

Field Experience with Oil & Gas Operations

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Types of Investigations

- Complaints
- Emission Events
- Emission Evaluations (Stack tests)
- Compliance



Complaints

- Noise
- Traffic/Road Conditions
- Property Values
- Natural Gas Lease Issues
- Drill Site Locations/Distance to Receptors
- **Dust**
- **Odors**



Nuisance Rule

- **30 TAC §101.4**

No person shall discharge from any source whatsoever one or more air contaminants or combinations thereof, in such concentration and of such duration as are or may tend to be injurious to or to adversely affect human health or welfare, animal life, vegetation, or property, or as to interfere with the normal use and enjoyment of animal life, vegetation, or property.



Emission Events

30 TAC §101.201 - Emissions Event Reporting and Recordkeeping Requirements

- Emissions event--Any upset event or unscheduled maintenance, startup, or shutdown activity, from a common cause that results in unauthorized emissions of air contaminants from one or more emissions points at a regulated entity.
- Upset event--An unplanned and unavoidable breakdown or excursion of a process or operation that results in unauthorized emissions.
- Reportable Quantity for natural gas - where natural gas excluding carbon dioxide, water, nitrogen, methane, ethane, noble gases, hydrogen, and oxygen or air emissions from crude oil are known to be in an amount greater than or equal to 5,000 pounds or the associated hydrogen sulfide and mercaptans in a total amount greater than 100 pounds, whichever occurs first



Emission Evaluations

(stack tests)

30 TAC §117.2100-2145 – Dallas-Fort Worth Eight-Hour Ozone Nonattainment Area Minor Sources

- Pertains to stationary, reciprocating internal combustion engines at any stationary source of nitrogen oxides (NOX) that is not a major source of NOX

40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

40 CFR 63 Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary reciprocating Internal Combustion Engines



Emission Evaluations

(stack tests)

- To determine whether an engine must be stack tested, the following questions must be answered:
 - Type of Compression
 - Horsepower Rating
 - Manufacture Date
 - Type of Burn (Rich v. Lean) *these numbers differ for the EPA vs. TCEQ
 - Is the Engine in question Portable, Stationary, or Emergency?
 - Is the Engine located in an Attainment or non-Attainment County?
 - Is the Engine a Major or Minor Source?
 - Is the Engine used for Utility Electric Generation or is it used for Industrial/Commercial practices?



Emission Evaluations

(stack tests)

- **All 117 Stack Testing Requirements are under 117.8000. Specific methods are required.**

A brief excerpt is below:

(c) Testing must be performed using the following test methods:

- (1) Method 7E or 20 NOX
- (2) Method 10, 10A, or 10B for CO
- (3) Method 3A or 20 for oxygen O₂
- (4) The Phenol-Nitroprusside Method, The Indophenol Method, or Conditional Test Method 27 for ammonia (for units that inject ammonia or urea to control NOX)
- (5) Method 2 for exhaust gas flow (following site criteria of Method 1, §11.1) or Method 19 (in conjunction with site criteria of PS-2, §8.1.3) or
- (6) ASTM D1945-91 or ASTM D3588-93 for fuel composition; ASTM D1826-88 or ASTM Method D3588-91 for calorific value; or Alternate methods as approved by the TCEQ E.D. and EPA.

(d) EPA-approved alternate methods or modifications may be used, as approved by the E.D., as long as:

- (1) the change does not affect the stringency of the applicable emission specification;
- (2) the change affects only a single source or facility application.



Compliance Investigations

- Sites are identified based on monitoring data, observations, complaints, or requests for monitoring.
- Investigation can focus on area of site where emissions detected, such as condensate/produced water tanks.
- Investigation can be more comprehensive to determine compliance with PBR or permit conditions and other applicable rules.



Compliance Investigations

- Records must be maintained and provided upon request to demonstrate compliance with PBR or permit requirements and other applicable rules, including emission calculations, sampling data, test reports, etc.
- If claiming any PBRs, must also comply with general requirements (30 TAC §106.4).



Monitoring Tools

- GasFindIR Camera
 - Used to view hydrocarbon emissions
 - Can also detect steam
 - Cannot speciate emissions
 - Cannot quantify emissions
- Summa Canister
 - Can speciate emissions
 - Can quantify emissions
 - Does not give instantaneous results; must be analyzed by lab



Where have emissions been observed with GFIR?

- Glycol Dehydration Units
- Pressure Relief Valves
- Vent Stacks
- Flares
- Condensate/Produced Water Tanks



Common Problems

- Vent pipes
- Unlit Flares
- Open Hatches on Tanks



What happens if emissions observed with GFIR?

- If emissions are detected, images will be recorded.
- These images will be provided to the company along with a questionnaire.
- Questionnaire used to obtain specific information about operations at site, reason for observed emissions, and steps taken to correct or minimize emissions.



GFIR Questionnaire

Response is due back to TCEQ by DATE

Company Name:

Site Name:

Site Location/Address:

Contact Name:

Contact Phone Number:

Contact Email Address:

1. What are the TCEQ air authorizations for this site (i.e. Permit By Rule, Standard Permit, or New Source Review Permit, Title V (if applicable))? Please provide the authorization number, or registration number.
2. Is the site currently in compliance with the authorizations listed above?
 - What method (source testing, engineering calculations, etc...) did you use to determine compliance with your authorizations?
 - If you are not currently in compliance with your authorizations, what actions are you planning to take to achieve compliance?
3. What is the distance to the nearest receptor (i.e. residence, park, school, church)?
4. Please provide a list of equipment at the site.
5. Please provide a detailed process description.
6. Based upon the provided video, please provide the following information:
 - Identification of the unit or equipment with the observed plume.
 - The associated authorization for that piece of equipment.
 - Explanation for the observed plume.
 - Explanation as to how you plan to fix or have fixed the observed emissions.
 - If the observed emissions from the source are allowed by the site's authorization, provide the method used to determine this compliance.
 - Please provide a timeline for addressing the observed emissions.



What happens if emissions observed with GFIR?

- Questionnaire must be completed and returned in timely manner (due date will be provided).
- If company willing to provide requested information and to address and correct cause of emissions, may be allowed to participate in a “Find it & Fix It” Program.



What are modifications to a dam?

- Any structural change to the dam that would affect the integrity, safety, or operation of the dam
 - Pipeline through or under a dam
 - A cut through the dam or emergency spillway
 - Removal of part of the dam or spillway
 - Drilling near or under a dam or lake



What are the requirements before you modify a dam?

- Rules require plans and specifications, prepared by a Texas professional engineer (P. E.), submitted to TCEQ for review and approval before any work started
- Report prepared by P. E. addressing all structural integrity issues



What are the requirements before you modify a dam?

- Rules also indicate that a P. E. report evaluating structural integrity is required if:
 - Dredging within 200 feet of dam;
 - Installing a pipeline in the dam or spillways;
 - Constructing a road across dam or spillways or within 200 feet of dam;



What are the requirements before you modify a dam?

- Drilling oil or gas wells, performing horizontal drilling or fracturing, or performing oil or gas exploration within 500 feet of dam and spillways;
or
- Blasting within ½ mile of dam



Why is this process important?

- Changes can result in a failure of the dam if not designed and constructed properly
- Failure, of certain dams, can result in loss of life
- Modifications are considered engineering and must be designed by a P. E.



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Questions?

