Ohio EPA Verified Complaint Investigative Report

Verified Complaint: #15-4

Complainants: Kerri and Jeff Bond
24900 Britton Road
Senecaville, Ohio 43780

Alleged Violations: All the following are alleged violations associated with the Antero Resources' Bond Well Pad:

1. Noise pollution
2. Light pollution
3. Atmospheric pollution, silica sand dust
4. Headaches and dizziness symptoms
5. Trees dying near the pad
6. HAP (Benzene) exceedance of OAC rule 3745-31-05(A)(3)
7. VOC exceedance
8. Required control and monitoring equipment is not being operated in a manner consistent with safety and good air pollution control practices for minimizing emissions
9. Leak detection requirements are likely not being met, as evidenced by Earthworks' FLIR camera video, filmed at the Bond pad on July 14, 2015
10. Facility is likely violating 40 CFR Part 60, Subpart OOOO
11. Facility is likely violating 40 CFR Part 60, Subpart JJJJ
12. Facility is likely violating 40 CFR Part 60, Subpart IIII
13. Facility is likely violating 40 CFR Part 63, Subpart HH
14. Facility is likely violating 40 CFR Part 63, Subpart ZZZZ
15. Compliance with federal rules requiring BAT is not "taking place"
16. SO_2 emissions are > 10 tons per year
17. VOC emissions are > 10 tons per year
18. Violating air pollution nuisance rule
19. Violating PTIO P0118930

Office of Investigation: Southeast District Office, Ohio EPA (SEDO)

Investigator: Sandy Colegrove, Division of Air Pollution Control (DAPC)

Date of Completion: 7/12/2016

Contents

I. Summary of the Verified Complaint

Kerri and Jeff Bond allege that air pollution emissions and nuisances along with Ohio EPA air permit violations are associated with the Antero Resources' Bond Pad. They further opine that the alleged violations are resulting in negative environmental impacts to their property and health problems for themselves and other residents near the facility. Their verified complaint is included as attachment #19.

II. Statement of Facts

A. Facility Description and Compliance History

Antero Resources' Bond Pad is an oil and gas production facility with associated unpaved roadways and parking areas. The Bond Pad operates under Permit-to-install and Operate (PTIO) P0118930 (attachment #2), issued May 20, 2015. No violations have been logged at this facility; the November 19, 2015 inspection is the first inspection performed by Ohio EPA. The facility is in compliance with Ohio air pollution laws and rules.

B. Chronological Order of Events

May 19, 2015	Ohio EPA received a PTIO application from Antero Resources via Air Services. The application requested a general permit for Oil and Gas Well-Site Production Operations equipped with a Large Flare (GP 12.2) and a general permit for unpaved roadways and parking areas with a maximum of 120,000 vehicle miles traveled per year (GP 5.1). The proposed site was to be located in Noble County, Ohio (See attachment #1)
May 20, 2015	PTIO P0118930 was issued to Antero Resources for Antero Resources – Bond Pad (See attachment #2).
May 21, 2015	Two oil and gas wells began production at the Bond Pad. At this time, these are the only wells drilled and fracked at the site. More wells will be drilled at the pad at a later date.
July 24, 2015	Noble County Extension Agent Brianna Pye called Sandy Colegrove to report an air complaint she had received from Kerri Bond. Kerri Bond is the landowner adjacent to the Bond Pad. The complaint document (attachment #3), serves as the telephone memorandum, the complaint and the investigation notes. Sandy Colegrove called Kerri Bond. The complaint was filed in SEDO (See attachment #3).
July 24 –	

August 28, 2015 Kerri Bond corresponded by email with Sandy Colegrove, sending photos, a 2015 video and information Ms. Bond deemed evident to the complaint (See attachment #4).

July 30, 2015 Sandy Colegrove visited the property of Kerri Bond and Jeff Bond, Kerri Bond's husband. Kerri and Jeff Bond discussed their complaint regarding the Bond Pad. The Bonds said that eight trees on their property had died and the tops of other trees appeared to have a "burned" appearance. They reported a "mist" covered the area of their property and surrounding areas some evenings about 11:30 pm. They produced a Forward Looking Infrared (FLIR) video taken by Earthworks at the Bond Pad on July 14, 2015. During the visit, Colegrove's personal multi-gas detection monitor malfunctioned and the audible alarm signaled while the monitor displayed detections of VOCs. As the personal monitor was new to Colegrove, at the time of the site visit Colegrove was unaware of the monitor's audible alarm function for pump obstruction and/or failure. No violations associated with the Bond Pad were observed during this site visit. However, based on the audible alarm witnessed by the Bonds, Colegrove promised to follow up with the Bonds regarding the FLIR video and the VOC alarm. After the site inspection, Colegrove discovered that when the personal monitor's pump inlet or outlet becomes obstructed, an audible alert sounds until the pump error is resolved, typically by restarting the instrument. In addition, during the audible alert, the VOC readings on the pump display increased until the monitor was reset. The pump obstruction could be caused by brushing the monitor's inlet or outlet against a person's clothing or other material (see attachment #3).

August 7-28, 2015 Colegrove received surface water complaints in several emails from Kerri Bond. They were referred to Nick Hammer, SEDO Division of Surface Water (see attachment #17).

August 10, 2015 Colegrove received a public records request from Kerri Bond (see attachment # 5). Colegrove referred Ms. Bond to Angie Hardesty of SEDO, who received Ms. Bond's public records request on August 21, 2015.

August 15, 2015 Wells 3 and 4 are drilled at the Bond Pad.

August 12, 2015 Melisa Witherspoon, SEDO DAPC Manager, and Sandy Colegrove visited the property of Kerri and Jeff Bond to reinvestigate the complaint and

	explain the circumstances which resulted in the audible alarm and VOC readings on the personal monitor during Colegrove's prior visit (see attachment #1). The personal monitor did not detect VOCs during this site visit except during demonstrations of pump stall conditions by Witherspoon and Colegrove.
September 1, 2015	Public records requested by Kerri Bond were sent to her via email from Ohio EPA.
October 23, 2015	Ms. Bond sent Colegrove an email stating that the surface water had improved, but the air had an odor (see attachment # 6).
October 27, 2015	Well 3 and 4 are fracked.
November 10, 2015	Ohio EPA Legal forwards verified complaint from Kerri Bond to Melisa Witherspoon, Southeast District Office, Division of Air Pollution Control Manager. The complaint alleges noise, light and air pollution at the Bond Pad.
November 12, 2015	Melisa Witherspoon forwarded the verified complaint to Sandy Colegrove.
November 19, 2015	Sandy Colegrove and Christina Wieg visited the Bond Pad to investigate alleged violations, as documented herein (see attachment #18).
May 18, 2016	Southwest Ohio Air Quality Agency (SOAQA) accompanied Sandy Colegrove to the Bond Pad. SOAQA used their optical gas imaging camera to inspect the facility for leaks (see attachment # 20). Leaks were discovered on top of the condensate tanks.
May 27, 2016	Sandy Colegrove and OEPA employee, Sean Stephenson, met Antero's Lou Ann Lee at the Bond Pad. Ms. Lee used Antero's optical gas imaging camera to demonstrate that the leaks had been repaired.
June 3, 2016	OEPA placed summa canisters to sample for VOC's. One canister was placed on the Bond Pad, one on Jeff and Kerri Bond's property near their residence and one was placed in the surrounding area for background samples (see attachment #21).

C. Summary of Facility Inspection, November 19, 2015

On November 19, 2015, Sandy Colegrove conducted a full compliance inspection at the Antero Resources Bond Pad in Noble County, Ohio. Ms. Colegrove was accompanied by Christina Wieg of Ohio EPA, Southeast District office, Division of Air Pollution Control. The inspection was prompted by a verified complaint regarding the Bond Pad by Kerri and Jeff Bond.

Ms. Wieg and Ms. Colegrove arrived at the facility at 10:30 am and were met by Antero Resources employees Jeremy Kinney, Antero Compliance, Kelly Ratz, Completion Supervisor, John Cook, Antero Safety, Mark Hertzler, Production Superintendent, John Horn, Pumper and Lucas Michael, Pumper.

These employees will be referred to subsequently as "Antero employees" unless otherwise notated. The owner of the Bond Pad, Antero Resources, will be referred to subsequently as "Antero Resources."

Ms. Wieg and Ms. Colegrove explained to the Antero employees present what a verified complaint was and told them what the alleged violations were. Ms. Colegrove organized the compliance inspection by emissions unit in the permit, starting with P001 and ending with T001. This method allowed Ohio EPA personnel to address the permit terms and conditions as well as the alleged violations. The alleged violations and Ms. Colegrove's findings are stated in Section III. below.

D. Summary of Optical Gas Imaging Camera Inspections, May 18, 2016 and May 27, 2016

On May 18, 2016, Mike Kramer and Aaron Morgan of Southwest Ohio Air Quality Agency (SWOAQA) accompanied Sandy Colegrove to the Bond Pad and used their Agency's optical gas imaging camera, also known by the brand name of "FLIR," to view the Bond Pad with the camera. The FLIR camera will visually show VOC leaks at an oil and gas facility. The FLIR camera detected a leak at the top of the eight condensate tanks. The leak was rather difficult to detect and film by SWOAQA, so SWOAQA took a flame ionization detector (FID) to the top of the tanks to find the leak. Four tanks registered close to and over 10,000 ppm of VOC at the area where the thief hatch and the thief hatch gasket meet. After those high readings, the FID readings were suspended. The Antero representative on site said that the gaskets were greased and

replaced 2 weeks prior to our visit; he then called for an emergency roustabout crew to be on site within an hour to begin repairs. Antero also said that they would follow-up with a FLIR camera inspection after repairs were complete. PTIO P0118930 section C. 5.f) (3) states the following:

> *In the event that a leak or defect is detected in the cover, closed vent system, process equipment, or control device, the permittee shall make a first attempt at repair no later than 5 calendar days after the leak is detected. Repair shall be completed no later than 30 calendar days after the leak is detected as allowed in 40 CFR 60.5416(c)(4). Any delay of repair of a leak or defect shall meet the requirements of 40 CFR 60.5416(c)(5).*

Sandy Colegrove and OEPA employee, Sean Stephenson, met Antero's Lou Ann Lee the Bond Pad. Ms. Lee used Antero's optical gas imaging camera to demonstrate that the leaks had been repaired.

Per the permit term and condition stated above, Antero followed the time line allowed to repair the leaks and there was no violation of PTIO P0118930 with respect to the leaking and repair of the condensate tanks.

E. Summary of VOC sampling performed at the Bond Pad and near the Jeff and Kerri Bond residence, June 2, 2016.

Ohio EPA employees Mike Murphy and Phillip Downey placed summa canisters in order to test for a variety of VOC's at the Bond Pad, near Jeff and Kerri Bond's residence and another location nearby that served as background information for their sampling study. Ohio EPA concluded that sample results and all of the detections are below risk-based screening levels for potential health effects.

III. Findings of Verified Complaint Investigation

A. Alleged Violation: Noise and light pollution

Ohio EPA Findings: Ohio EPA has no authority to address noise or light pollution. Ohio EPA, Division of Air Pollution Control enforces air pollution regulations codified in ORC 3704 and ORC 3745.

B. Alleged Violation: Atmospheric pollution, silica sand dust

Ohio EPA Findings: During this inspection, no exceedances of permit limitations or violations related to fugitive dust emissions were found.

C. Alleged Violation: Headaches and dizziness symptoms

Ohio EPA Findings: During this inspection, no exceedances of permit limitations were found and no air pollution nuisances were discovered. If an exceedance of permit limitations for a regulated facility or an air pollution nuisance is documented, Ohio EPA may consult with health officials to discuss health effects associated with identified violations. As no violations were identified, consultation with other agencies was not performed. Personal health concerns should be addressed by a physician.

D. Alleged Violation: Trees dying near the pad

Ohio EPA Findings: Ohio EPA has no authority to address alleged impacts to trees. Therefore, the focus of the investigation was on potential air pollution sources and activities regulated by the Ohio EPA. Ohio EPA, Division of Air Pollution Control enforces air pollution regulations codified in ORC 3704 and ORC 3745.

E. Alleged Violation: HAP (Benzene) exceedance of OAC rule 3745-31-05(A)(3)

Ohio EPA Findings: Benzene is a product of the following emissions units:

- P001, Dehydration system; Benzene = 0 tons per year (TPY)
    - The Bond Pad is permitted under a general permit, which allows the facility to install all of the emissions units in the permit or selected emissions unit(s). Not all emissions units in the general permit have been installed at the Bond Pad. To date, Antero has not installed a dehydration emissions unit at the Bond Pad;
- F001, Equipment leaks; Benzene = 0.24 TPY

- P003, Engine Emissions; Benzene = 0.0289 TPY
- Gas Production Units, these are exempt in P0118930; Benzene = 0.0000680 TPY
- Line Heaters, these are exempt in P0118930; Benzene = 0.000906 TPY
- T001, Tanks and Truck Loading; Benzene = 0.0883 TPY

Total Benzene potentially emitted = 0.35 TPY, which is less than the 1 ton per year that requires modeling per Ohio Administrative Code 3745-31.

Benzene emissions are not exceeded per PTIO P0118930.

F. Alleged Violation: VOC exceedance

Ohio EPA Findings: Sources of VOCs at the site are the four natural gas engines, the combustors and equipment leaks.

Natural gas engines: There are two 90 horsepower (hp) engines and two 50 hp engines on the Bond pad (see photos "I" and "J"). All engines are certified by the manufacturer to meet or perform better than 40 CFR Part 60 Subpart JJJJ specifications, where VOC emissions standards are specified (see attachments #7 and #8). Since these are certified engines, stack testing is not required provided they are operated and maintained per manufacturer's instructions. Antero is required to set the air-to-fuel controllers according to the manufacturer's operations manual and maintain documentation that the engines are maintained and operated according to the manufacturer's emission related instructions (see Attachment # 15). Antero Resources has satisfied these requirements. Antero Resources is not violating VOC permit limitations with respect to the natural gas engines.

Combustors: There are two 24 MMbtu/hr Cimarron enclosed combustors (EU P004) on site to control VOC flash from the storage tanks (EU T001). To control VOC emissions, a combustor with a designed minimum control efficiency of 95% is required. Cimarron guarantees a 98% VOC destruction efficiency (see attachment # 9). A thermocouple is installed on each combustor with an alarm that notifies Antero if a flame in the combustor should extinguish and fail to relight (see photo "G"). The permit allows for the combustor to be used in the event that a malfunction occurs, then the excess gas can be burned off by the combustor. Antero reports that this has not occurred on the Bond Pad.

Equipment Leaks: VOC emissions are in the equipment leak emissions unit (F001) as a product of the amount of leaks presents at the facility. Antero performed their initial

leak detection analysis with an optical gas imaging camera (brand name, "FLIR"); out of 6,549 components, they discovered 12 leaks; a percentage of 0.18. Five leaks were repaired immediately and the remainder were repaired within 30 days, which is compliant with Part 60 Subpart OOOO and PTIO P0118930 (see attachment #11).

The natural gas engines and combustors were maintained and operated according to the permit terms and conditions and the emissions from leaks were well within permit limitations. There is no evidence of VOC exceedance.

G. Alleged Violation: Required control and monitoring equipment is not being operated in a manner consistent with safety and good air pollution control practices for minimizing emissions

Ohio EPA Findings: Control Equipment would include the two combustors (EU P004). As discussed in Section F above, no violations were found concerning the combustors. Monitoring equipment would include the thermocouple installed on each combustor and no problems were found with these (see Section F above).

H. Alleged Violation: Leak detection requirements are likely not being met, as evidenced by Earthworks' FLIR camera video, filmed at the Bond pad on July 14, 2015

Ohio EPA Findings: P0118930 requires Antero to develop and implement a leak detection and repair program designed to monitor and repair leaks from ancillary equipment at the Bond Pad. Antero chose to use a "Forward Looking Infra-Red" (FLIR) camera to detect leaks. They were required to conduct an initial test within 90 days of startup and for a period of four consecutive quarters thereafter. Antero's initial test was conducted on July 29, 2015, 70 days from the startup date of May 21, 2015 (see attachment #10). Antero attempted to repair all leaks immediately; all leaks were repaired within 30 days after they were detected on July 29, 2015 (see attachment #10 and Section F). No violations of the leak detection requirements were found.

I. Alleged Violation: Facility is likely violating 40 CFR Part 60, Subpart OOOO.

Ohio EPA Findings: Most of the OOOO requirements are found in emissions unit F001, Equipment Leaks; F004, Combustor; and T001, Storage Vessels, in P0118930. Following is a list of permit requirements and Antero Resources' response to satisfy the said requirement.

F001: Develop and implement a site-specific leak detection and repair program for ancillary equipment	This requirement is met (see Alleged Violations F and H)
F001: Each natural gas-driven pneumatic controller designed and operated to have a bleed rate less than or equal to 6 standard cubic feet per hour (scf/hr) and maintained in accordance with the manufacturer's instructions, shall not be considered an affected facility, subject to Part 60 Subpart OOOO. Each pneumatic controller constructed, modified, or reconstructed on or after 10/15/13, located between the wellhead and a natural gas processing plant, and designed to have a bleed rate equal to or greater than 6 scf/hr is an affected facility subject to the requirements of Part 60 Subpart OOOO. Each pneumatic controller affected facility that is constructed after 8/23/11 and is subject to these standards shall be tagged with the month and year of installation.	All controllers are low bleed intermittent (< 6scf/hr). These don't need to be tagged. Tagging is required for high and continuous bleed controllers.
F001: Emissions of Volatile Organic Compounds (VOC) shall not exceed 10.56 tons per year from fugitive equipment leaks.	This calculation will be reported in the annual PER.

F001:Unless it can be demonstrated that the pneumatic controller needs to have a higher bleed rate based on functional needs in accordance with 40 CFR 60.5390(a), each natural gas-driven pneumatic controller affected facility installed, modified, or reconstructed on or after 10/15/13 and located between the wellhead and the point of custody transfer to an oil pipeline or a natural gas transmission line or storage facility, must be designed and operated with a bleed rate less than or equal to 6 scf/hr.	Confirmed at inspection.
P004: For VOC and where applicable, compliance with the applicable control requirements of 40 CFR Part 60, Subpart OOOO, by having a designed minimum control efficiency of 95% for an enclosed flare/combustor.	Confirmed by manufacturer of combustor
P004: An enclosed combustion device used to demonstrate compliance must be operated with no visible emissions except for periods not to exceed a total of 1 minute in any 15-minute period, conducting Method 22 once every calendar month.	No visible emissions were observed during inspection

T001: The facility must calculate the potential for VOC emissions for each single storage vessel using an accepted model or calculation methodology, based on the maximum average daily throughput determined for a 30-day period of production prior to 10/15/13 for Group 1 storage vessels*, or determined for a 30-day period of production prior to 4/15/14 or 30 days after startup for Group 2 storage vessels**. Where these potential VOC emissions are calculated to equal or exceed 6 TPY, the permittee must either maintain the uncontrolled actual VOC emissions at less than 4 TPY and maintain monthly emission calculations in accordance with 40 CFR 60.5395(d)(2); or install a control device, closed vent system, and covers designed and operated to reduce VOC emissions by 95.0%, and by 4/15/14 or 60 days after startup for Group 2 storage vessels or by 4/15/15 for Group 1 storage vessels. Conduct monthly inspections of collection and control equipment.	Antero Resources used PROMAX to estimate emissions from flashing losses and installed (2) combustors. Inspections are conducted monthly on the collection equipment (tanks) and daily on the control equipment (combustor).
T001: Option to demonstrate compliance with Part 60 Subpart OOOO through the use a control device model tested by the manufacturer.	This is exempt from performance testing, as the combustor complies with 40 CFR 60.18
T001: If demonstrating compliance using a combustion control device that is performance tested by the manufacturer, in accordance with 40 CFR 60.5413(d), the combustion device must be operated with no visible emissions except for periods not to exceed a total of 2 minutes in any 1 hour of operation, conducting Method 22 once per calendar quarter.	1st quarter Method 22 was performed on July 23, 2015. See attachment #16.

T001: The permittee accepts a voluntarily limit to restrict the potential VOC emissions from each storage vessel to less than 6 tons per year.	This is achieved through their combustors, which are 98% efficient.
T001: Tanks shall be equipped with a cover that meets the requirements of 40 CFR 60.5411(b); and the storage vessel shall be connected through a closed vent system designed and operated with no detectable emissions, as determined using olfactory, visual and auditory inspections, and in accordance with 40 CFR 60.5411(c) to either: 1. an enclosed combustion control device, designed and operated in accordance with 40 CFR 60.5412(d) or 40 CFR 60.5413(d); 2. an open flare meeting the requirements identified in this permit; or 3. to a process. The collection and control systems shall be operated at all times when gases, vapors, and fumes are vented from the subject storage vessels to a control device; and where routing emissions to a process it must be operational 95% or more of the year.	As confirmed during inspection, tank covers meet requirements of CFR 60.5411(b); no detectable emissions were present during inspection; flash vapors are routed to the combustors; the gases have been continually routed to the combustors since production began.
T001: In the event that a leak or defect is detected in the cover or closed vent system that is used to demonstrate compliance, the permittee shall make a first attempt at repair no later than 5 calendar days after the leak is detected. Repair shall be completed no later than 30 calendar days after the leak is detected in accordance with 40 CFR 60.5416(c)(4) and (5). A record of the leak detected and repairs must be maintained for a period of five years.	Leaks have not been detected.

T001: Each enclosed combustion device, used to meet the emission reduction standard in 40 CFR 60.5395(d), shall be installed and operated in accordance with 40 CFR 60.5412(d) and 40 CFR 60.5417(h). As an alternative, a combustion control device may be installed whose model has been tested by the manufacturer in accordance with 40 CFR 60.5413(d), and the facility can instead meet the criteria in 40 CFR 60.5413(d)(11) and 40 CFR 60.5413(e).	The combustion device is guaranteed by the manufacturer to meet 40 CFR 60.5413(d)(11) and 40 CFR 60.5413(e).
T001: the maximum average daily throughput 30 days after startup for Group 2 storage vessels	Throughput records are kept and available
T001: the content of each storage vessel	The content of each storage vessel is marked on each tank
T001: the lab analyses, calculations, and process simulation model results documenting the annual emissions from breathing, working, and flashing losses; and the records for the content and annual throughput (in gallons per year) for each storage vessel shall be available to Ohio EPA	The annual analyses, calculations, modeling and throughput will be expected to be submitted at PER time.
T001: Where using vapor recovery unit(s) (VRU) for compliance, the permittee shall maintain records that document the VRU system is operated in compliance with the cover and closed vent system requirements of 40 CFR 60.5411(b) and 40 CFR 60.5411(c).	Verified during inspection.
T001: Monthly inspections for each closed vent system, each cover, and the combustion control device used to demonstrate compliance	Inspections are conducted monthly on the collection equipment (tanks) and daily on the control equipment (combustor).

J. Alleged Violation: Facility is likely violating 40 CFR Part 60, Subpart JJJJ.

Ohio EPA Findings: There are two (2) 90 hp engines and two (2) 50 hp engines (EU P002) at the Bond pad, which are subject to 40 CFR Part 60, Subpart JJJJ. The engines at the Bond Pad are certified engines, as allowed in JJJJ; P0118930 C. 2.d)(1)d. states:

> *for certified engines less than or equal to 100 HP, the certification from the manufacturer, documenting that the engine(s) meet(s) the emission standards identified in 40 CFR 60.4231.*

See the engine certifications in attachment #7 and #8.

P0118930 C. 2. d)(1)c. also requires maintenance records be maintained (see attachment #11). P0118930 C. 2. d)(1) requires that a maintenance plan be kept (see attachment #15).

No evidence was observed during the investigation to indicate that the sources are in violation of 40 CFR Part 60, Subpart JJJJ at the Bond Pad.

K. Alleged Violation: Facility is likely violating 40 CFR Part 63, Subpart HH.

Ohio EPA Findings: 40 CFR Part 63, Subpart HH is applicable only if there is a dehydration system that emits benzene. Since there is not a dehydration system installed at the Bond Pad, there is no violation of 40 CFR Part 63, Subpart HH.

L. Alleged Violation: Facility is likely violating 40 CFR Part 60, Subpart IIII.

Ohio EPA Findings: 40 CFR Part 60, Subpart IIII only applies to diesel engines. Diesel engines have never been installed at the Bond Pad. Therefore, there is no violation of 40 CFR Part 60, Subpart IIII.

M. Alleged Violation: Facility is likely violating 40 CFR Part 63, Subpart ZZZZ.

Ohio EPA Findings: Ohio EPA does not accept delegation from USEPA for 40 CFR Part 63, Subpart ZZZZ, as stated in P0118930 B.2.:

The Ohio EPA has determined that this facility is subject to the requirements of 40 CFR Part 63 Subpart ZZZZ, the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines; and Part 63 Subpart HH, the National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities . At this time, the Ohio EPA is not accepting delegation for area sources subject to the Maximum Achievable Control Technology NESHAP (MACT) rules. The requirements of these rules, that are applicable to the area source(s) for hazardous air pollutants (HAP) identified in this permit, shall be enforceable by U.S. EPA.

N. Alleged Violation: Compliance with federal rules requiring BAT is not "taking place."

Ohio EPA Findings: The table below illustrates how BAT is being met per installed emissions unit:

Installed Emissions Unit	BAT	How compliance is being met
P002, Natural Gas Engines	Compliance with applicable g/HP-hr limits from 40 CFR Part 60, Subpart JJJJ for VOC, NOX and CO	Installed certified engines.

Installed Emissions Unit	BAT	How compliance is being met
P004, Combustors	For VOC: install a combustor(s) with a designed minimum control efficiency of 95% for an enclosed flare/combustor. For CO: emissions shall not exceed 0.32 tons per month averaged over a 12-month rolling period. For NOX: emissions shall not exceed 0.79 ton per month averaged over a 12-month rolling period. For SO2: emissions shall not exceed 0.48 ton per month averaged over a 12-month rolling period.	For VOC: manufacturer's design of 98% control efficiency. For CO, NOX and SO2: Facility has not been in operation for 12 months; PER report requires this information from facility.
F001, Equipment Leaks	Develop and implement a site-specific leak detection and repair program for ancillary equipment.	The facility has initiated its LDAR program in a timely manner and has repaired all found leaks within the time allowed in P0118930.
F002, Unpaved Roads and Parking areas	Develop and implement a site-specific work practice plan designed to minimize or eliminate fugitive dust emissions.	Antero has submitted a work practice plan that has been accepted by Ohio EPA (see attachment #12 and attachment #13 for the inspection records). Antero submitted a revised work practice plan on 11/25/2015 that reflected a weekly inspection frequency in lieu of a monthly frequency, which Antero practiced until mid-November, 2015.

Installed Emissions Unit	BAT	How compliance is being met
T001, Produced Water and Condensate Tanks	Total VOC emissions (including breathing losses, working losses, and flashing losses) from all storage vessels combined at the site shall not exceed 4.28 tons per month averaged over a 12-month rolling period. In order to comply with the tons per month emission limit, utilize one or more of the following controls: Use of add-on control (vapor recovery, flare or equivalent) to control emissions from storage vessels as needed to comply with the annual VOC emission limitations. If a flare is used, it must meet the requirements detailed in emissions unit P004.	For Rolling VOC ton per month: Facility has not been in operation for 12 months; PER report requires this information from facility. Facility has installed a vapor recovery tower (see photo "D") and a flare (combustor) that controls flash from tanks. (see P004).

Antero Resources is meeting BAT, as required in the terms of P0118930.

O. Alleged Violation: SO_2 emissions are > 10 tons per year.

Ohio EPA Findings: Sources of SO_2 per application calculations (see attachment #1, emissions calculations, Table 2) at the Bond Pad are as follows:

Emissions Source	TPY
Natural Gas Engines	0.0107
Gas Production Units (exempt)	0.0194
Line Heaters (exempt)	0.0259
Combustors	0.0000662
Total	**0.0561 tons per year**

SO_2 emissions per P0118930 site-wide can reach 7.6 tons per year, as P0118930 was issued as general permit 12.2. See Qualifying Criteria Document 12.2, attachment #14.

There is no evidence that SO_2 emissions exceed 10 tons per year.

P. Alleged Violation: VOC emissions are > 10 tons per year.

Ohio EPA Findings: Sources of VOC per application calculations (see attachment #1, calcs, table 2) at the Bond Pad are as follows:

Emissions Source	**TPY**
Fugitive emissions	3.8971
Natural Gas Engines	0.3456
Gas Production Units (exempt)	0.1780
Line Heaters (exempt)	0.2373
Truck Loading	18.358
Combustor (tank flash)	13.8406
Total	**42.8567**

The PTE for VOC at the Bond Pad is 42.8567 TPY. They are permitted to emit up to 78.65 tons per year per P0118930 (issued as a general permit 12.2). Therefore, VOC emissions of 42.8567 TPY is not a violation (see Qualifying Criteria Document 12.2, attachment #14).

Q. Alleged Violation: Antero Resources is violating air pollution nuisance rule.

Ohio EPA Findings: Ohio Administrative Code 3745-15-07 states:

(A)The emission or escape into the open air from any source or sources whatsoever, of smoke, ashes, dust, dirt, grime, acids, fumes, gases, vapors, or any other substances or combinations of substances, in such manner or in such amounts as to endanger the health, safety or welfare of the public, or cause unreasonable injury or damage to property, is hereby found and declared to be a public nuisance. It shall be unlawful for any person to cause, permit or maintain any such public nuisance.
(B) The emission or escape into the open air from any source or sources of odors whatsoever that is subject to regulation under Chapter 3745-17, 3745-18, 3745-21, or 3745-31 of the Administrative Code and is operated in such a manner to emit such amounts of odor as to endanger the health, safety, or welfare of the public, or cause unreasonable injury or damage to property, is hereby found and declared to be a public nuisance. It shall be unlawful for any person to cause, permit or maintain any such public nuisance.

Ohio EPA has issued Antero Resources a PTIO an air pollution source at the Bond Pad. At the time of this inspection, Antero Resources is not violating any permit terms. Furthermore, no evidence of a violation of the air pollution nuisance rule was noted during the site inspection or during any of the complaint investigations performed related to the Antero Resources facility.

R. Alleged Violation: Antero Resources is violating PTIO P0118930

Ohio EPA Findings: Based on the information provided during the inspection, reports submitted by Antero and the compliance inspection, the facility appears to be in compliance with Ohio EPA Division of Air Pollution Control requirements.

IV. Attachments