



Pennsylvania Department of Environmental Protection

2015 Air Quality State Review Report



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INTRODUCTION

In 1990, the Interstate Oil Compact Commission (IOCC), later renamed Interstate Oil and Gas Compact Commission (IOGCC), and the U.S. Environmental Protection Agency (USEPA) jointly published a Study of State Regulation of Oil and Gas Exploration and Production Waste, which contained guidelines for the regulation of oil and gas exploration and production wastes by the IOCC member states (the “1990 Guidelines”). The published Guidelines, developed by state, environmental, and industry stakeholders, provided the basis for the State Review Process; a multi-stakeholder review of state exploration and production (E&P) waste management programs against those Guidelines. The initial purposes of the State Review Process were to document the successes of states in regulating E&P wastes, and to offer recommendations for program improvement.

In 1999, administration of the State Review Process shifted to a non-profit, multi-stakeholder organization named State Review of Oil and Natural Gas Environmental Regulations, Inc. (STRONGER). STRONGER expanded the scope of the Guidelines beyond state regulation of E&P wastes to include issues such as stormwater management, hydraulic fracturing, reused and recycled fluids, NORM, and air quality.

In 2012, STRONGER formed an Air Discussion Workgroup consisting of state, industry, and environmental/public interest stakeholders to explore issues associated with state air quality regulations as they pertain to oil and gas development. The Discussion Workgroup recommended that the STRONGER Board form a new workgroup to develop guidelines for state regulatory programs to address identified issues. After several meetings and a round of public comment, the workgroup submitted to STRONGER a set of guidelines that represented the consensus of the workgroup. In 2014, STRONGER adopted the workgroup’s guidelines (the “2014 Air Quality Guidelines”) and added them to the complete Guidelines as Section 10. Those guidelines were used as the basis of this review.

In September 2014, the Pennsylvania Department of Environmental Protection (DEP), Bureau of Air Quality (BAQ) volunteered to have its program reviewed by STRONGER. The Pennsylvania DEP oil and gas regulatory program has undergone five prior reviews. This review is the first for the Bureau of Air Quality, and also the first STRONGER review using the Air Quality Guidelines.

This review began with a questionnaire that was sent to the BAQ. The questionnaire had been prepared by the STRONGER Board of Directors. STRONGER intended the questionnaire to capture the status of the air quality program relative to the 2014 STRONGER Air Quality Guidelines. The Bureau of Air Quality prepared a response to the questionnaire, which was then sent to the STRONGER Review Team.

The Review Team consisted of three members, three STRONGER Board Observers, and three Official Observers. The three team members were: Kent Kuster, Colorado Department of Public Health and Environment; Matt Walker, Clean Air Council; and Darren Smith, Devon Energy. The official observers were: Bruce Moore, USEPA Triangle Park; Himanshu Vyas, USEPA Region 3; and Dave Campbell, USEPA Region 3. The STRONGER Board Observers were: Walt Hufford, API; Wilma Subra, Subra Company; and Jim Collins, IPAA.

The review team conducted a meeting, the in-state interview portion of the review process, in conference facilities at the DEP offices in the Rachel Carson State Office Building in Harrisburg, Pennsylvania on July 16, 2015. Ms. Joyce E. Epps, Director of the BAQ, presented an overview of DEP's air quality program. Following the presentation, Ms. Epps and her staff responded to questions from the team members and official observers. In addition to the Pennsylvania state officials who participated in the review and the review team, John Walliser of the Pennsylvania Environmental Council observed the proceedings. Following the meeting the review team evaluated the responses provided by BAQ (both during the interview and written submittals), held a series of conference calls and meetings and compiled this review report.

This is the report Pennsylvania DEP air quality program state review as it relates to oil and gas activities relative to the 2014 Air Quality Guidelines of STRONGER. The report contains the review team's findings and recommendations based on their review of the questionnaire and supporting information provided by the state, and information provided during the in-state meeting. Findings and recommendations are identified numerically (i.e. 3.2.1) to coincide with the relevant section of the 2014 STRONGER Air Quality Guidelines. Where more than one finding or recommendation is present for a given section, they are delineated alphabetically (i.e. 3.2.1.a, 3.2.1.b). All recommendations are paired with a finding, but not all findings include a recommendation. Appendix A is a glossary of acronyms used in this report. Appendix B contains BAQ's written response to the STRONGER questionnaire. Appendix C contains the 2014 STRONGER Air Quality Guidelines.

EXECUTIVE SUMMARY

A multi-stakeholder review team has completed an in-depth review of the Pennsylvania Department of Environmental Protection Bureau of Air Quality regulatory program as it relates to oil and gas exploration and production. During the course of the review, the review team members and official observers were granted full access to BAQ staff of the DEP, and all questions were answered in a responsive and open manner.

The review team has concluded that the DEP Air Quality Program is well managed, professional, and meets the majority of the STRONGER 2014 Air Quality Guidelines. The review team identified a number of program strengths that warrant special recognition. The review team also identified specific recommendations for improvements to the program based on the Guidelines.

KEY PROGRAM STRENGTHS

During the review, the review team identified strengths of the DEP, which also are noted in several of the report's findings. The following offers an overview of some of the DEP air program strengths.

1. The review team finds the DEP meets the administrative criteria of Section 10.2 of the STRONGER Guidelines. (*Finding 10.2*)
2. The review team finds that DEP generally meets the compliance monitoring, demonstration, & assurance criteria of Sections 10.2.4, and commends DEP for its use of mobile response technology. (*Finding 10.2.4.a*)
3. The DEP has an extensive policy on public participation in the permit review process for oil and gas infrastructure that are major sources, such as some larger compressor stations. DEP has issued a general permit, GP-5 for sources at natural gas compression and processing facilities. There is an opportunity for public review when the general permit requirements are issued or amended; however, there is not an opportunity for review of individual facilities seeking authorizations to use GP-5 because the APCA requires action on the authorizations within 30 days of receipt of applications. It is important to note that neither the applicant nor the Department is allowed to modify any term and condition of the GP as a result of processing these applications seeking authorizations to use the GP. An additional public comment period prior to authorizing the use of the GP cannot result in modifying the terms and conditions of the GP which has already been subject to extensive public review prior to issuance of the GP. (*Finding 10.2.8.a*)
4. Pennsylvania was the first state to implement a leak detection and repair (LDAR) program for natural gas operations using standardized permit conditions. In addition, the DEP is commended for developing conditional permit exemption criteria and general permit programs, including the Category No. 38 conditional exemption criteria and GP-5, because these programs require measures to reduce VOC, HAP, and methane leakage from sources located at natural gas well sites. (*Finding 10.3.2*)

KEY PROGRAM RECOMMENDATIONS

The following are the primary areas where recommendations are made by the review team for improvements of the DEP's Air Quality Program. Discussion and findings for these recommendations and others can be found in the various sections of the report. Readers are encouraged to review the specific discussions.

1. The review team recommends that when a specific air quality issue resulting from oil and gas development demands more stringent requirements, the DEP should consider similar applicable provisions from other states, and adopt similar requirements, to the extent allowed by PA law, in order to address the air quality issue in Pennsylvania. (*Recommendation 10.3.2.a*)
2. The review team recommends that the DEP develop electronic forms for the permitting, inspection and reporting of air quality requirements at oil and gas activities and post to the web linking the permitting and inspection documents and reports to eFACTS and eMapPA, the DEP Oil and Gas mapping website. In addition, DEP should ensure eFACTS has current data, is consistent across the different DEP regional offices, includes links to available approved permits or plan approvals with emissions data for facilities, and has working links for eMapsPA. This will allow the interested parties to easily locate the information they are seeking. (*Recommendation 10.2.7.b*)
3. The review team recommends that, pursuant to recommendation 10.2.10 of this report, DEP's budgeting should include provisions for additional funding as necessary to increase the frequency of facility inspections. With adequate funding, DEP should strive to increase the frequency of its inspections on oil and gas facilities. (*Recommendation 10.2.4.b*)
4. The review team recommends that the DEP use its available enforcement tools on incidents that warrant a violation and/or fine, and document corrective actions made during inspections. DEP should periodically evaluate their range of enforcement tools to ensure the full range of actions are effectively used. (*Recommendation 10.2.5.1*)

BACKGROUND

The Pennsylvania Department of Environmental Protection is responsible for implementing the federal Clean Air Act, and the Pennsylvania Air Pollution Control Act (and regulations thereunder) in the Commonwealth of Pennsylvania. The Air Program includes the Bureau of Air Quality and Six Regional Air Program offices. The Philadelphia and Allegheny County Health Departments are responsible for implementing and enforcing DEP-approved local air pollution control within their county boundaries. To this end, powers and duties of the Department are set forth in laws including the following:

- Clean Air Act (42 U.S.C.A. §§ 7401—7642) (CAA)
- Pennsylvania Air Pollution Control Act (APCA) (35 P. S. §§ 4001—4015)
- The Administrative Code of 1929 (71 P. S. §§ 51—720.13)
- Pennsylvania’s Diesel-Powered Motor Vehicle Idling Act (35 P.S. §§ 4601—4610)

ADMINISTRATIVE

The Pennsylvania Air Pollution Control Act (APCA) (35 P. S. §§ 4001—4015) authorizes the Environmental Quality Board to adopt rules and promulgate regulations for the prevention, control, reduction and abatement of air pollution. Section 5 of the APCA specifically grants the Environmental Quality Control Board its powers. In accordance with Section 4.2(b) of the APCA, control measures adopted under subsection (a), shall be no more stringent than those required under the Clean Air Act (CAA) unless the Pennsylvania Environmental Quality Board determines that requirements are reasonably necessary to achieve or maintain ambient air quality standards.

The DEP is empowered to implement the provisions of the Federal Clean Air Act in the Commonwealth of Pennsylvania. To this end, DEP is authorized to accept delegation of federal programs including New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP).

Finding 10.2

The review team finds the DEP meets the administrative criteria of Section 10.2 of the STRONGER Guidelines.

SCOPE OF AUTHORITY

The Pennsylvania Department of Environmental Protection is empowered to accept delegation of federal air quality programs specific to oil and gas. The USEPA initially granted delegation of authority to Pennsylvania for the NSPS and NESHAP programs on December 7, 1979 (45 FR 3109) and September 30, 1976 (42 FR 6887), respectively. The DEP also has a mechanism for promulgating regulations stricter than Federal CAA standards, in accordance with Section 4.2(b) of the APCA. The DEP’s statutes and implementing regulations adequately and clearly define necessary terminology, as outlined in the following regulations:

- The Federal Clean Air Act (CAA), (42 U.S.C.A. §§ 7401—7642) and regulations adopted under the CAA
- Pennsylvania Air Pollution Control Act (APCA) (35 P. S. §§ 4001—4015) and regulations adopted under the APCA. 25 Pa. Code Subpart C, Article III (relating to air resources).

The DEP has the authority to consider cost effectiveness in setting air emission standards when appropriate, as well as to exempt facilities or sources based on criteria such as de minimis emissions or by type of source or facility, pursuant to Section 6.1(a) of the APCA.

The DEP requires new sources to control emissions to the maximum extent, consistent with Best Available Technology (BAT). The DEP's General Permit 5 (GP-5) for natural gas compression and/or processing facilities incorporates the applicable provisions of Federal and State rules and regulations.

The DEP has mechanisms for coordination among stakeholders, and is commended for its diverse advisory committees, including the Air Quality Technical Advisory Committee (AQTAC), the Citizens Advisory Council (CAC), the Small Business Compliance Advisory Committee (SBCAC), as well as the Climate Change Advisory Committee established under the Pennsylvania Climate Change Act (Act 70 of 2008).

The DEP is currently projecting Clean Air Fund deficits by the end of FY2017/2018. The BAQ is seeking approval to move forward with amendments to the existing fee regulations codified in 25 Pa. Code Chapter 127, Subchapter I (relating to plan approval and operating permit fees) to ensure adequate funding to administer the Air Program. The review team recognizes the budgetary challenges created by the conversion or closing of coal-fired power plants that in previous years provided funding for the DEP's Air Quality Program.

Finding 10.2.1

The review team finds that DEP's scope of authority generally meets the Section 10.2.1 criteria of the STRONGER Guidelines, and the Pennsylvania Air Pollution Control Act (APCA) adequately details the powers and duties of the BAQ.

JURISDICTION AND COOPERATION BETWEEN AGENCIES

Pennsylvania's delegated authority to implement and enforce the federal NSPS found at 40 CFR Part 60 was approved by USEPA on August 23, 1985 (50 FR 34140). The DEP also has delegation of authority to implement and enforce NESHAP found at 40 CFR Parts 61 and 63. In both instances, EPA retained authority for certain NSPS and NESHAP provisions that require action by the EPA Administrator. On July 30, 1996, EPA promulgated "full approval" of the Commonwealth's Part 70 program (40 CFR, Part 70), which governs operating permits (61 FR 39597). The DEP is fully approved to administer the Title V regulatory program in the Commonwealth. EPA also promulgated full approval under Section 112(l)(5) and 40 CFR 63. 91 for delegation of Section 112 standards; these delegations apply solely to Part 70 (Title V) sources.

Finding 10.2.2

The review team finds that DEP meets the criteria of Section 10.2.2 of the STRONGER Guidelines.

PERMITS, AUTHORIZATIONS, AND EXEMPTIONS

Finding 10.2.3

The DEP provides a conditional permit exemption for the sources at unconventional oil and gas facilities, known as Category No. 38 exemption criteria. The Air Quality Permit Exemption List authorized under 25 Pa. Code § 127.14(d) clearly describes the criteria for qualifying for this conditional exemption.

COMPLIANCE MONITORING, DEMONSTRATION, & ASSURANCE

Notices and reports that are submitted by a regulated entity are distributed to the DEP regional office that is responsible for oversight of the facility. The appropriate staff, which may include field inspectors, permitting engineers, and environmental chemists, will review the data, make recommendations if appropriate, and the notice and/or report will be filed and maintained in accordance with approved records retention procedures. If a notice or report requires follow-up or additional information from the facility, the operator will be notified via telephone, email, or letter. Electronic reporting is handled the same way, but will be maintained in the electronic system or database for the appropriate period of time.

DEP conducts inspections and investigations in response to complaints that have been received concerning a facility's operations. Additionally, compressor stations operating under an authorization to use GP-5 are inspected at least once every five years, and major sources or synthetic minor sources are inspected once per year. These investigations may involve surveillance of a facility and onsite inspections to determine whether a facility is operating within its operating permit limits and regulations that address the specific operations. In addition to the compliance evaluations, records may be reviewed and material samples may be gathered. Complainant information is maintained in a secure database. The DEP may also conduct special ambient air monitoring projects for a limited duration. These projects include deploying the Mobile Analytical Unit and the use of Summa canisters.

Information submitted by the public, either by inquiry or by complaint submittal, is evaluated by DEP staff. The DEP maintains a complaint tracking system that ensures that complaints are forwarded to the appropriate office, and addressed appropriately. Information regarding the identity of complainants is maintained as confidential, but the substance of the complaint and the DEP's investigation results are considered public information. Information submitted by the public that is not complaint-related is evaluated to determine if action is required by DEP, or if the information warrants forwarding to another department program or agency for consideration.

Section 4.2 of the APCA, (35 P.S. § 4004.2), empowers the Department to enter any

building, property, premises or place and inspect any air contamination source for the purpose of investigating an actual or a suspected source of air pollution or for the purpose of ascertaining its compliance or noncompliance with the APCA and the rules and regulations promulgated thereunder, as well as any plan approval, permit or order of the Department. In connection with such inspection or investigation, samples of air, air contaminants, fuel, process material or other matter may be taken for analysis. In accordance with Section 13.1 of the APCA (relating to search warrants), whenever DEP staff have been denied access to books, papers, records and other pertinent information, a search warrant may be obtained by the Department.

Section 4.4 of the APCA provides the Department with a broad grant of authority to copy and obtain records (35 P.S. § 4004). Section 4.4 (3) of the APCA, (35 P.S. §4004 (3) expressly provides the Department shall have the power and duty to have access to, and require the production of, books, papers and records, including, but not limited to, computerized information in a format as the department may reasonably prescribe pertinent to any matter under investigation.

DEP inspectors follow the inspection procedures outlined in the DEP Guidelines for Identifying, Tracking and Resolving Violations for Air Quality. Inspections are generally unannounced and are conducted in accordance with the guidance of the Desktop Reference Manual for Inspectors and Engineers. The inspection manual contains guidelines on how to conduct an on-site inspection, including guidelines on the procedures for specific actions, such as protocols for chain of custody for taking samples during an inspection.

Material samples are collected and handled in accordance with the Department's sampling protocol and the Bureau of Laboratory's Quality Assurance Manual. Chain of custody is documented through either hand delivery of collected samples to the laboratory, or the use of couriers, with a Chain of Custody signature section at the bottom of each Sample Submission Form.

If evidence of a violation is identified during an inspection, that evidence is evaluated pursuant to the program guidelines to determine if violations exist. If the DEP determines that violations exist, the tracking and resolution of the violations follows the guidelines specified in Section III of the Guidelines for Identifying, Tracking and Resolving Violations for Air Quality.

Section 4(6) of the APCA empowers the DEP to require the owner or operator of any air contamination source to sample the emissions thereof in accordance with such methods and procedures and at such locations and intervals of time as the department may reasonably prescribe and to provide the department with the results thereof (35 P.S. § 4004(6)). Section 4(7) further provides the DEP with authority to: enter upon any property on which an air contamination source may be located and make such tests upon the source as are necessary to determine whether the air contaminants being emitted from such air contamination source are causing excess air pollution, or are being emitted at a rate in excess of a rate provided for by this act, any rule or regulations promulgated under this act or any plan approval, permit or order of the department. Whenever the department determines that a source test is necessary, it shall give reasonable written or oral notice to

the person owning, operating, or otherwise in control of such source, that the department will conduct a test on such source. Thereafter, the person to whom such notice is given shall provide such reasonably safe access to the testing area, and such sampling ports, facilities, electrical power and water as the department shall specify in its notice (35 P.S. § 4004(7)).

The DEP's regulatory authority for recordkeeping and reporting requirements is provided in 25 Pa. Code § 127.12b. DEP's authority for operating permit requirements is specified in 25 Pa. Code § 127.441. Additional recordkeeping and reporting regulations for Title V Operating Permits are prescribed in 25 Pa. Code § 127.511. Section 4(6) of the APCA empowers DEP to require the owner or operator of any air contamination source to sample the emissions thereof in accordance with such methods and procedures and at such locations and intervals of time as the department may reasonably prescribe and to provide the department with the results thereof. Periodic monitoring reports are sent to the appropriate regional office. A regional engineer reviews the reports as they are received. The DEP also maintains a region-specific report hotline.

Finding 10.2.4.a

The review team finds that DEP generally meets the compliance monitoring, demonstration, & assurance criteria of Sections 10.2.4, and commends DEP for its use of mobile response technology.

Recommendation 10.2.4.a

The review team recommends that the DEP enhance and increase its use of electronic reporting and data management. In addition, DEP should strive to ensure that all complaints under their jurisdiction are recorded promptly and that investigations are conducted, if appropriate.

Finding 10.2.4.b

While the frequency of facility inspections meets Federal requirements, an increase in the frequency of facility inspections is hampered due to budget constraints.

Recommendation 10.2.4.b

The review team recommends that, pursuant to recommendation 10.2.10 of this report, DEP's budgeting should include provisions for additional funding as necessary to increase the frequency of facility inspections. With adequate funding, DEP should strive to increase the frequency of its inspections on oil and gas facilities.

ENFORCEMENT TOOLS

DEP implements its compliance and enforcement programs for air quality in accordance with the Guidelines for Identifying, Tracking and Resolving Violations for Air Quality, Technical Guidance Document (GITRVAQ), and in consultation with Regional Counsel

and/or Office of Chief Counsel, as appropriate.

Regional adherence to the GITRVAQ is tracked and periodically audited by the Compliance Assistance and Monitoring Section of the BAQ, Division of Compliance and Enforcement. Enforcement activity is compiled and reported monthly to the DEP Regional and executive staff as well as EPA Region 3 staff.

The Department's enforcement powers and the tools available for implementation are as established in provisions of the Air Pollution Control Act including the following:

- Section 7.1 (relating to Compliance Review, 35 P.S. § 4007.1);
- Section 7.2 (relating to Permit Compliance Schedules, 35 P.S. § 4007.2);
- Section 9 (relating to Penalties, 35 P.S. § 4009);
- Section 9.1 (relating to Civil Penalties, 35 P.S. § 4009.1);
- Section 10 (relating to Civil Remedies, 35 P.S. § 4010);
- Section 10.1 (relating to Enforcement Orders, 35 P.S. § 4010.1);
- Section 10.3 (relating to Limitation on Action, 35 P.S. § 4010.3);
- Section 11 (relating to Powers Reserved to the Department Under Existing Laws, 35 P.S. § 4011);
- Section 13 (relating to Public Nuisances, 35 P.S. § 4013); and
- Section 13.6 (relating to Suits to Abate Nuisances and Restrain Violations, 35 P.S. §.

The relative frequency of their use is entirely dependent upon their appropriateness to the violation or violations and the related circumstances.

Finding 10.2.5.1

DEP inspections are conducted according to procedures outlined in the DEP Guidelines for Identifying, Tracking, and Resolving Violations for Air Quality. At its discretion, DEP works with operators to fix problems before issuing a violation or civil penalty. Companies are legally obligated to report issues that may lead to violations.

Recommendation 10.2.5.1

The review team recommends that the DEP use its available enforcement tools on incidents that warrant a violation and/or fine, and document corrective actions made during inspections. DEP should periodically evaluate their range of enforcement tools to ensure the full range of actions are effectively used.

PENALTIES

Section 9.1(a) of the APCA authorizes the DEP to assess civil penalties for violations of provisions of the Act, regulations adopted under the APCA or violations of any order, plan approval or permit issued pursuant to the Act. Section 9.1 of the APCA requires consideration of the following when determining civil penalties:

“In determining the amount of the penalty, the DEP must consider the willfulness of the violation; damage to air, soil, water or other natural resources of the Commonwealth or their uses; financial benefit to the person in consequence of the violation; deterrence of future violations; cost to the department; the size of the source or facility; the compliance history of the source; the severity and duration of the violation; degree of cooperation in resolving the violation; the speed with which compliance is ultimately achieved; whether the violation was voluntarily reported; other factors unique to the owners or operator of the source or facility; and other relevant factors.”

The APCA provides for assessment of a penalty of up to \$25,000 per day for each violation. Technical guidance documents for the assessment and evaluation of penalties are available online.

Finding 10.2.5.2

The APCA authorizes DEP to assess penalties, and DEP has technical guidance documents related to penalty assessments. Act 57 of 2011 requires that 25% of civil penalties in excess of \$50,000.00 must be returned back to the affected community.

Recommendation 10.2.5.2

The review team recommends that DEP should periodically evaluate the civil penalties they assess to ensure that civil penalties are such that an operator does not benefit financially from unlawful conduct.

RIGHT OF APPEAL

Section 10.2 of the APCA provides that any person aggrieved by an order or other administrative action of the department issued pursuant to the Act or any person who participated in the public comment process for a plan approval or permit shall have the right to file an appeal within 30 days of the DEP’s final action.

STAFFING AND TRAINING

In Pennsylvania, the DEP air program includes the BAQ, six regional air programs, the Allegheny County Health Department and the Philadelphia Air Management Services sharing the responsibility for implementing the state air program. This structure creates a challenging task when addressing staffing needs and training. The DEP is to be commended for meeting this challenge, within its organization, by reassigning staff based on workload and needs, conducting program-wide monthly conference calls with central and regional office staff members to ensure consistency in permitting matters, scheduling vendor presentations on current technology, providing opportunities for staff to attend industry training seminars and assigning specific staff in each regional office to address oil and gas complaints.

Finding 10.2.6.a

The DEP acknowledged during the interview that additional staff to administer the air program would be desirable. See Section 10.2.10 for further discussion of staff levels.

Finding 10.2.6.b

The DEP and the six regional air programs generally meet the training criteria of Section 10.2.6 of the STRONGER Guidelines, however opportunities exist to strengthen and expand training.

Recommendation 10.2.6.b

The review team recommends that the DEP develop a formal training program to ensure that new and existing staff receive the same inspection and enforcement training on air quality regulations. This training should include, to the extent possible, the Allegheny County Health Department and the Philadelphia Air Management Services permitting and inspection programs.

Recommendation 10.2.6.b

The review team also recommends that the DEP BAQ consider cross-training with staff from the DEP Office of Oil and Gas Management to increase each program staff's knowledge of the other's program, and allow each program to look for potential violations and notify the appropriate counterpart within the department while conducting their respective inspections. This cross-training will enhance communication and relationships between the two programs as well as increase the number of individuals who could assess oil and gas sites in Pennsylvania.

DATA MANAGEMENT

The DEP uses one public database called eFACTS (Environment, Facility, Application and Compliance Tracking System) for multiple programs. For the air program, eFACTS is designed to allow individuals to search for permits, facilities, inspections and enforcement records of oil and gas wells. The BAQ manages the Air Information Management System to maintain authorizations and permits and maintains the emission inventory data for oil and gas facilities. However, the two programs lack consistency in the identification of oil and gas facilities creating confusion for interested parties. The public has access to the eFACTS database to obtain oil and gas information, but this database may not meet the expectations of the general public.

Finding 10.2.7

The eFACTS database meets the basic criteria of Section 10.2.7 of the STRONGER Guidelines; however, the database is not user-friendly and may lack all necessary data and transparency for the general public. Designing a database

with the functionality needed to allow the general public to search for oil and gas information, such as permits, will be challenging; however, the public expects state agencies to provide this service.

Recommendation 10.2.7.a

The review team recommends that DEP consider improving the eFACTS database. The DEP may want to consider obtaining input from interested stakeholders, including the general public, to enhance the search tools and overall functionality, including the mapping functions.

Recommendation 10.2.7.b

The review team recommends that the DEP develop electronic forms for the permitting, inspection and reporting of air quality requirements at oil and gas activities and post to the web linking the permitting and inspection documents and reports to eFACTS and eMapPA, the DEP Oil and Gas mapping website. In addition, DEP should ensure eFACTS has current data, is consistent across the different DEP regional offices, includes links to available approved permits or plan approvals with emissions data for facilities, and has working links for eMapsPA. This will allow the interested parties to easily locate the information they are seeking.

PUBLIC INVOLVEMENT and OUTREACH

Public participation provisions for Plan Approval and Operating Permit Applications are set forth in 25 Pa. Code Chapter 127, Subchapter B (relating to plan approval requirements), Subchapter F (relating to plan approval requirements) and Subchapter G (relating to Title V operating permits). There are a number of public involvement provisions included in the PA Code related to public involvement in plan approvals, operating permits and Title V permits (See BAQ Survey response for more detail). The Pennsylvania Air Pollution Control Act mandates that DEP seek the advice of advisory committees including AQTAC, the CAC and the SBCAC. In addition, the Department seeks advice from the Climate Change Advisory Committee established under the Pennsylvania Climate Change Act.

Finding 10.2.8.a

The DEP has an extensive policy on public participation in the permit review process for oil and gas infrastructure that are major sources, such as some larger compressor stations. DEP has issued a general permit, GP-5 for sources at natural gas compression and processing facilities. There is an opportunity for public review when the general permit requirements are issued or amended; however, there is not an opportunity for review of individual facilities seeking authorizations to use GP-5 because the APCA requires action on the authorizations within 30 days of receipt of applications. It is important to note that neither the applicant nor the Department is allowed to modify any term and condition of the GP as a result of processing these

applications seeking authorizations to use the GP. An additional public comment period prior to authorizing the use of the GP cannot result in modifying the terms and conditions of the GP which has already been subject to extensive public review prior to issuance of the GP.

Recommendation 10.2.8.a

The review team recommends that when the public is given an opportunity to comment on facilities that require a plan approval, the DEP allow for adequate time for public review by ensuring that agency records, such as DEP's technical review memoranda, the operator's permit application, and DEP's draft plan approval are available to the public in a timely manner. When budget and staffing allow, DEP should strive to make this information available electronically.

Finding 10.2.8.b

DEP has created and used various advisory groups, including AQTAC and the Citizens Advisory Council, which make recommendations to BAQ and DEP on policy.

Finding 10.2.8.c

The DEP has developed a Frequently Asked Questions (FAQ) document for implementation of GP-5 requirements and the Category No. 38 exemption criteria. The FAQ provides a clear explanation of the applicability and requirements of the general permit and answers questions often posed by applicants.

The BAQ has also developed an Implementation instructions document for DEP inspectors and owners or operators of well pads to consistently implement the provisions of the Category No. 38 conditional exemption criteria.

The DEP has posted these documents on its website for the public to access, and provides information via webinars and during advisory committee meetings.

Finding 10.2.8.d

Although DEP has increased its efforts to provide the public with information, budgetary constraints impact the agency's ability to provide additional educational programs.

Recommendation 10.2.8.d

The review team recommends that, due to the highly technical nature of the subject matter, opportunities exist to create educational material that will be more easily understood by the layperson. As budget and staffing levels allow, DEP should expand its outreach by working with stakeholders to create and disseminate additional materials that explain complex rulemaking, policies, or permit information related to air quality requirements for oil and gas activities to the layperson. DEP

should revisit and revise the material as the evolution of industry and regulation warrant.

Outreach

The DEP conducts outreach and program education in several ways. The DEP maintains several advisory committees, posts information on their website, and participates in meetings outside the agency. The DEP website provides contact information for program staff. During the development of GP5 and the Category No. 38 conditional exemption criteria, the BAQ consulted extensively with the Marcellus Shale Coalition Air Subcommittee, industry, and public interest groups.

Finding 10.2.9.a

Although the BAQ has made some genuine efforts to provide the public with information, a limited budget and staff impacts its ability to conduct the most effective outreach.

Recommendation 10.2.9.a

The review team recommends that the DEP should strive to increase the amount of special mailings, seminars, newsletters, presentations to interested groups, and other mechanisms related to its program they distribute to the public and relevant stakeholders as budget and staffing levels allow.

STRATEGIC PROGRAM AND RESOURCE PLANNING

The BAQ develops Clean Air Fund Spending Plans for each fiscal year; the plans require approval by DEP's Executive staff. Subsequently, Executive authorizations are issued by the Governor for each approved plan. Each plan projects expenditures including personnel costs, operating costs, fixed assets, grants, contracts, etc. for the fiscal year.

DEP projects that it is facing a critical program funding shortage in the coming years and recognizes the need to conduct strategic planning to address this funding shortage, prioritize oil and gas inspections and make certain that the program has adequate funding and staff.

Finding 10.2.10

BAQ is aware of the projected future funding shortage and has established a workgroup (including staff in DEP's central and regional offices) to develop and evaluate fees for services that have not previously been charged, and to develop a comprehensive air quality fee proposal. The STRONGER Review Team is supportive of the efforts taken thus far by DEP to evaluate and strengthen their funding.

Recommendation 10.2.10

The review team recommends the DEP revise its air quality fee schedules, as necessary, in order to ensure adequate funding and staff to protect the health, safety and environment of the citizens of Pennsylvania.

DELINEATION OF SOURCES

In accordance with Section 4(3) of the APCA and 25 Pa. Code §135.3 (relating to reporting), the Department is authorized to collect air quality emissions inventories, including those from owners and operators of facilities engaged in the following:

- coal bed methane gas compressing, processing and related activities
- unconventional natural gas drilling, natural gas compression, processing and transmission related activities, conventional natural gas compression, processing, transmission and related activities

Complete source reports, including emissions data must be submitted to the Department no later than March 1 of each year for operations during the preceding calendar year.

In addition, Section 3227 of Act 13 of 2012 requires the reporting of air contaminant emissions to DEP for unconventional natural gas operations. The sources and activities identified by DEP as being subject to the emissions reporting requirements include the following:

- drill rigs
- well heads and well completions (unconventional natural gas activities)
- Simple cycle turbines, dehydration units
- Sources of fugitive emissions such as connectors, flanges, pump lines, pump seals and valves
- heaters and reboilers
- pneumatic controllers and pumps
- stationary engines
- tanks, pressurized vessels and impoundments
- venting
- Pigging and blow down systems

Finding 10.3.1

The review team finds that the DEP meets the criteria of Section 10.3.1.

SOURCE-SPECIFIC REQUIREMENTS

The DEP uses conditional permit exemption criteria, general permit, plan approval and operating permit programs, as appropriate, to incorporate practices that reduce NO_x, CO, VOCs, Formaldehyde and methane from wells, compressor stations, and processing facilities. The DEP incorporates technically feasible control measures in establishing Best

Available Technology requirements in General Permits.

For sources at natural gas compression and processing facilities, Pennsylvania's leak detection programs require operators to conduct leak detection and repair (LDAR) programs monthly using audible, visual and odor detection (AVO) methods. In addition, on a quarterly basis, operators must use leak detection monitoring devices, such as a forward-looking infrared (FLIR) camera, to detect methane leaks. All methane leaks at compressor stations or processing facilities must be fully repaired, completely eliminating the leak within 15 days.

On well pads, leak detection and repair must be conducted annually and include the entire well pad, not just the natural gas liquids tanks and piping. Any detected leaks on well pads in Pennsylvania are also required to be repaired within 15 days. Failure to comply with any criteria associated with the operation of a well pad may result in the requirement for that operator to cease operations.

The DEP also incorporates leak detection and repair requirements as a permit condition for natural gas transmission projects.

Finding 10.3.2

Pennsylvania was the first state to implement a leak detection and repair (LDAR) program for natural gas operations using standardized permit conditions. In addition, the DEP is commended for developing conditional permit exemption criteria and general permit programs, including the Category No. 38 conditional exemption criteria and GP-5, because these programs require measures to reduce VOC, HAP, and methane leakage from sources located at natural gas well sites.

Recommendation 10.3.2.a

The review team recommends that when a specific air quality issue resulting from oil and gas development demands more stringent requirements, the DEP should consider similar applicable provisions from other states, and adopt similar requirements, to the extent allowed by PA law, in order to address the air quality issue in Pennsylvania.

Recommendation 10.3.2.b

The review team recommends the DEP review reports of unplanned and episodic emissions at facilities involved in the production, processing, transportation, and distribution of natural gas and condensate, and take appropriate actions to address facilities where episodes are most frequent.

Recommendation 10.3.2.c

The review team recommends that the DEP encourage operators to participate in EPA's Natural Gas STAR Program. The DEP should also periodically identify operators in Pennsylvania that currently participate in the program.

AIR QUALITY MONITORING NETWORKS

The DEP has a significant number of monitors in its air quality monitoring network. The DEP network, at the time of the STRONGER interview was comprised of 75 air monitoring stations and when combined with the Allegheny County Health Department, Philadelphia Air Management Services and the EPA CASTNET program there are approximately 104 air quality monitoring stations in the commonwealth. The DEP's air monitoring stations consist of 75 locations providing air quality data to the department and the general public. The Allegheny County Health Department operates 15 air quality monitoring stations, Philadelphia Air Management Services operates 12 air quality monitoring stations and EPA's CASTNET program operates 5 air quality monitoring stations. Combined these monitoring networks operate approximately 332 ambient air monitors. Monitoring of air toxics by the DEP occurs at 18 locations and Allegheny County and Philadelphia Air Management Services also conduct air toxics monitoring.

The 2015 Network Plan commits to conduct federally required ambient air monitoring as well as to assess air quality impacts related to shale gas activities in Pennsylvania, in both the southwestern and Northern Tier regions. The DEP has retained the Houston site in Washington County (originally installed as part of the Marcellus Long-Term Monitoring Project) as part of its permanent NO₂ monitoring network, and installed a PM_{2.5} monitor in Tioga County.

Finding 10.3.3.a

The review team commends the DEP for responding to public requests regarding additional air monitors in counties with significant oil and gas infrastructure. The review team recognizes that the DEP added two air monitors in rural locations close to oil and gas development to their network, as well as two temporary monitors in northeast Pennsylvania. One of the new monitors in the network was the primary monitoring site used in the long-term ambient air quality study in Washington County. The DEP has not historically monitored for baseline air quality levels in areas with current shale gas development.

Finding 10.3.3.b

The DEP's air quality monitoring network does not adequately include monitors in rural areas of Pennsylvania that currently have significant oil and gas development. However, the review team recognizes that the emission source locations, population density, topography, and meteorology must be considered to assess the need for additional monitors.

Recommendation 10.3.3.b

The review team recommends that the DEP evaluate the need for additional air quality monitors in areas where active shale gas infrastructure is present. Where increased activity is anticipated, DEP should assess whether those areas could

benefit from baseline monitoring.

Finding 10.3.3.c

Not all air quality monitoring stations in areas with gas drilling or related infrastructure include the types of pollutants that are associated with those operations, such as VOCs.

Recommendation 10.3.3.c

The review team recommends that DEP should, when feasible, consider including the types of pollutants associated with oil and gas activities at all air monitors located in areas with gas drilling or related infrastructure.

Finding 10.3.3.d

The DEP Air Quality Monitoring Network has an extensive air quality monitoring program. However, the DEP recognized that its regional air monitoring stations would not necessarily account for the localized air impacts of natural gas facilities and completed short-term and long-term ambient air quality studies near oil and gas infrastructure. The short-term monitoring projects did not include measurements of some relevant air toxics and the long-term monitoring project is currently under review by ATSDR.

Recommendation 10.3.3.d

The review team recommends that when additional monitoring projects are designed, BAQ should establish procedures to ensure that such monitoring accurately assess the potential air quality impacts of all oil and gas-related activities.

REPORTING, EMISSION INVENTORIES, AND RECORDKEEPING

The Bureau of Air Quality manages authorizations and permits using the Air Information Management System (AIMS). The DEP maintains emission inventory data related to oil and gas facilities on spreadsheets submitted by the owners and operators. The first inventory of unconventional natural gas operations was developed in 2012 for emissions during the 2011 calendar year.

The DEP is authorized to collect air quality emissions inventories, including those from owners and operators of facilities engaged in unconventional natural gas development, production, transmission, processing and related activities.

Air contaminants reported to DEP for unconventional natural gas operations during the 2011 calendar year included carbon monoxide, NO_x, particulate matter (PM₁₀ and PM_{2.5}), sulfur dioxide and volatile organic compounds. Additionally, emissions of

hazardous air pollutants, including benzene, ethyl-benzene, formaldehyde, N-hexane, toluene and 2,2,4-trimethylpentane, were also reported to the department.

The sources and activities identified by DEP as being subject to the emissions reporting requirements include the following: drill rigs, well heads and well completions (unconventional natural gas activities); compressor stations; dehydration units; fugitives, such as connectors, flanges, pump lines, pump seals and valves; heaters and reboilers; pneumatic controllers and pumps; stationary engines; tanks, pressurized vessels and impoundments; venting; and blow down systems.

Oil and gas exploration (well development) inventories are submitted to the Bureau of Oil & Gas. Production source (midstream compressor stations and related equipment) inventory data are submitted to the DEP.

Finding 10.3.4.a

The DEP requires source reports including air emissions data from operators and submits emission inventories to the U.S. Environmental Protection Agency (EPA). The DEP uses EPA's emissions tools for computing smaller sources not required to submit to the department on an annual basis, as recommended in the STRONGER guidelines.

The DEP has recognized that the accuracy of the inventories can and will improve in future years.

Recommendation 10.3.4.a

The review team is aware that DEP continues to improve upon its quality assurance review of emissions data submitted by operators. The review team recommends that DEP should assure that specific quality assurance protocols are in place for these emissions inventories. The DEP could also improve transparency of the collection, review, and submittal process by making publicly available the quality assurance process.

Finding 10.3.4.b

The DEP completed required emissions projections for three areas of the state as part of State Implementation Plan revisions.

Recommendation 10.3.4.b

The review team recommends that additional projections be developed, as appropriate, for areas in Pennsylvania with concentrated oil and gas development to ensure that air quality standards protective of public health and the environment will continue to be met. The DEP should consider emissions under a range of alternative future conditions, such as changing industry practices and trends as well as changing regulations.

CORRECTIVE ACTIONS AND EMERGENCY RESPONSE

The DEP has malfunction reporting requirements for the GP-5 Operating Permit and General Plan Approval. Operators are required to report a malfunction by telephone within 24 hours and in writing within 5 days if it results in an exceedance of the permit emission limits. The DEP also requires Operators to report malfunctions that result in citizen odor complaints, noise complaints, or malfunctions that generated prior complaints and emergency response drills.

For a malfunction that poses an imminent danger to the public health and safety, the operator must telephone the Department and County Emergency Management Agency immediately after discovery, followed by a written report within 3 days. For a release that poses imminent danger to the public health and safety, the Department has mobile air quality monitoring equipment that can be deployed to the location of the release to assess air quality.

Finding 10.3.5

The DEP has a process to address malfunctions for facilities covered by permitting for GP-5 and General Plan Approvals that meets the criteria of Section 10.3.5 of the Guidelines. The DEP requires a written report for releases that exceed permit limits or pose an imminent danger to the public health, safety, welfare, or environment.

LONG-TERM PLANNING, PRIORITIZATION, AND EVALUATION

The data collected by the DEP's air monitoring network described in Section 10.3.3 allows the DEP to have data to quantify and assess air emissions from unconventional natural gas operations, evaluate emission reduction strategies and develop emission inventories. Annual air quality trend reports are prepared and an annual monitoring plan is developed utilizing input from the public. An additional report that evaluates the programs the DEP implemented to address the Clean Air Act is submitted every five years to the Pennsylvania General Assembly.

Finding 10.3.6.a

The DEP meets the criteria found in Section 10.3.6 of the STRONGER Guidelines with a monitoring program that evaluates the emissions data collected to determine trends, emission reduction strategies and development of emission inventories. Emission data collected throughout Pennsylvania is regularly reported to the Environmental Protection Agency's (EPA) National Emission Inventory for use in estimating annual air pollutant emissions from point, nonpoint, and mobile sources.

Recommendation 10.3.6.a

The review team recommends that these types of emission projections should be

evaluated for use in other areas of the state.

Finding 10.3.6.b

The National Emission Inventory is compiled by EPA every three years. The Oil and Gas Production inventory includes criteria and hazardous air pollutants with data submitted by State, Local and Tribal air agencies supplemented by EPA data. EPA has been criticized for underestimating emissions from the oil and gas production sector and States have difficulty determining emissions from this sector partly due to the conflicting studies. Much like other states, the DEP relies on Oil and Gas Operators and EPA for the accuracy of emission inventory data.

Recommendation 10.3.6.b

The review team recommends that the DEP should develop a strategic plan, and develop specific airshed goals to reduce the impacts of pollutants. The development of these goals should be based upon careful analysis of state needs, priorities, available resources, and applicable state and federal regulations.

APPENDIX A: GLOSSARY OF ABBREVIATIONS

- AIMS Air Information Management System
- APCA Air Pollution Control Act
- API American Petroleum Institute
- AQTAC Air Quality Technical Advisory Committee
- ATSDR Agency for Toxic Substances & Disease Registry
- AVO Audible, Visual and Odor
- BAQ Bureau of Air Quality
- BAT Best Available Technology
- CAA Clean Air Act
- CAC Citizens Advisory Council
- CFR Code of Federal Regulations
- CO Carbon Monoxide
- DEP Department of Environmental Protection
- eFACTS Environment, Facility, Application and Compliance Tracking System
- E&P Exploration and Production
- FLIR Forward Looking Infrared
- FR Federal Register
- GITRVAQ Guidelines for Identifying, Tracking and Resolving Violations for Air Quality
- GP-5 General Permit 5
- IOCC Interstate Oil Compact Commission
- IOGCC Interstate Oil and Gas Compact Commission
- IPAA Independent Petroleum Association of America
- LDAR Leak Detection and Repair
- NESHAP National Emission Standards for Hazardous Air Pollutants
- NORM Naturally Occurring Radioactive Materials
- NOx Nitrogen Oxides
- NSPS New Source Performance standard
- PA Pennsylvania
- PM10 Particulate Matter smaller than 10 micrometers
- PM2.5 Particulate Matter smaller than 2.5 micrometers
- SBCAC Small Business Compliance Advisory Committee
- STRONGER State Review of Oil and Natural Gas Environmental Regulations Inc.
- USCA United States Code Annotated
- USEPA U.S. Environmental Protection Agency
- VOC Volatile Organic Compounds

APPENDIX B: STATE RESPONSE TO STRONGER QUESTIONNAIRE



2014 STRONGER Air Guidelines Questionnaire

PA DEP Response – June 2, 2015

Please provide the requested information in a brief manner that describes the program in sufficient terms for the review team to understand, but does not go into excessive detail. The details, where needed, can be discussed during the in-state portion of the review.

Also, to the extent possible, provide hyperlinks to websites where the review team can access statutes, rules, policies, guidance, reports and other related information used to support your responses.

The parenthetical numbers below indicate the reference to Section 10 of the STRONGER Guidelines.

Administration

1. Please identify the agency or agencies with **jurisdictional responsibilities** for air quality related to oil and gas exploration and production and provide the information requested below. (10.1.1.)

DEP Response: The Department of Environmental Protection (DEP or Department is responsible for implementing the federal Clean Air Act, Pennsylvania Air Pollution Control Act (and regulations thereunder) in the Commonwealth of Pennsylvania. The Air Program includes the Bureau of Air Quality and Six Regional Air Programs. The Allegheny County Health Department's Air Program is responsible for implementing and enforcing air quality related programs within the county's boundaries.

a. Statutory authority detailing powers and duties;

DEP Response: The DEP is responsible for implementing the federal Clean Air Act in Pennsylvania. To this end, powers and duties of the Department are set forth in laws including the following:

- Clean Air Act (42 U.S.C.A. §§ 7401—7642)
- Pennsylvania Air Pollution Control Act (APCA) (35 P. S. §§ 4001—4015)
- The Administrative Code of 1929 (71 P. S. §§ 51—720.13)
- Pennsylvania's Diesel-Powered Motor Vehicle Idling Act (35 P.S. §§ 4601—4610)

b. Authority for oversight and ability to develop regulations to meet state obligations under federal law;

DEP Response: The Pennsylvania Air Pollution Control Act (APCA) (35 P. S. §§ 4001 — 4015) authorizes the Environmental Quality Board to adopt rules and promulgate regulations for the prevention, control, reduction and abatement of air pollution. Specifically Section 5 of the APCA provides that the Environmental Quality Board shall have the power and its duty shall be to:

(1) Adopt rules and regulations, for the prevention, control, reduction and abatement of air pollution, applicable throughout the Commonwealth or to such parts or regions or sub-regions thereof specifically designated in such regulation which shall be applicable to all air contamination sources regardless of whether such source is required to be under permit by this act. Such rules and regulations may establish maximum allowable emission rates of air contaminants from such sources, prohibit or regulate the combustion of certain fuels, prohibit or regulate open burning, prohibit or regulate any process or source or class of processes or sources, require the installation of specified control devices or equipment, or designate the control efficiency of air pollution control devices or equipment required in specific processes or sources or classes of processes or sources. Such rules and regulations shall be adopted pursuant to the provisions of the act of July 31, 1968 (P.L.769), known as the "Commonwealth Documents Law," upon such notice and after such public hearings as the board deems appropriate. In exercising its authority to adopt rules and regulations, the board may, and to the extent deemed desirable by it shall, consult with a council of technical advisers, properly qualified by education or experience in air pollution matters, appointed by the board and to serve at the pleasure of the board, to consist of such number of advisers as the board may appoint, but such technical advisers shall receive no compensation, other than their actual and necessary expenses, for their services to the board. (35 P. S. § 4005(a))

c. Authority to promulgate more stringent than federal regulations as necessary to protect public health and the environment; (10.1.1., 10.2.3.);

DEP Response: In accordance with Section 4.2(b) of the APCA, control measures adopted under subsection (a), shall be no more stringent than those required under the Clean Air Act (CAA) unless the Pennsylvania Environmental Quality Board determines that requirements are reasonably necessary to achieve or maintain ambient air quality standards. The control measures or other requirements adopted shall be no more stringent than those required by the Clean Air Act unless authorized or required by the APCA or the measures are specifically required by the Clean Air Act. Additionally, the “no more stringent than” provision shall not apply if the Board determines that the control measures are necessary to (1) satisfy related Clean Air Act requirements as they specifically relate to the Commonwealth;(2) prevent an assessment or imposition of Clean Air Act sanctions; or (4) comply with a final decree of a Federal court. (35 P. S. § 4004.2(b)).

d. Authority to accept delegation of federal air programs for oil and gas;

DEP Response: The DEP is empowered to implement the provisions of the Federal Clean Air Act in the Commonwealth of Pennsylvania. To this end, DEP is authorized to accept

delegation of federal programs including New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants.

Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources, promulgated in 40 CFR Part 60 (relating to Standards of performance for new stationary sources) by the Administrator of the EPA under section 111 of the Clean Air Act (42 U.S.C.A. § 7411) are adopted in their entirety by the Department and incorporated by reference under 25 Pa. Code § 122.3 (relating to Adoption of standards).

The National Emission Standards for Hazardous Air Pollutants promulgated in 40 CFR Part 61 (relating to National Emission Standards for Hazardous Air Pollutants) by the Administrator of the United States Environmental Protection Agency under section 112(d) of the Federal Clean Air Act (42 U.S.C.A. § 7412(d)) are adopted in their entirety and incorporated by reference in 25 Pa. Code § 124.3 (relating to the adoption of standards).

EPA's implementing regulations pertaining to state authority and delegation are set forth in 40 CFR §60.10 (relating to State authority), 40 CFR§ 61.17 (relating to State authority); and 40 CFR § 63.12 (relating to State authority).

The DEP regulations establishing performance or emission standards promulgated under section 112 of the Clean Air Act (42 U.S.C.A. § 7412) at 40 CFR Part 63 (relating to *National Emission Standards for Hazardous Air Pollutants for Source Categories*) are incorporated by reference into the Department's plan approval program are adopted and incorporated by reference in Section 6.6 of the Air Pollution Control Act, 35 P.S. § 4006.6 and 25 Pa. Code § 127.35 (b) (relating to *Maximum achievable control technology standards for hazardous air pollutants.*) After the effective date of the performance or emission standard, new, reconstructed, modified and existing sources shall comply with the performance or emission standards pursuant to the compliance schedule established under section 112 of the Clean Air Act and the regulations thereunder.

On August 23, 1985, the U.S. Environmental Protection Agency delegated authority to Department to implement and enforce the standards set forth in 40 CFR Part 60, New Source Performance Standards, and 40 CFR Part 61, National Emission Standards for Hazardous Air Pollutants (50 FR 34140). EPA initially granted delegation of authority to Pennsylvania for the NSPS and NESHAP programs on December 7, 1979 (45 FR 3109) and September 30, 1976 (42 FR 6887), respectively.

e. Authority to consider cost effectiveness in setting standards and to exempt de minimis facilities or sources;

DEP Response: Pursuant to Section 6.1(a) of the Air Pollution Control Act, no person shall construct, assemble, install or modify any stationary air contamination source, or install thereon any air pollution control equipment or device unless the person has received the Department's prior written approval. Therefore, the air permitting process is triggered in Pennsylvania by state law (35 P. S. § 4006.1(a)). During the review of air permit, the Department determines best available technology (BAT) and considers cost effectiveness in setting the BAT requirements. However, the APCA authorizes the PADEP

to adopt regulations that exempt minor sources of air pollution from permitting requirements. PADEP regulations at 25 Pa. Code Section 127.14 identify the exempt sources. Additional exemptions are contained in the DEP Air Quality Permit Exemption List. Although a source may be exempt from the Plan Approval and Operating Permit requirements of 25 Pa. Code Chapter 127, the source remains subject to all applicable State and Federal laws and regulations including NSPS and NESHAPs.

f. Statutes and regulations with clearly defined terminology;

DEP Response: Applicable statutes and regulations include the following:

- The Federal Clean Air Act (CAA), (42 U.S.C.A. §§ 7401—7642) and regulations adopted under the CAA
- Pennsylvania Air Pollution Control Act (APCA) (35 P. S. §§ 4001—4015) and regulations adopted under the APCA. 25 Pa. Code Subpart C, Article III (relating to air resources).

g. Adequacy of funding for staff and equipment to carry out duties and meet objectives;

DEP Response: Section 9.2 of the Air Pollution Control Act (APCA) provides that “all fines, civil penalties and fees collected shall be paid into the Treasury of the Commonwealth in a special fund known as the Clean Air Fund, which shall be administered by the Department for use in the elimination of air pollution.” This section further provides that the Department may establish such separate accounts as may be necessary to implement the requirements of the APCA and the Clean Air Act.

The Clean Air Fund is comprised of two “special fund” appropriations: the Major Emission Facilities or Title V Appropriation (077) and the Mobile and Area Facilities Appropriation (084) (also referred to as the Non-Title V account). Revenue for the Title V appropriation is generated from annual emission fees and permitting fees for major sources. The Comparative Financial Statement prepared by the DEP Bureau of Fiscal Management on February 11, 2015 for the Clean Air Fund projected a beginning balance of \$41.989 Million for the FY 2014-2015 fiscal year and an ending balance of \$30.929 Million. Clean Air Fund deficits are projected starting in 2017/2018. The Bureau of Air Quality is seeking approval to move forward with amendments to the existing fee regulations codified in 25 Pa. Code Chapter 127, Subchapter I (relating to plan approval and operating permit fees) to ensure adequate funding to administer the Air Program.

In addition to moneys provided by Pennsylvania’s General Fund, PADEP also receives federal grants including CAA Section 103 and Section 105 grants; a 40% match in Commonwealth funding is required for the Section 105 grant.

h. Mechanisms for coordination among stakeholders;

DEP Response: The Pennsylvania Air Pollution Control Act mandates that DEP seek the advice of advisory committees including the following: the Air Quality Technical Advisory Committee (AQTAC), the Citizens Advisory Council (CAC) and the Small Business

Compliance Advisory Committee (SBCAC). In addition, the Department seeks advice from the Climate Change Advisory Committee established under the Pennsylvania Climate Change Act (Act 70 of 2008).

Section 7.6 of the APCA (relating to Advice to Department), provides that department shall consult with the Citizens Advisory Council established under section 448 of the act of April 9, 1929 (P.L.177, No.175), known as "The Administrative Code of 1929," as appropriate, in the consideration of State implementation plans and regulations developed by the department and needed for the implementation of the Clean Air Act. Nothing in Section 7.6 of the APCA shall limit the council's ability to consider, study and review department policies and other activities (35 PS Section 4007.6(a)).

The AQTAC is authorized under Section 7.6(b) of the APCA, which provides that the air technical advisory committee designated by the Secretary shall include at least eleven (11) members with technical backgrounds in the control of air pollution from stationary or mobile sources. The committee, at the request of the department, may be utilized to provide technical advice on department policies, guidance and regulations needed to implement the Clean Air Act. Additionally, AQTAC may also request to review a department policy, guidance or regulation needed to implement the Clean Air Act (35 PS Section 4007.6(b)).

DEP encourages public and stakeholder involvement in the shaping of environmental regulations and policies fosters environmental justice and equality and conducts outreach and education. The Department routinely meets with advisory committees such as AQTAC, CAC, and SBCAC. The Air Program also provides updates for PADEP's Oil and Gas Technical Advisory Board and the Environmental Justice Advisory Board (EJAB), upon request.

The Department worked with the Marcellus Shale Collision (MSC), American Petroleum Institute (API), Pennsylvania Oil and Gas Association (PIOGA), consultants, and general public during the development of General Permit GP-5 and Permit Exemption Category No. 38 related to oil and gas industry.

In addition, DEP provides quarterly updates on air quality matters including oil and gas related activities during quarterly meetings of the Pennsylvania Chamber of Business and Industry.

i. Technical criteria for air emission controls;

DEP Response: Before an owner/operator of a facility can begin to construct, modify or operate a source, emissions unit or equipment emitting air contaminants in Pennsylvania, the owner/operator must obtain prior written approval from the DEP's, Air Quality Program. The process of obtaining an air permit generally consists of obtaining a pre-construction permit authorization, known as a Plan Approval or General Plan Approval/General Operating Permit. The review of a plan approval or general permit, the DEP requires that new sources control the emissions to the maximum extent, consistent with the Best Available Technology (BAT) and technical criteria for air emission controls on

a case-by-case basis.

In February 2013, DEP issued a revised General Permit (GP-5) for Natural Gas Compression and/or Processing Facilities which incorporate the applicable provisions of the federal rules. GP-5 can be accessed at http://www.dep.state.pa.us/dep/deputate/airwaste/aq/permits/gp/GP-5_2-25-2013.pdf.

2. Provide reference to any oil and gas exploration and production related **NAAQS nonattainment areas and related SIP** approval status. (10.2.2.)

DEP Response: The entire Commonwealth of Pennsylvania is included in the Ozone Transport Region, established by operation of law under Sections 176A and 184 of the Clean Air Act. Consequently, the entire Commonwealth is treated as a “moderate” ozone nonattainment area for nitrogen oxides (NOx) and volatile organic compounds (VOCs), precursors to the formation of ground-level ozone. New or modified major sources of NOx and VOC emissions in any area of the Commonwealth including counties in the Marcellus Shale Play would be subject to special permitting requirements for the nonattainment New Source Review program. These special permitting requirements include emission offset requirements and compliance with the lowest achievable emission rate established for NOx and VOC emissions.

The EPA maintains a list of nonattainment areas for all six principal pollutants on their Green Book web site. Designations and classifications for all states in the country are listed in the Federal Code Regulations. Pennsylvania's listings are contained in Title 40, Part 81, Section 339 (<http://www.gpo.gov/fdsys/pkg/CFR-2014-title40-vol18/pdf/CFR-2014-title40-vol18-sec81-339.pdf>).

3. Describe the level of **federal delegation** of air quality requirements related to oil and gas exploration and production. (10.2.2.)

DEP Response: Pennsylvania's delegated authority to implement and enforce the New Source Performance Standards (NSPS) found at 40 CFR Part 60 was approved by EPA on August 23, 1985 (50 FR 34140). DEP also has delegation of authority to implement and enforce the National Emissions Standards for Hazardous Air Pollutants (NESHAP) found at 40 CFR Parts 61 and 63. In both instances, EPA retained authority for certain NSPS and NESHAP provisions that require action by the EPA Administrator.

EPA's May 21, 1998 informational notice announced that the agency granted, on January 5, 1998, the Commonwealth of Pennsylvania's request for partial delegation of the NESHAPs, and associated infrastructure programs. The delegation requests pertains to affected HAPs, for all source categories which are located at major sources. EPA granted the delegation of authority with certain restrictions including the following:

- Retention of certain authorities including: implementation and enforcement of standards that control radionuclides or that apply to an area source which is not located at a major source,
- Implementation and enforcement of an accidental release program;

- Approvals of alternative means of limiting emissions, alternative control technologies, alternative test methods, alternative monitoring methods; and
- The authority to make certain applicability determinations.

In addition, indicated that certain provisions will be delegated only on a case-by-case basis; notification by the DEP to EPA would be required for activities including approvals of compliance extensions, site-specific test plans, performance evaluation plans; approvals of minor alternatives to test methods, monitoring, and shorter sampling times/volumes; and waivers of performance testing and record keeping. The delegation of authority was effective on January 5, 1998 (63 FR 27955).

EPA approval of MACT NESHAPs for area sources for which DEP has received a separate delegation of authority to implement and enforce certain NESHAPs was published in the Federal Register on May 26, 2011 (76 FR 30703).

EPA's approval of delegation of authority includes source categories that do not apply to the oil and gas industries. The EPA notice is accessible at <https://www.federalregister.gov/articles/2011/05/26/2011-11787/delegation-of-authority-to-the-commonwealth-of-pennsylvania-to-implement-and-enforce-additional>.

The federal New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) related to the oil and gas industry are adopted and incorporated by reference in their entirety in the *Pennsylvania Code* (25 Pa. Code Chapters 122 and 124 and Section 127.35). Pennsylvania implements and enforces applicable NSPS and MACT standards related to the oil and gas industry including the following:

- Standards of Performance for Stationary Gas Turbines (40 CFR Part 60, Subpart GG)
- Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984 (40 CFR Part 60, Subpart Kb)
- Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants (40 CFR Part 60, Subpart KKK);
- Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (40 CFR Part 60, Subpart JJJJ);
- Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution (40 CFR Part 60, Subpart OOOO)
- National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities (40 CFR Part 63, Subpart HH)
- National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities (40 CFR Part 63, Subpart HHH)
- National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (40 CFR Part 63, Subpart ZZZZ)

4. Please describe your **permitting program** and the process by which emissions are estimated during the permitting process. (10.2.3.)

DEP Response: The owners or operators of all proposed new air contamination sources are required to receive a Plan Approval from the Department prior to the construction, assembly, installation of new sources, modification of any existing stationary air contamination sources, or the installation of air pollution control equipment or devices. Administrative completeness determinations are issued by DEP Regional Offices within 30 days of receipt of a complete application. The application packet submitted to the appropriate regional office includes the plan approval application form, application fees, compliance review form and proof of the municipal notice. Pre-application meetings with appropriate regional office are strongly recommended prior to the submission of a Plan Approval application. Processing time for Plan Approval applications will vary depending on the type of approval required for the project. The term of the Plan Approval will depend on the complexity of the project and a reasonable amount of time needed to complete the project. Extensions of the Plan Approval may be granted by the Department. During the review of any plan approval application involving new site construction, the DEP determines whether any construction activity would take place upon the site or associated habitat of any natural feature included in the Pennsylvania Natural Diversity Inventory (PNDI).

Following the construction of the new facility or air contamination source, the owner or operator must obtain an operating permit from the Department. The type of operating permit will depend on the quantity of regulated pollutants emitted from the air contamination sources. DEP will issue a “State-only Operating Permit” for minor air contamination stationary sources that are below the applicability thresholds for Title V facilities. A Title V Operating Permit is required for major facilities that have the potential to emit air contaminants exceeding the Title V thresholds. The Title V Permit incorporates all applicable requirements for the facility. Both permits are generally issued for a term of five years.

However, not all air contamination sources require a Plan Approval or operating permit – some may be exempt under Commonwealth regulations, and some may be granted an exemption on a case-by-case basis. The process used to obtain a case-by-case exemption requires that a “Request for Determination (RFD) for Changes of Minor Significance and Exemption from Plan Approval/Operating Permit Requirements” Form be submitted to DEP. The RFD Form is the mechanism by which the department evaluates on a case-by-case basis, requests for exemptions that are not specified on the Air Quality Permit Exemption List (Document No. 275-2101-003). By submitting a completed RFD, a company, in essence, asks the Department to make a judgment about whether the owner/operator must obtain a Plan Approval or Operating Permit and/or modify an existing Operating Permit in order to proceed with the proposed project. Under 25 Pa. Code § 127.14, among other criteria, if the air contamination sources being referenced are exempt based on the Air Quality Permit Exemption List or if the Department determines the sources to be of minor significance, a Plan Approval and/or Operating Permit will not be required.

As required under Section 6.6(c) of the Air Pollution Control Act, the review of a Plan Approval or General Plan Approval, the DEP requires that new sources control the emissions to the maximum extent, consistent with the Best Available Technology (BAT)

and technical criteria for air emission controls on a case-by-case basis.

DEP currently has a general permit (GP-5) for the oil and gas facilities which incorporate the provisions of the federal rules. GP-5 can be accessed at <http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-9747>.

5. Please describe your compliance monitoring, demonstration and assurance program, including the information requested below. (10.2.4.)

DEP Response: DEP's permitting and enforcement activities are primarily carried out by Air Program staff in the Department's six regional offices located in Norristown (Region 1), Wilkes-Barre (Region 2), Harrisburg (Region 3), Williamsport (Region 4), Pittsburgh (Region 5) and Meadville (Region 6), PA. DEP Air Quality field staff conducts compliance monitoring inspections at permitted facilities on annual bi-annual or semi-annual schedules, and other schedules depending on the quantity of emissions from the facility, and the type of permit that has been issued to the facility. Inspections are not typically announced. Compliance monitoring activities generally include a physical inspection of the site including the air contamination sources, observation of process parameters and control devices if present, and a check of records that may be required to be maintained at the site. Material samples, such as fuel, may be taken for analyses if a fuel or other material has a limit outlined in the operating permit or in the regulations that address the process.

a. Procedures for receipt, evaluation, retention and investigation of notices and reports;

DEP Response: Notices and reports that are submitted by a regulated entity are distributed to the DEP regional office that is responsible for oversight of the facility. The appropriate staff, which may include field inspectors, permitting engineers, and environmental chemists, will review the data, make recommendations if appropriate, and the notice and/or report will be filed and maintained in accordance with approved records retention procedures. If a notice or report requires follow-up or additional information from the facility, the facility will be notified via telephone, email, or letter. Electronic reporting is handled the same way but will be maintained in the electronic system or database for the appropriate period of time.

b. Inspection and monitoring procedures that are independent of information supplied by the regulated entity;

DEP Response: In addition to the compliance activities described above, the Department may conduct inspections and investigations in response to complaints that have been received concerning a facility's operations. These investigations may involve surveillance of a facility and onsite inspections to determine whether a facility is operating within its operating permit limits and regulations that address the specific operations. In addition to the compliance evaluations, records may be reviewed and material samples may be gathered. Complainant information is maintained in a secure database.

The DEP may also conduct special project ambient air monitoring projects for a limited duration. These projects include deploying the Mobile Analytical Unit and the use of Summa canisters.

c. Procedures for receipt and evaluation of information submitted by the public;

DEP Response: Information submitted by the public, either by inquiry or by complaint's submittal is evaluated by DEP. The Department maintains a complaint tracking system that ensures that complaints are forwarded to the appropriate office, and addressed appropriately. Information regarding the identity of complainants is maintained as confidential, but the substance of the complaint and the Department's investigation results are considered public information. Information submitted by the public which is not complaint related is evaluated to see whether it is appropriate for action by DEP or whether it should be forwarded to another department or Agency for consideration.

d. Authority to conduct unannounced inspections and inspect, sample, monitor or otherwise determine compliance;

DEP Response: Section 4.2 of the APCA, (35 P.S. § 4004.2), empowers the Department to enter any building, property, premises or place and inspect any air contamination source for the purpose of investigating an actual or a suspected source of air pollution or for the purpose of ascertaining its compliance or noncompliance with the APCA and the rules and regulations promulgated thereunder, as well as any plan approval, permit or order of the Department. In connection with such inspection or investigation, samples of air, air contaminants, fuel, process material or other matter may be taken for analysis

In accordance with Section 13.1 of the APCA (relating to search warrants), whenever DEP staff has been denied access to books, papers, records and other pertinent information a search warrant may be obtained by the Department. Section 13.1 provides as follows:

Whenever an agent or employee of the Department, charged with the enforcement of the provisions of the APCA, has been refused access to property, or has been refused the right to examine any air contamination source, or air pollution control equipment or device, or is refused access to or examination of books, papers and records pertinent to any matter under investigation, such agent or employee may apply for a search warrant to any Commonwealth official authorized by the laws of the Commonwealth to issue the same to enable him to have access, examine and seize such property, air contamination source, air pollution control equipment or device, or books, papers and records, as the case may be, and it shall be sufficient probable cause to issue a search warrant that the inspection is necessary to properly enforce the provisions of the APCA (35 P.S. § 4013.1).

e. Authority to copy or obtain records;

DEP Response: Section 4.4 of the Air Pollution Control Act, provides the Department with a broad grant of authority to copy and obtain records (35 P.S. § 4004). Section 4.4 (3) of the APCA, (35 P.S. §4004 (3) expressly provides the Department shall have the power and duty to have access to, and require the production of, books, papers and records, including, but not limited to, computerized information in a format as the department may reasonably prescribe pertinent to any matter under investigation. Other applicable provisions include the following authorize the DEP to:

(1) Require the owner or operator of any air contamination source to establish and maintain such records and make such reports and furnish such information, including computerized information in a format as the department may reasonably prescribe (35 P.S. § 4004(4)).

(2) Require the owner or operator of any air contamination source to install, use and maintain such air contaminant monitoring equipment or methods as the department may reasonably prescribe (35 P.S. § 4004(5)).

(3) Require the owner or operator of any air contamination source to sample the emissions thereof in accordance with such methods and procedures and at such locations and intervals of time as the department may reasonably prescribe and to provide the department with the results thereof (35 P.S. § 4004(6)).

f. Procedures to ensure that documents and evidence are managed in a manner that will permit their use during enforcement proceedings;

DEP Response: Inspection Procedures are outlined in the DEP Guidelines for Identifying, Tracking and Resolving Violations for Air Quality (Document Number 273-4110-001). An inspector should prepare for an on-site inspection by reviewing the Department's files for current permits, permit applications, permits that have expired, required information reported by the regulated entity, complaints, prior inspection reports, Notices of Violation (NOV), settlement documents, past and current enforcement actions, etc. and by consulting with the appropriate permit staff. The inspector should also review all files relevant to the facility including required reports, process diagrams, current and past permits, previous violations, records of prior areas of non-compliance, compliance history, litigation records, property records, business licensing data, etc.

In general, the inspection should be unannounced and conducted in accordance with the guidance of the “Desktop Reference Manual for Inspectors and Engineers” (Desktop Reference Manual). The inspection manual contains guidelines on how to conduct an on-site inspection including guidelines on the procedures and chain of custody for taking samples during an inspection, and other actions.

Before the inspector leaves the plant, a closing conference meeting should be conducted with the permittee’s contact at the plant. At this meeting, the inspector summarizes the findings of the inspection and writes up a field inspection report. The inspector should review and confirm the observations made during the inspection.

Upon completion of the physical plant inspection, the inspector will document compliance issues using language that, to the extent possible, identifies potential or apparent violations. The inspector may indicate that additional review of records, sample results, CEM reports, etc. is necessary to determine the compliance status of the facility. The

inspector should clearly and concisely document any apparent violations in writing in the inspection report and leave a copy with the facility before leaving the site.

Inspectors should refer to the specific permit conditions or regulations when documenting a violation. If the existence of violations cannot be determined on the day of inspection because sample results or further information is necessary, the "Inspection Results" field should be marked as "Pending." If information was requested during the inspection, give the facility contact person a deadline and include the deadline in the field inspection report. If the information should be sent to someone else in the Department, their name should be written in the field inspection report. If a field inspection report is not left with the company on the day of the inspection, completion of the inspection report should be done within fourteen (14) calendar days after receiving this necessary further information and a copy should be sent to the facility contact.

Inspection data should be entered into eFACTS within ten (10) working days of the inspection. If evidence of a violation is identified during the inspection, then that evidence should be evaluated pursuant to the program guidelines to determine if violations exist. If the Department determines that violations exist, then the tracking and resolution of the Department-determined violations should follow the guidelines specified in Section III of the Guidelines for Identifying, Tracking and Resolving Violations for Air Quality.

Material samples are collected and handled in accordance with the Department's sampling protocol and the Bureau of Laboratory's Quality Assurance Manual. Chain of custody is documented through either hand delivery of collected samples to the laboratory, or the use of couriers, with a Chain of Custody signature section at the bottom of each Sample Submission Form.

g. Authority to require stack testing to establish or verify compliance;

DEP Response: Section 4(6) of the APCA empowers the DEP to require the owner or operator of any air contamination source to sample the emissions thereof in accordance with such methods and procedures and at such locations and intervals of time as the department may reasonably prescribe and to provide the department with the results thereof (35 P.S. § 4004(6)).

Section 4(7) further provides the DEP with authority to:

Enter upon any property on which an air contamination source may be located and make such tests upon the source as are necessary to determine whether the air contaminants being emitted from such air contamination source are being emitted at a rate in excess of a rate provided for by this act, any rule or regulations promulgated under this act or any plan approval, permit or order of the department or otherwise causing air pollution. Whenever the department determines that a source test is necessary, it shall give reasonable written or oral notice to the person owning, operating, or otherwise in control of such source, that the department will conduct a test on such source. Thereafter, the person to whom such notice is given shall provide such reasonably safe access to the testing area, and such sampling

ports, facilities, electrical power and water as the department shall specify in its notice (35 P.S. § 4004(7)).

DEP's implementing regulations for stack testing requirements are codified in 25 Pa. Code Chapter 139, Subchapter A (relating to Sampling and testing), notably under Sections 139.1 (relating to Sampling and testing) and 139.2 (relating to Sampling by others.)

h. Authority to establish requirements for recordkeeping, reporting, sampling, stack testing, and compliance certification;

DEP Response: As provided in 25 Pa. Code § 127.12b (relating to plan approval terms and conditions), the DEP's regulatory authority for recordkeeping and reporting requirements are provided as follows:

(a) A plan approval may contain terms and conditions the Department deems necessary to assure the proper operation of the source including the requirement for a compliance demonstration prior to issuance of an operating permit.

(b) At a minimum, each plan approval must incorporate by reference the emission and performance standards and other requirements of the act, the Clean Air Act or the regulations adopted under the act or the Clean Air Act.

(c) The plan approval must incorporate the monitoring, recordkeeping and reporting provisions required by Chapter 139 (relating to sampling and testing) and other monitoring, recordkeeping or reporting requirements of this article and additional requirements related to monitoring, recordkeeping and reporting required by the Clean Air Act and the regulations thereunder, including, if applicable, the enhanced monitoring requirements of 40 CFR Part 64 (relating to enhanced monitoring).

The authority for DEP's operating permit requirements is specified in 25 Pa. Code § 127.441 (relating to operating permit terms and conditions), which provides as follows:

(a) A permit may contain terms and conditions the Department deems necessary to assure the proper operation of the source.

(b) At a minimum, each permit shall incorporate by reference the emission and performance standards and other requirements of the act, the Clean Air Act or the regulations thereunder.

(c) The operating permit shall incorporate the monitoring, recordkeeping and reporting requirements required by Chapter 139 (relating to sampling and testing) and other monitoring, recordkeeping or reporting requirements of this article and additional requirements related to monitoring, recordkeeping and reporting required by the Clean Air Act and the regulations thereunder including, if applicable, the enhanced monitoring requirements of 40 CFR Part 64 (relating to enhanced monitoring).

Additional recordkeeping and reporting regulations for Title V Operating Permits are prescribed in 25 Pa. Code § 127.511 (relating to monitoring and related recordkeeping and reporting requirements). As provided in subsection (a), each Title V operating permit must contain the following requirements with respect to monitoring:

- (1) Emissions monitoring and analysis procedures or test methods required under the applicable requirements, including procedures and methods under sections 114(a)(3) or 504(b) of the Clean Air Act (42 U.S.C.A. §§ 7414(a)(3) and 7661c(b)).
- (2) When the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring, which may consist of recordkeeping designed to serve as monitoring, periodic monitoring sufficient to yield accurate and reliable data from the relevant time that are representative of the source's compliance with the permit, as reported under subsection (c). The monitoring requirements shall assure use of terms, test methods, units, averaging periods and other statistical conventions are consistent with the applicable requirement. Recordkeeping provisions may be sufficient to meet the requirements of this subsection.
- (3) Requirements concerning the use, maintenance and, when appropriate, installation of monitoring equipment or methods, as necessary.

(b) With respect to recordkeeping, the permit shall incorporate applicable recordkeeping requirements and require, when applicable, the following:

- (1) Records of required monitoring information that include the following:
 - (i) The date, place as defined in the permit, and time of sampling or measurements.
 - (ii) The dates the analyses were performed.
 - (iii) The company or entity that performed the analyses.
 - (iv) The analytical techniques or methods used.
 - (v) The results of the analyses.
 - (vi) The operating conditions as existing at the time of sampling or measurement.

(2) Retention of records of the required monitoring data and supporting information for at least 5 years from the date of the monitoring sample, measurement, report or application. Supporting information includes calibration and maintenance records and original strip-chart recordings for continuous monitoring instrumentation, and copies of reports required by the permit.

(c) With respect to reporting, the permit shall incorporate the applicable reporting requirements and require the following:

- (1) Submittal of reports of required monitoring at least every 6 months. Instances of deviations from permit requirements shall be clearly identified in the reports. Required reports shall be certified by a responsible official.

(2) Reporting of deviations from permit requirements within the time required by the terms and conditions of the permit including those attributable to upset conditions as defined in the permit, the probable cause of the deviations and corrective actions or preventive measures taken, except that sources with continuous emission monitoring systems shall report according to the protocol established and approved by the Department for the source.

Source Testing

Section 4(6) of the APCA empowers the DEP to require the owner or operator of any air contamination source to sample the emissions thereof in accordance with such methods and procedures and at such locations and intervals of time as the department may reasonably prescribe and to provide the department with the results thereof (35 P.S. § 4004(6)).

Additionally, under Section 6.1(b)(2) of the APCA (35 P.S. § 4006.1(b)(2)), a permit may be issued by the Department to any applicant for a stationary air contamination source requiring construction, assembly, installation or modification where the requirements of subsection 6.1(a) of that Section have been met and there has been performed upon such source a test operation or evaluation which shall satisfy the PADEP that the air contamination source will not discharge into the outdoor atmosphere any air contaminants at a rate in excess of that permitted by applicable regulation of the Board, or in violation of any performance or emission standard or other requirement established by the Environmental Protection Agency or the DEP.

Source Testing Requirements. The DEP source testing regulations are set forth in 25 Pa. Code Chapter 139 (relating to sampling and testing). The owner or operator of any source subject to performance testing requirements in a General Permit shall comply with the following:

(a) Within one hundred eighty (180) days after the initial startup, the owner or operator shall demonstrate compliance with the applicable emission limits of NO_x, CO, NMNEHC, HCHO, and PM and furnish the Department a written report of the result of such performance test.

(b) In addition, every 2,500 hours of operation and no sooner than forty-five (45) days from the previous test, the owner or operator shall perform periodic monitoring for NO_x and CO emissions to verify continued compliance of each of the respective engines rated greater than 500 bhp and turbines. A portable gas analyzer may be used to satisfy the requirements of this condition. The Department may alter the frequency of portable analyzer tests based on the test results.

6. Describe your **enforcement** program, including the available enforcement tools and the relative frequency of their use. (10.2.5.1.)

DEP Response: The Department implements its compliance and enforcement programs for air Quality in accordance with the Guidelines for Identifying, Tracking and Resolving

Violations for Air Quality, Technical Guidance Document (GITRVAQ), TGD Number 273-4110-001 - <http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-50335/273-4110-001.pdf> - and in consultation with Regional Counsel and/or Office of Chief Counsel as appropriate. Regional adherence to GITRVAQ is tracked and periodically audited by the Compliance Assistance and Monitoring Section of the Bureau of Air Quality, Division of Compliance and Enforcement. Enforcement activity is compiled and reported monthly to the DEP Regional and executive staff as well as EPA Region 3 staff.

The Department's enforcement powers and the tools available for implementation are as established in provisions of the Air Pollution Control Act including the following:

- Section 7.1 (relating to Compliance Review, 35 P.S. § 4007.1);
- Section 7.2 (relating to Permit Compliance Schedules, 35 P.S. § 4007.2);
- Section 9 (relating to Penalties, 35 P.S. § 4009);
- Section 9.1 (relating to Civil Penalties, 35 P.S. § 4009.1);
- Section 10 (relating to Civil Remedies, 35 P.S. § 4010);
- Section 10.1 (relating to Enforcement Orders, 35 P.S. § 4010.1);
- Section 10.3 (relating to Limitation on Action, 35 P.S. § 4010.3);
- Section 11 (relating to Powers Reserved to the Department Under Existing Laws, 35 P.S. § 4011);
- Section 13 (relating to Public Nuisances, 35 P.S. § 4013); and
- Section 13.6 (relating to Suits to Abate Nuisances and Restrain Violations, 35 P.S. § 4013.6).

The relative frequency of their use is entirely dependent upon their appropriateness to the violation or violations and the related circumstances.

DEP's compliance and enforcement staff in the six Regional Air Quality Programs participates in conference calls with staff in DEP's Bureau of Air Quality's Compliance & Enforcement Division to address enforcement concerns, coordinate compliance activities, which are designed to assure statewide consistency. The staff also meets quarterly with the EPA Region 3 State Air Program Compliance Coordinator for structured review and coordination of resolution of every outstanding Federally-enforceable violation subject to EPA oversight in accordance with the EPA Timely and Appropriate (T&A) Enforcement Response to High Priority Violations Policy.

The EPA publishes National Enforcement Initiatives in the *Federal Register* on 3-year intervals identifying industrial, commercial and institutional sectors for federal enforcement focus and may initiate enforcement action at any time with regard to violations of Federal and Federally-enforceable Commonwealth statutes and regulations. When this occurs, EPA generally invites the department to join in those enforcements, and when the Department does so, the enforcement is carried out in coordination among the EPA, U.S. Department of Justice, DEP Regional Air Quality Programs, Department counsel and the Bureau of Air Quality.

7. Provide any **penalty calculation** guidance in use in your program. (10.2.5.2.)

DEP Response: Section 9.1 (a) of the PA Air Pollution Control Act authorizes the DEP to assess civil penalties for violations of provisions of the Act, regulations adopted under the

APCA or violations of any order, plan approval or permit issued pursuant to the Act (35 P.S. § 4009.1). Section 9.1 of the APCA requires consideration of the following when determining civil penalties:

In determining the amount of the penalty, the DEP must consider the willfulness of the violation; damage to air, soil, water or other natural resources of the Commonwealth or their uses; financial benefit to the person in consequence of the violation; deterrence of future violations; cost to the department; the size of the source or facility; the compliance history of the source; the severity and duration of the violation; degree of cooperation in resolving the violation; the speed with which compliance is ultimately achieved; whether the violation was voluntarily reported; other factors unique to the owners or operator of the source or facility; and other relevant factors.

The APCA provides for assessment of a penalty of up to \$25,000 per day for each violation. A listing of technical guidance documents developed by DEP is provided below.

- Guidance for Application of Regional Civil Assessment Procedure, Technical Guidance Document (TGD) Number 273-4130-003;
- Compliance Assurance Policy for Cement Kilns with CEMS, (TGD Number 273-4000-001);
- Compliance Assurance Policy For Hospital Waste Incinerators, TGD Number 273-4000-002;
- Compliance Assurance Policy for Municipal Waste Incinerators, TGD Number 273-4000-003 (including revisions);
- Enforcement Policy for CEMS on Fluid Catalytic Cracking Units, TGD Number 273-4000-004;
- Compliance Assurance Policy for CEMS on Combustion Units, TGD Number 273-4000-005;
- Stage I Penalty Assessment Guidance, TGD Number 273-4130-006;
- Stage II Penalty Assessment Guidance, TGD Number 273-4130-005;
- DEP - EPA Asbestos Demolition - Renovation Civil Penalty Policy, TGD Number 273-4130-001

The documents are available online by opening the following hyperlink:

<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-8617>

8. Describe the appeal or review rights afforded to persons aggrieved by an action of the agency. (10.2.5.3.)

DEP Response: Section 10.2 of the Air Pollution Control Act, (35 P.S. 4010.2) provides that any person aggrieved by an order or other administrative action of the department issued pursuant to the Act or any person who participated in the public comment process for a plan approval or permit shall have the right, to file an appeal within 30 days of the action, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section

7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A.

9. Please describe your staffing patterns, training opportunities provided to staff, and methods used to assess and retain staff. (10.2.6.)

DEP Response: Department staffing patterns are established based on a review of existing sources of air contamination and potential permitting workload and the approved complement for the air program. Revisions to staffing are determined based on increased workload, numbers of air contamination sources, or other factors. Staff may be reassigned or increases in staffing complement may be authorized. Complement adjustments are dependent on availability of funds including general fund monies, federal grants, civil penalties and application fees.

The Bureau of Air Quality provided presentations at DEP regional offices regarding General Plan Approval and/or General Operating Permit for Natural Gas Compression and/or Processing Facilities (GP-5), and Permit Exemption Category No. 38 (relating to oil and gas exploration, development, and production facilities and associated equipment and operations) requirements. In addition, the DEP developed a Frequently Asked Questions (FAQ) document for the implementation of Exemption Category No. 38 and GP-5 and Implementation Instructions for Exemption Category No. 38 documents and posted these documents on the DEP Air quality web site. The FAQ document for implementation of GP-5 provisions and instructions for implementation of Exemption Category No. 38 requirements assist staff to consistently implement the provisions GP-5 and Category No. 38 of the Air Quality Permit Exemption List (Document No. 275-2101-003). New and upcoming projects as well as topics related to GP-5 and Exemption Category No. 38 are discussed during the Department's monthly conference calls, to provide clarification and consistency in the implementation of the requirements. The DEP also scheduled presentations by vendors of control technologies for air emission sources at natural gas facilities, to keep staff abreast of new and upcoming control technologies available to the industry. In addition, DEP's staff in the central and regional offices regularly attend industry training seminars such as the Oil and Gas Operations, Emission, and Regulations training provided by Mid-Atlantic Regional Air Management Associations (MARAMA).

10. Please describe your **data management** program, including access to data systems in other programs containing inventories of facilities, and describe how information is made available to the public. (10.2.7.)

DEP Response: The Department maintains a database of all permitted facilities and makes the data available to the public. Pennsylvania's Environment Facility Application Compliance Tracking System (eFACTS) allows individuals to search for authorizations, clients, sites and facilities. Users can also search the database to find inspection and pollution prevention visits as well as inspection results data, including enforcement information when violations are noted. The public can access eFACTS at this web site: <http://www.ahs.dep.pa.gov/eFACTSWeb/default.aspx/default.aspx>.

The Bureau of Air Quality manages authorizations and permits using the Air Information Management System (AIMS). Data from this database is available upon request. PADEP

maintains emission inventory data related to oil and gas facilities on spreadsheets submitted by the owners and operators. The first inventory unconventional natural gas operations were developed in 2012 for emissions during the 2011 calendar year. The natural gas emissions inventory is available at this web site:

<http://www.portal.state.pa.us/portal/server.pt/community/Emission%20Inventory/21810/Marcellus%20Inventory/1829967>.

11. Describe any **public involvement** provisions that are part of your program. (10.2.8.)

DEP Response: Public participation provisions for Plan Approval and Operating Permit Applications are set forth in 25 Pa. Code Chapter 127, Subchapter B (relating to plan approval requirements), Subchapter F (relating to plan approval requirements) and Subchapter G (relating to Title V operating permits). The public involvement provisions include the following:

- Municipal Notifications for Plan Approvals and Operating Permits (25 Pa. Code §§127.43a and 127.413)

An applicant for a plan approval or operating permit must notify the local municipality and county where the air pollution source will be located. The notice must indicate state that there is a 30-day comment period which begins upon receipt of the notice by the municipality and county.

- Public Notices for Plan Approvals and Operating Permits (25 Pa. Code §§ 127.44 and 127.424))

Notices of all permitting actions including Plan Approvals and Operating Permits are published in the *Pennsylvania Bulletin* and newspapers in general circulation (major source permitting actions). The *Pennsylvania Bulletin* notices are published by the Department. Notices of permitting actions requiring publication in newspapers of general circulation are prepared by the DEP and provided to the applicant for publication. The applicant must, within 10 days of receipt of notice, publish the notice on at least 3 separate days in a prominent place and size in a newspaper of general circulation in the county in which the source is to be located. Proof of the publication must be filed with the Department within one week thereafter. An operating permit will not be issued by the DEP if the applicant fails to submit the proof of publication of the notice. Generally, a 30-day comment period, from the date of publication of the notice is provided for the submission of comments.

- Additional public participation provisions applicable to Title V facilities (25 Pa. Code § 127.521)

In addition to the other public participation requirements of Chapter 127 for operating permits, notices of permit proceedings for Title V facilities are also provided to persons on a mailing list developed by the DEP or by other means if necessary to assure adequate notice to the affected public. The DEP provides notice and opportunity for participation by

affected states in accordance with 25 Pa. Code § 127.522 (relating to operating permit application review by the EPA and affected states). The DEP provides at least 30 days for public comment. Notice of public hearings must be provided at least 30 days in advance of the hearing.

- Filing protests of Plan Approval and Operating Permit Actions
(25 Pa. Code §§ 127.46 and 127.424)

Any protest to a proposed action must be filed with the Department within 30 days of the notice of the proposed action.

- General Plan Approval and General Operating Permit Notices (25 Pa. Code § 127.612)

The Department provides notice and an opportunity to comment on any proposed general plan approval or general operating permit. This notice is published in the *Pennsylvania Bulletin* and in six newspapers of general circulation, one in the area of each DEP regional office. Notice of all general permitting actions are also provided to the EPA and to Ohio, West Virginia, Virginia, Maryland, Delaware, New Jersey and New York.) The DEP provides at least 45 days for the receipt of public comments. The comment period may be extended in response to written requests, when warranted.

An electronic copy of all Department regulations may be accessed at:
http://www.pacode.com/secure/data/025/article1CIII_toc.html.

The DEP has also developed a Policy on Public Participation in the Permit Application Review Process (Document ID: 012-0900-003) which outlines public involvement process.

The policy may be accessed on the eLibrary at:
http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-99253/FINAL_012-09002-003_Pub%20Part%20in%20PRP_02272014.pdf.

12. Describe any **outreach** efforts of your program. (10.2.9.)

DEP Response: The DEP's outreach efforts include discussions with advisory committees including the Air Quality Technical Advisory Committee, the Small Business Compliance Advisory Committee and the Citizens' Advisory Council. Section 7.6 of the Air Pollution Control Act, 35 P.S. 4007.6, obligates the DEP to consult with the committees and council concerning regulations, guidance and policies needed to implement the Clean Air Act. The DEP also confers with EPA Region 3 staff, when necessary.

The Department provides presentations at regional offices regarding the General Plan Approval and/or General Operating Permit for Natural Gas Compression and/or Processing Facilities (GP-5), and Permit Exemption Category No. 38 requirements. In addition, the Department developed Frequently Asked Questions (FAQ) for implementation of Exemption category No. 38 and GP-5 and Implementation Instructions for Exemption Category No. 38 documents and posted these documents on the DEP Air quality web site. The FAQ document for implementation of GP-5 provisions and instructions for

implementation of Exemption Category No. 38 requirements assist staff to consistently implement the provisions GP-5 and Category No. 38 of the Air Quality Permit Exemption List (Document No. 275-2101-003). New and upcoming projects as well as topics related to GP-5 and Exemption Category No. 38 are discussed at the Department's monthly conference calls, to provide clarification and consistency in the implementation of the requirements.

The Department extensively discussed the development and implementation of GP-5 and Exemption Criteria Category No. 38 requirements with members of Marcellus Shale Coalition Air Subcommittee, regulated industries, and public interest groups. In addition to participating during quarterly meetings of the Pennsylvania Chamber of Business and Industry, the DEP has also conducted webinars for industry on GP-5 and the Category No. 38 permit exemption criteria. DEP's program counsel also provides creditable courses during the annual Environmental Law Forum. The courses address federal and state requirements including regulations, major permitting actions, general permits, permitting exemption criteria, policies and litigation that will impact the oil and gas industry.

13. Please describe your strategic and resource **planning** processes. (10.2.10.)

DEP Response: On an annual basis, the Department prepares Spending Plans which establish budgets for the use of special funds deposited in the Clean Air Fund including fees and civil penalties. The Spending Plans are reviewed and approved by the Secretary prior to the beginning of the fiscal year.

Total Air Program revenue projected for FY 2014/2015 as of May 5, 2015 is provided below.

Source	FY 2014-2015	Time Period	Note
Section 105 Grant	\$ 4,974,125	Oct 1, 2014 - Sept 30, 2015	Grant
General Fund	\$ 4,500,000	Jul 1, 2014 - Jun 30, 2015	Estimated
Section 103 Grant	\$ 829,505	Apr 1, 2015-Mar 31, 2016	Grant
BioWatch Grant	\$ 389,761	Jul 1, 2014 - Jun 30, 2015	Grant
Title V Emission Fees	\$ 17,473,298	Jul 1, 2014 - Jun 30, 2015	As of May 5, 2015
Permit Fees	\$ 1,789,192	Jul 1, 2014 - Jun 30, 2015	As of May 5, 2015
Civil Penalties	\$ 1,444,131	Jul 1, 2014 - Jun 30, 2015	As of May 5, 2015
Env Ed (5%)	\$ (110,067)	Jul 1, 2014 - Jun 30, 2015	Transfer
Reimbursed Costs for Coke Oven	\$ 148,000	Jul 1, 2014 - Jun 30, 2015	Contract

Inspections			
Diesel Emissions Reduction Act Grants	\$ 110,000	Oct 1, 2014 - Sept 30, 2015	Grant
Treasury Investment	\$ 1,019,382	Jul 1, 2014 - Jun 30, 2015	As of May 5, 2015
Total	\$32,567,327		

The Bureau of Air Quality annually develops a listing of priorities for activities including the development of regulations, technical guidance documents and policies and revisions to the State Implementation Plan. Deliverables for federal grants including the Section 105 Grant authorized under the Clean Air Act are developed in consultation with the Air Protection Division in the EPA Region 3 Office.

The frequency and type of inspections are established in accordance with EPA's Clean Air Act Stationary Source Compliance Monitoring Strategy.

Air Program-Specific Elements

14. Please describe your **inventories** of oil and gas exploration and production sources and activities. (10.3.1.)

DEP Response: In accordance with Section 4(3) of the Air Pollution Control Act (35 P. S. § 4004(3)) and 25 Pa. Code § 135.3 (relating to reporting), the Department is authorized to collect air quality emissions inventories, including those from owners and operators of facilities engaged in the following: coal bed methane gas compressing, processing and related activities; unconventional natural gas development, production, transmission, processing and related activities; and conventional natural gas compressing, processing and related activities. Complete source reports, including emissions data must be submitted to the Department no later than March 1 of each year for operations during the preceding calendar year.

In addition, Section 3227 (relating to air contaminant emissions) of Act 13 of 2012 requires the reporting of air contaminant emissions to the Department for unconventional natural gas operations. Section 3227 provides as follows:

“An owner or operator of a facility conducting natural gas operations in unconventional formations including development, production, transmission and processing shall submit to the department a source report identifying and quantifying actual air contaminant emissions from any air contamination source.

The report shall include a description of the methods used to calculate annual emissions.”

On December 6, 2011, DEP notified 99 potentially affected owners and operators of the new emission inventory report requirements for unconventional natural gas operations, in accordance with the requirements in 25 Pa. Code § 135.3. The emissions data was due to

DEP by March 1, 2012 for the 2011 calendar year. DEP granted extensions to submit the emission data on a case-by-case basis for “reasonable cause.” The DEP notified the owners and operators of compressor stations, regardless of the natural gas processed that complete source reports must be submitted to the Department. Air contaminants reported to DEP for unconventional natural gas operations during the 2011 calendar year include carbon monoxide, NO_x, particulate matter (PM₁₀ and PM_{2.5}), sulfur dioxide and volatile organic compounds. Additionally, emissions of hazardous air pollutants, including benzene, ethylbenzene, formaldehyde, N-hexane, toluene and 2,2,4-trimethylpentane, were also reported to the department.

The sources and activities identified by DEP as being subject to the emissions reporting requirements include the following: drill rigs, well heads and well completions (unconventional natural gas activities); compressor stations; dehydration units; fugitives, such as connectors, flanges, pump lines, pump seals and valves; heaters and reboilers; pneumatic controllers and pumps; stationary engines; tanks, pressurized vessels and impoundments; venting; and blow down systems.

Emission statements for stationary sources emitting 50 and 100 tons per year of volatile organic compounds and oxides of nitrogen, respectively, are required to be submitted to the Department as required under 25 Pa. Code § 135.21 (relating to emission statements).

Oil and gas exploration (well development) inventories are submitted to the Bureau of Oil & Gas. Production source (midstream compressor stations and related equipment) inventory data are submitted to the Bureau of Air Quality. Once submittals are received, staff in the Bureau of Air Quality does quality assurance and compiles the data into files with emission totals by source type, county, company, and well station.

On December 29, 2012, the DEP published notice of the emissions and source reporting requirements for natural gas operations in the *Pennsylvania Bulletin* (42 Pa. B. 7865). This notice applied to any owner and operator involved in unconventional natural gas development in Pennsylvania. Sources and activities at unconventional natural gas operations subject to the emissions reporting requirements include the following: compressor stations; dehydration units; drill rigs; fugitives, such as connectors, flanges, pump lines, pump seals and valves; heaters; pneumatic controllers and pumps; stationary engines; tanks, pressurized vessels and impoundments; venting and blow down systems; well heads; and well completions. The source reports are due for activities at all unconventional natural gas wells and facilities that support the unconventional natural gas wells.

The source reporting requirements also applied to any owner and operator of natural gas compressor stations regardless of whether the natural gas was processed at a conventional or unconventional well site. Complete source reports including emissions data for unconventional natural gas operations during the 2012 calendar year were required to be submitted to the Department no later than March 1, 2013. The notice specified that subsequent source reports and annual emissions inventories will be due to the Department by March 1 each year for operations during the preceding calendar year. Emission statements required for stationary sources emitting 50 and 100 tons per year of volatile organic compounds and oxides of nitrogen, respectively, should have already been

submitted to the Department as required under 25 Pa. Code § 135.21 (relating to emission statements).

The source reports for the 2013 calendar year were due to DEP by March 1, 2014. DEP provided two reporting formats for the submission of the data. Well owners and operators reported emissions data electronically to the Oil and Gas Reporting Electronic (OGRE) database. The mid-stream owners/operators submitted completed emission inventory spreadsheets to the Department via an email account. The owners and operators of certain natural gas and/or coal-bed methane air contamination sources submitted emission inventories and source reports for 2013 as follows:

- 56 owners/operators reported to the OGRE system representing approximately 10,274 active unconventional well permits; and
- 67 owners/operators submitted reports for mid-stream operations representing approximately 434 compressor stations.

Emissions data was reported to DEP for following types of facilities in operation during the 2013 calendar year: (1) coal bed methane gas compressing and processing facilities and related activities; (2) unconventional natural gas development, production, transmission, processing, and (3) conventional natural gas compressing and processing facilities and related activities.

Emissions inventory data for the 2011-2013 calendar years are summarized below.

EMISSIONS REPORTED for NATURAL GAS OPERATIONS
Expressed in Tons per Year

Year	Number of Well Sites Reporting	Number of Midstream Facilities Reporting	Carbon Monoxide (CO)	Nitrogen Oxides (NOx)	Particulate Matter (PM10)	Sulfur Dioxide (SO2)	Volatile Organic Compounds VOCs
2011	8,976	140	6,852	16,542	577	122	2,820
2012	8,687	400	7,350	16,361	600	101	4,024
2013	10,277	433	6,606	17,659	670	159	4,790

This emissions inventory data does not include emissions from well development and operations at conventional, shallow natural gas or oil wells in Pennsylvania. DEP estimates these emissions using an EPA emissions estimation tool; the data can be accessed at the above web site. The 2014 emissions data received in March 2015 are

currently under review.

Emission inventory instructions and applicable spreadsheets are available on the DEP web site:

<http://www.portal.state.pa.us/portal/server.pt/community/Emission%20Inventory/21810>.

15. Describe how the air program addresses the reporting and correction of **unplanned and episodic emissions**. (10.3.2.)

DEP Response: The Department's General Plan Approval and/or General Operating Permit for Natural Gas Compression and/or Processing Facilities specifies (GP-5) the following conditions for the reporting and correction of unplanned and episodic emissions:

The owner or operator shall notify the Department by telephone within twenty-four (24) hours of the discovery of any malfunction at a natural gas compression and/or processing facility operating pursuant to this General Permit, or any malfunction of pollution control equipment associated with a facility, which results in, or may possibly be resulting in, the emission of air contaminants in excess of any applicable limitation specified herein. Following the telephone notification, a written notice shall also be submitted to DEP as specified below.

(i) If the owner or operator is unable to provide notification by telephone to the appropriate Regional Office within twenty-four (24) hours of discovery of a malfunction due to a weekend or holiday, the notification shall be made to the Department by no later than 4 p.m. on the first business day for the Department following the weekend or holiday.

(ii) Any malfunction that poses an imminent danger to the public health, safety, welfare, or environment shall be reported by telephone to the Department and the County Emergency Management Agency immediately after the discovery of an incident. The owner or operator shall submit a written report of instances of such malfunctions to the Department within three (3) business days of the telephone report.

(iii) Unless otherwise required by this General Permit, any other malfunctions shall be reported to the Department, in writing, within five (5) business days of malfunction discovery.

Failure to comply with applicable reporting requirements is a violation of the Air Pollution Control Act, its implementing regulations and applicable provisions of the Department's federally approved State Implementation Plan. An owner or operator would be subject to appropriate enforcement action including the assessment of civil penalties.

The DEP does not provide an affirmative defense for emissions occurring during start-up, shutdown and malfunction (SSM) episodes. Therefore, DEP is not required to amend the State Implementation Plan, as required in certain states including Arkansas, Georgia, Illinois, Indiana, Mississippi, Michigan, Virginia, West Virginia and the District of Columbia to address automatic exemptions for emissions occurring during SSM events.

16. Describe how the air program **interfaces with the oil and gas** conservation program on wasted gas from venting and flaring. (10.3.2.)

DEP Response: The DEP's Air Quality and Oil & Gas Management Programs interface regularly and coordinate as needed on air issues related to oil and gas management to ensure comprehensive coverage. Staff from the Air Program, at the request of the Oil and Gas Management Programs provide periodic updates for industry during the Oil and Gas Technical Advisory Board Meetings and generally participate at conferences and workshops, when necessary.

17. Please describe your **air quality monitoring network** as it relates to oil and gas exploration and production activities. Including the following. (10.3.3.)

- a. The number and location of monitors and frequency of monitoring;
- b. Ambient air quality monitoring; and
- c. Sharing with the public the air quality data from the monitoring network.

DEP Response: The Division of Air Quality Monitoring consists of 32 personnel dedicated to operating a statewide network of air monitoring devices. Approximately half of those employees have some duties related to air monitoring near oil and gas facilities. The DEP embarked on a series of short term ambient air monitoring studies in 2010 to determine Pennsylvania specific information related to the oil and gas sector. Based on those short term studies, in 2012, the Department began a long term ambient air quality study focused on natural gas operations in Washington County, PA. The data collection portion of this long-term project was completed in December 2013 and the report will be finalized this summer.

The DEP currently operates 72 air monitoring sites in 39 of Pennsylvania's counties. While not all monitoring sites are related to oil and gas operations approximately half of those (34) are in counties impacted by oil and gas operations. Specifically, the Department has installed air quality monitors at several locations in the northern Pennsylvania including Bradford and Tioga counties to monitor for Ozone and NOx ambient air concentrations, as well as VOC monitors in Susquehanna and Wyoming Counties. In 2012, the DEP began operating all of its ozone monitors on a year-round basis to determine if Pennsylvania is experiencing wintertime ozone issues as has been reported in other state with recent gas development activities. Finally, at the conclusion of the data collection portion of the long term ambient air quality study focused on natural gas operations in Washington County, PA the Department retained the primary monitoring site as part of its permanent network.

The locations and sampling frequencies for these air monitoring sites can be found in the latest annual network plan located at the following link:

http://www.dep.state.pa.us/dep/deputate/airwaste/aq/aqm/docs/2014_PA_Air_Monitoring_Network_Plan.pdf

Data collected by AQM can be found on the web at:

<http://www.portal.state.pa.us/portal/server.pt/community/Principal%20Pollutants/21822>

18. Describe the **reporting, emissions inventory and recordkeeping** requirements applicable to various oil and gas activities. (10.3.4.)

DEP Response: The owner or operator of the facility that is authorized to use the General Permit (GP-5) is required to maintain records that clearly demonstrate to the Department that the facility is a synthetic minor facility and not a Title V facility. In addition, the owner or operator of the facility is required to keep records to verify compliance with the facility-wide emission limitations. The records must be maintained at a minimum on a monthly basis and the emissions must be calculated on a 12-month rolling sum. The owner or operator is required to retain the records for a minimum of five (5) years and make them available to the Department upon request. The DEP reserves the right to request additional information necessary to determine compliance with the General Permit.

The owner or operator is also required to demonstrate compliance with the Permit Exemption Category No. 38 within 180 days after the well completion or installation of a source.

All owners and operators of companies involved in certain natural gas related activities in Pennsylvania must submit to the DEP source reports on their facilities' air emissions. These activities include coal bed methane gas compressing, processing and related activities; unconventional natural gas development, production, transmission, processing and related activities; and conventional natural gas compressing, processing and related activities.

19. Describe the oil and gas **emission tools** used in determining sources to be reported to EPA every three years. (10.3.4.)

DEP Response: All owners and operators of companies involved in certain natural gas related activities across this Commonwealth must submit to the Department source reports on their facilities' air emissions. These activities include coal bed methane gas compressing, processing and related activities; unconventional natural gas development, production, transmission, processing and related activities; and conventional natural gas compressing, processing and related activities. The oil and gas emission inventories submitted to the DEP will be submitted to EPA every three years. The owners/operators of the natural gas operations are required to identify and specify the methodologies used to calculate emissions; this information is included as part of the data submittal discussed in response to question 14.

Complete emission inventories are submitted to EPA on a three year basis as required by the federal Air Emissions Reporting Rule (40 CFR, Part 51, Appendix A). The DEP reports the data discussed in question 14. In addition, the Department uses the EPA reporting tool for natural gas operations to estimate the emissions from those sources not required to report on an annual basis to the Department. The tool can be found at this web site:

<http://www.epa.gov/ttn/chief/net/2011inventory.html>.

20. Describe methods you are using to develop air quality **emission projections** related to oil and gas, and methods used in making the information available to the public. (10.3.4.)

DEP Response: The DEP projected emissions from unconventional gas activities in three State Implementation Plan (SIP) revisions developed for the Scranton Wilkes-Barre area, the Pittsburgh Beaver-Valley area, and the Johnstown area. The DEP provided a 30-day public comment period for each of the proposed SIP revisions. The three SIP revisions each contain an explanation of the projection methodology and the projected emission estimates. These SIP revisions are also available, on the Department's website, to the general public.

Because unconventional oil and gas source category is a relatively new source of air emissions in Pennsylvania, historical information that could be used for projecting emissions is not available from the traditional sources of information used by the Department to project other types of emissions. Emissions from unconventional gas extraction were separated into two categories: 1) drilling activities; and 2) gas production activities. Emissions from drilling activities were conservatively estimated to remain unchanged into the future. Drilling activities have actually seen a decrease in the Commonwealth from the 2011 emissions base year which was used in the SIP revisions. For unconventional gas production, the DEP developed emission projections that were based on the previous five years of production volume data submitted to the DEP by natural gas extraction companies. Past production volume trends were projected in a straight line into the future to obtain a surrogate growth factor that was used to estimate emission growth.

As provided in section 13.2 of the Air Pollution Control Act, 35 P.S. 4013.2, emissions data submitted to the DEP is not confidential information. The emissions data is posted on DEP's website. In addition to webinars, DEP has also issued press releases regarding the emissions inventories for unconventional natural gas operations.

21. Please describe the criteria used for the **reporting of significant releases** to the air, and required emergency response reports and actions. (10.3.5.)

DEP Response: The General Plan Approval and/or General Operating Permit (GP-5) issued by the DEP includes the following requirements for the reporting of significant releases to the air.

The owner or operator must notify the Department by telephone within twenty-four (24) hours of the discovery of any malfunction at a natural gas compression and/or processing facility operating pursuant to this General Permit, or any malfunction of pollution control equipment associated with a facility, which results in, or may possibly be resulting in, the emission of air contaminants in excess of any applicable limitation specified herein. Following the telephone notification, a written notice shall also be submitted to DEP as specified below.

- (i) If the owner or operator is unable to provide notification by telephone to the appropriate Regional Office within twenty-four (24) hours of discovery of a malfunction due to a weekend or holiday, the notification must be made to the DEP by no later than 4 p.m. on the first business day for the Department following the weekend or holiday.
- (ii) Any malfunction that poses an imminent danger to the public health, safety, welfare, or environment must be reported by telephone to the Department and the County Emergency Management Agency immediately after the discovery of an incident. The owner or operator must submit a written report of instances of such malfunctions to the Department within three (3) business days of the telephone report.
- (iii) Unless otherwise required by this General Permit, any other malfunctions must be reported to the Department, in writing, within five (5) business days of malfunction discovery.

22. Please describe your **long-term planning, prioritization and evaluation** process. (10.3.6.)

DEP Response: The emissions data collected annually will allow DEP to quantify and assess air contaminant emissions from unconventional natural gas operations. In addition to developing comprehensive emissions inventories for submission to EPA, the data collected will provide information concerning the effectiveness of emission reduction strategies and regulations. DEP will also use the emissions data for air quality assessments and planning activities including the development of attainment demonstrations submitted to EPA for approval as SIP revisions.

The statutorily prescribed deadlines specified in the federal Clean Air Act, the Pennsylvania Air Pollution Control Act and regulations adopted under the acts are generally used to establish priorities for programmatic activities. In addition to priorities established by the Governor's Office and DEP's Executive staff, federal grant commitments including Section 105 grant deliverables are also considered when prioritizing projects.

Section 4.3 of the APCA requires the Department to conduct an evaluation and submit a report to the General Assembly that evaluates the effectiveness of the programs adopted to implement the federal Clean Air Act requirements. This evaluation should be conducted five years after the effective date of the provision and every five years thereafter. The reports may be found at this web site:
http://www.portal.state.pa.us/portal/server.pt/community/general_information/21814.

The Department intends to issue the next 5-year report this summer.

23. Please provide any additional information pertaining to the air quality control of oil and gas exploration and production facility emissions that you feel would be beneficial to the review team in the preparation of the review report. This should include any **'above and beyond'** program functions that may be of interest to other states.

DEP Response: Leak Detection and Repair (LDAR) Requirements. Pennsylvania's LDAR Program, minimizes the release of fugitive emissions. As the first state in the country to require comprehensive leak detection and repair program at natural gas operations, although implemented differently than other states, we continue to regulate methane as stringently and effectively as any other state in the nation.

Pennsylvania's leak detection programs require operators to conduct leak detection and repair programs monthly using audible, visual and odor detection (AVO) methods. In addition, on a quarterly basis, operators must use leak detection monitoring devices, such as a forward looking infrared (FLIR) camera, to detect methane leaks. All methane leaks at compressor stations or processing facilities must be fully repaired, completely eliminating the leak in 15 days or less.

On well pads, leak detection and repair must be conducted annually and include the entire well pad, not just the natural gas liquids tanks and piping as required by the EPA for the oil and gas sector. Going above what is required by EPA, any detected leaks on well pads in Pennsylvania are also required to be repaired within 15 days. Failure to comply with any criteria associated with the operation of a well pad may result in the requirement for that operator to cease operations.

DEP also incorporates leak detection and repair requirements as a permit condition for natural gas transmission projects.

At a minimum, an owner or operator of affected sources located at the wellheads, tanks, must comply with the following LDAR requirements:

- Within 180 days after the start- up of an air contamination source, and annually thereafter, the owner/operator shall develop and perform a leak detection and repair (LDAR) program that includes the use of an optical gas imaging camera such as a FLIR camera or a gas leak detector capable of reading methane concentrations in air of 0% to 5% with an accuracy of +/- 0.2%. The owner/operator may request, in writing, the use of other leak detection monitoring devices, approved, in writing, by the Department.
- The LDAR program must be conducted on valves, flanges, connectors, storage vessels/storage tanks, and compressor seals in natural gas or hydrocarbon liquids service. A release from any equipment or component designed by the manufacturer to protect the equipment, controller(s), safety of personnel, to prevent ground water contamination, to prevent gas migration, or an emergency situation is not considered a leak. Leaks must be repaired no later than 15 calendar days after leaks are detected unless facility shutdowns or ordering of replacement parts are necessary for repair of the leaks.
- The owner/ operator must submit a written request to the appropriate regional office for an extension of LDAR deadlines. This includes extensions required due to facility shutdowns and/or the ordering of replacement parts. The written request shall also include the reason(s) for the extension request and the schedule for

completion of the repairs. The Department may grant an extension of the LDAR deadlines based upon the written request.

- The optical gas imaging camera or other Department-approved gas leak detection equipment must be operated in accordance with manufacturer-recommended procedures. For the storage vessel, any leak detection and repair must be performed in accordance with 40 CFR Part 60, Subpart OOOO.
- A leak is considered repaired if one of the following can be demonstrated:
 - No detectable emissions consistent with EPA Method 21 specified in 40 CFR Part 60, Appendix A;
 - A concentration of 2.5% methane or less using a gas leak detector and a VOC concentration of 500 ppm or less;
 - No visible leak image when using an optical gas imaging camera;
 - No bubbling at leak interface using a soap solution bubble test specified in EPA Method 21; or a procedure based on the formation of bubbles in a soap solution that is sprayed on a potential leak source may be used for those sources that do not have continuously moving parts and that do not have a surface temperature greater than the boiling point or less than the freezing point of the soap solution; or
 - Any other method approved, in writing, by the Department.
- The owner or operator of a facility must, at a minimum, on a monthly basis perform audible, visual, and olfactory (AVO) inspections.

LDAR Recordkeeping Requirements

- The owner or operator must maintain a log for the results of each monthly AVO inspections, including date of each inspection performance and the name of the company representative performing the inspection.
- Leaks, repair methods and repair delays must be recorded and maintained for a period of five years.
- All information generated to satisfy this recordkeeping condition must be kept for a minimum of five years and shall be made available to the Department upon request.

Adoption and Incorporation of Federal Rules

Certain federal requirements including New Source Performance Standards, NESHAPs and MACT requirements are automatically adopted in their entirety and incorporated by reference in the *Pennsylvania Code*. The federal rules are effective in Pennsylvania on the same date—no additional rulemaking is necessary. This streamlined approach allows DEP to move forward expeditiously with the implementation and enforcement of federal requirements in the Commonwealth.

APPENDIX C: 2014 STRONGER AIR QUALITY GUIDELINES



2014 Air Guidelines

State Review of Oil & Natural Gas Environmental Regulations, Inc.
www.strongerinc.org

SECTION 10

AIR QUALITY

10.1. Background

As a result of the increased development of oil and natural gas from shale formations in recent years, concerns about air emissions have become more focused. On August 16, 2012, EPA published 3 final rules for the Oil and Natural Gas Sector (NSPS OOOO, for the control of VOC and SO₂ emissions; and NESHAP HH/HHH, for the control of hazardous air pollutant emissions). The NSPS applies to sources that are new, modified or reconstructed since August 2011. It requires that companies reduce completion flowback emissions from hydraulically fractured and refractured gas wells by employing reduced emissions completions (aka “green completions”), control emissions from storage vessels by 95%, use low or no bleed pneumatic controllers in the production segment, use no bleed controllers at gas plants, replace reciprocating compressor seals every 26,000 hours of operation or three years, reduce wet seal centrifugal compressor emissions by 95%, and implement more stringent leak detection and repair programs at gas plants.

The NESHAP HH/HHH rules amended provisions to currently codified rules. In particular, the amendments set new standards for small glycol dehydrators, lowered the leak detection threshold at gas plants and amended the definition of “associated equipment” used in making major source determinations at well sites.

In response to petitions for administrative reconsideration of the 2012 rules, EPA is working on changes over the next several years to improve the effectiveness and practicability of programs.

10.2. Administrative

Where necessary, and recognizing the local and regional differences discussed in Section 3.3, states should have standards to prevent the contamination of air. While oil and gas regulatory agencies have many environmental responsibilities for oil and gas operations, the air programs are typically regulated by sister state environmental protection or health agencies and are given statutory and regulatory powers as described below. The state should develop procedures for regular evaluation and consideration of the appropriateness and adequacy of the regulatory program.

10.2.1. Scope of Authority

An effective state program for the regulation of air emissions from oil and gas exploration and production activities should include, at a minimum:

1. Statutory authority that adequately details the powers and duties of the respective regulatory body or bodies;
2. Statutory authority that grants the regulatory body (or bodies) the power to oversee air emissions from upstream oil and gas activities, including production, gathering, compression and processing. This authority should include the ability to promulgate appropriate rules and regulations and meet the state's obligations under federal law;
3. Statutory authority to promulgate specific requirements that are more stringent than required under the federal Clean Air Act or regulations where necessary and appropriate to protect public health and the environment;
4. Authority to accept delegation of federal air quality programs specific to oil and gas;
5. Authority to consider cost effectiveness in setting air emission standards when appropriate, as well as to exempt facilities or sources based on criteria such as de minimis emissions or by type of source or facility;
6. Statutes and implementing regulations which adequately and clearly define necessary terminology;
7. Provisions to ensure adequate funding for the staff and program to carry out its objectives and duties;
8. Mechanisms for coordination among stakeholders (including the public, federal and state agencies, and the regulated industry); and
9. Technical criteria for air emission controls.

10.2.2. Jurisdiction and Cooperation Between Agencies

The Clean Air Act establishes a dual federal/state system for

establishing requirements to protect public health and the environment, and to oversee air pollution sources, including oil and gas exploration and production (E&P) operations. Under this framework, states are required to establish State Implementation Plans (SIPs) that contain sufficient requirements to attain and maintain compliance with National Ambient Air Quality Standards. Separate from the SIP process, states may, but are not required to, accept delegation of certain federal air quality requirements such as the preconstruction Prevention of Significant Deterioration (PSD) permitting program, the Title V permit program or New Source Performance Standards. If a state does not accept delegation of a particular federal requirement, EPA retains responsibility for implementing and enforcing that requirement.

Within states that do accept delegation, jurisdiction over air quality issues related to E&P facilities may be split between the state air quality agency, local air quality agencies and/or the agency with jurisdiction over oil and gas drilling and production. Finally, because states have no jurisdiction over air pollution sources on tribal lands, responsibility for implementation and enforcement of air quality requirements for E&P sources on these lands is held by EPA or the tribes.

Where multiple state, federal or tribal authorities have jurisdiction over air quality issues, mechanisms should be in place to avoid duplication, regulatory gaps or inconsistent air quality requirements or enforcement of such requirements. Such mechanisms could include formal Memoranda of Understanding, established interagency task forces, regular periodic meetings between agency staff, and joint inspections of facilities. In addition to ensuring proper coordination, agencies should communicate with the regulated community and the public to make it clear which agency has jurisdiction over a particular area or is responsible for enforcing a given set of air quality requirements.

10.2.3. Permits, Authorizations and Exemptions

States with approved Clean Air Act permitting authority should adopt an air quality permitting program for emission sources in the oil and gas industry that is legally and practically enforceable and harmonizes with federal requirements to avoid confusing and duplicative requirements for operators. The program should allow the state to adopt additional air quality requirements beyond federal requirements to address state-specific air quality issues. State permits should clearly establish what performance standards and/or

emission control requirements are required for each covered source.

State air quality permitting programs should be designed to protect human health and the environment while allowing oil and gas development to proceed promptly and efficiently to provide continued, responsible growth in US oil and natural gas production. Therefore, state air quality permitting programs should be straightforward for operators to understand and implement, and administratively efficient for the regulatory agency to minimize cost in time and resources. To accomplish this, states are encouraged to simplify the application process, make available accepted emission estimation methods, make permit application assistance tools available to the operator, establish and make clear permit exemption criteria, and employ construction general permits or permits by rule that also serve as final permits to operate.

When emissions are difficult to estimate due to uncertainty of source throughput and composition, states should also consider mechanisms, similar to some federal rules (e.g., the storage vessel provisions of the Oil and Gas NSPS OOOO that allow an established period for emissions determination before requiring control), that allows operators to construct and operate certain source types for a limited but sufficient period of time to determine actual facility emissions prior to permitting to ensure that permit conditions, including emission control requirements and Federal applicability, are properly informed. States should consider requiring appropriate levels of control during this evaluation period to avoid exceeding regulatory emission thresholds. It is important to note that the construction of a major source without a permit is prohibited by the Clean Air Act.

10.2.4. Compliance Monitoring, Demonstration and Assurance

State programs should contain the following compliance monitoring, demonstration and assurance capabilities:

1. Procedures for the receipt, evaluation, retention, and investigation of all notices and reports required of permittees and other regulated persons. These procedures should ensure that the notices and reports submitted are adequate in both content and frequency to assess compliance with applicable requirements. States should consider integrating electronic reporting systems to improve efficiency and timeliness of data received. Duplicative or unnecessary reporting should be

minimized. Investigation for possible enforcement action should include determination of failure to submit complete notices and reports in a timely manner. Effective data management systems, as described in Section 4.2.7, can be used to track compliance.

2. Inspection and monitoring procedures that are independent of information supplied by regulated persons and which allow the state to determine compliance with program requirements, including:
 - a. The capability to conduct comprehensive investigations, that may include advanced monitoring techniques as appropriate, of facilities and activities subject to regulation in order to identify a failure to comply with program requirements by responsible persons;
 - b. The capability to conduct regular inspections of regulated facilities and activities at a frequency that is commensurate with state priorities based on the risk to health, safety and the environment; and
 - c. The authority to investigate information obtained regarding potential violations of applicable program and permit requirements.
3. Procedures to receive and evaluate information submitted by the public about alleged violations and to encourage the public to report perceived violations. Such procedures should not only involve transparent communications with the public (to apprise it of the process to be followed in filing reports or complaints), but should also communicate how the state agency will assure an appropriate and timely response.
4. Authority to conduct unannounced inspections at a reasonable time of any regulated site or premises where oil and gas activities are being conducted, including the authority to inspect, sample, monitor, or otherwise investigate compliance with permit conditions and other program requirements, such as proper operation of control devices, process operating conditions and control device operating parameters.
5. Authority to enter locations where records are kept during reasonable hours for purposes of copying or obtaining electronic copies and inspecting such records.

6. Procedures to ensure that documents and other evidence are maintained and/or managed such that they can be admitted in any enforcement proceeding brought against an alleged violator, noting that some information may be entitled to confidential treatment (however, it is the source's obligation to identify which information is confidential business information).
7. Authority to require regulated persons to conduct stack testing or other measurements to establish or verify compliance with applicable emission standards, to allow the state to be present for such tests, be given adequate notice of the tests, and to conduct its own tests when deemed appropriate.
8. Authority to require, under statute, regulation or permit, regulated persons to:
 - a. Establish and maintain records;
 - b. Make reports;
 - c. Install, use, and properly maintain monitoring equipment, and use audit procedures, or methods;
 - d. Sample emissions in accordance with prescribed methods;
 - e. Provide stack test protocols and test reports;
 - f. Perform parametric monitoring where direct emissions measurement is impracticable;
 - g. Submit compliance certifications; and
 - h. Provide other information needed to determine compliance on a one-time, periodic or continuous basis.

10.2.5. Enforcement

10.2.5.1 Enforcement Tools

The state agency should have effective enforcement tools to address any violations of the state air program, which may include the following actions:

1. Issue a notice of violation with a compliance schedule;
2. Restrain, immediately and effectively, any person by order or by suit in state court from engaging in any impending or continuing unauthorized activity which is causing or may cause damage to public health or the

environment;

3. Establish the identity of emergency conditions which pose an imminent and substantial human health or environmental hazard that would warrant entry and immediate corrective action by the state agency after reasonable efforts to notify the operator have failed;
4. Sue or cause suit to be brought in courts of competent jurisdiction to enjoin any impending or continuing violation of any program requirement, including any permit condition, without the necessity of a prior revocation of the permit;
5. Require, by administrative order or suit in state court, that appropriate action be undertaken to correct any harm to public health and the environment that may have resulted from a violation of any program requirement, including, but not limited to, establishment of compliance schedules or requiring the source to apply for and obtain permits for previously unpermitted emissions;
6. Encourage Beneficial Environmental Projects or Supplemental Environmental Projects to secure additional environmental benefits through enforcement settlements;
7. After administrative review, revoke, modify, or suspend any permit, or take other enforcement action deemed appropriate by the state, when the state agency determines that the permittee has violated the terms and conditions of the permit, failed to pay an assessed penalty, or used false or misleading information or fraud to obtain the permit;
8. Assess administrative penalties or seek, in court, civil penalties or criminal sanctions including fines and/or imprisonment; or
9. Resolve compliance issues informally, through mechanisms such as settlement agreements or warning letters, in lieu of a formal notice of violation, administrative order, or court order.

As an alternative to the enforcement tools identified above, state programs should have incentives (such as penalty

mitigation and auditing/self disclosure policies) to encourage sources to voluntarily disclose and correct violations.

10.2.5.2 Penalties

States should develop guidance for calculations of penalties that include factors such as the economic benefit resulting from the violation, willfulness, harm to the environment and the public, duration of the violation, the operator's compliance history, and the operator's good faith efforts to comply. Some of the benefits of having guidance for calculation of penalties include: 1) an opportunity to encourage voluntary disclosure of violations; 2) providing consistency and transparency in the assessment of penalties; and 3) providing for the development of readily defensible assessments. Penalties should be such that an operator does not benefit financially from unlawful conduct, and should provide compliance incentive to other operators. States should evaluate their enforcement options and policies to assure that the full range of actions available are effectively used.

10.2.5.3 Right of Appeal

The right to appeal or seek administrative and/or judicial review of agency action should be available to any person having an interest which is or may be adversely affected, or who is aggrieved by any such action.

10.2.6. Staffing and Training

In addition to the general personnel and funding recommendations found in Section 4.3 of the guidelines, state staffing levels should be sufficient to receive, record and respond to complaints of human health impacts and environmental damage resulting from air emissions. Staff should receive adequate training to stay current with federal and state air regulatory requirements, state airshed goals, and industry production practices and technology, especially new and developing air pollution control and monitoring technology. This training should include an oil and gas industry overview to familiarize state agency staff with the sources and monitoring equipment they will be regulating. Training programs to accomplish these goals could include:

1. Training courses or resource materials available through US EPA, multi-state air planning organizations, private sector, industry associations, consortiums and universities;
2. Field visits and tours to oil and gas facilities in the state;
3. Engagement with other states' air regulatory programs;
4. Conference attendance; and
5. Coordination and frequent discussions with other state agencies regulating oil and gas operations, including state oil conservation commissions and divisions.

Additionally, agencies should have a mechanism to assess and implement strategies designed to recruit and retain key agency staff such as:

1. Maintaining competitive salary levels;
2. Creation of new technical positions (air specialists, oil and gas sector specialists, etc.) in the permitting and enforcement programs; and
3. Increasing staff responsibilities via promotion of staff to higher positions (project leaders, team leaders, etc.).

10.2.7. Data Management

In addition to the data management recommendations found in Section 4.2.7 of the guidelines, states should ensure that appropriate data is shared between agencies so that the air quality program has access to the inventory, which includes the level of detail needed to conduct an effective program (locations of oil and gas facilities and a unique identifier for the regulated activity (e.g., API well number)). as necessary to conduct an effective program. After appropriate quality assurance, public information, such as

emissions data, should be made available to the public, air quality researchers and managers, in appropriate user-friendly electronic formats (e.g., data downloads, web services).

10.2.8. Public Involvement

State agencies should provide for the electronic dissemination of educational and other appropriate information regarding air emissions from oil and gas activities to bridge the knowledge gap between experts and the public. This should occur as part of an ongoing process through which information is exchanged in an open forum as provided in Section 4.2.2.2 of the guidelines. This is especially important in areas where development has not occurred historically. The public should also have the ability to ask questions and receive responses through the agency website. States should also use advisory groups of industry, government, and public representatives, or other similar mechanisms, to obtain input and feedback on the effectiveness of state programs as provided in Section 4.2.2.3 of the guidelines.

10.2.9. Outreach

In addition to the public participation provisions found in Section 4.2.2 of the guidelines, states should take measures, such as web postings, FAQs, and distribution of fact sheets, to ensure that the industry, other state agencies and the public are aware of the delineation of responsibilities between the air quality program and the oil and gas program. Provisions should also be made for the availability of speakers to make presentations to interested groups.

10.2.10. Strategic Program and Resource Planning

State air programs for oil and gas will require adequate resources to fulfill state and federal mandates to ensure healthy air quality while providing adequate response time to permit applications and other needs from industry. As with other growing sectors, the oil and gas industry's potential for rapid growth in production basins can challenge the planning process for air programs, since large numbers of facilities can be deployed in production basins and cumulative emissions from new and existing facilities can potentially have significant impacts on air quality.

To address these challenges, and as set forth in these guidelines, states should have adequate resources to conduct necessary regulatory development, permitting, enforcement, monitoring, modeling, inventory development and public outreach activities. Additionally, states should have strategic planning capabilities to ensure that these resources remain adequate in light of dynamic growth in the oil and gas sector and rapid evolution in production technologies.

10.3. Air Program-Specific Elements

10.3.1. Delineation of Sources

States should consider developing an inventory of sources and activities not previously registered or permitted, for example grandfathered facilities and equipment, and non-permitted sources and activities, if information about emissions from those sources is critical for planning and analysis for agency priorities such as efficiently ensuring compliance with air quality standards.

This inventory should be comprehensive but straightforward and relatively simple to administer. However, the state or tribe should make efforts to avoid capture of inconsequential (de minimis) sources that do not impact air quality.

10.3.2. Source-Specific Requirements

These guidelines are developed with particular emphasis on VOC and HAP emissions, and control of these pollutants often reduces methane emissions as a co-benefit. However, there may be some sources that emit dry gas with little or no VOC or HAP content, but that emit methane emissions. Since 1993, industry partners in the EPA voluntary Natural Gas STAR Program have developed and employed a variety of innovative techniques for mitigating methane emissions in the oil and gas sector. The state should be aware of which operators participate in EPA's Natural Gas STAR program and make others aware of the program. States should be aware of regulatory initiatives of other states to address methane/dry gas emissions.

A state's air quality program should identify oil and gas industry emission source types that must be represented in applications for air quality permits or authorizations. Oil and gas emissions source types and activities may include stationary engines and turbines, well completions or recompletions, venting and leaking gas from compressors, gas-powered pneumatic devices, dehydration units, gas processing plants, transmission and storage facilities, storage vessels and condensate handling, wellbore liquids unloading, produced water management facilities, sweetening units and flares.

The state requirements for these source types and activities should align with Federal requirements unless the state needs to establish additional or more stringent requirements. When specific air issues demand more stringent requirements, states may consider adopting, as consistently as possible, provisions by other states that have been implemented to address similar air quality issue, to minimize the impact on state resources.

State air quality programs may want to address unplanned and episodic emissions due to such things as fugitive air emissions upstream of gas processing plants, process upsets, wellbore liquids unloading, third party equipment downtime, and equipment failure. The programs should require incident reporting and corrective actions where possible, to avoid incident recurrence. However, the state should also consider safety aspects when developing new requirements for unplanned emissions.

Finally, because there is a growing concern over wasted gas from drilling operations, the state air quality regulator should consider coordination with the state oil and gas conservation regulator on a process to quantify and minimize the flaring or venting of associated gas from oil wells.

10.3.3. Air Quality Monitoring Networks

Air quality monitoring is an essential tool both to determine compliance with National Ambient Air Quality Standards and to assess the impact of air pollution sources on air quality. State programs should have an air quality monitoring network in place that meets these needs. In developing an air quality monitoring network, states should consider several parameters, including but not limited to: the number of monitors, the types of pollutants to be monitored, the location of monitors, specific monitoring

instrumentation to be used, frequency of monitoring, and appropriate QA/QC procedures. In placing air quality monitors, states should consider factors such as emission source location, population density, topography and meteorology.

Many of the air quality monitoring requirements for states are set forth in implementing regulations for the various National Ambient Air Quality Standards. Additionally, federal permitting requirements for major stationary sources include certain source specific monitoring requirements. States should have appropriate mechanisms in place to ensure that this source specific monitoring is conducted in accordance with established standards and methods.

States may also consider whether to conduct ambient air quality monitoring that goes beyond the standards established under federal law. While states should have considerable latitude in determining whether and how to conduct such additional monitoring, appropriate procedures should be established to ensure that such monitoring, if undertaken, accurately assesses ambient air quality levels. As part of this additional monitoring, states should consider, where possible, establishing baseline air quality levels in order to assess the impact of emission source changes.

Areas with significant oil and gas production activity may have few or no regulatory air quality monitors, because these areas may not meet typical criteria for siting of monitors, such as population density. States should consider whether to add monitors in these areas to assess emissions from present or anticipated increases in oil and gas activity.

Once it has gone through appropriate QA/QC procedures, air quality data should be publicly available. Options for making data available could include putting it on-line or publishing regular air quality reports. US EPA makes limited criteria air pollutant data from state air monitors available through federal websites, such as AIRNow.gov. Agencies should consider whether to make data additionally available through their own websites to allow greater context and address local issues and concerns.

10.3.4. Reporting, Emission Inventories and Recordkeeping

States should develop and periodically update accurate and robust emission inventories as necessary to conduct good air quality planning and program assessment. States should establish

emission reporting requirements for air pollution sources that adequately support their efforts to develop high quality emission inventories. For individually small sources of air pollution that don't report (commonly called nonpoint sources), states should use the best available methodologies to quantify emissions. As states review and update their inventories they should work with industry and other stakeholders to identify the types of oil and gas sources which can produce significant emissions, and determine when updates to inventories are needed due to new information, changes to emission inventory compilation methodologies, or changes in production or operational practices.

States should consider using the EPA's oil and gas emissions tool(s) for computing nonpoint sources of oil and gas emissions. EPA provides the tool, instructions, and other guidance for computing these emissions as part of its National Emissions Inventory (NEI) program available on the Clearinghouse for Inventories & Emissions Factors (CHIEF). The tool allows for local inputs to be added by states to improve their emissions estimates. EPA also develops projection methods available on the CHIEF Emissions Modeling Clearinghouse for use by states.

Every three years, states are required to submit to EPA all sources of emissions of criteria pollutants and their precursors (Air Emissions Reporting Requirements, 40 CFR Part 51, Subpart A). This includes both point and nonpoint sources for the oil and gas sector.

States should also develop well-founded emission projections, to ensure that air quality standards will continue to be met in the future. Best available data and methods should be used for these projections. As with other growing emission sectors, development of oil and gas can result in rapid increases in emissions in a given area, so states should develop programs that can keep pace. Projections which consider emissions under a range of alternative future conditions, such as the effect of changing industry practices and regulations, will yield better results than those that are based on single factors.

After administrative review, emission inventories and projections and reported emission data should be readily available to the public, including documentation of methodology, data sources, and assumptions made in producing the inventory. The inventory development process should include stakeholder review so that the general public and the regulated community can provide input.

Furthermore, consistent calculations methods, based on the gas and condensate compositions for specific formations and basins, should be applied. If included in SIPs, the public review process is a requirement for those current and projected inventories used for both nonattainment area inventories as well as modeling inventories.

10.3.5. Corrective Actions and Emergency Response

The states should establish clear criteria for the emergency reporting of significant, non-routine releases to air. These criteria should consider factors such as the mass and type of constituents released and the proximity of the release to sensitive receptors.

Agencies responsible for receiving emergency notifications of reportable releases to air should be identified and be responsible for the coordination, as appropriate, of any necessary response action with the operator, state and local emergency responders, environmental and/or public health agency and any other agency responsible for public protection.

States should ensure that community residents are notified when potentially hazardous air releases occur and should ensure that companies, in addition to emergency responders, take necessary actions to minimize public exposure.

States should require operators to submit reports that contain information on the cause of the release, the type(s) and amount(s) of pollutants released and the corrective actions the company implemented, to aid in the prevention of incident recurrence.

State air regulators should have appropriate air monitoring equipment necessary to support emergency response activities.

10.3.6. Long-Term Planning, Prioritization and Evaluation

In addition to the program planning and evaluation provisions found in Section 4.2.3 of the guidelines, states should have a good understanding of oil and gas operations, including exploration and production; gathering, boosting, processing, and transmission; and accurate inventories and projections of air emissions. Because

emissions characteristics, operational requirements, and operational approaches can vary widely by basin, it is critical for regulators to involve interested stakeholders (including oil and gas producers and environmental and citizen groups) in the planning and evaluation processes. Periodic analyses should be completed to ensure that air quality will remain protective of public health and the environment, in accordance with state and federal statutes and regulations, as industry evolves and grows.

There are and will be a number of federal regulations applicable to oil and gas operations that must be assessed for state adoption, incorporated by reference into state regulations, or left to US EPA for implementation. In most states, these federal regulations become the base of the state air regulatory program. State air regulatory program planning must consider the air quality impacts of federal regulations. Airsheds with oil and gas basins that have measured or modeled concentrations of air pollutants near or above the NAAQS, considerable existing or planned development, and/or geographic conditions (topography and meteorology) that can create stagnant air, may require specific, specialized analyses to assess the short-term and long-term status of compliance with the NAAQS. Collaboration with industry and other stakeholders is very important to ensure that the analyses are comprehensive, scientifically sound and adequately address the relevant questions and issues. Technical collaborations may be more successful when accomplished within a structured process that clearly defines the roles and responsibilities of participants, procedures for widely disseminating analysis design, solicitation of comments, processes for responding to comments, and other opportunities for feedback.

Analyses of criteria pollutant trends, comprehensive emissions trends, and projections of pollutant concentrations, visibility, and deposition are important indicators for evaluation of state air programs. In the process of developing a strategic plan, states may develop specific airshed goals to reduce the impacts of pollutants. The development of these goals should be based upon careful analysis of state needs, priorities, available resources, and applicable state and federal regulations.

Additional program goals could include (i) the development and implementation of an effective stakeholder outreach and education program; (ii) the development of incentives for additional pollution control, such as streamlined permitting programs, permits by rule, and other permitting options that simplify the application and review process while promoting air pollution control; (iii) the development and posting of guidelines, policies and templates that result in

efficiencies in the permitting and enforcement processes while encouraging good practice; (iv) the creation of voluntary programs that recognize operators adopting additional air pollution measures; and (v) the development or improvement of an air monitoring network in areas with oil and gas activity, emissions inventories and calculation methods, and air modeling tools.

Regarding evaluation, performance metrics could include an evaluation of ambient pollutant concentrations, emissions trends, permit response time, appropriateness of permitting options, and clarity of conditions required for compliance. States should give consideration to the frequency of the evaluation of these types of metrics as well. Evaluation of emissions trends and modeling data may be more suited to an annual or periodic basis, whereas other metrics, such as stakeholder outreach and monitoring, may be done more frequently. The state agency should identify the set of measures that is most applicable to the goal and then determine the schedule for program evaluation.