

# Texas Commissions on Environmental Quality

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# Prior to Entry

- Notification of the site, if notification is required.
- Collect and assure proper operation (battery is charged, etc.) and that any appropriate calibration(s) of monitoring or testing equipment is conducted per the test method and manufacturers specification.
- Do not forget to take calibration gasses with you to the field. Some equipment requires periodic calibration checks.

# Entry Procedures

- Homeland Security Issues
- Show credentials
- Sign in
- Ask for the person you scheduled the investigation with, or if unscheduled ask for the highest level of management on the premises.
- Adhere to all site safety policies.

# Homeland Security

- With enhanced concerns for Homeland Security it may be advisable to conduct the perimeter survey in the company of the management or assigned staff from the site. This may prevent undue concerns by plant staff when they observe the vehicle driving slowly around the plant.
- This is especially true of unmarked vehicles.

# Show Credentials

- Provide Photo Identification





# Site Safety

- Obtain safety certification for the site if necessary. Know plant warning signals
- Bring and wear appropriate PPE
- Be aware of your surroundings
  - Overhead hazards
    - Pipes, beams, cranes and equipment
  - Ground hazards
    - Pits, pipes, elevated walking surfaces, tools and equipment, Plant Dog, snakes and spiders



# The list of questions

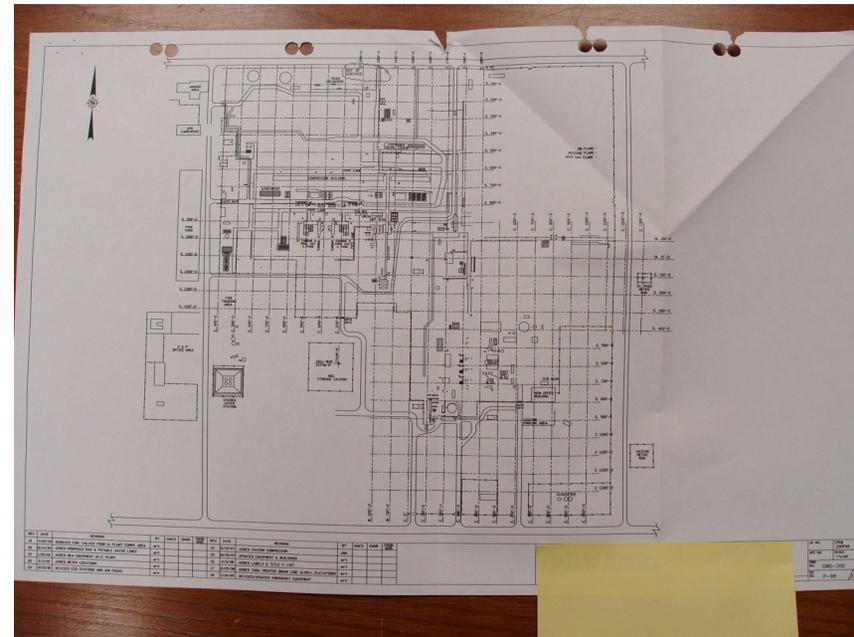
- The file review will most likely result in a list of questions you have about facilities at the site and compliance with the authorizations for those facilities. Such as Monitoring, Testing, Recordkeeping and Reporting requirements.
- Don't forget to check for new MACT standards and any questions related to 112(j) notifications for MACT standards and applicability.

# Investigation Process

- File review should have familiarized you with the major components of the site and their authorizations.
- The investigator needs to be familiar with the Process flow and pollutants that result from each facility.
- Pay particular attention to any bypass equipment.

# The Plot Plan

- Have a plot plan of the site, mark this plot plan with permit dates and numbers.
- If there are things on the plot plan that don't have numbers to match, put those items on your question list. You may need to ask for an updated plot plan. (removed from site)
- If there are permits for things at the site that are not on the plot plan ask the assigned company representative to submit an updated plot plan.



# What is that Thing?

- The plot plan should tell you what piece of equipment is at specific location at the site.
- The Process description will/should tell you what the thing does.
- Not all pieces of equipment (Processes) have pollutants coming out of them, but they will be some place in the process that leads to pollutants that are coming out.

# Process with no pollutants coming out

- Sweetening process – Amine, Selexol etc.
- But, these vessels contact the gas with chemicals that extract the acid gas ( $\text{H}_2\text{S}$ ,  $\text{CO}_2$ ) which is fed to a flare or Sulfur Recovery Unit (SRU) that does have pollutants coming out, ( $\text{SO}_2$  etc.) etc.

# Processes with pollutants coming out

- Dehydration
- Takes water out of the gas – why?
- Because you can not put the gas in the pipeline wet. And because if you put wet gas in the cryogenic turbo expander, to extract HC liquid, it freezes up the cryo. unit .
- What comes out of the process? BTEX
- So – MACT HH

# Dehydration Process looks like?

- The tower is the place the monoethylene glycol or triethylene glycol contacts the gas.
- The thing with 2 stacks is what cooks the water & BTEX out of the glycol.
  - Note the condenser on the reboiler stack.



# Engines

- The RE will represent what emissions are resulting from the combustion of fuel in the engine. Things that may not be represented are emissions from blowdown vent, crankcase vents and seal vents.
- Be sure and check the proper installation and maintenance of emissions controls. Catalysts (Nox and Formaldehyde for the MACT ZZZZ)
- One of the most common violations we observe are failure to test the engines for initial compliance or within the required frequency.

# Flares

- Emergency vs. Process flares
  - Process flares will have normal operational emissions routed to them from tanks dehydration units or other process vents.
  - Emergency flares may be in the same stack but should only have emissions from emergency events going to them.
  - How do you tell? Ask where the emissions from the process equipment are routed.

# Flares Monitoring

- 40 CFR 60.18 The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device (IR beam) to detect the presence of a flame.
- Visible Emissions -c)(1) Flares shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

# Cooling Towers

- What to look for? Records from the maintenance people that indicate greater than normal chemical use in water towers. Purchase of more chemicals (propane) in Aerial Coolers
- Can hook up to the exchanger bleed valve and bleed water off the exchanger through a clear tube. If there are bubbles there may be gas leaking into the exchanger bundle the tower services.
- What to test for? What ever process the tower services may contain chemicals or gasses. Test for those constituents per approved methods.

# Cooling Tower



Expander Cooling Tower

# Aerial Coolers



A & B Turbines

# How do I know what Applies to that Thing?

- First; do you know what the piece of equipment is your looking at? If you do
- Then; you look at the New Source review permits or other state authorizations
- Federal Permits (PSD, Title V, etc.)
- or look at the form below for a list of equipment and general applicability for those pieces of listed equipment; TCEQ Unit Attribute Form (Regulation by Page) This table is in the TCEQ Title V permit forms instructions on our public web site;  
[http://www.tceq.state.tx.us/permitting/air/nav/air\\_all\\_ua\\_forms.html](http://www.tceq.state.tx.us/permitting/air/nav/air_all_ua_forms.html)

# What happens if That Thing is not on the plot plan?

- The TCEQ Unit Attribute form mentioned in the previous slide is a good quick reference for what general types of rules might or should apply.
- The question (taken from the rule) on the attribute forms are the ones that are necessary to make a specific applicability determination and thus a compliance determination

# What Applies; Tanks

- In Texas
- Chapter 116 or 106
- 40 CFR 60, Subparts K-Kb
- 30 TAC Chapter 115
- 40 CFR 61 & 63, Subparts R and Y
  
- In other states, at least
- 40 CFR 60, Subparts K-Kb
- 40 CFR 61 & 63, Subparts Y and R



# Region 7 Findings

- It has become evident that VOC emissions from storage tanks at our gas plants and compressor stations far exceed the representations made by the companies.
- Example: a local compressor station storage tank was found to be losing vapor that resulted in lost revenue of 1.6 million dollars in a year.
- A local Gas Plant made representation in a registration that a storage tank would emit 4.07 t/y. The actual emissions were found to be 50.62 t/y.

# Records Review

- I most often review the plant records prior to conducting the site tour. The records review can be conducted after the site tour if you are unfamiliar with the process equipment.
- The records review may generate additional questions about specific facilities.
- Review all authorizations for all equipment. Ask for documentation to demonstrate compliance with all requirements of the authorizations, if needed.
- Make note of any apparent violations as you review the records.

# Malfunctions

- The investigator needs to have a substantial understanding of the process and process equipment to properly evaluate trends in equipment malfunctions.
- Trade journals, equipment operation and maintenance manuals, manufacturers preventive maintenance recommendations and information from plant operators can be valuable sources.

# Leak Detection and Repair

- Review not only the reports associated with the site program but the calibration records and process for the monitoring. Most Oil & Gas sites contract this service and do not watch calibrations when the contractor is on site. They trust the contractor, who may or may not be doing the calibration, recordkeeping or monitoring properly.

# Leak Detection and Repair

- If you are going to monitor the site, be sure you do the proper calibrations, monitoring and recordkeeping as required by the method and manufacturers specifications.
- Know the limits of your equipment.





Questions????