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November 28, 2011

**Re: Comments of Group Against Smog and Pollution; Buckeye Forest Council;
and Center for Health, Environment, and Justice Regarding the Ohio EPA
Air Program's Proposed Natural Gas Well Site General Permit**

Dear Mr. Hopkins,

Enclosed please find comments regarding the Ohio EPA Air Program's proposed natural gas well site general permit on behalf of the Group Against Smog and Pollution, Buckeye Forest Council, and Center for Health, Environment, and Justice.

We appreciate this opportunity to provide input on the proposed general permit.

Sincerely,



Lauren Burge
Group Against Smog and Pollution

Nathan Johnson
Buckeye Forest Council

Teresa Mills
Center for Health, Environment, and Justice

COMMENTS OF GROUP AGAINST SMOG AND POLLUTION; BUCKEYE FOREST COUNCIL; AND CENTER FOR HEALTH, ENVIRONMENT, AND JUSTICE REGARDING OHIO EPA'S PROPOSED NATURAL GAS WELL SITE GENERAL PERMIT

The Energy Information Administration projects that by 2035, shale gas production will increase fourfold from 2009 levels.¹ Much of that increase will occur in the large and relatively untapped Marcellus Shale and Utica formations. While natural gas produces far less air pollution than coal when combusted, the compressor stations, condensate tanks, dehydrators and flares necessary to extract, process, and transmit natural gas emit significant quantities of nitrogen oxides (NOx) and volatile organic compounds (VOCs), among other pollutants.

When any one of these emissions units is considered in isolation, its emissions may seem relatively small. In fact, these sources are often permitted as minor sources or are entirely exempted from permit requirements as *de minimis* or permit exempt sources.² However, when all of these emission units are considered together, the combined NOx and VOC emissions from the oil and gas production sector are enormous. For instance:

- A 2009 Southern Methodist University study found emissions of NOx and VOCs from the oil and gas sector in the Dallas-Fort Worth area likely exceed emissions from all motor vehicles in that area.³
- A 2008 analysis by the Colorado Department of Public Health and Environment concluded that NOx and VOC emissions from Colorado's oil and gas operations exceed vehicle emissions for the entire state.⁴
- In 2009, for the first time in the state's history, Wyoming failed to meet the National Ambient Air Quality Standard (NAAQS) for ozone. The Wyoming Department of Environmental Quality determined that emissions from the state's growing oil and gas sector were to blame.⁵

¹ Presentation by Richard G. Newell, Administrator, Energy Information Administration, *The Long-term Outlook for Natural Gas* (Feb. 2, 2011), available at: http://www.eia.doe.gov/neic/speeches/newell_aeo_ng.pdf.

² OAC Rule 3745-15-05, OAC Rule 3745-31-03.

³ Al Armendariz, *Emissions from Natural Gas Production in the Barnett Shale Area and Opportunities for Cost-Effective Improvements* (Jan. 26, 2009), available at: http://www.edf.org/documents/9235_Barnett_Shale_Report.pdf.

⁴ Colorado Dept. of Public Health & Environment, Air Pollution Control Division, Oil and Gas Emission Sources Presentation for the Air Quality Control Commission Retreat (May 15, 2008) at pages 3-4.

⁵ WYDEQ, Technical Support Document I for Recommended 8-Hour Ozone Designation For the Upper Green River Basin, WY, p. viii (Mar. 26, 2009), available at: http://deq.state.wy.us/out/downloads/Ozone%20TSD_final_rev%203-30-09_jl.pdf.

completions are part of the production phase, not the drilling phase, emissions from this process should be regulated under the General Permit.

The production phase begins as soon as a well begins producing gas that could reasonably be captured. When a well is being completed, natural gas begins coming to the surface in significant quantities. Although at first this gas is mixed with flowback fluid, sand, and other waste materials, this gas can be captured and sold. This is illustrated by the equipment used in reduced emission completions, also known as “green completions.” This equipment captures all the gas coming to the surface, rather than allowing it to vent to the atmosphere. This gas can then be processed and sold. Thus, well completions are part of the production phase, and thus should be included in the final General Permit.

While U.S. EPA has proposed a NSPS for oil and natural gas facilities that requires green completions at all hydraulically fractured wells, OEPA should not wait for the U.S. EPA to regulate emissions from well completions. OEPA should instead be proactive and require green completions as part of the General Permit. This technology reduces emissions while also being extremely cost-effective for industry. Given the uncertainty regarding the final form and effective date of the EPA’s proposed oil and gas rule, we urge Ohio EPA to require well operators to perform reduced emission completions in all cases where the necessary gas gathering infrastructure is in place.

Additionally, although well completion equipment may be temporary, it should still be regulated under the General Permit as part of the well site. U.S. EPA requires that “temporary and contractor-operated units be included as part of the source with which they operate or support,” for title V and section 112 purposes.⁶ Including such sources is important to adequately permit and control emissions from well sites, and their temporary nature is not enough to justify excluding them from the final General Permit.

II. Ohio EPA should add language explicitly stating that open pit wastewater storage disqualifies an applicant from obtaining a General Permit.

OEPA has stated that open pits used to store wastewater from natural gas drilling will not be covered by the proposed General Permit, but instead will require a separate individual permit.⁷ OEPA should explicitly state in the final version of the General Permit that open storage pits are not covered by the General Permit.

Open pit storage of flowback water results in emissions of methane and volatile organic compounds (VOCs).⁸ Other risks associated with produced water evaporation ponds include wildlife and livestock mortality, and ground or surface water contamination resulting from liner

⁶ Letter from John S. Seitz, Director, U.S. EPA Office of Air Quality Planning and Standards, to Lisa J. Thorvig, Minnesota Pollution Control Agency, Nov. 16, 1994, at 2, *available at* <http://www.epa.gov/region07/air/nsr/nsrmemos/thorvig.pdf>.

⁷ Personal Communication, meeting on Nov. 15, 2011.

⁸ U.S. EPA, *Measurement of Emissions from Produced Water Ponds: Upstream Oil and Gas Study #1 – Final Report*, Oct. 2009, at 58, *available at* <http://www.epa.gov/nrmrl/pubs/600r09132.pdf>.

failure, berm failure, or overtopping.⁹ The New York Department of Environmental Conservation recommends the complete prohibition of open pit storage.¹⁰ Given the clear environmental risk of open pit flowback water storage and the ready availability of safer, closed system alternatives, Ohio EPA should heavily discourage, if not entirely prohibit, the use of open storage pits. Ohio EPA should provide a disincentive for operators to use open pits by clearly stating that such pits will not be covered by the general permit, and will instead require an individual permit.

III. Pending litigation does not affect Ohio EPA's duty to perform case-by-case well site source determinations.

Ohio EPA's well site general permit letter states that "at this time, Ohio EPA believes it is not appropriate to group multiple well sites together to determine applicability of these rules."¹¹ While it is true that there is litigation currently pending that relates to source aggregation in the oil and gas context, this does not suspend Ohio EPA's obligation to perform source determination analyses. Source determinations must be performed on a case-by-case basis, and as such it is improper to broadly state that Ohio will not aggregate oil and gas well sites in any situation.

The federal PSD regulation defines "stationary source" as "any building, structure, facility, or installation which emits or may emit a regulated NSR pollutant."¹² A "building, structure, facility, or installation" is defined as:

All of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same first two digit code).¹³

While federal Title V rules do not define "building, structure, facility, or installation," the definition of "stationary source" is to be interpreted consistent with the definition in the PSD program.¹⁴ Ohio has SIP-approved PSD and Title V permitting programs.¹⁵ In order to maintain this approval, the state programs must be at least as stringent as the federal PSD and Title V programs.¹⁶

⁹ Bureau of Land Management, Onshore Oil and Gas Order No. 7; Disposal of Produced Water, Section III.E. Design requirements for pits, *available at* http://www.blm.gov/wy/st/en/programs/energy/Oil_and_Gas/docs/onshore_order_7.html.

¹⁰ NYDEC, *Preliminary Revised Draft SGEIS on the Oil, Gas and Solution Mining Regulatory Program* (July 2011) Ch. 7, Section 7.1.3.4 Flowback Water, page 7-42.

¹¹ Ohio EPA Letter to Interested Parties, *Draft Shale Drilling Site Air Pollution General Permit*, July 29, 2011, at 5.

¹² 40 C.F.R. §§ 51.165(a)(1)(i); 52.21(b)(5).

¹³ 40 C.F.R. §§ 51.165(a)(1)(ii); 52.21(b)(6).

¹⁴ 61 Fed. Reg. 34202, 34210 (July 1, 1996).

¹⁵ 60 Fed. Reg. 42045, Aug. 15, 1995; 68 Fed. Reg. 1366, Jan 10, 2003; OAC Chapter 3745-77; OAC Chapter 3745-31.

¹⁶ 40 C.F.R. 70.1(c); 42 U.S.C. § 7471; 40 C.F.R. § 51.166.

If pollutant emitting activities are part of the same “building, structure, facility, or installation,” their emissions must be aggregated and treated as a single source for permitting purposes.¹⁷ In September 2009, EPA issued a memo (the McCarthy Memo) clarifying the method for making source determinations for oil and gas operations.¹⁸ While the McCarthy Memo acknowledged the complexity of source determinations for the oil and gas industry, it reaffirmed that the three factors from EPA’s “building, structure, facility, or installation” definition – whether facilities have the same SIC code, are under common control, and are contiguous or adjacent – must be considered on a case-by-case basis in making such determinations. In addition to applying these three criteria, the explanation in the preamble to the 1980 revisions to the PSD/NNSR rules¹⁹ and past determinations made by Regional Office should be considered in making these determinations.²⁰

Pursuant to the McCarthy Memo, Ohio EPA cannot simply state that aggregation is not appropriate for oil and gas wells and choose not to consider whether aggregation is required in these cases. Admittedly, the fact that there is ongoing litigation related to aggregation does nothing to resolve the contentious issue of the proper definition of source in the oil and gas context; however it does not relieve Ohio EPA of its duty to consider whether aggregation is appropriate on a case-by-case basis.

IV. Production water storage tanks are not exempt from permitting requirements and should be included in the general permit.

In the general permit letter, Ohio EPA noted that it included production water storage tank requirements in the draft general permit, but was unsure whether this would remain in the permit due to uncertainty as to whether these tanks are exempt from permitting requirements.²¹ Produced water storage tanks generally do not qualify for an exemption under OAC 3745-31-03(A)(1)(l), and as such these tanks should be included in the general permit.

Produced water storage tanks are sources of VOC emissions, and “working, breathing, and flash losses are all considerations” when calculating emissions from these tanks.²² While the exact composition of produced water varies depending on location,²³ produced water does not

¹⁷ 40 C.F.R. §§ 51.165(a)(1)(iv)(A); 52.21(b)(1)(i).

¹⁸ Memo from U.S. EPA Assistant Administrator Gina McCarthy to Regional Administrators, “Withdrawal of Source Determination for Oil and Gas Industries” (September 22, 2009), R. at 638-39 [hereinafter *McCarthy Memo*].

¹⁹ 45 Fed. Reg. 52676, 52694-95 (Aug. 7, 1980).

²⁰ McCarthy Memo, *supra* note 18.

²¹ Letter, *supra* note 11, at 6.

²² Texas Commission on Environmental Quality, *Determining Emissions from Produced Water Storage Tanks*, at 1, available at <http://www.tceq.texas.gov/assets/public/implementation/air/ie/pseiforms/producedwaterstoragetank.pdf> (describing various methods for calculating produced water storage tank emissions).

²³ Argonne National Laboratory, U.S. Dept. of Energy, *Produced Water Volumes and Management Practices in the United States*, Sept. 2009, at 14, available at <http://www.netl.doe.gov/technologies/coalpower/ewr/water/pdfs/anl%20produced%20water%20volumes%20sep09.pdf>.

meet the OAC 3745-31-03(A)(1)(I)(i) exemption for “inorganic liquids including water” because it also contains a variety of other materials, including oil, grease and organic compounds.²⁴

The capacity of typical produced water storage tanks range from 400-800 barrels (16,800 to 33,600 gallons), potentially exceeding both the OAC 3745-31-03(A)(1)(I)(iii) & (iv) capacity-based exemptions. Further, it is common industry practice to group multiple small condensate or produced water tanks together. Individually, these tanks are often small enough to meet capacity-based exemptions, but provide total storage capacity (and VOC emissions) equivalent to a large, non-exempt tank. Ohio EPA appears to be encouraging the use of multiple small exempt tanks by allowing a site to install up to 8 (or 10, according to the transmittal letter) tanks with a capacity no greater than 16,800 gallons each.

Colorado takes a sensible approach to regulating multiple-tank sites, its produced water tank general permit that applies to “produced water storage tank batteries comprised of a single storage tank or a group of storage tanks used for the storage of produced water,”²⁵ and focuses on cumulative emissions rather than emissions from individual tanks.²⁶ Like Colorado, Ohio EPA should look at cumulative characteristics when regulating multiple-tank projects. Cumulative storage capacity must be used to determine applicability of capacity-based exemptions; otherwise sources can circumvent permitting and pollution control requirements by simply using two small, permit exempt tanks in place of a larger tank that would be subject to regulation. Thus, the capacity-based exemption should not apply unless cumulative storage capacity remains under the exemption threshold.

The vapor pressure of produced water varies considerably depending on such factors as the geographic location, process, and amount of condensate remaining in the fluid. Produced water material safety data sheets list vapor pressures ranging from 20 mmHg to 830-14000 mmHg.²⁷ Even at sites where produced water vapor pressure is relatively low, concentrations of methanol (a VOC added at the wellhead to inhibit hydrate formation) occasionally increase to 5% or more of total produced water volume.

²⁴ *Id.*

²⁵ Colorado Department of Public Health and Environment, *General Construction Permit: Oil and Gas Industry, Produced Water Storage Tank Batteries*, at 1, available at <http://www.cdph.state.co.us/ap/down/generalpermGP05.pdf>.

²⁶ *Id.* at 2.

²⁷ EnCana Corporation, *Material Safety Data Sheet: Produced Water – Sweet*, at 1, available at <http://www.encana.com/contractor/msds/pdfs/produced-water-sweet-crude-deep-gas.pdf>; CountryMark, *Produced Water, Sour, Material Safety Data Sheet*, at 2, available at [http://www.countrymark.com/userfiles/File/Produced_Water_Sour\(1\).pdf](http://www.countrymark.com/userfiles/File/Produced_Water_Sour(1).pdf); EnCana Corporation, *Material Safety Data Sheet, Produced Water (Sour)*, at 1, available at <http://www.encana.com/contractor/msds/pdfs/producedwater-sour.pdf>.



A production field tank battery made up of seven produced water tanks and seven condensate tanks. Tanks are ~400 bbl each.

Colorado has established a 95% VOC control requirement for produced water storage tanks;²⁸ Wyoming requires 98% control.²⁹ Ohio EPA should take a conservative approach and establish similar VOC control requirements for produced water storage tanks in the draft general permit. The well site owner or operator could avoid this control requirement by providing representative produced water composition data demonstrating that produced water vapor pressure is below a threshold vapor pressure (such as the 3.5 kilopascals exemption threshold in OAC 3745-31-03(A)(1)(iv)).³⁰ Colorado has developed county-specific produced water emission factors.³¹ Ohio may be able to develop similar geographic emission factors for use in future produced water tank permitting decisions on the basis of these produced water composition data submissions, eliminating the need for site owners or operators to submit produced water composition data in the future.

V. The general permit should include more stringent control requirements for VOC emissions from storage tanks.

The draft general permit limits cumulative VOC emissions from all tanks to 26.4 TPY,³² and states that, “[o]nce U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05” this emission limit would be replaced with a requirement to use “vapor recovery and/or flare or equivalent control device unless the uncontrolled potential to emit per tank is less than 9.9

²⁸ CDPHE, *General Permit - Produced Water Storage Tanks*, *supra* note 25, at 1.

²⁹ Wyoming DEQ, Oil and Gas Production Facilities Chapter 6, Section 2 Permitting Guidance (Mar. 2010) at 11, 16, & 20, available at <http://deq.state.wy.us/aqd/Oil%20and%20Gas/March%202010%20FINAL%20O&G%20GUIDANCE.pdf>.

³⁰ In order to capture flash emissions, composition data must be derived from a sample that has remained at wellhead pressure. See TCEQ, *Determining Emissions from Produced Water Storage Tanks*, *supra* note 22, at 1-2.

³¹ *Id.* at 7.

³² General Permit Terms & Conditions document at 40.

tons/year and the total uncontrolled potential to emit for all tanks is less than 26.4 tons/year VOC.”³³ Vapor recovery units (VRUs) are effective control devices, capable of capturing 95% of VOC emissions,³⁴ and because they reduce emissions by reducing evaporative loss of otherwise marketable hydrocarbons, they are remarkably cost-effective in high VOC capture situations, often paying for themselves in less than a year.³⁵

The proposed Oil and Gas NSPS recommends 95% control of VOC emissions via use of a VRU or a flare for all storage tanks or storage tank batteries with combined throughput rates of 1 barrel per day of condensate, which is “equivalent to [combined] VOC emissions of approximately 6 tpy.”³⁶ Commenters urge Ohio EPA to reexamine the cost effectiveness of condensate tank emission controls and consider adopting a combined tank VOC emissions threshold limit equivalent to or lower than EPA’s proposed 6 TPY figure.

VI. A final permit-to-install or PTIO must be granted before any drilling or well completion activities may occur.

Commenters would also like to remind Ohio EPA that the agency must first grant a final permit-to-install or PTIO before any drilling or well completion activities may occur. Drilling and well completion activities do not fall within the OAC 3745-31-33 definitions of site preparation activities allowable prior to obtaining a final permit-to-install or PTIO. In other words, drilling and well completion activities are not exempted from the applicable definition of “begin actual construction.” Consequently, drilling and well completion activities constitute the installation of a new contaminant source, which may not occur under paragraph (A)(1) of rule 3745-31-02 of the Administrative Code until *after* a final permit-to-install or PTIO is obtained from the director.

³³ *Id.* at 37.

³⁴ U.S. EPA, Proposed Oil and Natural Gas NSPS and NESHAP (July 28, 2011) at 151, *available at* <http://www.epa.gov/airquality/oilandgas/pdfs/20110728proposal.pdf> (prepublication version).

³⁵ David Brymer, Director, TCEQ Air Quality Division, North Texas Air Quality Update Presentation (May 25, 2011) at 19-20, *available at* <http://www.nctcog.org/trans/committees/ntcasc/OGTF/052511/Item4.pdf>.

³⁶ U.S. EPA Proposed Oil and Gas NSPS and NESHAP, *supra* note 34, at 154.