MARYLAND

Department of the Environment

PERMITTING 101

Construction v. Operating

MDE

Construction Permits

- Needed before any new emission source can be installed or built
- Overall purpose is to ensure that:
  - Emissions of criteria pollutants do not violate a federal ambient air quality standard
  - Emissions of toxic air pollutants do not endanger public health

Construction Permits (cont.)

- Construction permits set emission limits
  - Directly
  - Indirectly through other means:
    - Product throughput restrictions
    - Pollutant levels in raw materials or fuels
- Impose requirements that are applicable to:
  - Only that specific type of facility (e.g., throughput)
  - All facilities (e.g., nuisance, dust control, no open burning)

Operating Permits

- Umbrella permit that contains all air regulatory requirements applicable to the facility and all source-specific permit requirements found in any construction permits previously issued to the facility
- Overall purpose is to ensure the facility operates the way it was intended when it received approval to construct
- This is done through the imposition of operating permit conditions governing monitoring, record keeping and reporting

Operating Permits (cont.)

- Operating permits
  - Do not establish new emission requirements
  - Do not impose requirements for ambient monitoring
  - Are renewed every five years…the current permit remains in effect until a renewal is issued
- New requirements imposed by regulation or construction permit are added after the fact to an operating permit

Operating Permits (cont.)

- Emission monitoring achieved by various means:
  - Stack tests or CEMs
  - Measuring fuels and materials used
  - Measuring operating parameters
  - Use of emission factors, especially for fugitive emissions
- Report on key factors:
  - Annual emissions (measured through the means above)
  - Status of compliance with overall requirements
  - Emission violations when they occur
  - Any activity, product use or raw material use, or operating condition that relates to determining emission levels
  - Pollution control equipment operational parameters that tell us if a control device is working properly

Operating Permits (cont.)

- Keep records for:
  - Equipment maintenance
  - Operating conditions, including those occurring during any testing period and those that have a bearing on emissions
  - Emission monitoring test results
  - Fuel or raw material usage when they have a bearing on emissions
  - Methods for calculating non-measured emissions

Compressor Station Equipment

- Two (2) reciprocating internal combustion engines, 5500 Hp 2-stroke lean burn, natural gas fired.
  - NOx emissions to not exceed 300 lbs/hr for both engines combined
    - Comprehensive stack test once every five years
    - Annual emissions test using NOx analyzer
    - All other times, compliance determined indirectly through air/fuel ratio control, which is controlled automatically
  - Install High Pressure Fuel Injection Control Technology on both engines
  - Aggregate operational time not to exceed 14,000 hours per year
  - Use an oxidation catalyst for CO, VOCs and HAPs
  - Meet a 125 ppmv NOx emission limit on one engine during the ozone season; requirement pending on second engine and on making it a year-round requirement
    - Compliance determined indirectly by measuring engine speed, fuel flow rate, air manifold temperature and pressure. The air manifold pressure is automatically controlled, keeping the air/fuel ratio within defined limits.

Compressor Station Equipment

- (Engines cont.) VOC and CO emissions increase from both engines collectively as a result of a 2002 modification must be less than 40 tons per year of VOC and less than 100 tons per year of CO in any period of 12 consecutive
  - Comprehensive stack test once every five years
  - Annual emissions testing using portable CO analyzer
- 500 HP, 4-stroke rich burn internal combustion engine, natural gas fired; emergency generator
  - Opacity during idling cannot exceed 10 percent
  - Opacity during operating mode cannot exceed 40 percent
    - Monitoring is limited to good operating practices, maintenance and visual observations

Compressor Station Equipment

- Two water bath heaters rated at 15 million Btu/hr, natural gas-fired, two water bath heaters rated at 12 million Btu/hr, natural gas fired and two salt bath heaters rated at 3 million Btu/hr, natural gas fired
  - Opacity cannot exceed 20%
  - Monitoring is limited to good operating practices, maintenance and visual observations
  - combustion analysis (for CO and O2) annually, operate in accordance with the optimum conditions as determined by the analysis, operators to attend training program every three years
  - Keep records to demonstrate compliance

Compressor Station Equipment

- Two pipeline liquids storage tank 12,600 gallons, vertical, above-ground and pipeline liquids truck loading
- General Standards: A person may not cause or permit gasoline to be loaded into any tank truck, railroad tank car or other contrivance unless the loading connections on the vapor lines are equipped with fittings that have no leaks and that automatically and immediately close upon disconnection
- Equipment is maintained to prevent avoidable liquid leaks during loading and unloading operations
  - Facility required to inspect each tank truck loading operation to ensure that loading connections have no leaks. The inspection will be conducted while the tank truck is being loaded or unloaded. A record of the inspection must be kept

Compressor Station Equipment

- Facility fugitives: blow downs and pipe component and miscellaneous process vents (source control vessels, emergency bypass vents)
  - Required to report emissions and keep records

Compressor Station

Actual Emissions

	NOx	CO	VOC	SO2	PM	HAPs	GHGs
2013	38.0	17.5	43.3	0.1	5.7	10.9	19,024
2012	18.2	12.2	40.0	0.1	4.6	8.8	15,998
2011	25.3	9.4	39.0	0.1	6.1	11.0	20,468
2010.	36.0	10.3	42.3	0.1	5.4	8.5	18,942

Major source thresholds: 100 tons of Nox, 50 tons of VOC, 25 tons for all HAPs