Oil and Gas - Permits by Rule and Standard Permits

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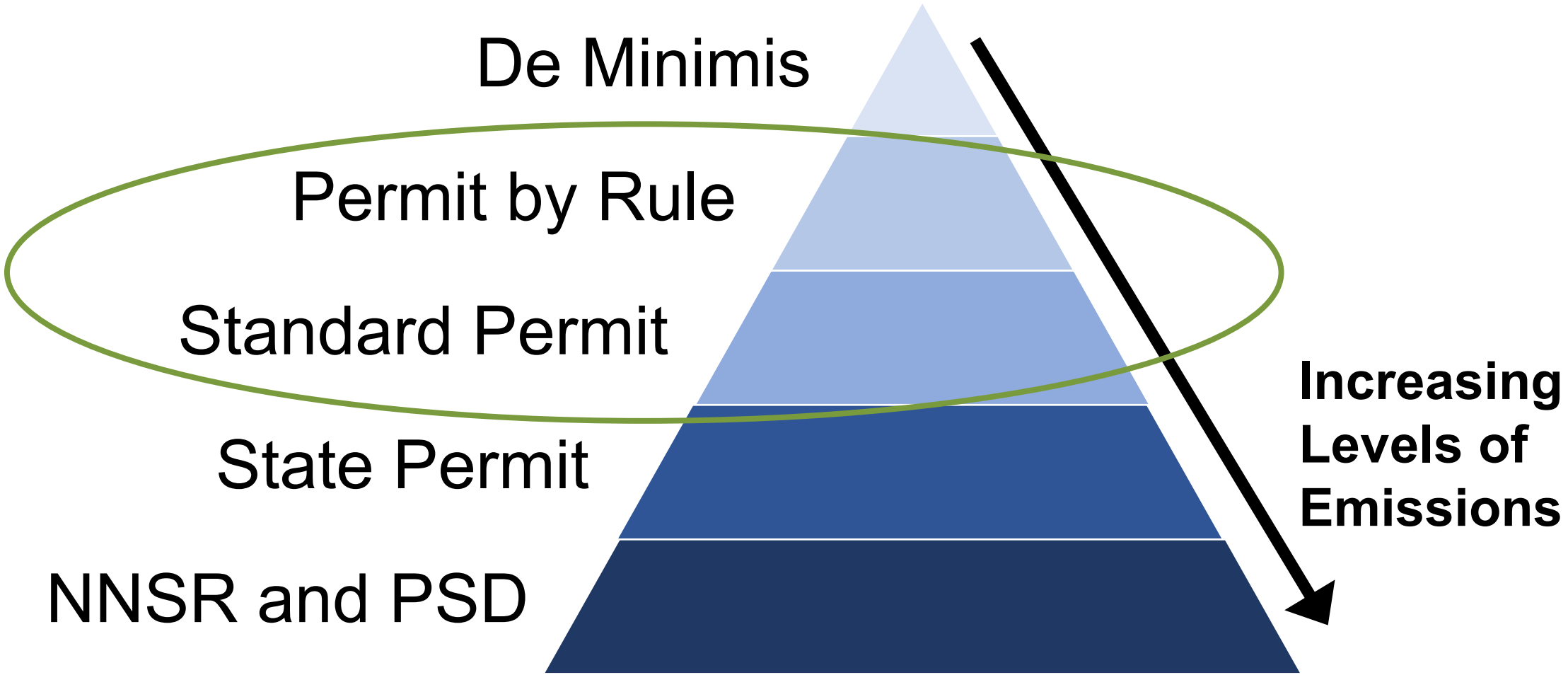
Environmental Trade Fair 2022

Agenda

- PBR and Standard Permit Overview
- Facilities and Emission Calculations
- Federal Rules
- Application Materials

PBR and Standard Permit Overview

TCEQ Air Permit Authorizations



PBRs and Standard Permits

Permits by Rule (PBRs) – A streamlined permitting authorization that has predefined conditions for specific facilities.

PBRs have a 45-day review time (or same-day authorization through ePermits).

Standard Permits (SP) – A streamlined permitting authorization for well-characterized classes of facilities.

SPs have a 45-day review time (or same-day authorization through ePermits).

Oil and Gas

- Facilities which handle gases and liquids associated with the production, conditioning, processing, and pipeline transfer of fluids or gases found in geologic formations on or beneath the earth's surface including, but not limited to, crude oil, natural gas, condensate, and produced water

Applicable Rules

	Barnett Shale Counties	All Other Counties
PBR	§106.352(a)-(k) – O&G Facilities	§106.352(l) – O&G Facilities §106.492 – Flares §106.512 – Engines §106.359 – MSS
SP	O&G Non-rule Standard Permit	§116.620 – Installation and/or Modification of Oil and Gas Facilities

Barnett Shale PBR – 30 TAC §106.352(a)-(k)

- Must meet PBR general requirements of §106.4
- Notification - Prior to construction or implementation of changes
- Registration
  - Level 1 - Within 180 days from start of operation, §106.352(g)
  - Level 2 - Within 90 days from start of operation, §106.352(h)
- 50-ft. distance requirement
- Operational and monitoring requirements
- Impacts: Emission impacts tables, screen modeling, dispersion modeling

PBR for All Other Counties – 30 TAC §106.352(l)

- Must meet PBR general requirements of §106.4
- Notification not required
- Registration is required for sour sites (>24 ppmv H_2S), but is not required for sweet sites (<24 ppmv H_2S)
- Sour sites must be >1/4 mile from nearest receptor
- Vent heights must be a minimum of 20 feet if emitting sulfur compounds (including water tanks), no more than 4.00 lb/hr

Flare and Engine PBRs

Flares §106.492

- Design requirements
- Operational conditions
- May require certification

Engines §106.512

- Registration required if > 240 hp
- Emissions limitations if > 500 hp
- Fuel type limitations
- Impacts review

Other related PBRs

- §106.351 – Salt Water Disposal (Petroleum)
- §106.353 – Temporary Oil and Gas Facilities
- §106.355 – Pipeline Metering, Purging, and Maintenance

Standard Permit Requirements – "Rule"

- Requirements are listed in 30 TAC §116.620
- General requirements listed in 30 TAC §116.610-615
- Registration Requirements under §116.615(2):
  - New facilities – Submit registration prior to construction
  - Modifications – Submit notification no later than 30 days after the change
- Engine(s) and Flare(s) must meet §106.512 and §106.492 requirements, respectively
- Emission speciation is required for new or increased emissions under §106.261 and §106.262
- 10-year renewal cycle

Barnett Shale "Non-Rule" SP Requirements

- Notification - Prior to construction or implementation of changes, per paragraph (f)(4)
- Registration - Within 90 days from the start of operation, per paragraph (f)(5)
- Emission limits both rule and impacts based
  - Distance measurements and exclusions
  - De minimis emission rates
- Impacts: Emission impacts tables, screen modeling, dispersion modeling

Maintenance, Start-up, and Shutdown

Rules to Authorize Planned MSS Emissions:

- 30 TAC §106.352(l) or §116.620
  - Authorize using 30 TAC §106.359
- Non-Rule Standard Permit
  - Comply with paragraph (i)
- 30 TAC §106.352(a)-(k)
  - Comply with 30 TAC §106.352(i)

Unplanned MSS emission requirements are in 30 TAC §101

Facilities and Emission Calculations

Oil and Gas Site

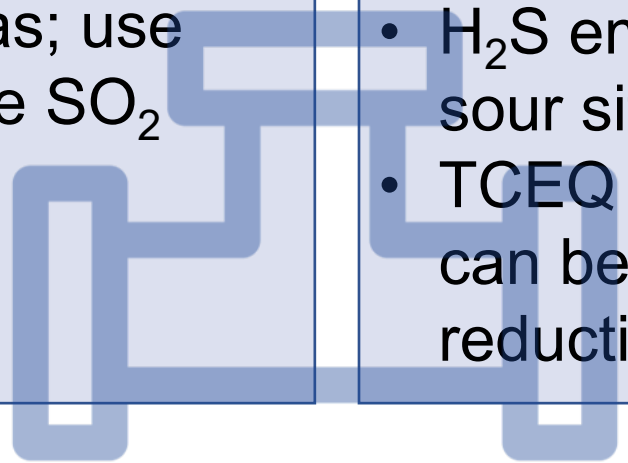
Heater Treaters and Equipment Leak Fugitives

Heater Treaters

- AP-42 Chapter 1.4 to calculate products of combustion
  - lb/MMBtu
- If unit is fueled by field gas; use mass balance to calculate SO_2 emissions

Fugitives

- EPA and TCEQ emission factors; built into the TCEQ O&G Spreadsheet
- H_2S emissions are required for sour sites
- TCEQ approved LDAR program can be used for emissions reduction

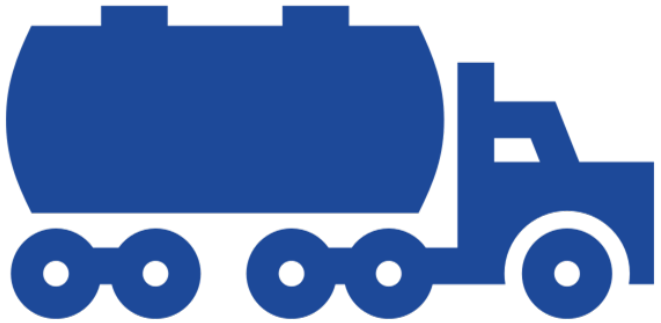


Storage Tanks

- Working, Breathing, and Flash Losses
- AP-42 Chapter 7 equations updated in 2019, minor revisions in 2020
  - Tanks 4.0.9d no longer accepted
- W/B Emissions: Updated AP-42 equations, TCEQ Fixed-Roof Tank Workbook, Direct Measurement, Process Simulators
- Flash Emissions: GOR, Direct Measurement, Process Simulators
- Use up to 99% reduction of VOC emissions for produced water

Truck Loading

- AP-42 Chapter 5 - Loading Loss Equation (L_L = 12.46 SPM/T)
- Collection Efficiencies
  - 70% - Trucks that are not leak tested
  - 98.7% - Leak tested based on EPA standards (NSPS XX)
  - 99.2% - Trucks that pass MACT-level annual leak test
- After emissions are collected, how are they controlled?



Gas Conditioning

Glycol Dehydrators

- Use glycols to remove water from produced gas
- GlyCalc or other simulation programs
- Emission sources include flash tank, regenerator, and reboiler
- Control devices

Amine Units

- Reduces acid gas concentration
- AMINECalc or other simulation programs
- Emission sources include flash tank, regenerator, and reboiler
- Control devices

Vapor Recovery Units (VRUs)

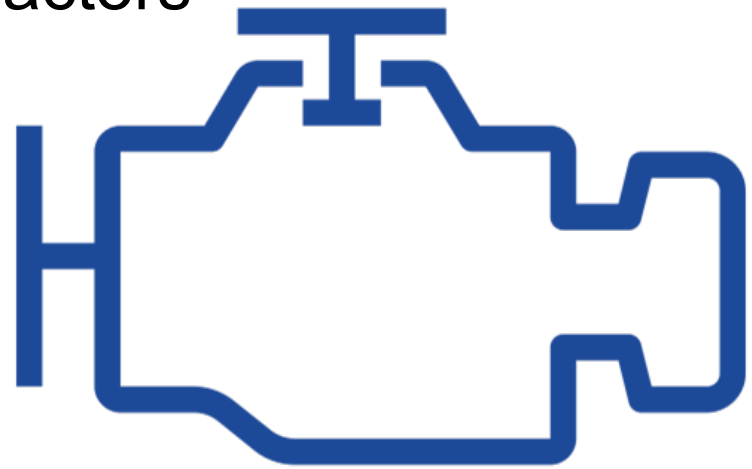
- Captures vapor and routes it to either a control device or the sales line
  - Not a control device
- Minimum required capture efficiency is 95%
  - May add increments in capture efficiency (1%) by meeting additional requirements based on TCEQ guidance, up to 100%
- Consider downtime scenarios, most common is 5% downtime, or 0% downtime with redundant VRUs

Flares and Vapor Combustors

- Assume 98% Destruction and Removal Efficiency (DRE) for VOCs and H_2S, up to 99% for propane
- TCEQ Emission Factors for NOx and CO
- AP-42 Emission Factors for VOCs and SO_2 (Pilot Emissions)
- SO_2 emissions should be based on mass-balance of destructed H_2S
- Represent PM emissions from vapor combustors
- Emergency/Upset Emissions can not be authorized. Only continuous pilot emissions can be registered.

Engines

- Guaranteed Manufacturer Data
  - Provides guaranteed maximum emission rates in parts per million by volume (ppmv), grams of pollutant per brake horsepower hour (g/bhp-hr), pounds per hour (lb/hr) and tons per year (tpy).
  - Unit specific testing
  - If not available, use AP-42 Chapter 3 emission factors
- Specify method of control
- Additional requirements in 30 TAC §117
  - East Texas Combustion for Rich-Burn Engines



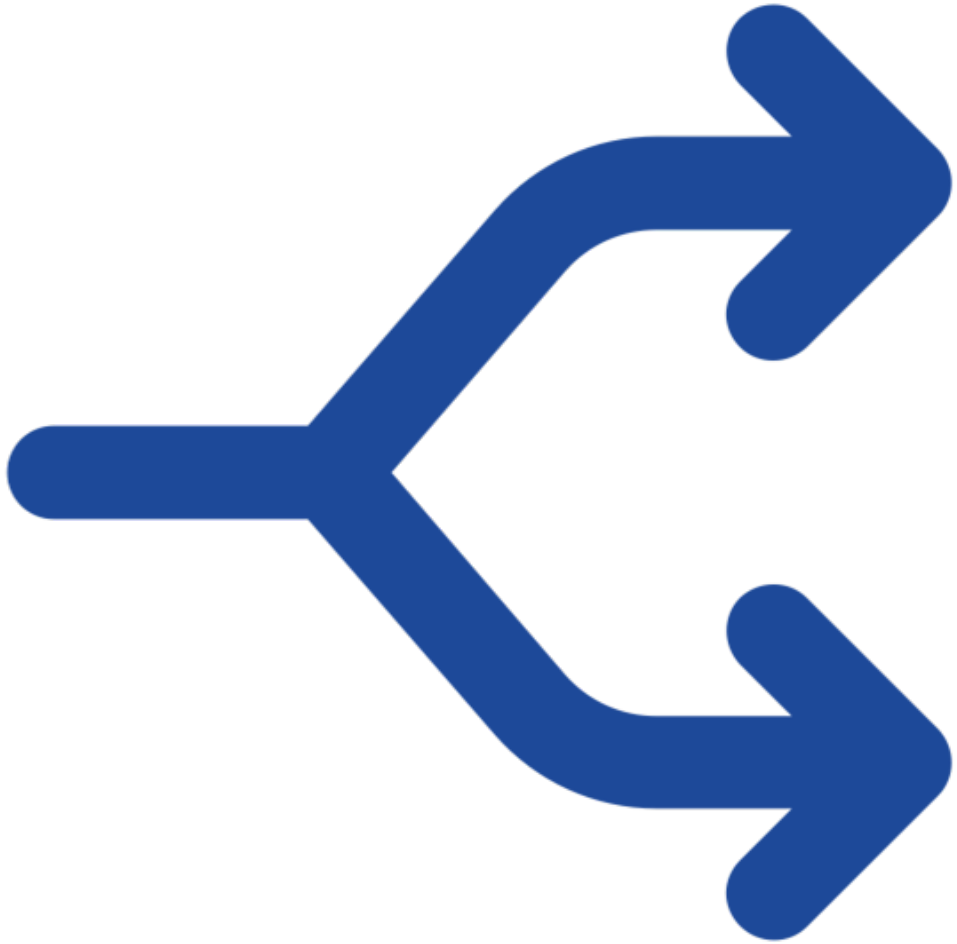
Maintenance, Startup, and Shutdown (MSS)

- Examples: Engine Maintenance, Pipeline Pigging, Degassing
- TCEQ has default emissions rates for miscellaneous activities authorized by §106.359(b)(1) through §106.359(b)(6). Additional calculations are not required if using default value (0.25 tpy).

- Other calculation guidance documents are available on the TCEQ website for surface coating and abrasive blasting.

Alternate Operating Scenarios

- Alternate operating scenarios (AOS) are different modes of normal operation that can be foreseen or anticipated for a facility or group of facilities.
- Allow a site to continue to operate if some facilities are down
- Example – During vapor recovery unit (VRU) downtime, emissions are routed to a flare or other control device



Federal Rules

Applicable Federal Rules

Part 60 – New Source Performance Standards (NSPS)

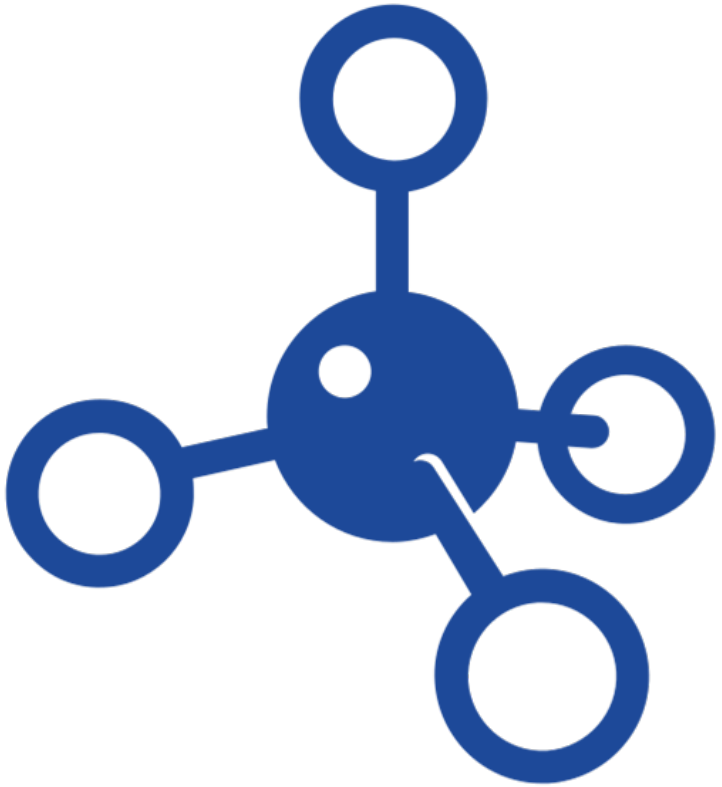
- Subpart A, General Requirements
- Subpart LLL, Natural Gas Processing (SO_2 Emissions)
- Subpart IIII / JJJJ, Engines
- Subpart OOOO / OOOOa, Crude Oil and Natural Gas Facilities

Part 63 – Maximum Achievable Control Technology (MACT)

- Subpart HH, O&G Production HAPs (Glycol Dehydration Units for Area Sources)
- Subpart ZZZZ, Engine HAPs

Upcoming Federal Rules

- Executive Order 13990: Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis
- EPA's Charge - Develop or review standards or guidelines to reduce methane pollution for:
  - New, modified, and reconstructed oil and natural gas facilities
  - Existing oil and natural gas operations



NSPS OOOOa Updates, NSPS OOOOb, and Emission Guidelines

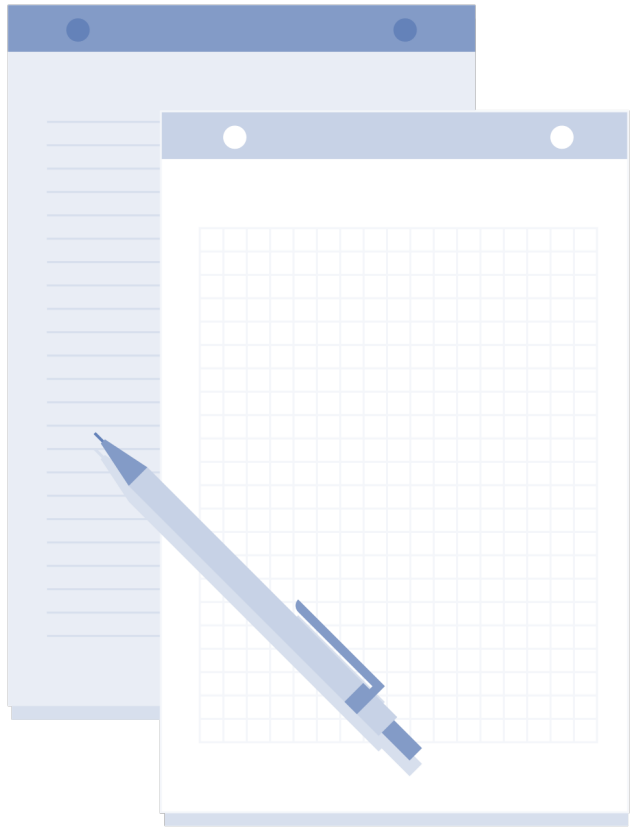
- Proposed Rule published on November 14, 2021, comments were due January 31, 2022
- Update NSPS OOOOa to reflect the recension of the 2020 Policy Update
- Proposed NSPS OOOOb for New/Modified Sources
- Emission Guidelines for Existing Sources
- Supplemental proposal in 2022 – Provide proposed regulatory text and seek information about other pollution sources in the O&G industry

Application Materials

Register vs. Certify

Register	• Form PI-7 • Submit documentation to TCEQ with fee. • Emission limits must meet 30 TAC §106.4 or PBR-specific limits.
Register and Certify	• Form PI-7 CERT • 30 TAC § 106.6(a): Federally enforceable emission limits • 30 TAC § 106.6(b): Representations are enforceable • 30 TAC § 106.6(c): When to revise certification

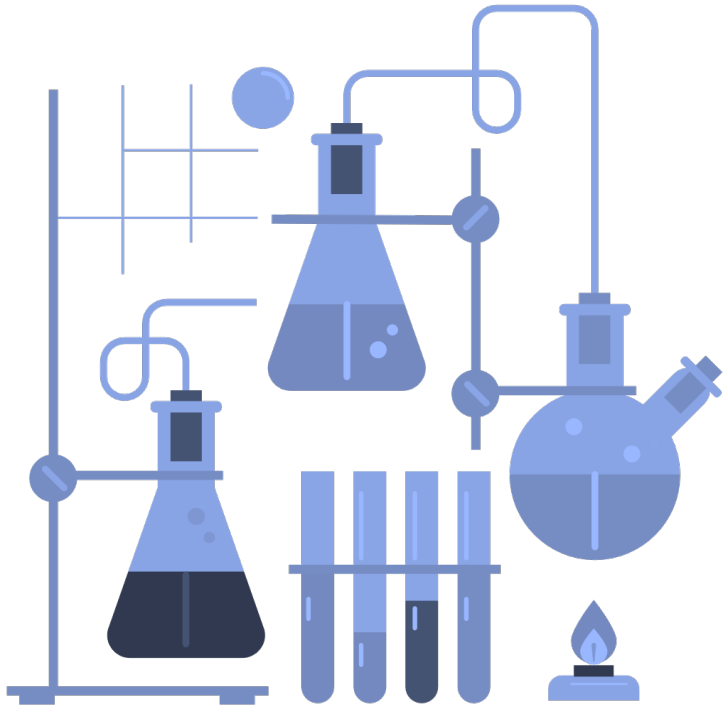
Reasons to Certify



- Emission Limitations for Title V Applicability
- Federal Applicability
- Control/Destruction Efficiency Claims
- Limiting Operating Hours

Gas and Liquid Analyses

- Can use site-specific or representative analyses
- If site is sour (>24 ppm_v H_2S), then H_2S measurement must be site-specific
- Representative Analysis Criteria
  - Same Reservoir / Formation
  - API Gravity (+/- 3 degrees)
  - Processes Stream in Similar Manner
- If using representative analysis, must provide justification in application

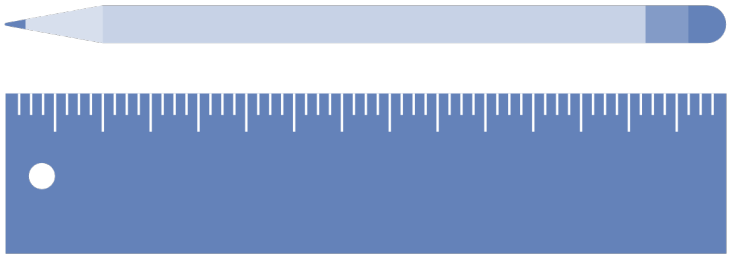


Common Application Issues

- Include H_2S in fugitive emissions for sour sites
- Include vent heights for §106.352(l) projects if handling sulfur compounds
- Define alternate operating scenarios
- For revision projects, clarify what changes are being made
- High hourly SO_2/H_2S emissions may require compliance demonstration for 30 TAC Chapter 112
- Speciation – All emissions or project increases?

Aggregation of O&G Sites

- Facilities can not be aggregated unless they meet the exclusions defined in Health and Safety Code Sec. 382.051964:
  - Common control
  - Within ¼ mile
  - Operational dependency
  - Same SIC code major grouping



- Clarify how sites meet these requirements in application

Fees

- No refunds
- Bypass process – Contact APIRT with STEERS reference number
- PBR fees cannot be reused for Standard Permits and vice versa
- Expedited Surcharge

Contact

APD Mainline – (512) 239-1250
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