

Unconventional Natural Gas Drilling Complaint Report - September 2016

PADOH responds to all citizen health concerns related to natural gas drilling activities by providing health-focused information including any response necessary to protect public health. These concerns are reported through the DOH web portal by phone, fax, physician, healthcare facility or referrals from State and Federal agencies. From March 2011 through September 2016, 130 complaint investigations have been recorded with 87% of these representing households. Individuals seen by a physician represent 22% of all complaints. Complainants are primarily female (50%) with the primary age group being 18-64 years. The most often reported sources are well water (34%), and air quality, (28%).

Number of received complaints

| | 2011 | 2012 | 2013 | 2014 | 2015 | September 2016 | Year to date | Cumulative |
|--------------------------|------|---------|---------|---------|----------|----------------|--------------|------------|
| Individuals | 4 | 21 | 23 | 42 | 48 | 1 | 58 | 196 |
| Households | 4 | 16 | 16 | 25 | 24 | 1 | 28 | 113 (87%) |
| Seen by Physician | 1 | 8 (38%) | 9 (39%) | 5 (12%) | 13 (27%) | 0 | 7 | 43 (22%) |

Notes: Investigations were first recorded beginning March 31, 2011. The cumulative column lists number of individuals (196) with a health-related complaint. This number differs from the total number of investigations (130), as one investigation may include more than one individual.

| Demographics | 2011 | 2012 | 2013 | 2014 | 2015 | September 2016 | Year to date | Cumulative |
|---------------------|------|------|------|------|------|----------------|--------------|------------|
| Sex | | | | | | | | |
| F | 2 | 12 | 12 | 20 | 23 | 0 | 29 | 98 (50%) |
| M | 1 | 4 | 11 | 20 | 18 | 1 | 29 | 83 (42%) |
| Unspecified | 1 | 5 | 0 | 2 | 7 | 0 | 0 | 15 (8%) |
| Race | | | | | | | | |
| White | NR* | NR | NR | 2 | 26 | 1 | 58 | 86 |
| Black | NR | NR | NR | NR | NR | 0 | 0 | 0 |
| Other | NR | NR | NR | NR | NR | 0 | 0 | 0 |
| Ethnicity | | | | | | | | |
| Hispanic | NR | NR | NR | NR | NR | 0 | 0 | 0 |
| Non-Hispanic | NR | NR | NR | 2 | 26 | 1 | 58 | 86 |
| Age Groups | | | | | | | | |
| 0-17 | 2 | 2 | NR | 3 | 5 | 0 | 12 | 24 |
| 18-64 | 1 | 3 | 1 | 4 | 18 | 1 | 42 | 65 |
| 65+ | NR | 1 | NR | 2 | 10 | 0 | 4 | 18 |

| Complaint type | 2011 | 2012 | 2013 | 2014 | 2015 | September 2016 | Year to date | Cumulative ** |
|-----------------------|------|------|------|------|------|----------------|--------------|---------------|
| Water | 4 | 7 | 9 | 9 | 15 | 1 | 22 | 66 (34%) |
| Soil | 0 | 0 | 1 | 1 | 2 | 0 | 2 | 6 (3%) |
| Air | 1 | 8 | 8 | 13 | 11 | 0 | 13 | 54 (27%) |
| Noise | 0 | 1 | 2 | 6 | 4 | 0 | 12 | 25 (13%) |
| Other | 1 | 0 | 1 | 11 | 3 | 1 | 8 | 24 (12%) |

| Reported symptoms | 2011 | 2012 | 2013 | 2014 | 2015 | September 2016 | Year to date | Cumulative |
|-------------------|------|---------|---------|----------|----------|----------------|--------------|------------|
| Respiratory | 2 | 2 (10%) | 5 (22%) | 14 (33%) | 12 (25%) | 1 | 29 | 65 (32%) |
| Headache | 0 | 1 (5%) | 0 | 6 (14%) | 9 (19%) | 0 | 12 | 29 (15%) |
| Nose bleed | 2 | 1 (5%) | 2 (9%) | 2 (5%) | 2 (4%) | 0 | 11 | 20 (10%) |
| Throat | 2 | 2 (10%) | 0 | 2 (5%) | 4 (8%) | 0 | 21 | 32 (16%) |
| Rash | 2 | 6 (29%) | 6 (26%) | 6 (14%) | 8 (17%) | 0 | 29 | 56 (29%) |
| Vision | 1 | 0 | 1 (4%) | 3 (7%) | 3 (6%) | 0 | 6 | 15 (8%) |
| Hearing | 0 | 1 (5%) | 2 (9%) | 0 | 1 (2%) | 0 | 2 | 6 (4%) |
| Cardiac | 1 | 1 (5%) | 1 (4%) | 0 | 5 (10%) | 0 | 2 | 11 (6%) |
| Anxiety/Stress | 2 | 1 (5%) | 0 | 4 (10%) | 8 (17%) | 1 | 38 | 52 (27%) |
| Comorbidities*** | 1 | NR | 2 (9%) | 7 (17%) | 14 (29%) | 0 | 15 | 40 (20%) |

| Summary of Investigations by Oil & Gas District March 31, 2011 to September 30, 2016 | | Summary of Referrals March 31, 2011 to September 30, 2016 | |
|--------------------------------------------------------------------------------------|----|-----------------------------------------------------------|----|
| Southwest | 42 | Referred from DEP to DOH | 25 |
| Northeast | 39 | Referred to DEP from DOH | 2 |
| Northcentral | 29 | DEP/DOH collaborating | 23 |
| Southeast | 7 | State Legislators to DOH | 4 |
| Northwest | 5 | Direct from complainant to DOH | 24 |
| Southcentral | 3 | Referral unknown/other | 57 |

Notes: Summary of investigations by district shows a total of 125, however, this number *does* not include 5 investigations which did not identify a county, district, or other identifier to determine the location.

Summary of referrals total 135. This number includes 10 investigations which were referred from the DOH and not investigated as a health complaint.

Related Items

- As of September 30, 2016, no pattern can be determined for seasonality.
- Comorbidities are primarily respiratory and cardiac related.
- Multiple symptoms are most often reported. The most common grouping include rash, respiratory and stress.
- As of September 30, 2016, Pennsylvania has a total of 8,547 *active unconventional* gas wells. Washington County has the highest number of active wells, (1,377), followed by Susquehanna, (1,213) and Bradford, (1,092). Of the 67 counties, 35 have active unconventional gas drilling activities occurring.

* Not Reported

** Cumulative percentages for complaint type and symptoms are based on total number of individuals (196). In addition, a complaint investigation may include more than one reported type.

*** Comorbidities are health conditions that co-occur and are often associated with worse health outcomes. For this report, a comorbidity is counted only if diagnosed by a physician.

