# AIR PERMITTING IN TEXAS

GAS COMPRESSOR ASSOCIATION
21ST ANNUAL EXPO AND CONFERENCE

BONNIE SINGH
ARCHROCK, INC.
MARCH 21, 2016

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# Agenda

I: Why do I need a permit?
Air permit categories in Texas

II: Closer look at Permit By Rule (PBR) options for oil and gas
Example PBR application

III: What to be aware of post-permit
When may I operate?
Recordkeeping
Useful TCEQ online tools

# This Presentation Does Not Cover

- Title V
- Prevention of Significant Deterioration (PSD)
- Greenhouse Gas (GHG)
- Modifications, alterations, amendments to existing permits





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# Legal Disclaimer

The content of this presentation reflects a brief summary of complicated emissions-related rules, regulations, legislation and the like, as well as the individual opinions of its drafters.

It is not intended or offered as legal or operational opinions or advice.

No representations or warranties are made as to accuracy or completeness.

Readers should independently consult their legal counsel, their HSE/emissions specialists, and all relevant rules, regulations, and legislation.




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# Why Do I Need a Permit?

Two air permitting programs:

1) Preconstruction or New Source Review (NSR)
   Goal is to reduce emissions from *new* or *modified* sources

2) Federal Operating Permit (also known as Title V) for major sources, goal is to reduce ongoing emissions from continuously *operating* sources

Two permits?

Bottom line: NSR permit is required before construction begins. Operating permit is required for major sources to be able to operate.

# What is a Major Site? What is Title V?

Refers to the *entire* site

- Any site that emits or has the potential to emit:
  - 100 tpy of any regulated pollutant
  - 10 tpy of any hazardous air pollutant (HAP) – ex. HCHO
  - 25 tpy of any combination of HAPs
  - If site is in a nonattainment county, the limit may be less than 100 tpy for regulated pollutants

If not a *major* source facility, it is called an *area* source facility

# Why Do I Need a Permit?

What could happen if I don't get a permit for my site?

- Violation of the law
- Non-compliance can result in fines and enforcement actions
- Negative publicity
- Individual criminal prosecution




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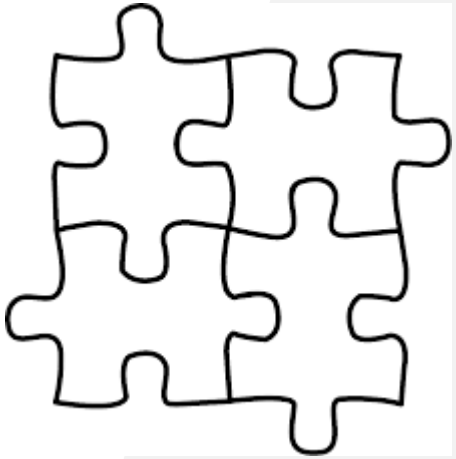
# What Do I Need to Permit?



Any equipment that emits pollutants

Consider aggregated facilities:

- Located on contiguous or adjacent properties
- (1/4 mile rule of thumb)
- Under common control
- Same SIC code

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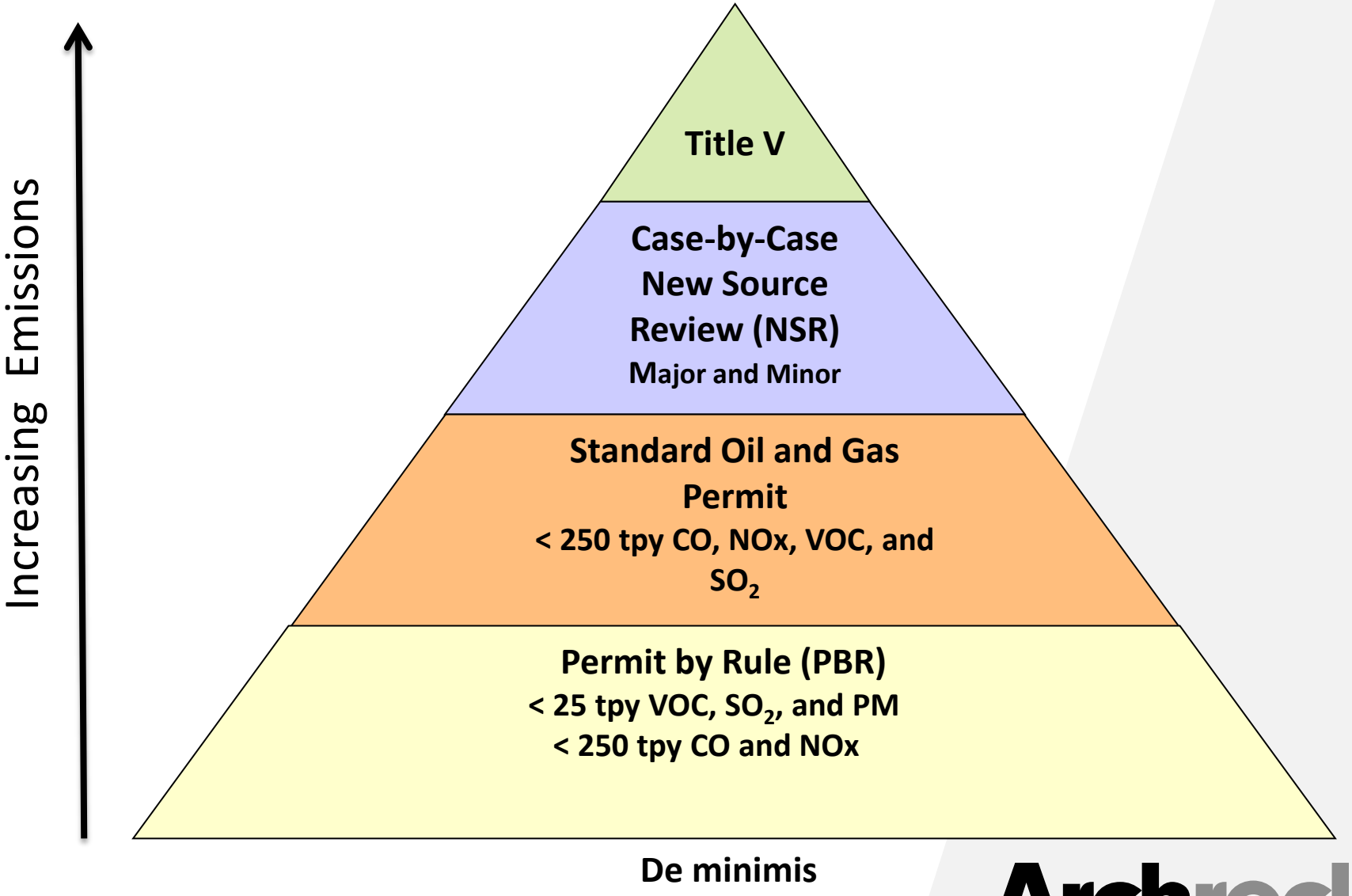
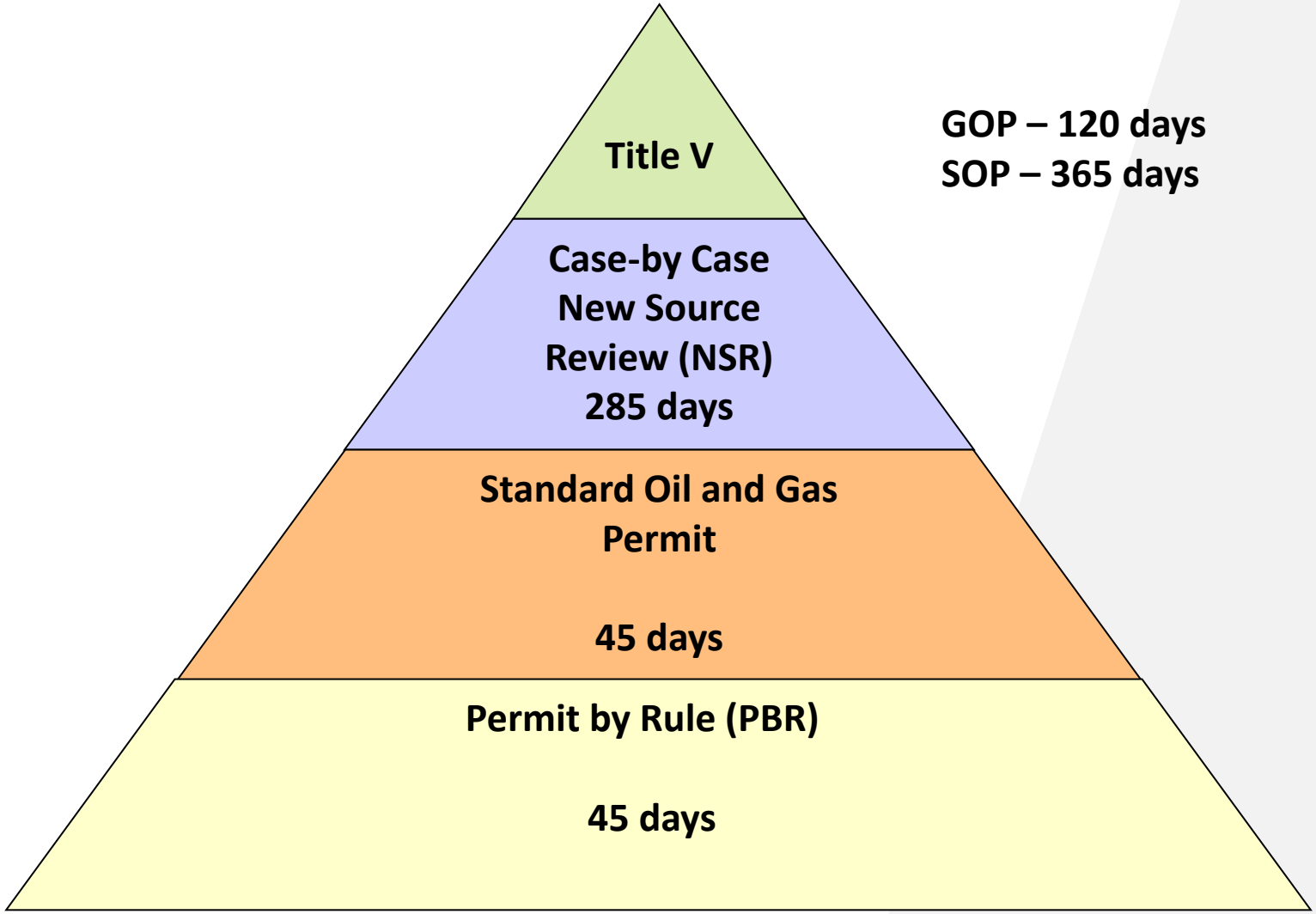
# State Air Permit Categories in Texas



# How Long Will it Take to Get a Permit?




GOP – 120 days
SOP – 365 days

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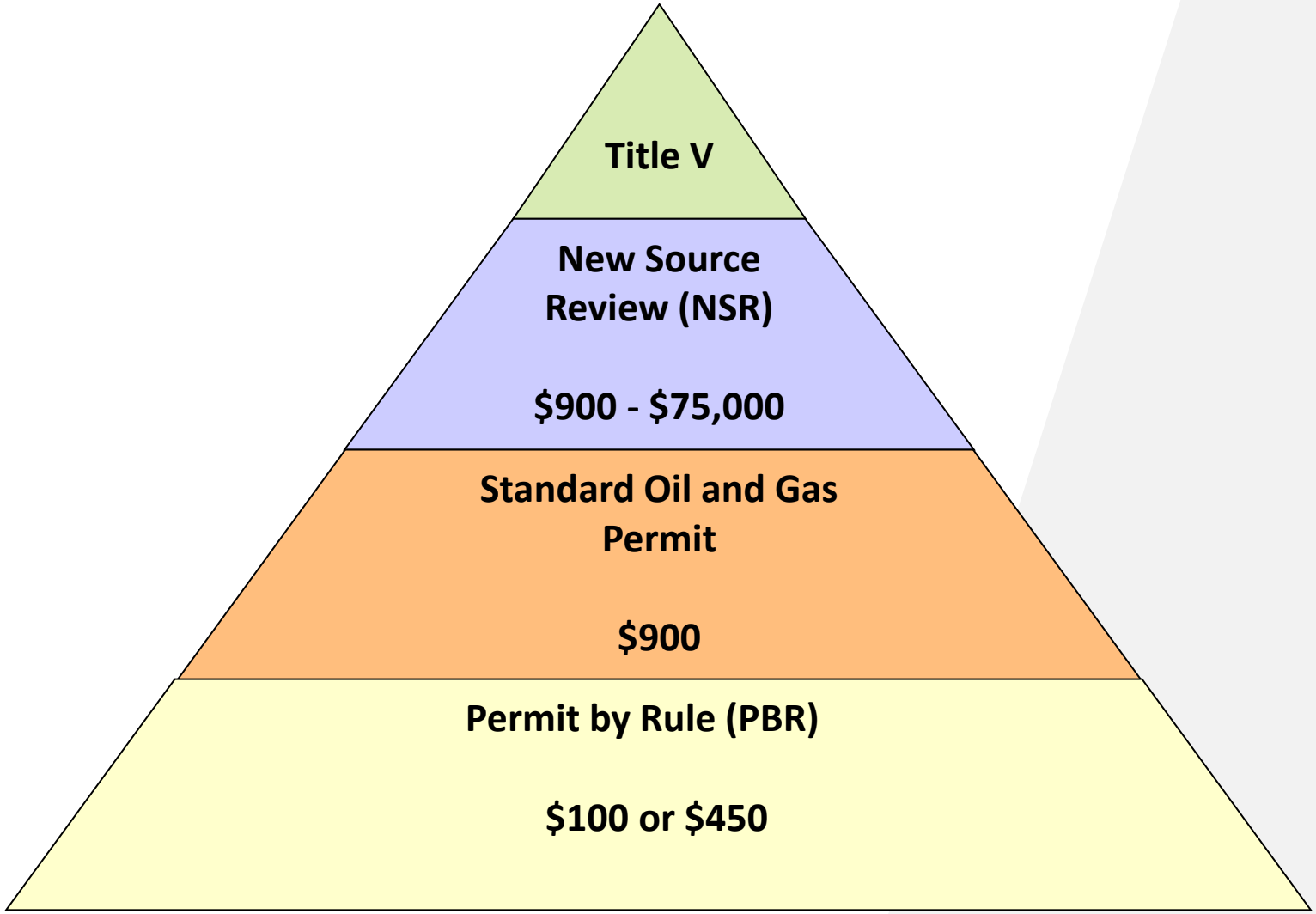
# How Much Does a Permit Cost?







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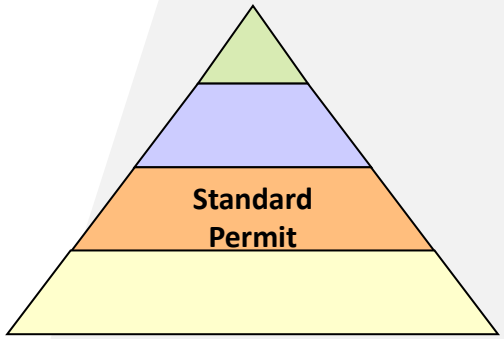
# Standard Permit Options

1. "Traditional" rule version in 30 TAC 116.620, Installation and Modification of Oil and Gas Facilities
   Last amended in 2000




2. New "Non-Rule" version,
   effective November 8, 2012
   - Required if located in Barnett Shale county
   - Any facility may voluntarily claim the "Non-Rule" version

Differences?

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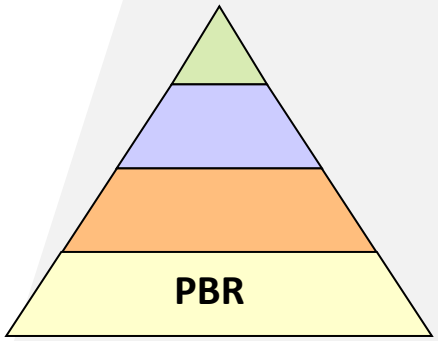
# PBR Options for Oil and Gas – 30 TAC 106.x




- **106.4**
  - Requirements for all PBRs
  - Not to exceed: 250 tpy CO or NOx; 25 tpy VOC
- **106.352**
  - Fugitives, separators, treatment and processing equipment, heater-treaters, methanol injection, amine units, glycol dehydrators, gas recovery units, combustion sources, truck loading, control equipment, VRUs, flares, tanks
- **106.359**
  - Maintenance, startup, and shutdown (MSS)
- **106.492**
  - Flares
- **106.511**
  - Portable and emergency engines and turbines
- **106.512**
  - Stationary engines and turbines

# PBR Example – The application will address:

Administrative

Cover letter
Core Data form
CN and RN numbers, if assigned
Site location, driving directions, GPS
Responsible official
Are you certifying emissions? --> form PI-7 CERT
Area map and location
Process flow diagram
Written process description
Table 1(a), Emission Point Summary
TCEQ-provided checklists for all PBRs claimed

# PBR Example – The application will address:

Technical

Final emissions results, in lb/hr and tpy
List of all emissions-producing equipment
Are you subject to any NSPS or NESHAP regs?
Claiming alternate operating scenarios?
Appropriate gas analyses
NAAQS for NOx
All calculations
Supporting information for calculations:
- Manufacturer spec sheets
- All calculation program results

# PBR Example

Let's work through how to permit under a Permit by Rule (PBR)

Process description:

The facility is a natural gas compressor station in McMullen County.
Daily throughput is approximately 20 MMSCF of sweet natural gas and 18 barrels/day of produced liquids.
Incoming natural gas is routed through a glycol dehydrator to remove residual moisture. Small amounts of natural gas liquids are physically separated in two separators, then stored in tanks. Tank vapors are routed to an enclosed combustor. Gas is sent to the compressor engines before entering the sales line.
Liquids are truck-loaded offsite as necessary.

Explain site process, emissions sources, control devices, throughputs

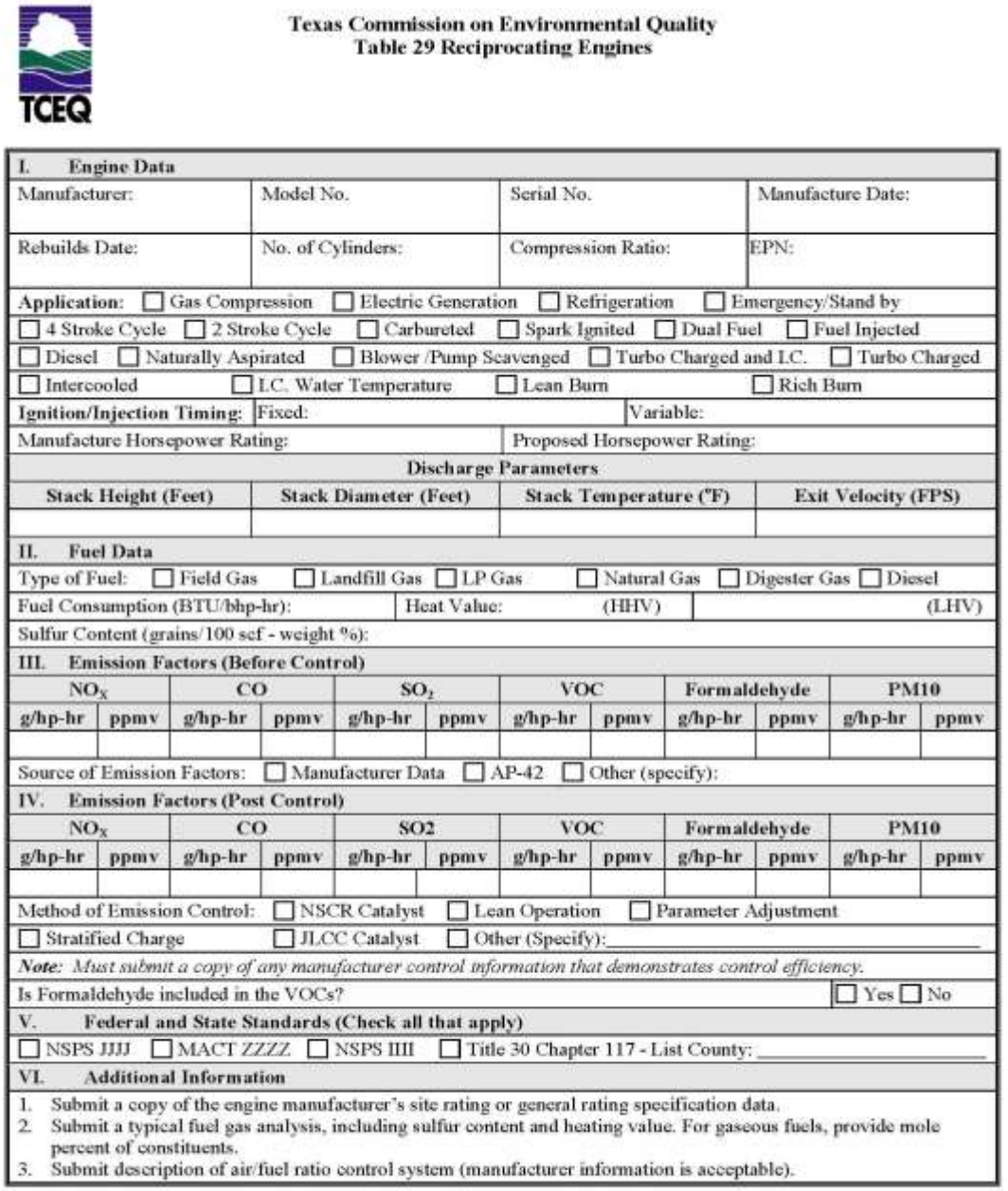
# PBR Example – Emissions Sources

How do we calculate emissions from:

- Natural gas engines, diesel engines, turbines?
- Oil, condensate, or water tanks?
- Flares, thermal oxidizers, vapor combustors?
- Glycol dehydrators, including reboiler and vent?
- Loading?
- Fugitives?
- MSS?

**EASY**! Use the TCEQ-approved Oil and Gas Emissions Spreadsheet!

***NOT SO EASY*** – First, gather all the input values



Texas Commission on Environmental Quality
Table 29 Reciprocating Engines

| I. Engine Data | | | |
|---|---|---|---|
| Manufacturer: | Model No. | Serial No. | Manufacture Date: |
| Rebuilds Date: | No. of Cylinders: | Compression Ratio: | EPN: |

Application: ☐ Gas Compression ☐ Electric Generation ☐ Refrigeration ☐ Emergency/Stand by

☐ 4 Stroke Cycle ☐ 2 Stroke Cycle ☐ Carbureted ☐ Spark Ignited ☐ Dual Fuel ☐ Fuel Injected

☐ Diesel ☐ Naturally Aspirated ☐ Blower /Pump Scavenged ☐ Turbo Charged and I.C. ☐ Turbo Charged

☐ Intercooled ☐ I.C. Water Temperature ☐ Lean Burn ☐ Rich Burn

Ignition/Injection Timing: Fixed: Variable:

Manufacture Horsepower Rating: Proposed Horsepower Rating:

| Discharge Parameters | | | |
|---|---|---|---|
| Stack Height (Feet) | Stack Diameter (Feet) | Stack Temperature (°F) | Exit Velocity (FPS) |
| | | | |

**II. Fuel Data**

Type of Fuel: ☐ Field Gas ☐ Landfill Gas ☐ LP Gas ☐ Natural Gas ☐ Digester Gas ☐ Diesel

Fuel Consumption (BTU/bhp-hr): Heat Value: (HHV) (LHV)

Sulfur Content (grains/100 scf - weight %):

**III. Emission Factors (Before Control)**

| $NO_X$ | | CO | | $SO_2$ | | VOC | | Formaldehyde | | PM10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| g/hp-hr | ppmv | g/hp-hr | ppmv | g/hp-hr | ppmv | g/hp-hr | ppmv | g/hp-hr | ppmv | g/hp-hr | ppmv |
| | | | | | | | | | | | |

Source of Emission Factors: ☐ Manufacturer Data ☐ AP-42 ☐ Other (specify):

**IV. Emission Factors (Post Control)**

| $NO_X$ | | CO | | SO2 | | VOC | | Formaldehyde | | PM10 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| g/hp-hr | ppmv | g/hp-hr | ppmv | g/hp-hr | ppmv | g/hp-hr | ppmv | g/hp-hr | ppmv | g/hp-hr | ppmv |
| | | | | | | | | | | | |

Method of Emission Control: ☐ NSCR Catalyst ☐ Lean Operation ☐ Parameter Adjustment

☐ Stratified Charge ☐ JLCC Catalyst ☐ Other (Specify): _____

*Note: Must submit a copy of any manufacturer control information that demonstrates control efficiency.*

Is Formaldehyde included in the VOCs? ☐ Yes ☐ No

**V. Federal and State Standards (Check all that apply)**

☐ NSPS JJJJ ☐ MACT ZZZZ ☐ NSPS IIII ☐ Title 30 Chapter 117 - List County: _____

**VI. Additional Information**

1. Submit a copy of the engine manufacturer's site rating or general rating specification data.
2. Submit a typical fuel gas analysis, including sulfur content and heating value. For gaseous fuels, provide mole percent of constituents.
3. Submit description of air/fuel ratio control system (manufacturer information is acceptable).

TCEQ-10195 (Revised 11/11) Table 29 Reciprocating Engines
This form is for use by facilities subject to air quality permit requirements and may be revised periodically. (APDG 6002v3)

Reset Form Print Form

Page 1 of 1

# Engine Calculations

## Table 29

## Accompanies the engine and catalyst mfg. spec sheets

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# Engine Calculations

## Internal Combustion Engine Emissions

A) Enter information into the yellow boxes.
B) Use the box provided below for entering any notes necessary (such as the source/justification for any calculation inputs).

Engine Emission Calculations

Note: The TCEQ prefers the following basis for calculating emissions (in order of preference):

1. Stack test data from the engine
2. Manufacturer's specification sheet and control specification sheet (if control used)
3. AP-42 emission factors

**Site Location**

| | |
|---|---|
| County | |
| Region | |
| Existing or new source: | pick from list |
| Installation date: | |

**Discharge Parameters**

| | |
|---|---|
| Stack height (feet) | |
| Stack diameter (feet) | |
| Stage Temperature (°F) | |
| Exit Velocity (fps) | |

**Fuel Data**

| | |
|---|---|
| Fuel Type | ick from list |
| Fuel Consumption (BTU/bhp-hr) | |
| Heat Value (HHV) | |
| Heat Value (LHV) | |
| Sulfur Content (grains/100scf) | |

**Engine Data**

| | |
|---|---|
| EPN | |
| Name | |
| Manufacturer | |
| Model Number | |
| Serial Number | |
| Manufacture Date | |
| Last Rebuild Date | |
| Application | pick from list |
| Ignition/Injection Timing | pick from list |
| Horsepower: | |
| Fuel consumption (Btu/hp-hr): | |
| Hours of operation per year: | |
| Engine Type: | |

**Method of Emission Control**

| | Yes/No |
|---|---|
| NSCR Catalyst | |
| SCR Catalyst | |
| JLCC Catalyst | |
| Parameter Adjustment | |
| Stratified Charge | |
| Other (Specify) | |

**Federal/State Standards**

| | Yes/No |
|---|---|
| NSPS Subpart JJJJ | |
| MACT Subpart ZZZZ | |
| 30 TAC, Chapter 117 | |

From TCEQ Oil and Gas Emissions Spreadsheet




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$SO_2$ Mass Balance calculation for sour gas

| | |
|---|---|
| Fuel Heat Value (Btu/SCF) | |
| Fuel $H_2S$ content (mol%) | |
| $SO_2$ produced (lb/hr) = | 0.00 |
| $SO_2$ produced (tpy) = | 0.00 |

MW $SO_2$ = 64.06
Ideal Gas Law 378.61

| | |
|---|---|
| Does the VOC emission factor being used below include formaldehyde? (pick Yes or No from list) | |

To Determine Emissions for Air Permitting

| | | from AP-42: | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | If available, enter the test results or manufacturer's emission factors before control (g/hp-hr) | Table 3.2-1 2 stroke, lean-burn engine emission factors (lb/MMBtu) | Table 3.2-2 4 stroke, lean-burn engine emission factors (lb/MMBtu) | Table 3.2-3 4 stroke, rich burn engine emission factors (lb/MMBtu) | Uncontrolled lb/hr | Uncontrolled tpy | If present, enter the efficiency of any control device (as a %) | If present, enter the controlled emission factor (as g/hp-hr) | control factor used | lb/hr | tpy |
| VOC | | 0.12 | 0.118 | 0.0296 | 0.000 | 0.000 | | | 0 | 0.00 | 0.00 |
| NOx | | 3.17 | 4.08 | 2.21 | 0.000 | 0.000 | | | 0 | 0.00 | 0.00 |
| CO | | 0.386 | 0.317 | 3.72 | 0.000 | 0.000 | | | 0 | 0.00 | 0.00 |
| $PM_{10}$ | | 0.04831 | 0.0099871 | 0.01941 | 0.000 | 0.000 | | | 0 | 0.00 | 0.00 |
| $PM_{2.5}$ | | 0.04831 | 0.0099871 | 0.01941 | 0.000 | 0.000 | | | 0 | 0.00 | 0.00 |
| $SO_2$ | | 0.000588 | 0.000588 | 0.000588 | 0.000 | 0.000 | | | 0 | 0.00 | 0.00 |
| Formaldehyde | | 0.0552 | 0.0528 | 0.0205 | 0.000 | 0.000 | | | 0 | 0.00 | 0.00 |
| Benzene | | 0.00194 | 0.000404 | 0.00158 | 0.000 | 0.000 | | | 0 | 0.00 | 0.00 |

From TCEQ Oil and Gas Emissions Spreadsheet

# Calculations for Oil, Condensate, Water Tanks

Tank calculation program options for VOC

Determine working, breathing, and flash emissions via:

| All three | Working and Breathing | Flash |
|---|---|---|
| E&P Tanks | E&P Tanks | Lab gas : oil ratio |
| Process simulator | Tanks 4.0 | Lab gas : water ratio |
| | Process simulator | Vasquez-Beggs equation |
| Direct measurement | Direct measurement | |




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# Flares, Thermal Oxidizers, Vapor Combustors

## Flare / Vapor Combustor

A) Enter information into the yellow boxes.
B) See notes/instructions incuded below.
inputs).
D) Make sure to select the correct *Emission Type* from the pull down menu below.

| General Information | |
|---|---|
| Unit Name: | Flare 1 |
| Unit EPN: | Flare 1 |
| Which is utilized for this device? | continuous pilot |

| NOx and CO Emission Factors | | |
|---|---|---|
| For Waste Gas: | | |
| What kind of device is this? Pick from list. | non-steam assisted flare with low Btu stream flared | |
| NOx | 0.0641 | lb/MMBtu |
| CO | 0.5496 | lb/MMBtu |
| For Pilot Stream(s): | | |
| If there is one or more pilot streams, are they made up of pipeline quality natural gas, propane, or field gas? Pick from drop down list to the right and follow instructions below. | field gas | |
| NOx | 0.0641 | lb/MMBtu |
| CO | 0.5496 | lb/MMBtu |
| Enter pilot stream information into the column for Stream No. 1 below. If there is more than one pilot stream, please enter it as one combined stream. | | |

**Emission Factors**

Emission Factors from AP-42 Table 1.4-1 and 1.4-2 (lb/MMscf)

| | | |
|---|---|---|
| NOx | 100 | |
| CO | 84 | |
| PM10, PM2.5 | 7.6 | 5.7 |

Emission Factors from TCEQ Guidance (lb/MMBtu)

| Non-steam assisted, high Btu | | Steam assisted, high Btu | |
|---|---|---|---|
| NOx | 0.138 | NOx | 0.0485 |
| CO | 0.2755 | CO | 0.3503 |
| Non-steam assisted, low Btu | | Steam assisted, low Btu | |
| NOx | 0.0641 | NOx | 0.068 |
| CO | 0.5496 | CO | 0.3465 |

Emission Factors from AP-42 Table 1.4-2 and 1.4-3 (lb/MMscf)

| | |
|---|---|
| $SO_2$ | 0.6 |

From TCEQ Oil and Gas Emissions Spreadsheet




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# Flares, Thermal Oxidizers, Vapor Combustors

| Destruction Efficiency | |
|---|---|
| VOC percent destruction efficiency (%) | 98 |
| propane percent destruction efficiency (%) *OPTIONAL* | |
| $H_2S$ percent destruction efficiency (%) | 98 |

| |
|---|
| $H_2S$ molecular wei |
| $SO_2$ molecular weight |
| seconds/hour |
| inches/ft |

| Stream Information | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Each numbered column represents a stream. The first two columns are always for pilot and added fuel streams | | | | | | | | |
| Stream Sent to Flare/Vapor Combustor No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Stream Sent to Flare/Vapor Combustor Name (Enter Names of Each Stream Here) | pilot(s) | added fuel stream(s) | | | | | | |
| Maximum Expected Hourly Volumtric Flow Rate of Stream (scf/hr) | | | | | | | | |
| Amount of Time Stream Routed to Flare/Vapor Combustor (hrs/yr) | | | | | | | | |
| Maximum Expected Annual Volumtric Flow Rate of Stream (scf/yr) | | | | | | | | |
| Heat Value of Stream - from program results or gas analysis (Btu/scf) | | | | | | | | |
| propane weight percent of total stream (%) *OPTIONAL* | | | | | | | | |
| VOC weight percent of total stream (%) *OPTIONAL* | | | | | | | | |

From TCEQ Oil and Gas Emissions Spreadsheet

GRI-GLYCalc VERSION 4.0 - AGGREGATE CALCULATIONS REPORT

DESCRIPTION:

Description: Dehydration Unit
20 MMSCFD

Annual Hours of Operation: 8760.0 hours/yr

EMISSIONS REPORTS:

CONTROLLED REGENERATOR EMISSIONS

| Component | lbs/hr | lbs/day | tons/yr |
|---|---|---|---|
| Hydrogen Sulfide | 0.0001 | 0.002 | 0.0003 |
| Methane | 0.0546 | 1.310 | 0.2390 |
| Ethane | 0.0905 | 2.172 | 0.3963 |
| Propane | 0.0486 | 1.167 | 0.2130 |
| Isobutane | 0.0128 | 0.306 | 0.0559 |
| n-Butane | 0.0161 | 0.386 | 0.0705 |
| Isopentane | 0.0028 | 0.067 | 0.0123 |
| n-Pentane | 0.0019 | 0.046 | 0.0084 |
| Cyclopentane | 0.0004 | 0.011 | 0.0020 |
| n-Hexane | 0.0005 | 0.011 | 0.0021 |
| Cyclohexane | 0.0003 | 0.007 | 0.0013 |
| Other Hexanes | 0.0012 | 0.028 | 0.0052 |
| Heptanes | 0.0003 | 0.008 | 0.0015 |
| Methylcyclohexane | 0.0003 | 0.006 | 0.0011 |
| 2,2,4-Trimethylpentane | <0.0001 | <0.001 | <0.0001 |
| Benzene | 0.0020 | 0.048 | 0.0087 |
| Toluene | 0.0012 | 0.029 | 0.0054 |
| Ethylbenzene | 0.0006 | 0.015 | 0.0028 |
| Xylenes | 0.0005 | 0.013 | 0.0024 |
| C8+ Heavies | <0.0001 | <0.001 | <0.0001 |
| Total Emissions | 0.2347 | 5.634 | 1.0281 |
| Total Hydrocarbon Emissions | 0.2347 | 5.632 | 1.0278 |
| Total VOC Emissions | 0.0896 | 2.151 | 0.3925 |
| Total HAP Emissions | 0.0049 | 0.117 | 0.0213 |
| Total BTEX Emissions | 0.0044 | 0.105 | 0.0192 |

# Glycol Dehydrator

## GRI-GLYCalc Program to estimate emissions from dehy vent

## For dehy reboiler calculations, treat as heater calculations

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Results printout from GRI-GLYCalc Version 4.0

# Liquids Loading

## Truck Hourly Loading Emission Calculations

Using equation $L_L$ = 12.46* SPM/T from AP-42, Chapter 5, Section 5.2-4

| | | |
|---|---|---|
| S = | | Saturation Factor |
| P = | | True vapor pressure of liquid loaded (psia) |
| M = | | Molecular Weight of Vapors (lb/lb-mole) |
| T = | | Temperature of bulk liquid loaded (in degrees Rankine) |
| Hourly Loading Rate | | Gallons Loaded per Hour |
| $L_L$ = | 0.00 | Loading Loss (lb VOC released/1000 gal liquid loaded) |
| | 0.00 | VOC Uncontrolled Emissions (lb/hr) |

| | |
|---|---|
| Are loading vapors (A) uncontrolled; (B) controlled by a flare, vapor combustor, thermal oxidizer, or vapor recovery unit (VRU); or (C) controlled by another type of control device? | |

**Vapor Weight Percents**

| | | |
|---|---|---|
| VOC | | Vapor VOC wt% |
| benzene | | Vapor Benzene wt% |
| $H_2S$ | | Vapor $H_2S$ wt% |

**Produced Water Reduction**

| | | |
|---|---|---|
| | | Percent Reduction for Produced Water Tank Calc. as Oil/Cond. (%) |

**Uncontrolled Emissions**

| | | |
|---|---|---|
| VOC | 0.00 | Emissions Uncontrolled VOC (lb/hr) |
| benzene | 0.00 | Emissions Uncontrolled Benzene (lb/hr) |

From TCEQ Oil and Gas Emissions Spreadsheet

**Loading losses = SPM/T**

**Where:**
**S = saturation factor**
**P = true vapor pressure**
**M = MW of vapor**
**T = temp. of liquid**

**Pounds/hour**
**Tons/year**




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# Fugitives

Service type options:

- Gas
- Heavy oil
- Light oil
- Water/oil

Tally quantities of each component:

- Valve
- Pump seal
- Connector
- Flange
- Open-ended line
- Other component

Uses EPA emission factors

# MSS

MSS includes

- Planned maintenance of engines, turbines, repairs, lubrication, replacement of piping components, meters, analyzers, engine or turbine swaps
- Pigging and purging of piping
- Blowdowns
- Emptying, purging, degassing, or refilling of process equipment, storage tanks, and vessels
- Abrasive blasting and surface coating

# NAAQS - Background


- National Ambient Air Quality Standards (NAAQS) are set by the EPA for 6 pollutants:

  $O_3$, $NO_2$, $SO_2$, CO, $PM_{10}$, and Pb

  **Ozone-causing pollutants** = VOC and **NOx**

Areas that do not meet the EPA limit are considered "*nonattainment*"

- Currently considered nonattainment for $O_3$ in Texas:

  10 counties in DFW

  8 counties in HGB

**NAAQS in Oil and Gas --> NOx emission limits set by the states**




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# NAAQS for Permitting

- Must show compliance with 1-hour and annual NAAQS standards for $NO_2$

- Determine the $NO_2$ for the site, then add it to background concentration for the county (published value). Total must be below 188 µg/$m^3$

- TCEQ offers three options for NAAQS:
  - Modelling – SCREEN 3
  - Height
  - Property line distance

# Post Permitting Details

I submitted my PBR application. When may I begin to construct or operate?

You may begin construction when you are notified by the TCEQ of written site approval.

What does “construction” mean?

- Any activities other than site clearance or site preparation.
- Equipment may be received at a plant site and stored, but may not assembled.
- Work such as excavation, form erection, or steel laying pertaining to foundations is considered construction.
- Before a permit is granted, the only allowed activities are land clearing and site preparation

**Must factor permitting issuance time into plant mobilization and start-up schedule!**

# What Records Must I Keep?

Recordkeeping discussed in 30 TAC 106.8:

- Maintain a copy of each PBR

- Maintain sufficient records to demonstrate compliance with the annual emissions limits and specific conditions of each PBR
  - Copy of the permit application
  - Recent gas analyses
  - Engine and turbine test results
  - Maintenance records
  - Loading bills of lading

- Keep records at the site, or at an attended office in Texas

# Helpful Online Resources – Air Permit Search Database

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Questions or Comments >>

Search Options | CR Query | TCEQ Home

Go To: Title V Federal Operating Permits

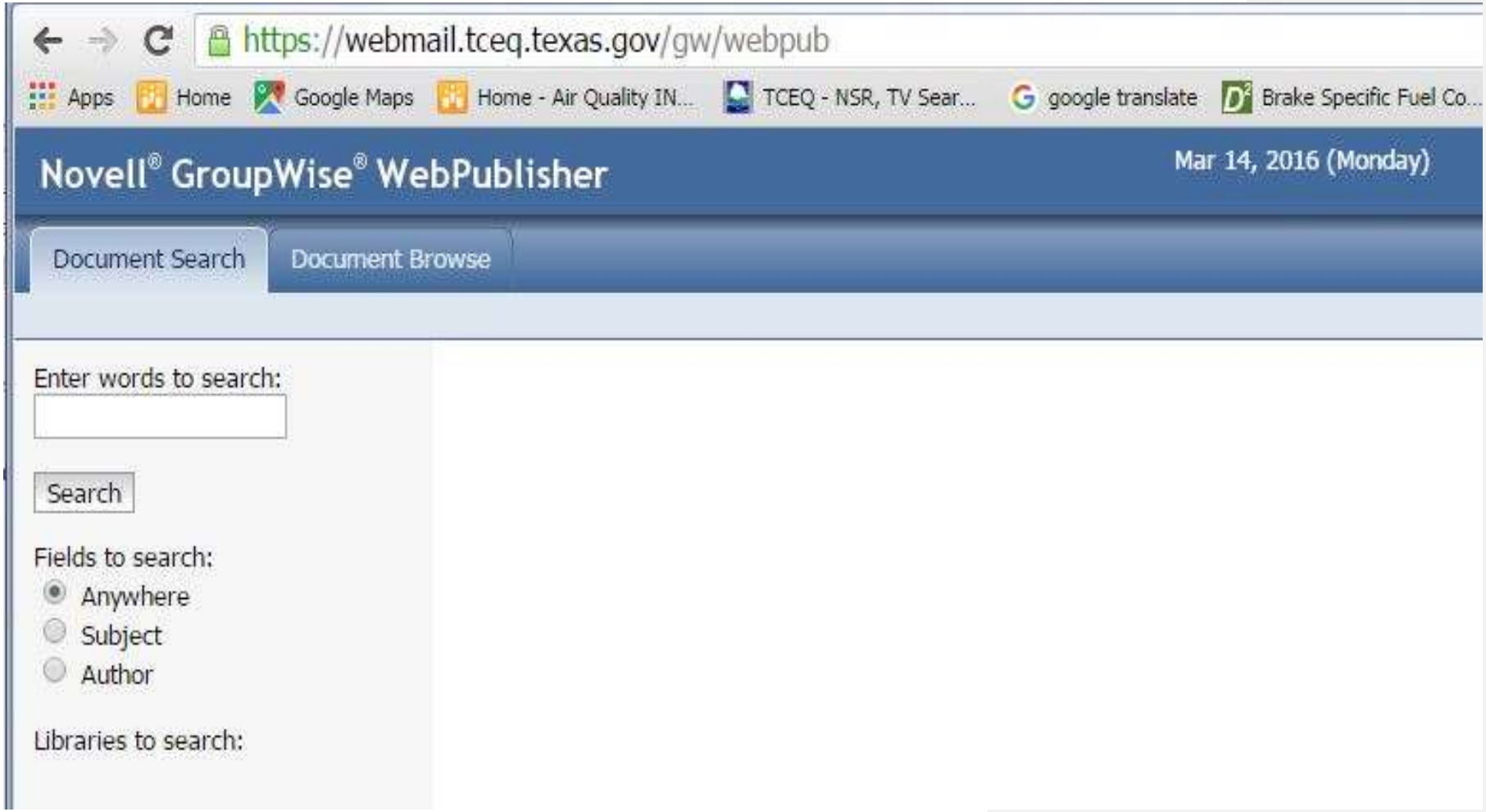
Online Help | Search Again | Last Updated Date : 03/14/2016

## Air Permitting Actions for:

region name: REGION 13 - SAN ANTONIO
program area: NSR
permit type: PBR
project status: PENDING
order by: proj_id
Click on the Project Number to see details about that permit application.

| Program Area | Permit Number | Permit Type | Permit Status | Project Number | Customer Name | Legal Name | CN Number | Project type | TCEQ Received Date | Project Complete Date | Renewal Date | Project Status | Project Name | Regulated Entity | Physical Location | Region Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NSR | 137482 | PBR | PENDING | 245641 | STANDARD AERO (SAN ANTONIO) INC. | Standard Aero (San Antonio) Inc. | CN600285944 | INITIAL | 12/09/15 | | | PENDING | MIXING OF ISOPROPYL ALCOHOL AND NITRO MEHTANE | RN102339231 | 3523 GENERAL HUDNELL DR BLDG 360-2 | REGION 13 - SA ANTONI |
| NSR | 92556 | PBR | EFFECTIVE | 245740 | VANGUARD OPERATING, LLC | Vanguard Operating, LLC | CN604693499 | OWNCHANGE | 11/16/15 | | | PENDING | CHANGE OF OWNERSHIP | RN105440218 | FROM JOURDANTON TAKE HIGHWAY 97 WEST FOR 6.0 MILES TURN SOUTH ON CR 319 GO 1.5 MILES TURN LEFT ON BLUNTZER ROAD AND TURN IMMEDIATE | REGION 13 - SA ANTONI |

# Helpful Online Resources – Remote Document Server







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# Helpful Resources

TCEQ File Room

TCEQ website and guidance documents

Permit application form instructions





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# Questions?

Bonnie Singh
Environmental Specialist
Bonnie.Singh@Archrock.com
281-836-8056