essential for air dispersion modeling activities.

C. Discharge Parameters: Enter the discharge parameters listed below for the unit. Entries must be greater than or equal to the values listed below.

Release height (ft)	10 ft
Temperature (°F)	68°F

D. Input Parameters: Enter the input parameters listed below for the unit. Entries may not exceed the values listed below.

Atmospheric pressure (psi)	14.7 psi
Oil tank capacity (bbl)	500 bbl
Number of oil tanks	2 tanks**
Oil mixture vapor pressure (psia)	4 psia

Molecular weight of oil mixture (lb/lb-mol)	46.15 lb/lb-mol**
VOC weight fraction	0.86
Duration of activity (hr)	4 hrs

*This input parameter is assigned and cannot be changed.

** No entry required. Data matches entry on a previous tab.

E. Emission Rates:

- The total VOC weight percentages match those entered on the loading tab.
- The cells under columns “lb/hr” and “tpy” will populate automatically based upon the values entered in the yellow cells and the emission factors. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.

F. Calculations:

- Equations used to determine emission rates are included. No input from the applicant is required.

XIII. Miscellaneous MSS

Important Note:

- **A maximum of one Miscellaneous MSS emission point can be authorized by the RAP.**
- **MSS activities included in this RAP are: engine maintenance (oil changes, filter changes, changing rod packings, and the changing of wet and dry seals), dehydrator maintenance (replacing glycol solution), and glycol reboiler maintenance. All other activities should be authorized separately.**

A. MSS-MISC is the assigned EPN for these emissions.

B. Input Parameters and Emission Rates: Enter the input parameters listed below for the activities. Entries may not exceed the values listed below.

Engine maintenance: engine oil changes and filter changes (emissions result from the draining of used engine oil):

The engine must be isolated and a blowdown must occur prior to the oil change.

Temperature (°F)	212°F*
Vapor pressure (psia)	0.001 psia*
Saturation factor	1*
Molecular weight (lb/lb-mol)	500 lb/lb-mol*
Motor oil (gal/oil change)	112 gal/oil change*
U wind speed [meters per second (m/s)]	3.52 m/s*
Vapor pressure Pv [Pascal (Pa)]	10 Pa*
Molecular weight (lb/lb-mol)	500 lb/lb-mol*
Surface area Ap [meters squared (m ²)]	1.48 m ² *

Evaporation time t (hrs)	10 hrs*
Number of oil changes per engine per year	NA

*This input parameter is assigned and cannot be changed.

Engine maintenance: changing engine rod packings (emissions result from clingage of lubricant in the casing):

The engine must be isolated and a blowdown must occur prior to changing rod packing.

Temperature (°F)	104°F*
Vapor pressure (psia)	0.001 psia*
Molecular weight (lb/lb-mol)	500 lb/lb-mol*
VV Casing volume (ft ³)	2.355 ft ³ *
Ideal gas constant [psia-ft ³ /lb-mol-degrees Rankine (°R)]	10.73 psia-ft ³ /lb-mol-°R *
Number of rod packing changes per engine per year	NA

*This input parameter is assigned and cannot be changed.

Engine maintenance: changing wet and dry seals (emissions result from clingage of lubricant in the casing):

The engine must be isolated and a blowdown must occur prior to changing the seals.

Temperature (°F)	104°F*
Vapor pressure of material stored (psia)	0.001psia*
Molecular weight (lb/lb-mol)	500 lb/lb-mol*
VV Casing volume (ft ³)	2.355 ft ³ *
Ideal gas constant (psia-ft ³ /lb-mol-°R)	10.73 psia-ft ³ /lb-mol-°R*
Number of seal changes per year	NA

*This input parameter is assigned and cannot be changed.

Dehydrator maintenance: replacement of glycol solution:

Temperature (°F)	68°F*
Vapor pressure (psia)	0.001psia*
Saturation factor	1*
Molecular weight (lb/lb-mol)	62.07 lb/lb-mol*
Glycol solution (gal/activity)	4000 gal/activity*
VV Vessel volume (ft ³)	2355 ft ³ *
Ideal gas constant (psia-ft ³ /lb-mol-°R)	10.73 psia-ft ³ /lb-mol-°R*

Number of glycol replacement occurrences per year	NA
---	----

*This input parameter is assigned and cannot be changed.

Glycol Reboiler Maintenance:

Temperature (°F)	100°F *
Vapor pressure (psia)	10.5 psia*
Molecular weight (lb/lb-mole)	66 lb/lb-mol*
VV Vessel volume (ft ³)	125.6 ft ³ *
Ideal gas constant (psia-ft ³ /lb-mol-°R)	10.73 psia-ft ³ /lb-mol-°R *
Number of glycol reboiler occurrences per year	NA

*This input parameter is assigned and cannot be changed.

Additional Representations:

VOC type: (pick from list)	Crude oil or condensate, natural gas VOC, or other
Emission type: (pick from list)	Steady state (continuous), low pressure periodic, or high pressure periodic

C. Emission Rates:

- The cells under columns “lb/hr” and “tpy” will populate automatically based upon the values entered in the yellow cells and the emission factors. Do not alter any values within the Emission Rates table. Acceptance of the proposed emission rates for this unit is confirmed on the Emission Summary tab.

D. Calculations:

- Equations used to determine emission rates are included. No input from the applicant is required.

XIV. BACT

The practices and controls listed for each emission source represent BACT for each specific unit. Acceptance of the BACT for each unit is confirmed on the Emission Summary tab.

XV. Emission Summary

Review the Emission Summary tab. The permit application is not eligible for a RAP-Compressor if any emission rates or totals display “Error.”

The applicant must electronically sign the document by typing their name in the yellow cell at the bottom of the table to confirm that the applicant has reviewed and agrees to the following:

- BACT as represented in the application;
- Emission rates represented in the Emission Summary section;
- Draft permit’s Special Conditions; and
- Applicable Air Quality Analysis (AQA) report.

By typing their name in the yellow box (signing the spreadsheet), the applicant also confirms the spreadsheet is submitted as part of their application and accurately represents their proposed project.

Air Quality Analysis Reports for RAP Compressor Station

AQAs were performed in support of the RAP-Compressor. AQAs were performed for each of the sixteen TCEQ regions. Each of the AQA reports summarizes the results for the respective TCEQ region and includes information specific to the counties of that respective region.

Each of the AQA reports can be located under the RAP-Compressor Resources heading at: [RAP Compressor Webpage link](#).