



## **GROUP AGAINST SMOG & POLLUTION**

**5135 Penn Avenue  
Pittsburgh, PA 15224  
412-924-0604  
gasp-pgh.org**

May 23, 2012

**Via email**

Naishadh Bhatt  
Environmental Group Manager  
Division of Permits  
PADEP, Bureau of Air Quality  
12th Floor, Rachel Carson State Office Building  
P. O. Box 8468, Harrisburg, PA 17105-8468  
nabhatt@pa.gov

**Re: Group Against Smog and Pollution's Comments regarding proposed General Plan Approval and/or General Operating Permit for natural gas production and/or processing facilities (BAQ-GPA/GP-5)**

Dear Mr. Bhatt,

Please accept these comments from the Group Against Smog and Pollution (GASP) regarding revisions to the General Plan Approval and/or General Operating Permit for natural gas production and/or processing facilities (BAQ-GPA/GP-5) proposed in the March 3, 2012 Pennsylvania Bulletin.<sup>1</sup>

GASP is a Pittsburgh-based non-profit environmental organization working for a healthy, sustainable environment. For over forty years GASP has served as a watchdog, educator, litigator, and policy-maker on many environmental issues with a focus on air quality in southwestern Pennsylvania. In recent years, much of GASP's work has focused on minimizing the air emissions from Pennsylvania's fast-growing natural gas industry.

It is true that natural gas burns cleaner than coal, but the natural gas industry's impact on air quality is not limited to final combustion. Before natural gas can heat a home or generate electricity, wells must be drilled and fracked, and gas must be extracted, processed, compressed, and transported. Air pollution is generated at every step in this process. While the quantity of pollution generated by any individual natural gas emission unit may seem relatively small, the combined air quality impact can be enormous. For example, the natural gas sector is responsible for ~35% of anthropogenic methane emissions in the United States.<sup>2</sup> In areas where oil and gas activity is prevalent,

<sup>1</sup> 42 Pa.B. 1187.

<sup>2</sup> USEPA, 2012 U.S. Greenhouse Gas Inventory Report (Apr. 15, 2012) at ES-5, *available at*: <http://epa.gov/climatechange/emissions/usinventoryreport.html>.

the industry's emissions of ozone-forming nitrogen oxides (NOx) and volatile organic compounds (VOCs) often rival or exceed NOx and VOC emissions from all car and truck traffic in the area.<sup>3</sup> Commenter is particularly concerned about NOx and VOC emissions from Pennsylvania natural gas activity because much of Pennsylvania, as well as downwind portions of the Midatlantic and Northeastern U.S., has long struggled to meet federal health-based standards for ozone.

A March 29 Pittsburgh Tribune-Review article states, "Pennsylvania has 385 compressor stations, most used for gas produced in the shale drilling boom, according to the state Department of Environmental Protection."<sup>4</sup> In other words, prior to around 2008, the "breakout year" when Marcellus shale gas production began in earnest,<sup>5</sup> most of these 385 compressor stations did not exist. Assuming only 285 of these 385 compressor stations were constructed since 2008, and that average NOx emissions from each of these 285 facilities is only 50 tons per year, total NOx emissions from these facilities would exceed 17,000 tons per year. To put that in context, consider that the Bruce Mansfield Plant, which is the largest coal-fired power plant in Pennsylvania, emitted only 11,400.60 tons of NOx in 2010.<sup>6</sup> Further, the 17,000 figure does not account for the sizeable NOx emissions from frack pumps, drill rigs, Marcellus-related truck traffic, or for NOx emissions associated with gas flaring and stationary combustion equipment located on well pads.

Given the pace of natural gas development in Pennsylvania, the significant quantities of ozone precursors this industry emits, and the fact that these emissions are adding to an existing air quality problem, it is imperative that the Department subject the natural gas industry to the most rigorous level of air pollution control practical.

While more must be done to address emissions from this industry, GASP must acknowledge that the Department has made progress toward this end. The Department's December 2011 decision to require unconventional gas operators to submit an annual emissions inventory is one notable example. While the emissions inventory reporting process is not perfect,<sup>7</sup> it will result in better estimates of industry emissions and will allow the Department to identify and prioritize pollution control strategies. The proposed revisions to GP-5 include many additional positive changes, including an updated BAT

---

<sup>3</sup> 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](http://www.edf.org/documents/9235_Barnett_Shale_Report.pdf); Attachment 1 - 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; 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](http://deq.state.wy.us/out/downloads/Ozone%20TSD_final_rev%203-30-09_jl.pdf).

<sup>4</sup> Timothy Puko, Proposed Frazer compressor adds to Pennsylvania air pollution, Pittsburgh Tribune Review (Mar. 29, 2012), *available at*: [www.pittsburghlive.com/x/valleynewsdispatch/s\\_788828.html](http://www.pittsburghlive.com/x/valleynewsdispatch/s_788828.html).

<sup>5</sup> Terry Engelder, Marcellus, Fort Worth Basin Oil & Gas Magazine (Aug 2009) at 1, *available at*: <http://www.marcellus.psu.edu/resources/PDFs/marcellusengelder.pdf>.

<sup>6</sup> PADEP, eFACTS Facility Emissions Report for Beaver County NOx, 2010, *available at*: [http://www.ahs2.dep.state.pa.us/eFACTSWeb/criteria\\_facilityemissions.aspx](http://www.ahs2.dep.state.pa.us/eFACTSWeb/criteria_facilityemissions.aspx).

<sup>7</sup> GASP Letter to PADEP regarding Pennsylvania Natural Gas Emissions Inventory (Jan. 17, 2012), *available at*: <http://gasp-pgh.org/wp-content/uploads/2011/01/GASP-PADEP-EI-letter-1-17-2012.pdf>.

standard for spark ignited internal combustion engines and a much-needed air permit fee increase. GP-5 will also apparently incorporate previously permit-exempt well pad emission units into GP-5 and establish inspection and reporting requirements for these units. As discussed in the following sections, the proposed GP-5 has its shortcomings as well. The issues described below must be there are also aspects of the proposed GP-5 can be improved.

## **1. Background information on general permits.**

PADEP's general permits are intended to offer an expedited permitting process for categories of stationary air contamination sources that the Department determines are similar and can be adequately regulated by a standardized permit. Compared to a source permitted through the traditional permitting process, the procedure to receive a general permit is streamlined in several significant ways: (1) While sources permitted under traditional plan approvals must also apply for and receive an operating permit within 180 days of startup, general permits function as both plan approvals and operating permits. (2) While the Department has up to 180 "on the clock" days to process a plan approval application, the Department must take action on a general permit application within 30 days of receipt.<sup>8</sup> (3) Traditional plan approvals and operating permits must undergo a 30-day public comment period prior to final issuance, while individual sources permitted under general permits are not subject to a public comment period.

The Pennsylvania Air Pollution Control Act (APCA) provides DEP's authority to develop and administer its general permit program.<sup>9</sup> However, the APCA also specifies that the Department may only grant a general permit for an air pollution source category "if the department determines that the sources in such category are similar in nature and can be adequately regulated using standardized specifications and conditions."<sup>10</sup>

DEP's general permit program has been approved by EPA pursuant to Clean Air Act §§ 110 and 112(l) and has been incorporated into the Pennsylvania SIP as part of the minor NSR program.<sup>11</sup> EPA's minor NSR regulations require air permitting authorities to provide a 30-day public comment period prior to issuing a minor source construction permit to an individual source.<sup>12</sup> At first glance, DEP's failure to provide a public comment period prior to issuing a general permit to an individual source would appear to be in direct conflict with the minor NSR public comment requirement; however, EPA's longstanding position is that a second public comment period is not necessary when an air permitting authority issues a general permit to a specific source. EPA's logic is that (1) the public has an opportunity to comment on the general permit when the air permitting authority initially developed the general permit, and (2) no additional public comment period is necessary because general permits are standardized documents that will not be tailored on a case-by-case basis to individual sources. "In cases where

---

<sup>8</sup> 25 Pa. Code § 127.621(c).

<sup>9</sup> 35 P.S. § 4006.1(f).

<sup>10</sup> *Id.* See also 25 Pa.Code § 127.611.

<sup>11</sup> 61 FR 39594.

<sup>12</sup> 40 C.F.R. § 51.161.

standardized permits have been adopted, EPA and the public need not be involved in their application to individual sources as long as the standard permits themselves have been subject to notice and opportunity to comment.”<sup>13</sup>

## **2. General permits cannot incorporate customized, site-specific PTE restrictions into general permits for individual sources. The draft section providing for customized PTE restrictions must be eliminated from the final GP-5.**

Section A.3(h) of the revised GP-5 states that, “upon the written request of an applicant, this General Permit may be used to limit the potential to emit” of emission units permitted under GP-5.”<sup>14</sup> Suggested means of limiting emissions “include, but are not limited to, operational, production and emission restrictions.”<sup>15</sup> While sources permitted under traditional plan approvals are free to take an enforceable emission restriction to avoid major source status, customized, site-specific conditions cannot be incorporated into a general permit such as GP-5.

Providing for customized permit conditions in a general permit is contrary to the Pennsylvania Air Pollution Control Act and *Pennsylvania Code* provisions limiting the use of general permits to source categories that “are similar in nature and can be adequately regulated using standardized specifications and conditions.”<sup>16</sup> Further, as stated in Section 1, above, the Department’s general permit public comment policy is not consistent with the federal minor NSR public comment requirement.<sup>17</sup> EPA does not consider the DEP policy to violate the minor NSR comment policy based on the assumption that the Department will not substantively alter the general permit when issuing the permit to individual sources.

Further, the effect of a permit modifications carried out pursuant to section A.3(h) will not be limited to the addition of a few pollution control measures to a facility. Facility operators have little reason to pursue a modification under section A.3(h) unless that modification will reduce facility-wide PTE sufficiently to allow a source to avoid major source status. A permitting action of this significance should be subjected to public comment; however, under DEP’s general permit regulations a public comment period would not be required.

Allowing a source to incorporate a customized emission restriction into a general permit is inconsistent with the purpose of the general permit program and deprives the public of its right to participate in agency permitting decisions. Section A.3(h) must be

---

<sup>13</sup> 71 FR 5979, 5981; Memo from Kathie Stein, USEPA, Guidance on Enforceability Requirements for Limiting Potential to Emit (Jan. 25, 1995), *available at*: <http://www.epa.gov/region7/air/nsr/nsrmemos/potoem.pdf>.

<sup>14</sup> PADEP, Proposed Substantive Amendments, General Plan Approval and/or General Operating Permit, (BAQ-GPA/GP – 5) (Feb. 10, 2012) at .

<sup>15</sup> *Id.*

<sup>16</sup> 35 P.S. § 4006.1(f), 25 Pa.Code § 127.611; *see also* 57 FR 32250, 32278, (“[general permit] sources should not be subject to case-by-case standards or requirements.”)

<sup>17</sup> 40 C.F.R. § 51.161.

removed before the revised GP-5 is finalized. In the absence of Section A.3(h), an operator interested in incorporating a voluntary PTE restriction may still do so by applying for a traditional plan approval.

**3. The sources covered by both the existing and proposed revision to GP- 5 are not well-suited for the general permitting program because the source category definition is vague, individual sources are subject to significant variation, and the permitting process often involves complex, case-by-case analyses.**

Commenter believes that for categories of air contamination sources where individual sources are relatively similar, general permits can promote more efficient use of air permitting authorities' finite resources without compromising environmental protection. However, the sources covered by both the existing and proposed revision to GP- 5 are not well-suited for a standardized general permit. The current proposed source category definition is vague, individual sources are subject to significant variation, and the permitting process often involves complex, case-by-case analyses that are not typically encountered in a general permit.

**a. The Definition of the GP-5 source category is impermissibly vague.**

- i. DEP must provide a complete list of emission units that would be covered under the proposed GP-5.*

The current GP-5 covers natural gas “production and recovery facilit[i]es” which “may include internal combustion (compressor) engines, gas dehydration units, crude oil and brine storage tanks, vents and other equipment associated with this activity.”<sup>18</sup> The revised GP-5 includes an expanded list of equipment that may be covered under GP-5:

*“Air contamination sources at a natural gas production and/or natural gas processing facility may include, but are not limited to the following sources: wellhead(s) and valve assembly(s), natural gas-fired spark ignition internal combustion engine(s) (“SI ICE”), natural gas-fired simple cycle turbine(s), centrifugal compressor(s), condensate tank(s), distillation tower(s), glycol dehydrator(s), reboiler(s), natural gas fractionation unit(s), storage vessel(s), valves, piping, flange(s) and transport loading arm(s).”<sup>19</sup>*

The proposed revised GP-5 includes two other similar, nonexclusive lists of equipment to be included under GP-5:

---

<sup>18</sup> PADEP, Final General Plan Approval and/or General Operating Permit, Natural Gas, Coal Bed Methane or Gob Gas Production or Recovery Facilities (BAQ-GPA/GP – 5) (Mar. 17, 2011) at 1.

<sup>19</sup> PADEP, Proposed Substantive Amendments, General Plan Approval and/or General Operating Permit, (BAQ-GPA/GP – 5) (Feb. 10, 2012) at 1.

*“For the purpose of this General Permit a natural gas production and/or processing facility shall include sources or equipment including the following: wellhead and valve assembly, natural gas-fired spark ignition internal combustion engine(s), natural gas-fired simple cycle turbine(s), centrifugal compressor(s), condensate tank(s), distillation tower(s), glycol dehydrator(s), reboiler(s), de-propanizer(s), storage vessels(s), valves, piping, flanges, transport loading arm(s), etc.”<sup>20</sup>*

This incomplete, open ended description of the types of emission units that may be included in a GP-5 permit is impermissibly vague. Without knowing all emission units likely to be subject to GP-5, the Department cannot possibly fulfill its obligation to determine “that the sources in such category are similar in nature and can be adequately regulated using standardized specifications and conditions.”<sup>21</sup> In order to permit natural gas production, processing and well pad operations under GP-5, the Department must first develop a complete list of emission units that may be covered under GP-5, and must ensure these sources “are similar in nature and can be adequately regulated using standardized specifications and conditions.”<sup>22</sup>

*ii. DEP must clarify when wells and associated equipment and processes are permit exempt.*

Section A.3(c) of the proposed revision to GP-5 states that “if a source is exempted from plan approval requirements under 25 Pa. Code § 127.14 (relating to exemptions), this GP-5 may be used to authorize the operation of the source.”<sup>23</sup> From this language it is unclear when oil and gas exploration and production facilities are permit exempt and when they must obtain a GP-5. The Department must clarify how GP-5 and the air permit exemption for wells and associated equipment interact. Doing so will better define the GP-5 source category. Commenter suggests clarifying this issue by replacing the phrase “may be used” with “shall be used.”

---

<sup>20</sup> *Id.* at 3, *see also Id.* at 6.

<sup>21</sup> 35 P.S. § 4006.1(f); 25 Pa.Code § 127.611; *see also* 57 FR 32250, 32278, (“In setting criteria for sources to be covered by general permits, States should consider all of the following factors. . . First, categories of sources covered by a general permit should be generally homogenous in terms of operations, processes, and emissions. All sources in the category should have essentially similar operations or processes and emit pollutants with similar characteristics. Second, sources should not be subject to case-by-case standards or requirements. For example, it would be inappropriate under a general permit to cover sources requiring case-by-case MACT determinations.”); Memo from Kathie Stein, USEPA, Guidance on Enforceability Requirements for Limiting Potential to Emit (Jan. 25, 1995) at 7, 10, *available at*: <http://www.epa.gov/region7/air/nsr/nsrmemos/potoem.pdf>. (“For rules and general permits that apply to categories of sources, practical enforceability additionally requires that the provision . . . identify the categories of sources that are covered by the rule”) (“The rule establishing the [general permit] program must require that . . . general permits apply to a specific and narrow category of sources”); USEPA Region 7 Permit by Rule Guidance For Minor Source Preconstruction Permits (Sep. 12, 2003) at 2, *available at*: [http://www.epa.gov/region07/air/policy/permit\\_by\\_rule.pdf](http://www.epa.gov/region07/air/policy/permit_by_rule.pdf), (“The definition of the sources covered by the permit-by-rule should be clear”)

<sup>22</sup> 35 P.S. § 4006.1(f); 25 Pa.Code § 127.611.

<sup>23</sup> PADEP, Proposed Substantive Amendments, General Plan Approval and/or General Operating Permit, (BAQ-GPA/GP – 5) (Feb. 10, 2012) at 6.

**b. It is unclear how the Department intends to treat related natural gas sources in close proximity to each other under the revised GP-5.**

Commenters also request clarification regarding how the Department intends to would treat related natural gas sources located in close proximity to each other under the revised GP-5. For example, assume a natural gas production field contains ten wellpads and a compressor station and that these sources are all owned and operated by the same entity. Would the Department issue eleven separate GP-5s for these sources? One permit for the entire field?

**c. The Department's duty to perform natural gas source determination analyses significantly complicates the GP-5 permitting process.**

Prior to issuing a GP-5 to a specific facility, the Department must determine whether the applicant source must be aggregated with other, nearby sources and treated as a single source subject to NNSR, PSD, or Title V major source permitting requirements. Source determinations are fact-intensive inquiries that require the Department to apply a complex multi-factor test on a case by case basis.<sup>24</sup> In some cases, it may be impractical for the Department to perform a proper source determination analysis within the 30 day general permit review window.<sup>25</sup> Further, this is another example where issuing a GP-5 to a specific source is contingent on the Department performing a complex, site-specific analysis. This is in spite of the fact that general permits are intended to apply to source categories that are uniform, require little or no site-specific review, and are unlikely to raise the kinds of significant and novel issues that would ordinarily be subject to public comment requirements.<sup>26</sup>

As the Department well knows, issues related to the agency's natural gas source determinations are often raised during plan approval public comment periods. Not only does this issue inspire public comment, the comments sometimes result in operational or permit changes, and often, at the very least, lead the air permitting authority to request additional information from the permittee. Thus public participation is an effective tool to ensure agency permitting actions are thorough and transparent.

**4. Compressor Stations are not well-suited for general permits. DEP should remove compressor stations from the GP-5 source category.**

As explained in the sections above, several aspects of the proposed revision to GP-5 are inconsistent with general permit program requirements. Some of these issues

---

<sup>24</sup> See e.g. PADEP, Guidance for Performing Single Stationary Source Determinations for Oil and Gas Industries (270-0810-006) (Oct. 12, 2011), *available at*:

<sup>25</sup> 25 Pa. Code § 127.621(c).

<sup>26</sup> 35 P.S. § 4006.1(f), 25 Pa.Code § 127.611; *see also* 57 FR 32250, 32278, (“[general permit] sources should not be subject to case-by-case standards or requirements.”); 71 FR 5979, 5981; Memo from Kathie Stein, USEPA, Guidance on Enforceability Requirements for Limiting Potential to Emit (Jan. 25, 1995), *available at*: <http://www.epa.gov/region7/air/nsr/nsrmemos/potoem.pdf>.

can be addressed simply by adding descriptive or clarifying language to the GP-5 documents.<sup>27</sup> The issues that are more challenging to address include:

- 1.) general permits cannot contain source-specific PTE restrictions;
- 2.) natural gas source determinations require a complex, case-by-case analysis that is inconsistent with the general permit program; and
- 3.) because they are site-specific, these source determination analyses ought to be subject to public notice and comment.

Each of these issues could be addressed by eliminating compressor stations from the general permit source category. Aside from groupings of compressor stations and/or turbines, the other emission units in the GP-5 source category are unlikely to produce sufficient emissions to ever merit a site-specific PTE restriction. While source determination analyses for compressor stations can be both complicated and contentious, the same is unlikely to be true for well pad emission units because their emissions are far less likely to approach or exceed a major source threshold. Further, well pads tend to have far fewer physical connections or functional interrelationships with other nearby sources than compressor stations, resulting in much simpler source determination analyses. By requiring compressor stations to receive full plan approvals, the Department will have more time to perform a source determination analysis and the public will once again have an opportunity to provide input regarding agency actions related to these facilities. The Ohio EPA recently finalized an oil and gas well site general permit that may serve as a guide should DEP decide to eliminate compressor stations from GP-5.<sup>28</sup>

**5. When the Department encounters an existing BAT requirement more stringent than the relevant BAT requirement in GP-5 the Department should determine whether GP-5 should be updated to reflect the more stringent BAT.**

Pursuant to 25 Pa. Code §§ 127.1 and 127.12(a)(5) (relating to plan approval applications), plan approvals are required to establish that emissions will be “the minimum attainable through the use of the best available technology.” On page 7, the Revised GP-5 Draft provides that:

*“the owner or operator of any existing natural gas production and/or processing facility for which a plan approval was previously issued pursuant to 25 Pa. Code § 127.11 (relating to plan approval requirements) shall continue to comply with the BAT requirements established in the previously issued plan approval if they are more stringent than the BAT requirements established in this General Permit.”<sup>29</sup>*

---

<sup>27</sup> For example, see discussion in sections 3.a.i & ii, *supra*.

<sup>28</sup> Ohio EPA, Division of Air Pollution Control, Oil and Gas Well-Site Production Operations (GP 12), available at: [http://www.epa.ohio.gov/dapc/genpermit/Oil\\_Gas\\_GP12.aspx](http://www.epa.ohio.gov/dapc/genpermit/Oil_Gas_GP12.aspx).

<sup>29</sup> GP-5 Substantive Revisions 2/10/2012, Section A, Part 3, paragraph (f) – *Plan Approval Best Available Technology Requirement*, at 7.

Commenter agrees that a less stringent BAT determination should not affect a source's duty to continue to comply with BAT requirements contained in previously issued plan approvals. However, commenter questions how frequently DEP will encounter GP-5 applicant facilities subject to a more stringent BAT than those contained in the proposed GP-5. As a general rule, BAT determinations become more stringent over time as pollution control technology improves. In the event a BAT emission limit contained in GP-5 is less stringent than a BAT determination made under a previous plan approval, this indicates that the GP-5 BAT determination is outdated and should be revised to reflect the current BAT.

## **6. The Department should address heater-treater emissions in GP-5.**

Heater-treaters are devices that are generally located at the wellhead and are used to remove contaminants such as water and liquid hydrocarbons from the natural gas.<sup>30</sup> They both heat the gas in order to prevent ice crystals from forming and blocking pipes, and separate the gas from other contaminants. Heater-treaters have not been included in the draft revised GP-5. Heater-treater emissions should be addressed in the final draft of the General Permit.

An individual heater-treater emits relatively small amounts of pollutants such as NOx and CO. However, these devices are very common and with one to two of these at each well site, emissions of NOx and CO will add up quickly. For example, Colorado has predicted that there will be 26,000 heater-treaters operating in that state by 2018, resulting in cumulative NOx emissions of nearly 23,000 tons per year.<sup>31</sup>

The final version of GP-5 should include emissions limits for NOx and CO from heater-treaters. Possible control technologies include lowering the heater-treater's temperature or insulating the separator, thus reducing fuel consumption and combustion emissions.<sup>32</sup> The Department should limit emissions from heater-treaters as part of GP-5 in order to reduce the cumulative impact from these small but common sources of NOx and CO.

---

<sup>30</sup> Colorado Dept. of Public Health and Environment, Air Pollution Control Division, *Heater-Treater Source Category*, available at <http://www.cdphe.state.co.us/ap/RegionalHaze/AppendixD/4-FactorHeaterTreaters07JAN2011FINAL.pdf>.

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*