

Oil and Gas Update



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Topics

- Ohio Oil & Gas Program
- Natural Gas Permitting/General Permits
- Air Quality Issues
- Extra slides

Who Regulates Natural Gas Production?

- ODNR primacy – Drilling, fracturing, etc.
- Ohio Department of Public Health – soil radiation, other
- Department of Commerce, PUCO
- Ohio EPA – Air, land, water pollution; solid, hazardous waste; etc.
- U.S. EPA – federal air rules, NSPS & NESHAPS

Oil & Gas Air Permits from Ohio EPA

- Permanent equipment on site
- Well sites
- Mid-stream compressor stations
- Gas treatment facilities
- Compressor stations for large interstate pipelines
- Compressor stations for smaller intrastate pipelines

Types of permits

- Installation
 - Permit-to-install (PTI for Title V facilities)
 - Permit-to-install-and-operate (for non Title V facilities)
- Operating
 - Title V
 - PTIO (non Title V)

What Major Air Rules Apply?

- Ohio EPA Permit to Install requirements (OAC Chapter 3745-31) including Best Available Technology for new sources
- Ohio EPA Particulate rules (OAC Chapter 3745-17)
- MACT Subpart HH, Oil & Gas
- MACT Subpart ZZZZ (SI ICE)
- NSPS Subpart JJJJ, IIII (SI, CI ICE)
- NSPS Kb, tanks
- NSPS Subpart OOOO: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution

General Permit Approach

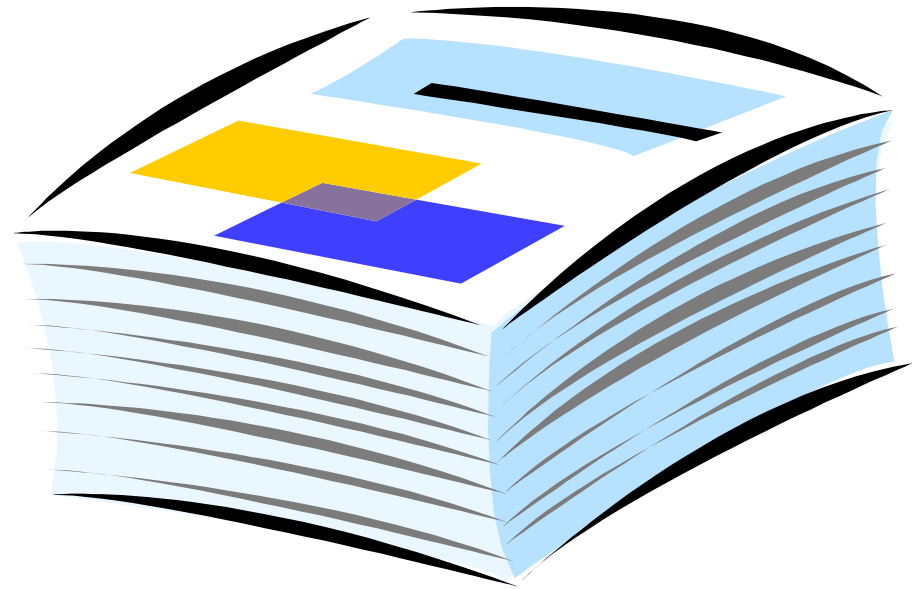
- Drilling and fracturing phases are exempt
- Production phase is not
- GPs designed to cover most, but not all, well sites
- Covers well site (six wells typical)
- Two well site GPs, 12.1 or 12.2
 - 12.1 - Smaller flare and larger total engine HP
 - 12.2 - Larger flare and smaller total engine HP

GP Unique Features

- Allows installation of various size engines if combined HP limit met
- Allows swapping of engines w/o new permit
- Allows installation of various size tanks
- Restricts total flow to tanks
- Requires leak detection/repair program
 - Portable Analyzer (Method 21), or
 - Infrared Camera

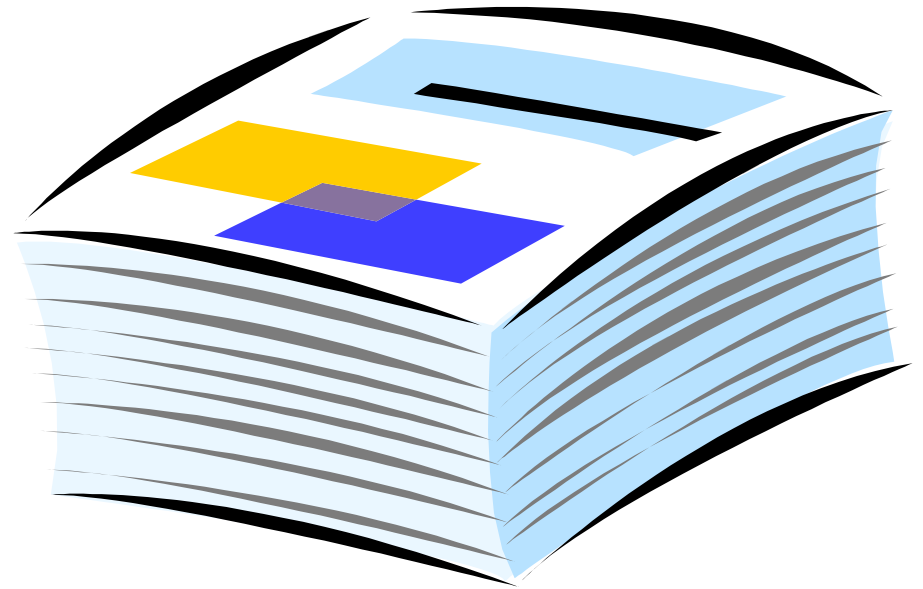
Updated GP Status

- GP 12.1 and 12.2 developed in 2014
- Want to update them with updated NSPS OOOOa
- Waiting for U.S. EPA to finalize NSPS updates
- US EPA recognized Ohio EPA's General Permit as compliance with NSPS



GP Status

- 888 applications submitted (2011 to March 2019)
- 885 GP permits have been issued so far
- Issued 103 in 2018 – activity still ongoing



Permit Statistics

- 1760 permits issued since 2011 for:
 - 885 at well sites
 - 660 at Mid-stream facilities
 - 68 at gas processing facilities
 - 145 at other oil & gas facilities



AIR QUALITY ISSUES

Emissions Inventory

- Accurate actual emissions from sources remain challenging
- Ohio EPA working with other states/U.S. EPA to improve emissions inventory
- Actual emissions heavily reliant on actual operations – well maintained equipment have less losses
- Difficult to characterize in an “emission factor”

Compliance Status

- Inspection frequency based on size of facility
 - Large facilities – annual inspection
 - Medium facilities – inspections every 3 years
 - Others – as needed due to complaints
- Emissions from each well site expected to be small, periodic inspections not likely – Ohio Dept. of Natural Resources visits sites

Compliance Status

- No significant citizen complaints concerning the operation of well site
- Complaints mostly about compressor stations
- Mainly related to odors and noise
- Violations that have been found include undersized equipment – not designed to handle the amount of “wet gas”
- Other violations include not operating controls on dehydration equipment, thief hatches, leaks, etc.

Ambient Monitoring Plan

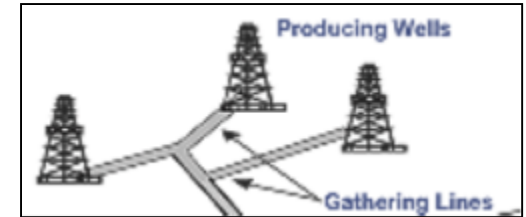
- Two-Tiered Well Monitoring Approach
 - Installed temporary monitors to evaluate emissions during initial drilling phase.
 - Measure particulate and VOC
 - Installed a permanent structure (monitoring trailer) to evaluate emissions during long term operations at the well site.
 - Operated for 3 years
 - Measure multiple compounds
 - Continuous measurements for many compounds
- Installed monitor station at fractionation plant
 - VOCs, H₂S, NO_x, CO, and meteorological data
 - Nothing of significance detected

Fractionation Monitoring Location



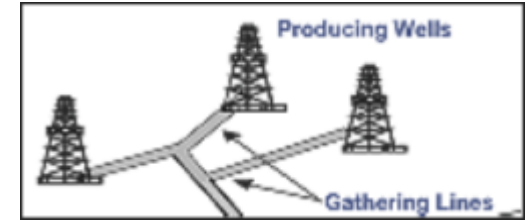
Bonus Slides

Natural Gas Well Sites



- ODNR covers drilling, fracturing, flow back, etc. Must get a drilling permit. Must report various activities. ODNR inspects facilities for compliance.
- U.S. EPA has air rules for drilling and fracturing engines, permitting requirements
- U.S. EPA has air rule that covers flow back and other activities

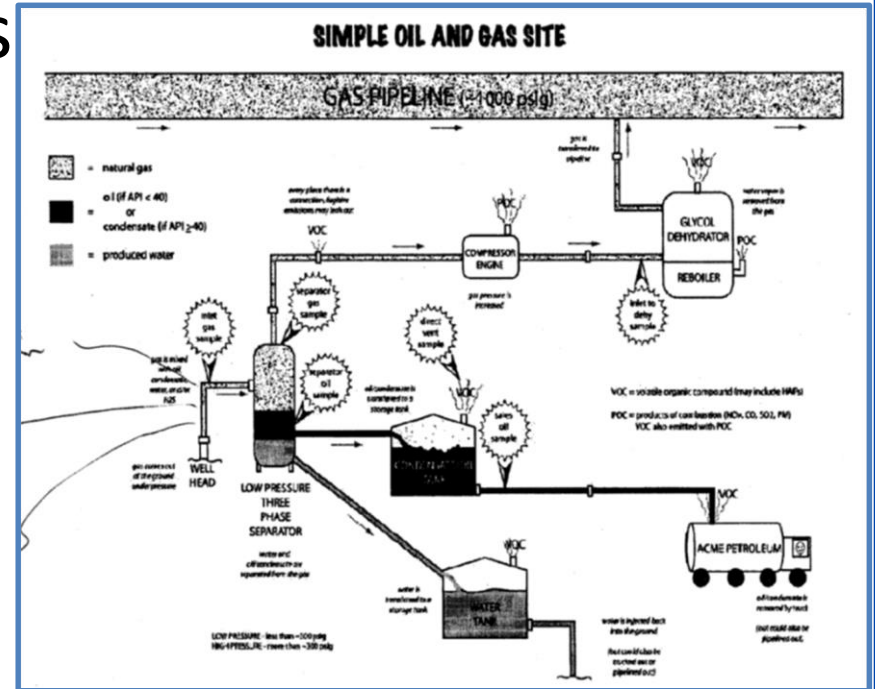
Natural Gas Well Sites



- Ohio EPA has air rules that apply
- Ohio EPA requires permits for “production” activities
- U.S. EPA has air rules for well sites

Typical Equipment Covered

- NG compressor engines
- Compressors
- Diesel Engines
- Storage tanks
- Dehydrators
- Flares
- Components that can leak



Permit Processing Flow

- General Permit
 - Receive application, check qualifications, issue pre-written permit
 - 2-4 weeks
 - Well sites
- Case-by-case
 - Receive application, review rules, do calculations, write permit, issue permit.
 - 3-6 months
 - Compressor stations, gas clean-up operations

Requirements

- Must apply for and obtain air permit
- Can't construct until either the application is submitted or after permit issued.
- Lots of applicable rules:
 - MACT Subpart HH, Oil & Gas
 - MACT Subpart ZZZZ (SI ICE)
 - NSPS Subpart JJJ, IIII (SI, CI ICE)
 - NSPS Kb, tanks
 - NSPS Subpart OOOO: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution

Monitoring Network

- Ohio EPA has an extensive monitoring network
- Over 260 monitors state-wide
- See: <http://wwwapp.epa.ohio.gov/gis/mapportal/>

County Locations of Issued GPs

- Belmont (181)
- Carroll (147)
- Columbiana (54)
- Coshocton (4)
- Guernsey (69)
- Harrison (132)
- Jefferson (70)
- Knox (1)
- Mahoning (9)
- Medina (1)
- Monroe (120)
- Morgan (1)
- Muskingum (4)
- Noble (58)
- Paulding (1)
- Portage (4)
- Stark (4)
- Trumble (8)
- Tuscarawas (8)
- Washington (10)

Sources of Information

- Air permit program:
<http://www.epa.state.oh.us/dapc/permits/permitdes>
- Air permit search:
<http://www.epa.state.oh.us/dapc/newpermits/issued>
- Typical air permit (general permits):
<http://www.epa.ohio.gov/dapc/genpermit/genpermits#127854016-available-permits>

Questions?

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