



**GROUP AGAINST SMOG & POLLUTION**  
1133 South Braddock Avenue, Suite 1A  
Pittsburgh, PA 15218  
(412) 924-0604  
<http://www.gasp-pgh.org>

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June 23, 2016

**VIA EMAIL: [dstern@achd.net](mailto:dstern@achd.net)**

Mr. Darrel Stern, Chief of Monitoring  
Allegheny County Health Department  
Air Quality Program  
301 39<sup>th</sup> Street  
Pittsburgh, PA 15201

Re: **Comments to 2015 Air Monitoring Network Plan**

Dear Mr. Stern:

Please accept the following comments of the Group Against Smog and Pollution (“GASP”) regarding the ACHD’s Air Network Monitoring Plan for 2017. Notice of draft Plan is posted on ACHD’s website, which states that public comments will be received if submitted by before June 23, 2016.

Thanks in advance for your consideration of these comments.

Very truly yours,

/s

John K. Baillie  
Staff Attorney

**COMMENTS OF THE GROUP AGAINST SMOG AND POLLUTION (“GASP”)  
REGARDING THE ALLEGHENY COUNTY HEALTH DEPARTMENT’S  
AIR MONITORING NETWORK PLAN FOR 2017**

The Clean Air Act requires each state implementation plan to “provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to ... monitor, compile, and analyze data on ambient air quality.”<sup>1</sup> 40 C.F.R. Part 58 specifies state implementation plan requirements for monitoring and reporting data regarding ambient air quality, including “[m]inimum ambient air quality monitoring network requirements.”<sup>2</sup> Ambient air quality monitoring networks operated by state or local agencies must satisfy the criteria in Appendix D to Part 58.<sup>3</sup>

**I. ACHD’S AIR MONITORING NETWORK MUST INCLUDE SO<sub>2</sub> MONITORS LOCATED DOWNWIND FROM THE CHESWICK POWER STATION AND AT ACHD’S EXISTING MONITORING STATION IN GLASSPORT**

Appendix D to Part 58 identifies three basic monitoring objectives: the provision of timely air pollution data to the public;<sup>4</sup> supporting compliance with ambient air quality standards and emissions strategy development;<sup>5</sup> and supporting air pollution research studies.<sup>6</sup> “Monitoring sites must be capable of informing managers about many things, including the **peak air pollution levels**, typical levels in populated areas, air pollution transported into and outside of a city or region, and **air pollution levels near specific sources.**”<sup>7</sup>

Appendix D includes monitoring network requirements specific to each pollutant for which a National Ambient Air Quality Standard (“NAAQS”) has been established, including

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<sup>1</sup> 42 U.S.C. § 7410(a)(2)(B).

<sup>2</sup> 40 C.F.R. § 58.2(a)(5).

<sup>3</sup> 40 C.F.R. § 58.11(c).

<sup>4</sup> App. D, § 1.1(a).

<sup>5</sup> App. D, § 1.1(b).

<sup>6</sup> App. D, § 1.1(c).

<sup>7</sup> App. D, § 1.1.1 (emphasis added).

sulfur dioxide (“SO<sub>2</sub>”). The requirements for SO<sub>2</sub> monitoring networks include (in Appendix D’s Section 4.4.2) a method for determining the minimum number of monitors that must be operated in each “core based statistical area.” According to that formula (and assuming that Allegheny County counts as a “core based statistical area”), ACHD is required to operate one SO<sub>2</sub> monitor only.<sup>8</sup>

However, Appendix D recognizes that “[t]he total number of [SO<sub>2</sub>] monitoring sites that will serve the variety of data needs will be substantially higher” than the minimum requirements.<sup>9</sup> “SIP control strategies for SO<sub>2</sub> abatement are usually keyed on achieving the NAAQS at [] points of maximum concentration ... [m]onitoring sites should be located at or near these points of maximum concentration as revealed by modelling to provide a continuing assessment of the situation.”<sup>10</sup> Thus, when there is a single source “that contributes overwhelmingly to SO<sub>2</sub> pollution” in an area, it is “very desirable to monitor the maximum ground-level contribution from that source since the attainment and maintenance of the NAAQS in the area would be highly dependent on the effectiveness of control measures applied to that source.”<sup>11</sup> Thus, ACHD currently operates five SO<sub>2</sub> monitors, which are located in South

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<sup>8</sup> The minimum number of required monitors is determined according to the “core based statistical area’s” “population weighted emissions index.” An area’s “population weighted emissions index” is “calculated by multiplying the population of [the area], ... and the total amount of SO<sub>2</sub> in tons per year emitted within the ... area, ... The resulting product shall be divided by one million, providing a [population weighted emissions index” value], the units of which are million persons-tons per year.” App. D, § 4.4.2.

According to GASP’s calculations based on data from the 2011, and most recent, National Emissions Inventory, there were 15,079.93 tons of SO<sub>2</sub> emitted in Allegheny County in 2011, and the most recent population estimate for the County by the Census Bureau is 1,230,459. Consequently, the County’s “population weighted emissions index” is 18,555. “For any [“core based statistical area”] with a calculated [“population weighted emissions index”] value equal or greater than 5,000 but less than 100,000, a minimum of one SO<sub>2</sub> monitor is required within that [area].” *Id.*

<sup>9</sup> App. D, § 1.1.2.

<sup>10</sup> ROBERT J. BALL & GERALD E. ANDERSON, OPTIMUM SITE EXPOSURE CRITERIA FOR SO<sub>2</sub> MONITORING 9 (U.S.E.P.A. Pub. No. EPA-450/3-77-013) (1977). This is consistent with the Clean Air Act’s directive that each state, and each local agency designated to implement the requirements of the Clean Air Act within a specific area of a state, must adopt an implementation plan to achieve and maintain the NAAQS “within the entire geographic area” of the state or specific area over which the local agency is responsible. *See* 42 U.S.C. § 7407(a).

<sup>11</sup> BALL AND ANDERSON, *supra* note 12, at 10.

Fayette Township, Avalon, Lawrenceville, North Braddock, and Liberty. Three of those five monitors are located downwind of at least one existing major source of SO<sub>2</sub> – ACHD’s SO<sub>2</sub> monitor in Liberty Borough is downwind from U.S. Steel’s Clairton and Irvin Works; ACHD’s SO<sub>2</sub> monitor in North Braddock is downwind from U.S. Steel’s J. Edgar Thomson Works; and ACHD’s SO<sub>2</sub> monitor in Lawrenceville is downwind from Bay Valley Foods’ facility on the North Side. One of the other two monitors, ACHD’s SO<sub>2</sub> monitor in Avalon, is located downwind from coke ovens that were operated by Shenango, Inc., on Neville Island until January 2016;<sup>12</sup> the other, ACHD’s SO<sub>2</sub> monitor in South Fayette, is located “to access pollution levels entering the County on prevailing winds.”<sup>13</sup>

The five SO<sub>2</sub> monitors currently operated by ACHD and called for by the 2016 Air Monitoring Network Plan are insufficient to accomplish the monitoring objectives set forth in 40 C.F.R. Part 58 Appendix D because no monitor analyzes SO<sub>2</sub> concentrations in the ambient air in the areas of the County that are: 1) most affected by emissions from the Cheswick Power Station (“Cheswick”); or 2) heavily exposed to emissions from the industrial facilities in the Liberty-Clairton area and also subject to atmospheric inversions.

**A. An SO<sub>2</sub> Monitor Must Be Installed Downwind From Cheswick**

Even after the installation of its flue gas desulfurization system, Cheswick remains the largest source of SO<sub>2</sub> emissions in Allegheny County – in 2014, the most recent year for which emissions data is reported on the Pennsylvania Department of Environmental Protection’s (“DEP”) eFACTS website, Cheswick emitted over 4,445 tons of SO<sub>2</sub>, up from 1,686 tons in 2013.<sup>14</sup> Nevertheless, there is no monitor installed and operated to ascertain concentrations of SO<sub>2</sub> in the immediate downwind vicinity of Cheswick. All SO<sub>2</sub> monitors in ACHD’s network

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<sup>12</sup> Allegheny County Health Department, *Air Network Monitoring Plan for 2017*, at 49.

<sup>13</sup> *Id.*, at 43.

<sup>14</sup> *See* Exhibit A.

are located upwind of Cheswick,<sup>15</sup> and the nearest downwind SO<sub>2</sub> monitor (which is operated by DEP) is in Strongstown, Indiana County, approximately fifty miles from Cheswick.<sup>16</sup> Ground-level concentrations of SO<sub>2</sub> emitted by Cheswick are likely to be greatest to the east and northeast of Cheswick, on the hilltops across the Allegheny River in Plum Township. Indeed, “Short-Term Test Modeling” results of SO<sub>2</sub> concentrations in the vicinity of Cheswick that ACHD provided to GASP in response to a records request indicate that the concentration of SO<sub>2</sub> in the areas around Cheswick is likely to exceed the one-hour SO<sub>2</sub> standard of 75 ppb.<sup>17</sup> However, there is no monitor installed and operated to ensure that the SO<sub>2</sub> emitted by Cheswick does not cause ground-level concentrations of SO<sub>2</sub> in inhabited, immediately-downwind areas to exceed the NAAQS for SO<sub>2</sub>.

ACHD’s apparent choice to comply with the Data Requirements Rule for the 2010 Sulfur Dioxide (SO<sub>2</sub>) Primary National Ambient Air Quality Standard<sup>18</sup> by using air quality modeling to characterize 1-hour concentrations of SO<sub>2</sub> downwind of Cheswick does not excuse the need to install and operate an SO<sub>2</sub> monitor downwind of Cheswick. Every other major source of SO<sub>2</sub> in Allegheny County has an SO<sub>2</sub> monitor located close by and downwind – U.S. Steel’s Clairton and Irvin Works are upwind of ACHD’s SO<sub>2</sub> monitor in Liberty Borough; U.S. Steel’s J. Edgar Thomson Works is upwind of ACHD’s SO<sub>2</sub> monitor in North Braddock; and Bay Valley Foods’ facility on the North Side is upwind of ACHD’s SO<sub>2</sub> monitor in Lawrenceville. Presumably, these monitors were installed, and are operated, at least in part to ensure that the ambient air in

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<sup>15</sup> The prevailing wind in Allegheny County is generally from the west or southwest. *See* <http://www.windfinder.com/windstatistics/pittsburgh Intl airport>.

<sup>16</sup> *See* PENNSYLVANIA DEPT. OF ENVTL. PROT., 2015 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN, at 11-12 (June 2015), available at <http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-108070/Final%202015%20PA%20Annual%20Monitoring%20Network%20Plan.pdf>.

<sup>17</sup> *See* Exhibit B.

<sup>18</sup> The final Data Requirements Rule was published at 80 Fed. Reg. 51052 (Aug. 21, 2015). Cheswick appears to be the only source in Allegheny County to which the Data Requirements Rule applies, because it is not located in a designated non-attainment area and had actual SO<sub>2</sub> emissions of more than 2,000 tons (in 2014). *See* 40 C.F.R. § 51.1200 (defining “Applicable source”).

areas near those facilities actually attains the NAAQS for SO<sub>2</sub> despite the facilities' significant SO<sub>2</sub> emissions. Cheswick's SO<sub>2</sub> emissions must be monitored in similar fashion.

ACHD's 2017 Air Monitoring Network plan is insufficient to accomplish the objectives identified by 40 C.F.R. Part 58 Appendix D (including most particularly the provision of timely air pollution data to the public – members of the public cannot use air quality models to determine whether and when they may be exposed to unhealthy SO<sub>2</sub> concentrations) because the Plan does not provide for a monitor that ascertains ground-level concentrations of SO<sub>2</sub> in the ambient air in those areas of Allegheny County where such concentrations are likely to be the greatest, specifically, the hilltops in Plum Township that are across the Allegheny River from Cheswick.

**B. An SO<sub>2</sub> Monitor Must Be Re-Installed at ACHD's Existing Monitoring Station in Glassport**

In recent years, ACHD's SO<sub>2</sub> monitor in Liberty has measured SO<sub>2</sub> levels that violate the 1-hour NAAQS for SO<sub>2</sub>, leading to the nonattainment area designation of a number of communities in southeastern Allegheny County.<sup>19</sup> SO<sub>2</sub> concentrations that were measured at the monitor that ACHD operated in Glassport until 2006 significantly exceeded the concentrations measured in Liberty,<sup>20</sup> likely as a result of local topography and the difference in elevation between the two sites:

The base of the river valley lies at about 720 feet in elevation above mean sea level (MSL), while adjacent hilltops are over 1,100 feet MSL in elevation. Large temperature differences can be seen between hilltop and valley floor observations (*e.g.*, 2 to 7°F) during clear, low-wind, nighttime conditions. Strong nighttime

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<sup>19</sup> Specifically, EPA has designated an SO<sub>2</sub> nonattainment area consisting of the following communities: City of Clairton, City of Duquesne, City of McKeesport, Borough of Braddock, Borough of Dravosburg, Borough of East McKeesport, Borough of East Pittsburgh, Borough of Elizabeth, Borough of Glassport, Borough of Jefferson Hills, Borough of Liberty, Borough of Lincoln, Borough of North Braddock, Borough of Pleasant Hills, Borough of Port Vue, Borough of Versailles, Borough of Wall, Borough of West Elizabeth, Borough of West Mifflin, Elizabeth Township, Forward Township, and North Versailles Township. Air Quality Designations for the 2010 Sulfur Dioxide (SO<sub>2</sub>) Primary National Ambient Air Quality Standard, 78 Fed. Reg. 47191, 47203 (Aug. 5, 2013).

<sup>20</sup> ACHD, SO<sub>2</sub> MODELLING PROTOCOL – 2010 STANDARDS, at 6 (Draft, March 2014).

drainage flows can cause differences of up to 180° in wind direction from the prevailing wind pattern with 3-4 mph downslope flows. Also, strong nighttime inversions can lead to poor dispersion scenarios on several days of the year.<sup>21</sup>

The Glassport SO<sub>2</sub> monitor purportedly was removed because the monitoring site was deteriorating and difficult to reach. However, almost all of the industrial and transportation sources of SO<sub>2</sub> that contributed to high concentrations of SO<sub>2</sub> in the ambient air in Glassport still operate today. Accordingly, it is probable that SO<sub>2</sub> levels in the ambient air in Glassport continue to exceed those measured in Liberty. Because “SIP control strategies for SO<sub>2</sub> abatement are usually keyed on achieving the NAAQS at [] points of maximum concentration”<sup>22</sup> such as the one in Glassport, ACHD should re-install an SO<sub>2</sub> monitor at its existing Glassport monitoring station. Such a monitor would permit an informed determination of whether the ambient air in low-lying areas in the areas actually attains the NAAQS for SO<sub>2</sub>.<sup>23</sup>

## **II. ACHD SHOULD INSTALL AND OPERATE A SPECIAL PURPOSE MONITOR IN DOWNTOWN PITTSBURGH TO EVALUATE PM<sub>2.5</sub> CONCENTRATIONS EXACERBATED BY DIESEL EMISSIONS**

An air toxics study that was performed between 2005 and 2008 for ACHD by researchers from Carnegie Mellon University determined that a “hotspot” for diesel particulate matter in the ambient air exists in Downtown Pittsburgh; concentrations of diesel particulate matter in Downtown’s ambient air may pose a statistically significant cancer risk.<sup>24</sup> As a follow up, ACHD has conducted a second study focused on characterizing diesel emissions in Downtown Pittsburgh. GASP understands that this study has been completed (but is not yet published) and that it shows that unhealthy levels of fine particulate matter (“PM<sub>2.5</sub>”) are present at street level Downtown, most likely as the result of heavy bus traffic. ACHD should install a special purpose

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<sup>21</sup> *Id.*, at 4.

<sup>22</sup> BELL AND ANDERSON, *supra* note 12, at 9.

<sup>23</sup> *See id.* (stating that “[m]onitoring sites should be located at or near [] points of maximum concentration as revealed by modelling to provide a continuing assessment of the situation”).

<sup>24</sup> ALLEN ROBINSON, ET AL., AIR TOXICS IN ALLEGHENY COUNTY: SOURCES, AIRBORNE CONCENTRATIONS, AND HUMAN EXPOSURE, ACHD Agreement # 36946 (March 2009), at 4.

monitor for PM<sub>2.5</sub> at street level Downtown, to ensure that the NAAQS for PM<sub>2.5</sub> are not being violated, or (if they are) to better inform ACHD's design of control measures to ensure compliance with those NAAQS. The existing monitor at Flag Plaza is not well situated to measure the localized pollution concentrations of PM<sub>2.5</sub> that exist Downtown but not at Flag Plaza, due to the heavy bus traffic and densely-packed tall buildings that are present Downtown but not at Flag Plaza.

### **III. ACHD SHOULD INSTALL AND OPERATE A SPECIAL PURPOSE MONITOR FOR AIR TOXICS DOWNWIND OF THE CLAIRTON COKE WORKS**

Unless properly controlled, coke ovens can emit substantial quantities of air toxics, including benzo(a)pyrene:

Benzo(a)pyrene plays an important role with regard to the environmental assessment of the coking process. Very often it is used as a guide substance for polycyclic aromatic hydrocarbons (PAH) which can be emitted from leaks at the coking chambers. In order to reduce these fugitive emissions, measuring methods are necessary by which the made progress can be quantified. Reliable statements on the amount of emitted [benzo(a)pyrene] are indispensable, too, for making a forecast on the [benzo(a)pyrene] burden in ambient air of the surrounding [areas].<sup>25</sup>

ACHD should operate a benzo(a)pyrene monitor at its monitoring station in Liberty, which is downwind from U.S. Steel's Clairton Coke Works, to ensure that the air toxics emitted by those facilities are minimized and that the air toxics load in the communities surrounding that facility is maintained at levels that do not increase health risks for the people who live, work, and visit there.

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<sup>25</sup> Michael Hein and Manfred Kaiser. *Environmental Control and Emission Reduction for Coking Plants*, in AIR POLLUTION - A COMPREHENSIVE PERSPECTIVE (Dr. Budi Haryanto, ed.), at 237 (ISBN: 978-953-51-0705-7, InTech, DOI: 10.5772/48275 (2012)), available at: <http://www.intechopen.com/books/air-pollution-a-comprehensive-perspective/environmental-control-and-emission-reduction-for-coking-plants>.

**IV. ACHD SHOULD CONTINUE TO OPERATE THE PM<sub>10</sub> HIGH VOLUME SAMPLER IN AVALON UNTIL AT LEAST THE END OF JANUARY 2017**

It is appropriate for ACHD to discontinue operation of the PM<sub>10</sub> high volume sampler at Avalon in January 2017 as proposed, after the monitor collects data for one year following the shutdown of the nearby Shenango Coke Works. 2016 data from the monitor can be used to establish new background concentrations for PM<sub>10</sub> in the area of the Avalon monitor. If however, PM<sub>10</sub> concentrations do not decrease as expected in 2016, ACHD should continue to operate the monitor through 2017 to ensure that nearby communities are not being exposed to unhealthy levels of PM<sub>10</sub>.

# EXHIBIT A

# Facility Emissions Report

Year: **2014**County: **Allegheny**Pollutant: **Sulfur Oxides**Top Records: **10**

<b>eFACTS on the Web</b>
<b>DEP Information</b>
About DEP
Contact Us
DEP Home
<b>Search eFACTS</b>
Authorization Search
Client Search
Facility Search
Inspection Search
Mammography Search
Name Search
Pollution Prevention
Sites by County/Municipality
Site Search
<b>Reports</b>
Emission Summary
Facility Emissions
<b>Other Sites</b>
eMapPA
eNotice
EPA ECHO
EPA Envirofacts
Licensing, Permits, and Certification
The PA Code

Primary Facility ID	Primary Facility Name	Tons/Year
737442	NRG MIDWEST LP/CHESWICK	4445.4142
737439	USS/CLAIRTON WORKS	1511.7339
737436	USS CORP/EDGAR THOMSON WORKS	1329.0207
737318	US STEEL CORP/IRVIN PLT	715.9371
737435	SHENANGO INC/SHENANGO COKE PLT	275.8858
737350	GUARDIAN IND CORP/JEFFERSON HILLS	108.8668
737434	ALLEGHENY LUDLUM LLC/BRACKENRIDGE	33.7
737323	REDLAND BRICK INC/HARMAR PLT	30.86
737336	ALLIED WASTE SVC OF PA/MSW LDFL	17.6921
737263	BAY VALLEY FOODS LLC/PGH	12.751

Total Emissions for Selected Records: **8481.8620**Total Emissions for Selected Area: **8528.7540**[Run report again](#)

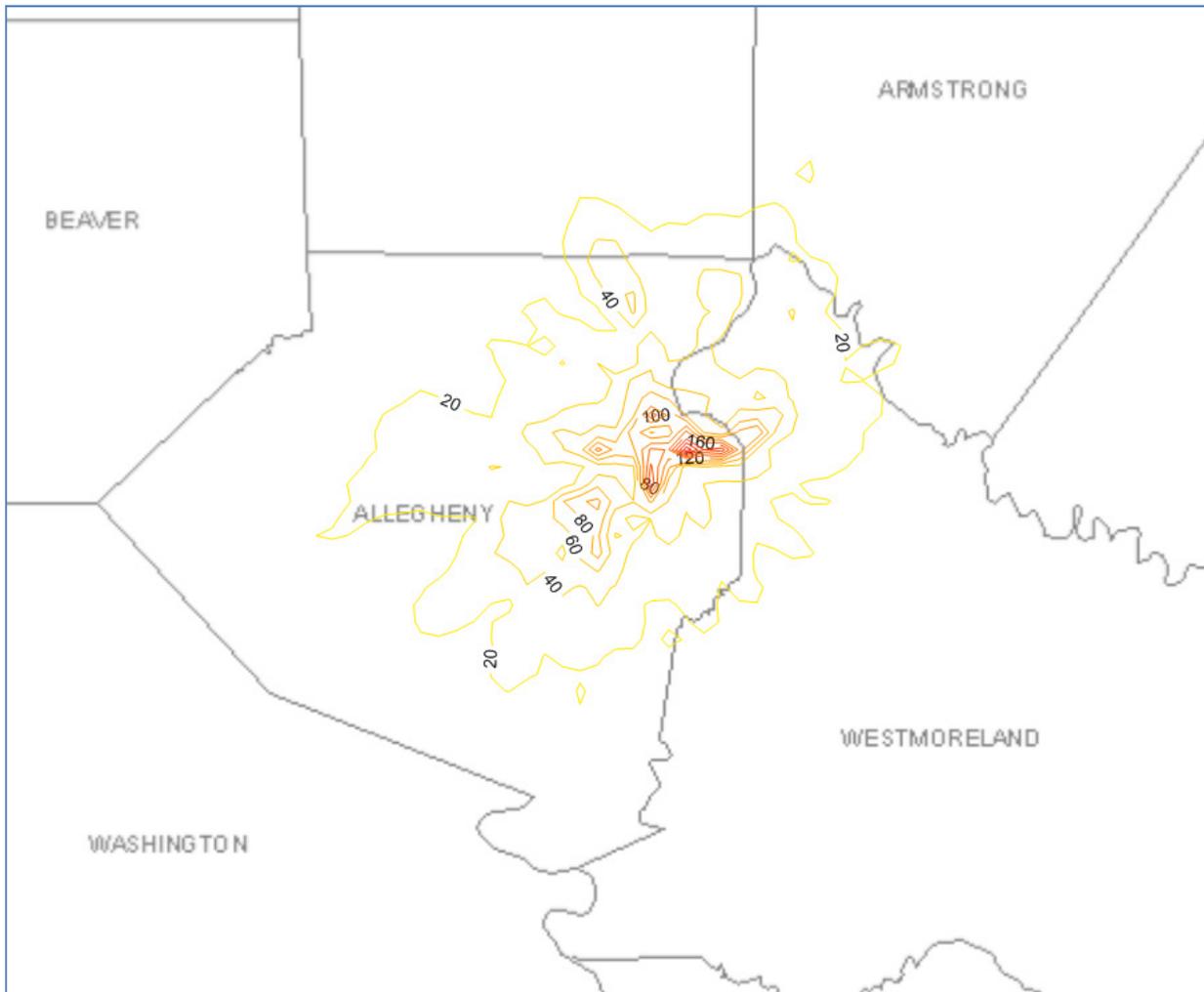
# EXHIBIT B

## Cheswick SO2 Short-Term Test Modeling

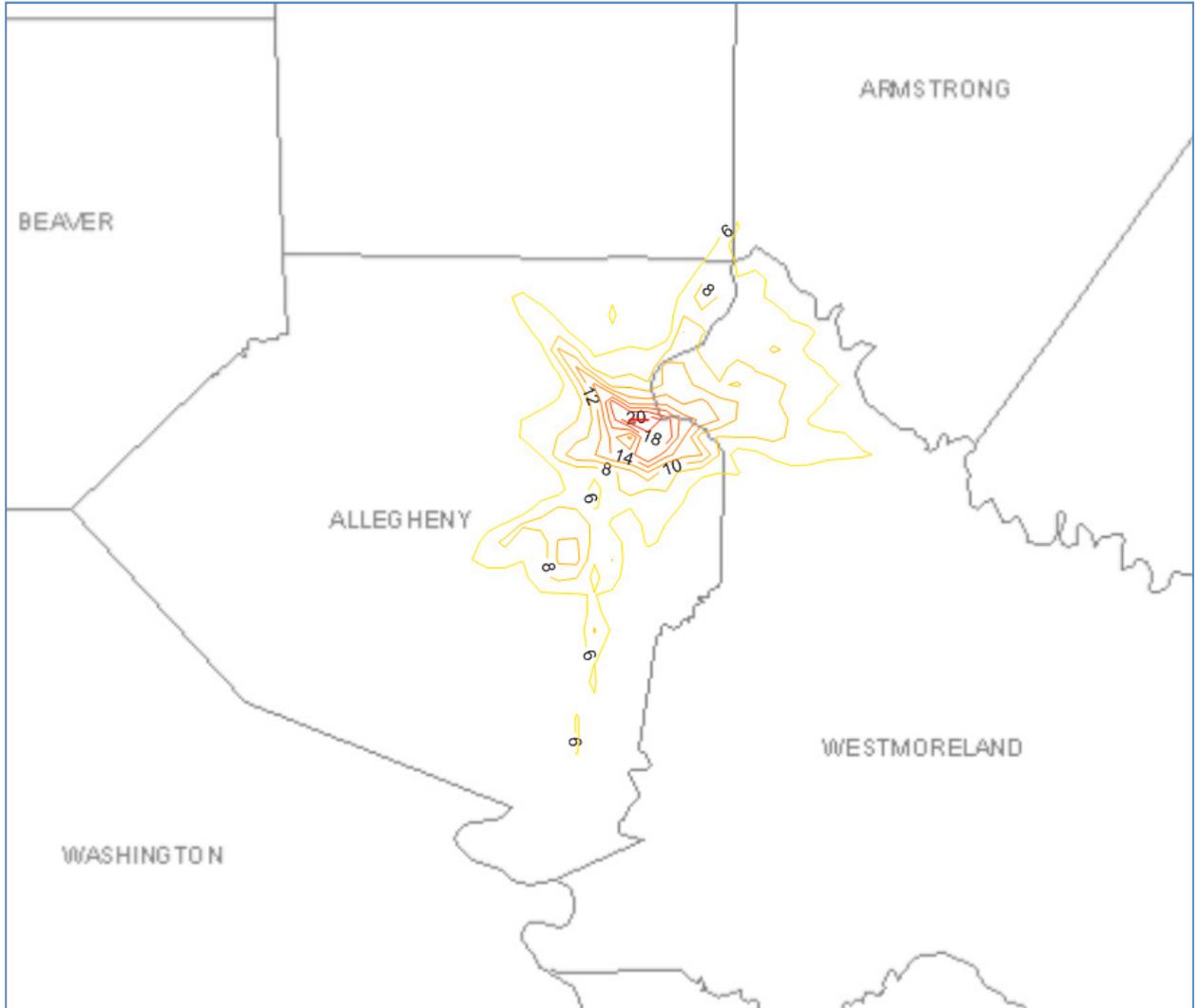
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CALPUFF model results  
2002 meteorology from PIT, AGC, MM5  
1 km gridded receptor spacing  
FGD stack height = 552 ft  
Emissions based on preliminary 2010 totals

Cheswick Maximum 1-Hr SO2 Impacts, ppb (max = 240 ppb)



Cheswick Maximum 24-Hr SO2 Impacts, ppb (max = 23 ppb)



Cheswick Maximum Annual SO2 Impacts, ppb (max = 2.5 ppb)

