

## **Executive Summary for Comments of Citizens for Pennsylvania's Future and The Group Against Smog and Pollution on the Proposed Attainment Demonstration for the Liberty-Clairton PM2.5 Nonattainment Area**

The proposed state implementation plan (Plan) for the Liberty-Clairton Nonattainment Area (Area) fails to satisfy many requirements of the Clean Air Act and may not be adopted without 1) demonstrating attainment with the National Ambient Air Quality Standard for fine particles (Standard) throughout the nonattainment area; 2) more expeditious implementation of control measures to meet the schedules established by the Clean Air Act; and 3) additional emission reductions needed to attain the fine particle Standard.

### **1. The Plan fails to demonstrate attainment of health standards throughout the nonattainment area.**

Additional emission reductions will be needed to attain the Standard because the modeling analysis performed by the Allegheny County Health Department (“ACHD”) demonstrates that neither the annual nor the 24-hour Standard for fine particles will be met within most of the neighborhoods located between the Clairton Coke Plant and the fine particle monitor in Liberty Borough. The Plan must provide for air quality that meets the national health standards in all areas where the public has access. There are at least 80 occupied homes in the high pollution zone close to the Coke Plant where the air will not be safe to breathe. It is unlawful to sacrifice the health of these families by exposing them to unsafe air. Additional emission reductions must be included in the Plan to provide the air quality required by the Clean Air Act in all residential areas of the County.

### **2. The Plan must accelerate emission reductions.**

The proposed Plan does not explain why the Area cannot attain the Standard sooner than 2015, and does not require US Steel to comply with the currently proposed control measures to meet even the latest possible statutory deadlines for attainment and reasonable further progress. To comply with the Act, the attainment deadline must be advanced to 2013 at the latest, and many deadlines for compliance with specific control measures must be advanced by two years or more.

The Clean Air Act requires that the area attain healthful levels of air quality by 2010, unless certain extraordinary circumstances justify an extension beyond 2010. However, the extension must be limited to the shortest period needed to provide for attainment. The proposed Plan offers no lawful justification for extending the deadline to attain healthy air quality.

The only justification offered by ACHD are the agreements negotiated with US Steel, without public involvement or court approval, that provide for the replacement of six old polluting coke batteries with new, more advanced technology. This replacement approach to reducing emissions at Clairton is supported by commenters, but the policy

must be implemented more quickly to meet the timelines established by the Clean Air Act.

The County argues that agreements negotiated with US Steel can override the schedules for compliance in the Clean Air Act. The ACHD has it backwards: their agreements and their Plan must comply with the Act. Their side agreements with US Steel cannot trump federal law.

Even if EPA were to grant an extension of the deadline for attaining national health standards, ACHD attempts to circumvent the Act by delaying the compliance deadline for the shutdown of batteries 1, 2 and 3 and their replacement with the new D Battery. With an extension, the latest attainment date allowed by the Act is 2015. The Act requires that all sources within the entire nonattainment area be controlled to the levels required by the Plan by the beginning of 2014 in order to have one year of clean air quality by the beginning of 2015. ACHD proposes a compliance date for shutting down batteries 1, 2 and 3 is not until August 2015, 20 months after the deadline. Since the replacement of batteries 1, 2 and 3 is the measure in the Plan that accounts for the greatest portion of the reductions needed to attain, there is no possibility that the area will have a year of clean air data in 2014 to attain the public health standard. The schedule for the replacement of batteries 1, 2 and 3 must require compliance no later than January 1, 2014 to comply with the latest possible attainment date under the Act.

Again, ACHD attempts to justify adopting into the Plan a compliance schedule that violates the Act by relying on the compliance agreement between ACHD and US Steel calling for the replacement of batteries 1, 2 and 3 by August 2015. But the agreement and the Plan must comply with the Act. ACHD offers no justification for not requiring compliance sooner than currently proposed.

In addition, the Act requires that all “reasonably available control measures” be implemented “as expeditiously as practicable.” The Plan completely fails to require the implementation of some available measures, such as replacing old polluting quench towers with more advanced designs.

### **3. The Plan must include additional control measures.**

Further reductions in emissions are required to attain the 24-hour Standard that EPA promulgated in 2006. EPA determined that the 24-hour Standard adopted in 1997 (65  $\mu\text{g}/\text{m}^3$ ) failed to protect the public health, and revised the standard to 35  $\mu\text{g}/\text{m}^3$ . But the Plan proposed by ACHD would only reduce 24-hour concentrations to 44  $\mu\text{g}/\text{m}^3$ , far above the level needed to protect the public health in both Liberty Borough and surrounding areas. The measures needed to make the air safe to breathe must be identified and added to the Plan now.

ACHD must also identify additional reductions within the Area to make up for the air quality benefit unlawfully claimed for the reductions of direct particles from electric generating units (EGUs) outside the nonattainment area. The Plan claims credit for over

23,000 tons of reductions of direct particles emitted from EGUs located in other Pennsylvania counties, West Virginia, and Ohio that are well beyond the Area. EPA's published guidance expressly informed the County that credit for these reductions may not be claimed because they are located too far from the nonattainment area to provide a predictable air quality benefit.

In addition, EPA only allows attainment credit for those emission reductions that are quantifiable, permanent and enforceable. The Plan assumes in the modeling analysis that 23,000 fewer tons of direct particles will be emitted from the EGUs in 2015 than in 2002, but does not require that the assumed emission reductions be achieved. Indeed, EPA does not allow emission reduction credits for sources outside of the State where the nonattainment area is located because the State can only adopt enforceable emission limitations for sources within its borders. ACHD could ask Pennsylvania to adopt legally enforceable limitations on emissions from the EGU sources within Pennsylvania, and could ask EPA to adopt enforceable emission limitations for the EGUs located upwind from Pennsylvania pursuant to section 126 of the Clean Air Act. However, no such effort has been made to make enforceable the emission reductions assumed in the modeling analysis. As a result, no credit may be claimed in the Plan for these strictly hypothetical emission reductions. Instead, additional enforceable emission reductions must be obtained from sources of direct particles within the nonattainment area.

Additional reductions are also required to make up for the reductions in secondary particles claimed for assumed reductions in sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) from EGUs not legally required to reduce emissions. ACHD claims credit for SO<sub>2</sub> and NO<sub>x</sub> emission reductions from EGUs located outside of Pennsylvania and that are not governed by enforceable emission limitations even though EPA issued clear guidance barring credit for such reductions.

Enforceable emission limitations must also be adopted for ammonium in order to take credit for the reductions in ambient ammonium claimed in the Plan. Ammonium is a major contributor to the excess concentrations of fine particles measured at the Liberty monitor. The modeling analysis performed for the attainment year claims that ammonium concentrations in 2015 will be reduced by nearly 30% compared to 2002, but the Plan identifies no sources of ammonium in the nonattainment area, does not quantify emissions within the nonattainment area, and does not require any reductions in ammonium from any source. The Plan may not simply assume that emissions of ammonium will be reduced as without showing where the reductions will come from, and that these reductions will be permanent and enforceable. Unless enforceable emission limitations are adopted for sources known to cause the excess concentrations of ammonium at the Liberty monitor, additional reductions of fine particle emissions must be obtained from other sources within the nonattainment area to achieve the 0.57 µg/m<sup>3</sup> of reductions assumed for ammonium.

In order to determine the partial emission reductions required by the Clean Air Act for the milestone year in 2012, the creditable reductions needed to attain the Standard by 2015 must be determined. The ACHD must first determine where the reductions will

come from to attain the Standard in all neighborhoods downwind from the Plant and make up for the alleged reductions that cannot be credited under EPA's guidance. Currently, the Plan pretends to comply with the 2012 reduction target by relying exclusively on the reductions in secondary particles from EGUs located outside Pennsylvania, or from sources within Pennsylvania that are not governed by enforceable emission limitations meeting EPA's criteria for creditable reductions. When these claimed reductions are not credited, the statutory reductions required by 2012 are not achieved. Additional reductions, such as requiring the replacement of batteries 7, 8 and 9 by 2012, must be required to meet this requirement.

#### **4. Conclusion**

For all of these reasons, commenters request that the Board of Health take the following actions:

- Approve for submission to EPA the control measures included in the Plan as a partial Plan.
- Direct the staff at ACHD to determine the earliest date by which construction of replacement batteries C and D can be completed, and to revise the compliance deadlines for the shutdown of batteries 7, 8 and 9, and batteries 1, 2 and 3 to occur within 60 days of the feasible start-up of batteries C and D, respectively.
- Direct the staff at ACHD to perform additional air quality modeling using dispersion models to determine the additional reductions of direct particles emitted from sources within the nonattainment area that must be obtained to provide for attainment of both the annual and revised 24-hour Standard at all residences in the County where exposure to fine particle pollution is expected to be higher than at the monitor in Liberty Borough.
- Direct the staff at ACHD to identify sources from which additional creditable reductions in direct fine particle emissions can be feasibly obtained, and determine the reductions that must be obtained from each such source to provide for attainment of both the annual and revised 24-hour Standard.
- Direct the staff at ACHD to submit to the Board for approval a revised Plan containing all the control measures needed to provide for attainment of both Standard as expeditiously as practicable.

**COMMENTS OF CITIZENS FOR PENNSYLVANIA'S FUTURE AND THE  
GROUP AGAINST SMOG AND POLLUTION ON THE PROPOSED  
ATTAINMENT DEMONSTRATION FOR THE LIBERTY-CLAIRTON PM2.5  
NONATTAINMENT AREA**

**I. THE DRAFT STATE IMPLEMENTATION PLAN FAILS TO IDENTIFY  
AND REQUIRE THE EMISSIONS REDUCTIONS NECESSARY TO  
ATTAIN THE 24-HOUR AND ANNUAL NAAQS**

**1. The Draft State Implementation Plan Unlawfully Fails to Demonstrate Attainment  
Throughout the Nonattainment Area.**

The Clean Air Act requires that each State adopt an implementation plan to reduce emissions to the levels needed to attain every national ambient air quality standard (NAAQS) “within the entire geographic area comprising such State.”<sup>1</sup> That is, Congress has adopted a national mandate that the premature deaths and increased morbidity associated with exposure to PM2.5 levels that violate the NAAQS are not acceptable and must be prevented.

This statutory mandate is incorporated into EPA’s modeling guidance for state implementation plan (SIP) demonstrations, which recognizes the need to identify areas that are not monitored where ambient violations may be anticipated, and to model these locations to determine if additional control measures are needed to attain the NAAQS:

In addition [to predicted concentrations at monitors], we describe an “unmonitored area analysis” which uses interpolated ambient data combined with gridded model outputs to examine whether potential violations of the NAAQS may occur in unmonitored areas. If potential violations are indicated, we recommend further analysis of the problem through additional local modeling. Options for State action to address such a situation could include imposition of reasonably available control technology to reduce emissions, or the deployment of an air quality monitor to further characterize the problem.

We believe that the combination of these model-based tests will adequately determine whether attainment of the standards is likely by the attainment date. We also believe that these tests address the issue of hotspots by recommending a combination of photochemical modeling, dispersion modeling of local sources, and additional monitoring and/or emissions controls.<sup>2</sup>

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<sup>1</sup> 42 U.S.C. § 7407(a).

<sup>2</sup> 72 Fed. Reg. 20607 (April 25, 2007); *see* Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM2.5, and Regional Haze, US EPA (April 2007), ¶5.3 (“To address the issue of PM2.5 concentrations in unmonitored areas, we have recommended an ‘unmonitored area analysis’ (see section 3.4). The unmonitored area analysis is intended to be the primary means for identifying high PM2.5 concentrations outside of traditionally monitored locations. The

Concentrations of primary particles (particles emitted directly from the source rather than secondary particles that are formed in the atmosphere from precursor gaseous pollutants) are highest at the source. In the case of the Clairton Coke Works, the monitor located in Liberty Borough, nearly 2 miles from the Coke Works, is not where pollutant concentrations are expected to be the highest. In section 8.6, the proposed Liberty-Clairton PM<sub>2.5</sub> SIP acknowledges that the areas with the highest concentrations (demarcated by red borders) are expected to be within the plant and on Lincoln hillside on the east side of the Monongahela River across from the Clairton Coke Works.<sup>3</sup> The residences located on Lincoln hillside are located within approximately one-half mile of the Coke works, not more than one-quarter the distance from the plant to the PM<sub>2.5</sub> monitor located in Liberty Borough. ACHD performed an analysis that shows that pollutant concentrations in the Lincoln area will be higher than at the monitor in Liberty Borough.<sup>4</sup> “Annual modeled high areas (indicated by smaller red contours) appear on US Steel Clairton plant property (refer to source group maps for locations) and on the Lincoln hillside to the northeast of the plant. The Lincoln hillside corresponds to downwind from the plant, since wind is predominantly from the southwest in the area.”<sup>5</sup> The ACHD model results displayed in Fig. 8-1 also demonstrate that other neighborhoods between the Lincoln hillside and Liberty (demarcated by orange borders) will also be exposed to concentrations higher than those predicted by the model in Liberty Borough.

The definition of “ambient air,” adopted by EPA only months after the Clean Air Act was first enacted in 1970, makes clear that the national air quality standards apply to any area where the public has access. “*Ambient air* means that portion of the atmosphere, external to buildings, to which the general public has access.”<sup>6</sup> Attainment of the NAAQS must be demonstrated in the Lincoln area and the other neighborhoods located in the higher exposure zones between the coke works and the monitor at Liberty. The SIP cannot be adopted if it fails to protect some residents from the adverse health effects that will result from violations of the NAAQS.

The SIP’s analysis does not fully satisfy EPA’s guidance because it does not quantify the incremental concentrations in this area, which must be known to determine the extent of additional control measures that are needed to achieve the emission reductions that would provide for attainment in this area. Despite this omission, the analysis provided by the ACHD nonetheless shows that the NAAQS will not be met in this area because the attainment demonstration for the Liberty Borough monitor predicts that the annual concentration at that location in 2015 will be 14.9996 µg/m<sup>3</sup>, only 0.0004 µg/m<sup>3</sup> less than the maximum concentration permitted under the NAAQS. The higher, but unquantified, concentrations in the Lincoln area will obviously violate the NAAQS.

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spatial resolution of the modeling that is the underlying basis of the unmonitored area analysis will determine how well it addresses primary PM hotspot issues”), ¶5.3.2.

<sup>3</sup> SIP at 44.

<sup>4</sup> SIP at 43-45.

<sup>5</sup> *Id.* at 44.

<sup>6</sup> 40 C.F.R. § 50.1(e).

EPA has determined that dispersion modeling techniques must be applied to supplement the large-scale regional models used to demonstrate attainment at monitor locations in order for a State to demonstrate that its control strategy will attain the NAAQS in such unmonitored locations. It is arbitrary and capricious for the SIP not to quantify the magnitude of the NAAQS violations that will occur in this area and determine the additional reductions needed for attainment.

The SIP attempts to justify this omission by arguing that the health and welfare of the residents in this high pollution zone may be sacrificed because “the Lincoln hillside is not suitable as a neighborhood-scale location for analyzing PM<sub>2.5</sub> because it does not represent a populated area.”<sup>7</sup> To test this assertion, GASP surveyed the area expected to be affected (within red and orange lines marked on Figure 8-1), and found 80 occupied homes.<sup>8</sup> The residents of this neighborhood must not be consigned to lifelong exposure to pollutant levels that are known to be deadly.

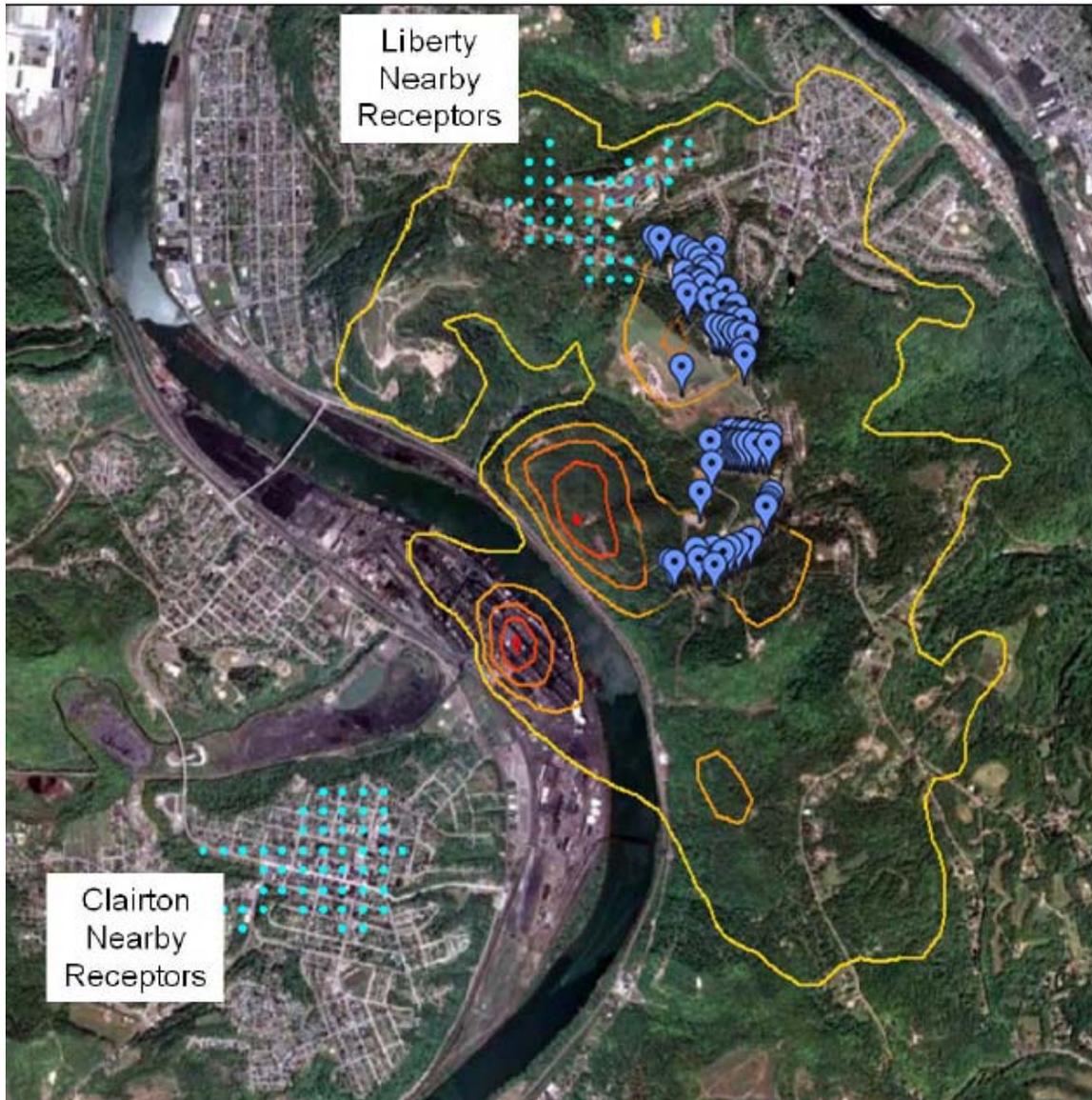
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<sup>7</sup> *Id.*

<sup>8</sup> *See also* Attachment 1: Addresses of Homes Located in Areas Modeled to Exceed the 15 µg/m<sup>3</sup> Annual Standard.

**Figure 1: Occupied Homes in Areas Modeled to Exceed the 15  $\mu\text{g}/\text{m}^3$  Annual Standard**



The SIP also suggests that the regional scale modeling is not suited for comparing resulting concentrations directly with the NAAQS. The SIP explains that these models are used only to determine the relative change in emissions needed to estimate the amount of emission reduction needed to provide for attainment at monitored locations. The regional scale models used (CALPUFF and CMAQ) generate estimates of pollutant concentrations at 500-meter intervals within the area considered to be represented by the Liberty Borough monitor.

But it is precisely because the regional scale models are blunt instruments that are not suited to predicting concentrations on the neighborhood scale near the plant where

pollutant levels will be highest that EPA warned “that nonattainment areas with potential hotspot issues (relatively high concentrations and/or gradients of primary PM<sub>2.5</sub>) should not rely exclusively on regional modeling.”<sup>9</sup> Instead, EPA “describe[d] an ‘unmonitored area analysis’ which uses interpolated ambient data combined with gridded model outputs to examine whether potential violations of the NAAQS may occur in unmonitored areas. If potential violations are indicated, we recommend further analysis of the problem through additional local modeling. Options for State action to address such a situation could include imposition of reasonably available control technology to reduce emissions, or the deployment of an air quality monitor to further characterize the problem.”<sup>10</sup> ACHD has not chosen either option recommended by EPA. Instead, the draft SIP would sacrifice human health to avoid imposing additional control measures on the Clairton Works. Not requiring the emission reductions needed for attainment wherever the public has access violates the Clean Air Act.

## 2. The Proposed SIP Fails to Attain the 24-Hour NAAQS.

The SIP must be designed to implement both the annual and 24-hour NAAQS for PM<sub>2.5</sub>. The relevant NAAQS are the standards promulgated in 2006.<sup>11</sup> Under the rule, the revised 24-hour NAAQS took effect on December 18, 2006. At that point, the revised NAAQS became the only NAAQS that fully implemented the statutory objective of protecting the public health with an ample margin of safety.<sup>12</sup> A SIP that implements the new NAAQS must be submitted within 3 years of promulgation of the NAAQS.<sup>13</sup> A SIP to implement the new NAAQS was thus due in December 2009.

The Proposed SIP does not demonstrate attainment of the revised 24-hour NAAQS. The SIP predicts that the 98<sup>th</sup> percentile 24-hour value in 2015 will be 44 µg/m<sup>3</sup> at Liberty Borough. This value far exceeds the NAAQS (35 µg/m<sup>3</sup>).

The SIP cannot be fully approved by EPA without demonstrating that it will attain all applicable NAAQS for PM<sub>2.5</sub>. EPA can only grant partial or conditional approval under § 7410(k) if EPA finds that the partial SIP will not interfere with attainment under 42 U.S.C. § 7410(l).

To protect the public health, and to provide an analysis of whether the submitted SIP might interfere with attainment of the 24-hour SIP by allowing emissions that must be reduced, the SIP must adopt control measures that are available now to make progress toward implementation of the 24-hour NAAQS and model their impact on ambient air quality. The SIP must model the concentrations that will result from adoption of these additional measures to determine whether they will be sufficient to provide for attainment of the revised NAAQS, or whether additional measures will be required to attain. If additional measures beyond those proposed below are needed, it will be important to

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<sup>9</sup> 72 Fed. Reg. 20,607.

<sup>10</sup> *Id.*

<sup>11</sup> 71 Fed. Reg. 61143.

<sup>12</sup> 42 U.S.C. § 7409(b).

<sup>13</sup> 42 U.S.C. § 7410(a)(2).

determine whether some of the controls being required to meet the annual NAAQS will waste limited resources by allowing investments in inadequate control technology or systems that will later need to be scrapped in order to achieve the greater emission reductions needed for attainment of the 24-hour standard.

## **II. THE FINAL SIP MUST ADOPT AN ACCELERATED SCHEDULE FOR IMPLEMENTING IDENTIFIED REDUCTIONS**

### **1. ACHD has not Provided Adequate Evidence to Justify an Attainment Date Extension**

Under Section 172(a)(2) of the CAA, an attainment date for a national primary NAAQS:

...shall be the date by which attainment can be achieved as expeditiously as practicable, but no later than 5 years from the date such area was designated nonattainment...except that the Administrator may extend the attainment date to the extent the Administrator determines appropriate for a period no greater than 10 years from the date of designation as nonattainment, considering the severity of nonattainment and the availability and feasibility of pollution control measures.<sup>14</sup>

EPA designated Liberty-Clairton as nonattainment for the primary NAAQS for PM 2.5 effective April 5, 2005.<sup>15</sup> Therefore, the Liberty-Clairton attainment date is April 5, 2010, unless extended by EPA in accordance with the criteria of CAA 172(a)(2).

ACHD is apparently requesting a 5-year extension to the 2010 deadline from EPA as the Department “proposes an attainment date of 2015” in the proposed Clairton SIP.<sup>16</sup> However, SIP extension requests are not granted automatically; a SIP must include “an attainment demonstration justifying its proposed attainment date.”<sup>17</sup> EPA may grant such an attainment date extension based only on consideration of “the severity of nonattainment and the availability and feasibility of pollution control measures.”<sup>18</sup>

The preamble to the Clean Air Fine Particle Implementation Rule details the requirements to satisfy a deadline extension request:

The attainment demonstration must provide sufficient information to show that attainment by the initial attainment date is impracticable due the severity of the nonattainment problem in the area [and] the lack of available control measures[.]. States requesting an extension of the

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<sup>14</sup> 42 U.S.C. § 7502(a)(2).

<sup>15</sup> 70 Fed. Reg. 944, 999 (January 5, 2005).

<sup>16</sup> SIP at 17.

<sup>17</sup> 40 C.F.R. § 51.1004(b).

<sup>18</sup> 42 U.S.C. § 7502(a)(2).

attainment date must also demonstrate that all local control measures that are reasonably available and technically feasible for the area are currently being implemented to bring about expeditious attainment of the standard by the alternative attainment date for the area.<sup>19</sup>

ACHD has failed to adequately justify its 5-year extension request. The draft SIP does not demonstrate that attainment by April 5, 2010 is impracticable due to the severity of nonattainment or lack of available control measures, and has failed to demonstrate that all reasonably available and technically feasible local control measures are being implemented expeditiously.<sup>20</sup> The Proposed Clairton SIP describes the Battery 1, 2, 3 shutdown as “an extensive and expensive modernization”<sup>21</sup> of the Clairton Coke Works, but offers no evidence that it cannot be accomplished sooner. The fact that this work is required under a consent order and agreement is not dispositive of “the availability and feasibility of pollution control measures,”<sup>22</sup> Indeed, the Clean Air Act and EPA regulations do not provide for extensions of the 5-year or 10-year deadlines based only on agreements with air pollution agencies.<sup>23</sup> Further, steep reductions in emissions from replacing quench tower #5, #7, or B, if timely implemented could enable the Liberty-Clairton area to comply with EPA rules and meet or precede the extended attainment date proposed by ACHD.

Not only has ACHD failed to provide information demonstrating that a later attainment date is necessary, it has provided no information demonstrating specifically why nothing less than a 5-year extension — the absolute maximum permitted under the Clean Air Act<sup>24</sup> — will provide sufficient time for the area to reach attainment.

Thus, ACHD must provide additional information sufficient to justify its extension request or it must pursue some combination of additional control measures and a more rapid schedule for implementation of control measures.

2. ACHD has Failed to Provide for Implementation of All Control Measures Needed for Attainment by no Later than the Beginning of the Year Prior to the Attainment Date

A SIP “must provide for implementation of all control measures needed for attainment as expeditiously as practicable, but no later than the beginning of the year prior to the attainment date.”<sup>25</sup> Because the SIP proposes an attainment date of April 5, 2015, all critical control measures must therefore be implemented by January 1, 2014.

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<sup>19</sup> 72 Fed. Reg. 20585, 20601.

<sup>20</sup> See Sections II.4, III.2, and IV.9 *infra*.

<sup>21</sup> SIP at 17.

<sup>22</sup> 42 U.S.C. § 7502(a)(2).

<sup>23</sup> 42 U.S.C. § 7502 (a)(2)(A); 40 C.F.R. § 51.1004; 72 Fed. Reg. 20,585, 20,601.

<sup>24</sup> “[T]he [EPA] administrator may extend the attainment date . . . for a period *no greater than 10 years* from the date of designation as nonattainment.” (42 U.S.C. § 7502(a)(2) *emphasis added*). “An appropriate extension in some cases may be only 1 or 2 years — a 5-year extension is not automatic upon request.” (72 Fed. Reg. 20,585, 20,601).

<sup>25</sup> 40 C.F.R. § 51.1007(b).

The draft SIP includes a timeline for shutdown of Batteries 7, 8, and 9 by January 24, 2013, and Batteries 1, 2, and 3 by August 11, 2015.<sup>26</sup> Those measures are critical to attainment at Liberty-Clairton. Even if EPA were to grant ACHD the full 5-year extension it is requesting, extending the attainment date to April 5, 2015, an August 11, 2015 shut down of Batteries 1, 2, and 3 would come over twenty months after the January 1, 2014 deadline for implementation of control measures. Further, the proposed January 24, 2013 shut down of Batteries 7, 8, and 9 would only comply with the deadline in the event that EPA grants a full 5-year attainment date extension. ACHD must revise the proposed SIP to require the implementation of all control measures by no later than the beginning of the year prior to the attainment date, January 1, 2014 at the latest.

3. ACHD's Proposed SIP Cannot Possibly Demonstrate Attainment by the Regulatory Deadline

3.1. The Proposed SIP will Not Result in an EPA Attainment Determination Based on Monitor Data from 2012, 2013, and 2014

A state implementation plan “shall include enforceable emission limitations and other such control measures, means or techniques . . . as well as schedules and timetables for compliance as may be necessary or appropriate to provide for attainment of such standard . . . by the applicable attainment date.”<sup>27</sup> In order to demonstrate attainment of the 15 µg/m<sup>3</sup> annual standard by the attainment date, Liberty-Clairton monitor data must show that the “3-year average annual mean concentration is less than or equal to 15.05 µg/m<sup>3</sup>.”<sup>28</sup> Thus, for example, “[f]or any areas that are granted the full 5 year attainment date extension under section 172, the attainment date would be no later than April 5, 2015. For such areas, EPA would determine whether they have attained the standard by evaluating air quality data from 2012, 2013, and 2014.”<sup>29</sup> It is clearly impossible for the proposed SIP to demonstrate attainment based on years 2012-2014 because attainment depends on the shutdown of Batteries 7-9 and 1-3, which is not set to occur until January 24, 2013, and August 11, 2015, respectively.

ACHD's projected annual Liberty monitor value for 2015 is 14.9996 µg/m<sup>3</sup>,<sup>30</sup> and is based on the assumption that batteries 1-3, 7-9, and their associated quench towers have been shut down by that date.<sup>31</sup> However, ACHD's source impact tables<sup>32</sup> can be used to estimate Liberty monitor values for the years 2012, 2013, and 2014 simply by adding the impacts of batteries 1-3 and 7-9 back to and subtracting the C and D Battery

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<sup>26</sup> SIP at 14-15.

<sup>27</sup> 42 U.S.C. § 7502(c)(6).

<sup>28</sup> 74 Fed. Reg. 20,600, *see also* 40 C.F.R. Part 50, Appendix N.

<sup>29</sup> 74 Fed. Reg. 20,600.

<sup>30</sup> SIP at 39.

<sup>31</sup> SIP at 57 “The emissions improvements in the control strategy will not be met until the second coke quench tower is shut down, when the coke ovens it serves are shut down.” *See also* SIP Appendix F at 20-22.

<sup>32</sup> SIP, App. J, at 38

impacts from the 14.9996 µg/m<sup>3</sup> value, as the Clairton Coke Works actual shutdown/startup timelines dictate.<sup>33</sup>

**Table 1: Projected Future Monitor Values**

Year	Projected Liberty Monitor Value	Notes
2012	17.8886	Adds 1-3 & 7-9, subtracts C & D
2013	17.8736	Adds 1-3, subtracts D
2014	17.8736	Adds 1-3, subtracts D
2015	16.7527	Adds 61% of 1-3, subtracts 61% of D

As the table demonstrates, the 2012-2014 values will be well above the 15 µg/m<sup>3</sup> 3-year average annual mean concentration and will not result in attainment.

### 3.2. One-Year Attainment Extensions are not Available

If a nonattainment area fails to reach attainment by its deadline, 40 C.F.R. § 51.1005 and Section 172(a)(2)(C) of the Clean Air Act provide a method for states and localities to seek two additional 1-year extensions to their attainment dates under certain circumstances. However, in its current form the proposed SIP will not be eligible for a these 1-year extensions.

To receive a 1-year extension, ACHD must have “complied with all requirements and commitments pertaining to the area in the applicable implementation plan.”<sup>34</sup> As already noted, ACHD has failed to “provide for implementation of all control measures needed for attainment as expeditiously as practicable, but no later than the beginning of the year prior to the attainment date,”<sup>35</sup> and thus will be ineligible for a 1-year extension.

An additional requirement to receive a 1-year extension is that “[f]or an area that violates the annual PM<sub>2.5</sub> NAAQS as of its attainment date, the annual average concentration for the most recent year at each monitor is 15.0 µg/m<sup>3</sup> or less.”<sup>36</sup> As established in section II.3.1 above, the annual average concentration for 2014, will be roughly 17.9 µg/m<sup>3</sup>, well above the 15 µg/m<sup>3</sup> requirement.

Even if EPA were to accept data from the attainment year 2015 rather than the year preceding 2015, the battery 1-3 shutdown and D startup is not required to occur until August 11, just over 60% of the way through 2015. Thus the annual average

<sup>33</sup> See attachment 2 for full calculations. Note that this method of estimating 2012-2014 monitor values likely still results in values that are lower than reality because it assumes all other emission reductions ACHD projects for 2015 have instead been implemented by 2012 and (contrary to the discussion in section III.1 below) it assumes ACHD’s projected ammonium and chlorine reductions are accurate.

<sup>34</sup> 42 U.S.C. § 7502 (a)(2)(C)(i).

<sup>35</sup> 40 C.F.R. § 51.1007(b).

<sup>36</sup> 40 C.F.R. § 51.1005(a)(1).

concentration for that year would be roughly 16.8 µg/m<sup>3</sup>, still well above the 15.0 µg/m<sup>3</sup> standard.<sup>37</sup>

Thus the current proposed SIP is inadequate because ACHD cannot demonstrate attainment based on 2012, 2013, and 2014 monitor data, nor can ACHD reasonably rely on an extension to receive a later attainment date.

4. ACHD Has Not Considered All Reasonably Available Control Technologies (RACT) and Reasonably Available Control Measures (RACM)

The Clean Air Fine Particle Implementation Rule,<sup>38</sup> includes the following requirements regarding reasonably available control technology (RACT) and reasonably available control measures (RACM):

(a) For each PM<sub>2.5</sub> nonattainment area, the State shall submit with the attainment demonstration a SIP revision demonstrating that it has adopted all reasonably available control measures (including RACT for stationary sources) necessary to demonstrate attainment as expeditiously as practicable and to meet any [reasonable further progress] requirements. The SIP revision shall contain the list of the potential measures considered by the State, and information and analysis sufficient to support the State's judgment that it has adopted all RACM, including RACT.

(b) In determining whether a particular emission reduction measure or set of measures must be adopted as RACM under section 172(c)(1) of the Act, the State must consider the cumulative impact of implementing the available measures. Potential measures that are reasonably available considering technical and economic feasibility must be adopted as RACM if, considered collectively, they would advance the attainment date by one year or more.<sup>39</sup>

EPA has explained that a determination of “technical feasibility” depends on a source's process and operating procedures, raw materials, physical plant layout, and any other environmental impacts such as water pollution waste disposal, and energy requirements.<sup>40</sup> A determination of “economic feasibility” considers the cost of a potential measure in light of the area’s attainment needs and the costs of alternative measures.<sup>41</sup>

4.1. ACHD Must Evaluate Whether RACM/RACT Require of Early Replacement of Batteries 1, 2, 3

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<sup>37</sup> See table 1, section II.3.1 *supra*

<sup>38</sup> 40 C.F.R. §§ 51.1000-1012.

<sup>39</sup> 40 C.F.R. § 51.1010.

<sup>40</sup> 72 Fed. Reg. 20,585, 20,618 (April 25, 2007).

<sup>41</sup> 72 Fed. Reg. at 20,619.

The Proposed SIP Revision relies largely on the shutdown and replacement of six batteries at Clairton Coke Works in 2013 and 2015 to demonstrate attainment. Although those completion dates are specified by a consent order and agreement, that does not preclude a determination that an earlier shutdown of those six batteries is not technically and economically available and feasible.<sup>42</sup> On December 1, 2009 GASP formally requested from ACHD “all information ACHD relied on in determining the cost and technical feasibility of . . . advancing the shut down dates of US Steel Clairton Coke batteries 1, 2, and 3.”<sup>43</sup> ACHD provided no information regarding economic or technical feasibility in response.<sup>44</sup> Thus, it appears that ACHD failed to consider the economic and technical feasibility of an accelerated shutdown timeline, contrary to the requirements of 40 C.F.R. § 51.1010.

#### 4.2. Contingency Measures Must be Implemented as RACM/RACT

Potential measures that are reasonably available considering technical and economic feasibility must be adopted as RACM if, considered collectively, they would advance the attainment date by one year or more.<sup>45</sup> The SIP describes contingency measures that will be implemented if the Liberty-Clairton Nonattainment Area fails to make reasonable further progress or attain the standards.<sup>46</sup> The proposal determines the contingency measure amount by dividing the total reductions necessary to attain the NAAQS (445 tons per year) by the number of years from the designation of nonattainment in 2005 to the attainment date of 2015, to find the target reductions for contingency measures, specifically, 45 tons per year. The SIP then describes measures either undertaken or available at the Clairton Coke Works totaling 40.53 tons per year of PM 2.5 reduction.<sup>47</sup> The SIP also claims that due to the use of ultra low sulfur diesel (ULSD) starting in 2010, ACHD is overestimating emissions from heavy-duty equipment in the Liberty-Clairton area “by several tons per year.”<sup>48</sup>

While these measures are intended to be implemented “if the area fails to make reasonable further progress, or to attain the national primary ambient air quality standard by the attainment date,”<sup>49</sup> all measures are scheduled to be implemented prior to 2015: the ULSD fuel requirement will be fully implemented in 2010;<sup>50</sup> Battery 19 wall rebuilds will be completed by October 31, 2012;<sup>51</sup> and Battery 20 wall rebuilds will be completed by October 31, 2014.<sup>52</sup> Because these proposed contingency measures will all be implemented well before the attainment date, their implementation as RACM/RACT is clearly economically and technically feasible. Further, because ACHD describes these

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<sup>42</sup> See 42 U.S.C. § 7502(a)(2).

<sup>43</sup> See attachment 3 GASP document request.

<sup>44</sup> See attachment 4 ACHD response letter.

<sup>45</sup> 40 C.F.R. § 51.1010.

<sup>46</sup> SIP at 63-66.

<sup>47</sup> *Id.*, at 65.

<sup>48</sup> *Id.*

<sup>49</sup> 42 U.S.C. § 7502 (c)(9).

<sup>50</sup> SIP at 65.

<sup>51</sup> attachment 5 March 2008 Consent Agreement.

<sup>52</sup> *Id.*

contingency measures as equivalent to one year's emission reductions, their implementation would advance the attainment date by a year or more. Thus, ACHD must include these contingency measures as RACM/RACT and identify new contingency measures to be implemented if the area fails to make reasonable further progress or attain the NAAQS by the attainment date.

### **III. THE FINAL PLAN MUST INCLUDE ADDITIONAL CONTROL MEASURES**

#### **1. Alleged Reductions in Ammonium and Chlorine Are Not Demonstrated, and May Not Be Relied Upon for Attainment Demonstration.**

In a presentation of the SIP modeling procedures on October 20, 2009, ACHD staff acknowledged that the sources of ammonium and chlorine had not been identified, and that control measures had not been adopted in the SIP to control these pollutants. The staff presentation included the following statements:

- Recommended method in the Modeling Guidance for reconstructing ammonium and water is by indirect calculation (dependent on other species);
- The CALPUFF modeling was performed for primary PM<sub>2.5</sub>, with no chemical transformation; inclusion of ammonia and/or hydrochloric acid would require transformation;
- CMAQ-modeled ammonium reductions are based primarily on reductions in associated sulfate and nitrate and would not necessarily apply to excess primary ammonium; and
- Inventories for ammonia and chlorine were not adequately reviewed for this modeling demonstration.

ACHD included ammonium and chlorine in the species analysis performed on the particles measured at the Liberty Borough monitor. Measured concentrations were used to determine the contribution of these two species to the total baseline concentration of fine particles measured in 2002, the baseline year. Based on these measurements, ACHD determined that 17.9% of the excess PM<sub>2.5</sub> measured at the Liberty monitor (compared to the Lawrenceville monitor) was ammonium (9.5%) and chlorine (8.4%).<sup>53</sup>

The failure to identify sources of these pollutants, and the inability to attribute reductions in these pollutants to any control measures in the SIP, make the reductions in these pollutants in the modeled inventory for 2015 unsupported.

The average measured ammonium concentration at Liberty in 2002 was 2.045 µg/m<sup>3</sup>, and the projected average in 2015 is 1.435,<sup>54</sup> or 0.609 µg/m<sup>3</sup> less than the baseline. The SIP does not provide any rational basis for calculating, or even assuming,

<sup>53</sup> ACHD, PM<sub>2.5</sub> Chemical Speciation and Related Comparisons at Lawrenceville and Liberty: 18-Month Results at 27 (2005), *available at*: [http://www.achd.net/airqual/pubs/pdf/speciation\\_report.pdf](http://www.achd.net/airqual/pubs/pdf/speciation_report.pdf).

<sup>54</sup> SIP at 39.

that such a reduction in ammonium will occur. The failure of the emission inventory to identify the source(s) of ammonium in the nonattainment area, to quantify their emissions, to determine a relative reduction factor (RRF) for ammonium in accordance with EPA's guidance, and to identify the absence of any control measures to reduce ammonium, all preclude the possibility of showing the ammonium reductions will occur. The SIP does not demonstrate how the reductions in ammonium will be achieved or that they will be enforceable and permanent.

Without some rational basis for showing that these reductions will occur by 2014, the attainment year, and will continue to be achieved thereafter, these reductions in ammonium may not be relied upon as part of the attainment demonstration.

Moreover, without the claimed reduction in ammonium, the projected future annual design value is 15.571 µg/m<sup>3</sup>, not 14.9996. The proposed SIP falls short of the NAAQS by 0.571 µg/m<sup>3</sup> and does not demonstrate attainment. The proposed SIP may not be adopted without additional reductions in fine particle emissions sufficient to make up the shortfall.

2. ACHD Must Evaluate Whether the Replacement of Quench Towers #5, #7, and B is Required by RACM/RACT.

In a prior draft of the SIP, ACHD identified a contingency measure involving a regulation to limit emissions from one of three remaining quench towers (#5, #7, and B) at the Clairton Works.<sup>55</sup> According to ACHD, a regulation limiting emissions from just one of these towers would reduce emissions from current estimated levels of 404 tons per year of PM 2.5 by between 275 to 301 tons per year of PM 2.5.<sup>56</sup> ACHD noted that another federally enforceable mechanism, such as a consent agreement or permit condition, could achieve the same results.<sup>57</sup>

This quench tower proposal does not appear in the Proposed SIP Revision, and the SIP does not contend that it is not feasible. On December 1, 2009 GASP formally requested from ACHD "all information ACHD relied on in determining the cost and technical feasibility of" requiring a modern quench tower to replace quench towers #5, #7, or B.<sup>58</sup> ACHD provided no information regarding economic or technical feasibility in response.<sup>59</sup> Thus, it appears that the SIP does not consider the economic and technical feasibility of an accelerated shutdown timeline contrary to the requirements of 40 C.F.R. § 51.1010. The potential emission reduction at each tower, 275 to 301 tons per year, is considerably more than the amount needed to advance attainment by one year. In accordance with 40 C.F.R. 51.1010(b), the SIP must include this substantive measure and require its implementation at one or more of quench towers #5, #7, and B at the Clairton Works.

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<sup>55</sup> SIP Version 7, dated October 5, 2009 at 75.

<sup>56</sup> *Id.*

<sup>57</sup> *Id.*

<sup>58</sup> See attachment 3 GASP document request.

<sup>59</sup> See attachment 4 ACHD response letter.

3. Use of Estimated Actual Emissions for Electric Generating Units in 2015 Does Not Demonstrate Attainment.

The largest reduction of primary particles shown in the SIP comes from the estimated reduction in emissions from electric generating units (EGUs). Distant EGUs (units within the 150 Km modeling domain, but outside the Liberty-Clairton Nonattainment Area, Fig. 7-5), are expected to reduce particle emissions from 51,779 tons in 2002 to 27,934 tons, a 46% reduction.<sup>60</sup> The more than 23,000 tons of reductions from these units represent 94% of the total reductions in primary particle emissions called for in the SIP. But these reductions from EGUs do not satisfy EPA's criteria for creditable SIP measures, and thus may not be relied upon in making the attainment demonstration.

Under EPA's requirements for creditable emission reductions, reductions may be relied upon in a SIP only if they are quantifiable, permanent, and enforceable. The reductions assumed from EGUs meet none of these tests because the reductions are not quantified in the SIP for each source, and the reductions are based on expected actual emissions in 2015 which are not permanent or enforceable. EPA policies and regulations that govern SIP approvals do not allow emission reduction credits to be recognized based on estimated actual emissions, rather than enforceable allowable emission limits.

EPA's regulations require that the SIP contain a "control strategy"<sup>61</sup> consisting of control measures that define the duties of entities responsible for reducing emissions, and that those "measures" be enforceable against such entities. EPA explains that "the purposes of a SIP...are to make demonstrations (of how attainment, maintenance, and

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<sup>60</sup> See SIP, Table 7-1, at 32.

<sup>61</sup> EPA defines "control strategy" as "a combination of measures designated to achieve the aggregate reduction of emissions necessary for attainment and maintenance of national standards including, but not limited to, measures such as:

- (1) Emission limitations.
- (2) Federal or State emission charges or taxes or other economic incentives or disincentives.
- (3) Closing or relocation of residential, commercial, or industrial facilities.
- (4) Changes in schedules or methods of operation of commercial or industrial facilities or transportation systems, including, but not limited to, short-term changes made in accordance with standby plans.
- (5) Periodic inspection and testing of motor vehicle emission control systems, at such time as the Administrator determines that such programs are feasible and practicable.
- (6) Emission control measures applicable to in-use motor vehicles, including, but not limited to, measures such as mandatory maintenance, installation of emission control devices, and conversion to gaseous fuels.
- (7) Any transportation control measure including those transportation measures listed in section 108(f) of the Clean Air Act as amended.
- (8) Any variation of, or alternative to any measure delineated herein.
- (9) Control or prohibition of a fuel or fuel additive used in motor vehicles, if such control or prohibition is necessary to achieve a national primary or secondary air quality standard and is approved by the Administrator under section 211(c)(4)(C) of the Act."

40 C.F.R. § 51.100(n).

progress will be achieved) and to provide a control strategy that will achieve the necessary reductions and otherwise meet the requirements of the Act.”<sup>62</sup> If a SIP does not satisfy the requirements identified by the Act and described in EPA’s regulations, “[t]he Agency must disapprove those portions of a SIP submittal that do not meet the applicable requirements of the Act (section 110(k)(3)).”<sup>63</sup>

More specifically, EPA requires that a SIP “must demonstrate that the measures, rules, and regulations contained in it are adequate to provide for the timely attainment and maintenance of the national standard that it implements.”<sup>64</sup> EPA’s rules also require SIPs to satisfy the Act’s requirements for “a program to provide for the enforcement of the measures described [in the SIP],”<sup>65</sup> and for “enforceable” measures,<sup>66</sup> which EPA describes as:

“a control strategy which includes...a description of enforcement methods including, but not limited to: 1) Procedures for monitoring compliance with each of the selected control measures . . .”<sup>67</sup>

For a SIP to satisfy the statutory requirement that it contain “enforceable emissions limitations, and such other control measures, means or techniques...as may be necessary to provide for attainment,”<sup>68</sup> the SIP must contain measures that “achieve the aggregate reduction of emissions necessary for attainment.”<sup>69</sup> The SIP treats estimated future actual emissions as “enforceable emission limitations.” This reliance on estimates of expected future actual emissions that are not based on adopted and enforceable rules is clearly contrary to law. A SIP simply may not claim credit for an unenforceable expectation regarding future EGU emission reductions.

The SIP cannot be approved if “the measures, rules and regulations contained in it are not adequate to provide for timely attainment.”<sup>70</sup> Nor does the Draft SIP even assert that the reductions from EGUs are enforceable measures that satisfy EPA’s SIP rule requiring that:

[e]mission limitations and other measures necessary for attainment and maintenance of any national standard, including any measures necessary to implement the requirements of subpart L must be adopted as rules and regulations enforceable by the State agency.<sup>71</sup>

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<sup>62</sup> 57 Fed. Reg. 13,498, 13,567 (April 16, 1992).

<sup>63</sup> *Id.*, at 13,566.

<sup>64</sup> 40 C.F.R. § 51.112(a)(emphasis added).

<sup>65</sup> 42 U.S.C. § 7410(a)(2)(C).

<sup>66</sup> 42 U.S.C. § 7502(c)(6).

<sup>67</sup> 40 C.F.R. § 51.111(a).

<sup>68</sup> 42 U.S.C. § 7502(c)(6).

<sup>69</sup> 40 C.F.R. § 51.100(n).

<sup>70</sup> 40 C.F.R. § 51.112(a).

<sup>71</sup> 40 C.F.R. § 51.281.

The estimated future emissions from EGUs are not themselves measures, rules or regulations; nor does the SIP pretend that they are. The estimated future actual emissions from EGUs are merely included in the emission inventory used for modeling future background concentrations, but are not enforceable. These estimates are not even promises to submit enforceable emission limitations that could make these reductions eligible for credit in an approvable SIP.

An estimate of future emissions without a corresponding obligation by the source to meet that estimate cannot itself be a control measure because the promise does not establish a legally enforceable obligation to achieve emissions reductions from a source or activity.

Nor can an estimate of future emissions be a “measure” as described above because the obligation represented by the estimate does not satisfy EPA’s rule requiring that the SIP contain procedures for measuring performance and determining compliance with an obligation to reduce emissions. The SIP’s reliance on estimates of future actual emissions, even if based on EPA’s regional modeling, is not enforceable against an entity with responsibility for installing emissions controls, or changing or stopping a polluting activity so as to achieve the emissions reductions relied upon in the air quality modeling done for the SIP.

4. The Clairton Control Strategy May Not Claim Credit for Measures to Enforce Current PM SIP Obligations.

The Weight of Evidence section of the SIP claims credit for emission reductions from battery stacks at Clairton Coke Works that will be achieved from repairing cracks in the oven walls that allow raw coke oven gases from inside the ovens to leak into the underfire chamber, where combustion of fuel gas occurs. This contamination of fuel in the combustion zone causes violations of the visible emission standards at the battery stacks. These measures are defined in enforcement orders as including the following schedules for maintenance and battery rebuild:

- Clairton Battery 15 – 3 rounds of an enhanced preventive maintenance refractory repair plan, meet opacity limits by 12/31/08;
- Clairton Battery 19 – replace 25 heating walls on Battery 19 by October 31, 2012, meet opacity limits by 12/31/2012; and
- Clairton Battery 20 – replace 88 heating walls by 10/31/14, & meet its opacity limits by 12/31/14

Nothing in the SIP provides information to show that these excess emissions were occurring during the baseline year of 2002. Since the emission limitations applicable to the battery stacks were in effect in 2002 as part of the PM-10 SIP, the only inference that may be drawn is that these sources were in compliance at that time. If the battery stacks at Clairton Coke Works were in compliance, then reduction credit may not be claimed for activities designed to return these sources to a state of compliance; such compliance measures will not achieve reductions relative to emissions in 2002.

5. The SIP Does not Provide an Adequate Basis for its Projected Emission Reductions from the Clairton Works Wall Rebuilds for Batteries 19 and 20

The SIP arrives at its projected emissions reductions from wall rebuilds at Clairton Coke's batteries 19 and 20 by "[a]ssuming the same percentage of improvements to occur at batteries 19 and 20 as has been measured at battery B."<sup>72</sup> However, the SIP provides no reason to believe this is an accurate assumption. Battery B's age, design, emissions,<sup>73</sup> and, presumably, wall conditions all differ from batteries 19 and 20.

6. The SIP Must Provide a Technical Demonstration to Establish Volatile Organic Compound contribution to PM2.5 Formation

Volatile Organic Compound (VOC) emissions are a significant contributor<sup>74</sup> to PM2.5 concentrations in the Liberty-Clairton nonattainment area; however, the SIP does not evaluate potential VOC controls for PM2.5. EPA's Clean Air Fine Particle Implementation Rule establishes the default presumption that control measures for VOCs need not be considered. However, "[i]f information brought forward by commenters or the State in the SIP development process shows that the presumption in this rule for ammonia, VOC or NOX is not technically justified for a particular nonattainment area, the State must conduct a technical demonstration to reverse the presumption."<sup>75</sup>

6.1. Monitor Data Indicates the Presumption for VOC is not Justified

The rule lists examples of "the types of analyses that would be appropriate to use in developing such a demonstration."<sup>76</sup> Included among these examples are "[s]pecialized monitoring and laboratory studies [that] assess the relative concentrations of organic compounds."<sup>77</sup> In 2009, such a study analyzed air toxics in Allegheny County and found that thirteen of thirty six monitored organic air toxics exceeded the national 75<sup>th</sup> percentile at one or more monitoring sites.<sup>78</sup> All thirteen of the elevated compounds belong to chemical classes that have been recognized for their potential to contribute to

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<sup>72</sup> SIP at 65.

<sup>73</sup> SIP App. F, at 8.

<sup>74</sup> Regarding the meaning of the term "significant contributor" in the context of PM 2.5 precursors, EPA notes that "relatively small reductions" can be significant: "The EPA in this rule is not establishing a quantitative test for determining whether PM2.5 levels in a nonattainment area change significantly in response to reductions in precursor emissions in a state. *However, in considering this question, it is relevant to consider that relatively small reductions in PM2.5 levels are estimated to result in worthwhile public health benefits.*" 72 Fed. Reg. 20,585, 20,590 (emphasis added).

<sup>75</sup> 72 Fed. Reg. 20,586, 20,597.

<sup>76</sup> *Id.*

<sup>77</sup> *Id.*

<sup>78</sup> Allen Robinson et. al., *Air Toxics in Allegheny County: Sources, Airborne Concentrations, and Human Exposure*, Final Technical Report for Allegheny County Health Dept. at 3 (Mar. 2009) (the "CMU Study"), available at: <http://www.achd.net/air/pubs/pdf/CMU%20Air%20Toxics%20FINAL%20REPORT%20REVISED%20MAR%202009.pdf>.

PM2.5 concentrations.<sup>79</sup> Most significant, seven of these thirteen chemicals are aromatic compounds, which “are considered to be the most significant anthropogenic SOA [secondary organic aerosol] precursors and have been estimated to be responsible for 50 to 70 percent of total SOA in some airsheds.”<sup>80</sup>

**Table 2: Allegheny County VOCs above 75<sup>th</sup> Percentile and Associated Precursor Class**

<b>Pollutant</b>	<b>Precursor Class</b>
toluene	aromatic
ethyl benzene	aromatic
benzene	aromatic
styrene	aromatic
1,4-dichlorobenzene	aromatic, chlorinated
m/p-xylenes	aromatic
o-xylenes	aromatic
chloromethane	alkane, chlorinated
propionaldehyde	carbonyl
methylisobutyl ketone	carbonyl
trichloroethene	chlorinated
tetrachloroethene	chlorinated
methylene chloride	chlorinated

Although the closest monitor to Liberty-Clairton was located at the Carnegie-Mellon University (“CMU”) campus, roughly 11 miles away and generally upwind, the VOC emissions from Liberty-Clairton had a substantial effect on monitor data at the CMU site. The CMU study attributed “the majority of the 1,1-dichloroethane, benzene, styrene, and xylenes” to emissions from the Liberty-Clairton area,<sup>81</sup> and Liberty-Clairton was the second-largest contributor to CMU monitor concentrations of the PM 2.5 precursors 1,4-dichlorobenzene, toluene, and ethyl benzene.<sup>82</sup> If emissions from Liberty-Clairton have such a pronounced impact at CMU, the impact in the Liberty-Clairton is almost certainly substantially greater.

In addition to the CMU study, ACHD monitor data shows concentrations of the aromatic benzo(a)pyrene are elevated at Liberty, with average annual concentrations 12 to 17 times higher than other monitors in Allegheny County.<sup>83</sup>

## 6.2. Emission Inventory Data Indicates the Presumption for VOC is not Justified

<sup>79</sup> 72 Fed. Reg. 20,586, 20,593.

<sup>80</sup> *Id.*

<sup>81</sup> CMU Study, at 121.

<sup>82</sup> *Id.* at 120.

<sup>83</sup> ACHD, 2006 Annual Air Quality Report at 25, *available at*: <http://www.achd.net/air/pubs/pdf/2006Final.pdf>.

The Clean Air Fine Particle Implementation Rule also suggests emission inventory information as a source of data to establish the need for VOC controls, such as if “[s]everal stationary sources emitting particular VOCs known to contribute to SOA formation make up a significant portion of the area’s VOC inventory.”<sup>84</sup> The Clairton Coke Works is a massive source of VOCs. As depicted in the table below, from 2000 and 2007 the Clairton Works alone was responsible for between 50 and 81% of benzene emissions countywide, between 85 and 96% of all phenol, up to 24% of all toluene, and up to 98% of all methyl chloride each year.<sup>85</sup>

**Table 3: Clairton Coke Works Contribution to County Emissions for Select VOCs**

Year	2000	2001	2002	2003	2004	2005	2006	2007
<b>benzene</b>								
County Total	47.4	43.59	45.45	43.84	85.73	89.95	95.79	73.85
Clairton Coke	24.03	25.9	26.85	27.77	69.7	71.73	66.36	54.71
Clairton % of Total	50.70%	59.42%	59.08%	63.34%	81.30%	79.74%	69.28%	74.08%
<b>phenol</b>								
County Total	24.75	23.46	23.1	23.61	22.52	23.01	23.67	14.9
Clairton Coke	22.77	21.45	22.18	22.67	21.26	21.16	20.48	12.76
Clairton % of Total	92.00%	91.43%	96.02%	96.02%	94.40%	91.96%	86.52%	85.64%
<b>toluene</b>								
County Total	182.78	119.57	103.44	95.39	109.22	102.52	109.91	86.71
Clairton Coke	2.83	5.22	5.37	5.5	23.84	25.15	23.39	21.34
Clairton % of Total	1.55%	4.37%	5.19%	5.77%	21.83%	24.53%	21.28%	24.61%
<b>methyl chloride</b>								
County Total	0.37	3.18	2.97	3.09	20.81	21.94	20.62	18.97
Clairton Coke	0	2.53	2.62	2.66	20.44	21.59	20.28	18.62
Clairton % of Total	0.00%	79.56%	88.22%	86.08%	98.22%	98.40%	98.35%	98.15%

Based on the monitor studies and emission inventory data, we believe ACHD must perform a technical demonstration to determine if VOCs significantly contribute to PM2.5 concentrations in the nonattainment area.<sup>86</sup> If VOCs are a significant contributor, more timely and cost-effective PM2.5 reduction methods may be available in the form of VOC controls.

7. The SIP Stationary Source Emission Projections Must be Revised to Account for Delayed and Cancelled CAIR Projects.

<sup>84</sup> 72 Fed. Reg. 20,586, 20,597.

<sup>85</sup> ACHD, 2007 Annual Air Quality Report, attachment C at 22 & attachment B at 1-3, available at: <http://www.achd.net/air/pubs/pdf/07emissionreport.pdf>.

<sup>86</sup> While EPA has “not establish[ed] a quantitative test for determining whether PM2.5 levels in a nonattainment area change significantly in response to reductions in precursor emissions” EPA does note that “it is relevant to consider that relatively small reductions in PM2.5 levels are estimated to result in worthwhile public health benefits.” 72 Fed. Reg. 20,586, 20,590.

The SIP's regional emission projections for 2015 are based on the MANE-VU emissions inventory for the northeastern United States.<sup>87</sup> This model included expected SO<sub>2</sub> and NO<sub>x</sub> emission reductions resulting from the Clean Air Interstate Rule (CAIR).<sup>88</sup> However, in July 2008 the D.C. Circuit Court vacated and remanded CAIR.<sup>89</sup> As a result of the vacatur, EGUs upwind of the Liberty-Clairton Nonattainment Area cancelled or delayed planned NO<sub>x</sub> and SO<sub>2</sub> controls.<sup>90</sup> While the D.C. Circuit reversed its vacatur of CAIR in December 2008,<sup>91</sup> the control measure delays and cancellations resulting from the July decision, along with additional delays resulting from industry uncertainty about the requirements of the forthcoming CAIR replacement<sup>92</sup> have not been factored into the projected NO<sub>x</sub> and SO<sub>2</sub> reductions in the MANE-VU model. This flaw is particularly troubling in the context of the Liberty Clairton SIP, because, by ACHD's own admission "EPA lists Allegheny County as one of the nonattainment regions for particulates that will receive the greatest benefit in particulate reduction from CAIR."<sup>93</sup> The SIP's stationary source emission projections must be revised to account for these delayed and cancelled CAIR projects.

#### 8. The SIP Fails to Provide Reasonable Further Progress towards Attainment.

Under the Clean Air Act, plans for attainment must provide for "reasonable further progress" (RFP), which means annual incremental reductions to achieve attainment by the attainment date. 42 U.S.C. § 7501(1), 7502(c)(2). The PM 2.5 Implementation Rule describes this requirement as "generally linear progress toward attainment." 72 Fed. Reg. 20586, 20633 (April 25, 2007). For plans requesting an attainment date of nine or ten years from the date of designation, the RFP plan must

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<sup>87</sup> SIP, at 18.

<sup>88</sup> *Id.*, at 17.

<sup>89</sup> *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008) (per curiam).

<sup>90</sup> Robynn Andracssek et. al., *Not All Cap and Trade Is Created Equal*, POWER ENGINEERING (Aug. 2009), available at: [http://pepei.pennnet.com/display\\_article/367337/6/ARTCL/none/none/1/Not-All-Cap-and-Trade-Is-Created-Equal/](http://pepei.pennnet.com/display_article/367337/6/ARTCL/none/none/1/Not-All-Cap-and-Trade-Is-Created-Equal/).

<sup>91</sup> *North Carolina v. EPA*, 550 F.3d 1176 (D.C. Cir. 2008) (per curiam).

<sup>92</sup> Andracssek, *supra* note 90, stating:

"The legal back and forth has led to regulatory uncertainty for utilities subject to CAIR, as well as wide fluctuations in allowance prices. One example involves a Midwest utility and its recently cancelled plans to retrofit one of its units with low NO<sub>x</sub> burners and over fire air to reduce NO<sub>x</sub> emissions. CAIR's revival in late 2008 caught the utility off guard and sent it looking for cost control measures. The NO<sub>x</sub> control project provided a way to reign in allowance costs and offered a two- to three-year simple payback. However, NO<sub>x</sub> allowance prices plummeted, extending the payback period to 10 or more years at a time of wide fluctuations in the Midwest power market, due in part to the national economy. The utility could no longer justify the project and it was cancelled. Plans now call for the utility to buy allowances until EPA rewrites the CAIR program."

*See also Roundtable: Is a three-pollutant bill needed?: Testimony Before Senator Tom Carper and Senator Lamar Alexander*, (Apr. 23, 2009) (statement of Caroline Gentry, Business Development Manager, Argus Media Inc.) at 4, available at:

<http://web04.us.argusmedia.com/ArgusStaticContent/snips/sectors/pdfs/senate.pdf>; Robin Bravender, *Air Pollution: Acid Rain Credits Nosedive on CAIR concerns*, GREENWIRE (Mar. 27, 2009) available at: <http://www.eenews.net/public/Greenwire/2009/03/27/4>

<sup>93</sup> SIP at 74.

include 2009 and 2012 emission milestones for direct PM 2.5 and PM 2.5 attainment plan precursors demonstrating that RFP will be achieved for the 2009 and 2012 emission years. 40 C.F.R. § 51.1009(a)(2).

The SIP proposes an attainment date of 2015 (ten years from designation), and includes a discussion of RFP that includes 2009 and 2012 emission milestones (at 59-62). The SIP relies heavily on NOx and SO2 reductions outside of the Liberty-Clairton area (at 60). However, the SIP provides no indication that these emission reductions are enforceable, and thus no assurance that they will actually achieve the RFP requirements of the Clean Air Act. ACHD must not proceed further with the SIP until it identifies actual, enforceable emissions that meet RFP requirements.

9. The SIP’s Projected Emissions from Clairton Quench Towers Fail to Account for Increased Total Dissolved Solids (TDS) Levels in the Monongahela River

ACHD projects year 2015 quench tower primary PM2.5 emissions for Clairton Coke will be over 1300 TPY (see table immediately below)

<b>Table 4: Projected Quench Tower Primary PM 2.5 Emissions for 2015<sup>94</sup></b>	
	<b>Emissions (TPY)</b>
<b>Quench Tower 5</b>	377.00
<b>Quench Tower 7</b>	403.95
<b>Quench Tower B</b>	338.99
<b>Quench Tower C</b>	102.76
<b>Quench Tower D</b>	102.76
<b>Total</b>	1325.47

However, commenters are concerned the emission factors used to arrive at these projected emissions may underestimate quench water TDS concentrations, and thus underestimate PM emissions as well. The Monongahela River (The Mon) provides the quench water for the Clairton Works; in recent years the river has seen spikes in TDS concentrations.

“Conductivity readings . . . show that TDS levels began exceeding 500 parts per million (ppm) on Sept. 22 [2009] near Crucible, Greene County. Over the last two weeks, additional violations of the 500 ppm standard have been documented as far downstream as the borough of Elizabeth. The total river length currently affected is 46 miles. . . [In the fall of 2008] for the first time since data has been collected, TDS levels in more than 90

<sup>94</sup> SIP App. F at 25-26.

miles of the river exceeded 500 ppm with levels in excess of 900 ppm recorded.”<sup>95</sup>

AP-42 emissions factors for quenching define “clean water” as “less than or equal to 500 mg/L TDS.”<sup>96</sup> Given that the density of fresh water is approximately 1 kg/m<sup>3</sup>, 500 ppm is roughly equal to 500 mg/L. Thus the recent TDS spikes in the Mon exceed AP-42’s “clean water” concentration range, and average Mon River TDS levels may exceed the TDS concentration assumptions relied on to calculate Clairton Coke Quench Tower PM emissions. If so, ACHD has overestimated future case Quench Tower PM emissions reductions.

ACHD must review its quench tower emissions calculations to determine whether they accurately account for recent Mon River TDS concentrations and revise these emissions calculations as necessary. Further, the draft SIP contains no indication ACHD considered lower limits for maximum quench water TDS concentrations or quench water pretreatment technologies as potential RACT measures. Consistent with the RACM/RACT requirements discussed in sections II.4 and III.2 above ACHD must evaluate these measures for potential RACT applicability if ACHD is to demonstrate to EPA’s satisfaction that all RACM/RACT measures have been adopted.<sup>97</sup>

#### IV. Conclusion

For all of these reasons, commenters request that the Board of Health take the following actions:

- Approve for submission to EPA the control measures included in the Plan as a partial Plan.
- Direct the staff at ACHD to determine the earliest date by which construction of replacement batteries C and D can be completed, and to revise the compliance deadlines for the shutdown of batteries 7, 8 and 9, and batteries 1, 2 and 3 to occur within 60 days of the feasible start-up of batteries C and D, respectively.
- Direct the staff at ACHD to perform additional air quality modeling using dispersion models to determine the additional reductions of direct particles emitted from sources within the nonattainment area that must be obtained to provide for attainment of both the annual and revised 24-hour Standard at all

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<sup>95</sup> PADEP, Daily Update: DEP Detects Total Dissolved Solids Over Standards in Monongahela River, *available at*: [http://files.dep.state.pa.us/RegionalResources/SWRO/documents/monongahelarivertdschlorideandsulfatesamplingresults.pdf](http://74.125.47.132/search?q=cache:yWCQ_UfbzX8J:www.depweb.state.pa.us/news/cwp/view.asp%3Fa%3D1278%26q%3D549230+tds+in+the+monongahela&cd=6&hl=en&ct=clnk&gl=us; see also PADEP, Monongahela River TDS, Chloride, and Sulfate Sampling Results, <i>available at</i>: <a href=).

<sup>96</sup> USEPA, AP-42, Fifth Edition, Volume I Chapter 12: Metallurgical Industry, Table 12.2-12 *available at*: [http://www.epa.gov/ttn/chief/ap42/ch12/final/c12s02\\_may08.pdf](http://www.epa.gov/ttn/chief/ap42/ch12/final/c12s02_may08.pdf).

<sup>97</sup> 40 C.F.R. § 51.1010.

residences in the County where exposure to fine particle pollution is expected to be higher than at the monitor in Liberty Borough.

- Direct the staff at ACHD to identify sources from which additional creditable reductions in direct fine particle emissions can be feasibly obtained, and determine the reductions that must be obtained from each such source to provide for attainment of both the annual and revised 24-hour Standard.
- Direct the staff at ACHD to submit to the Board for approval a revised Plan containing all the control measures needed to provide for attainment of both Standard as expeditiously as practicable.

Sincerely,

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