



February 11, 2013

VIA EMAIL AND FIRST CLASS MAIL

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**RE: Massachusetts DEP's Failure to Act on Solutia Inc.'s Title V Permit Renewal Application**

Dear Commissioner Kimmell and Director Gorski:

On behalf of Arise for Social Justice ("Arise"),<sup>1</sup> The Partnership for Policy Integrity writes to request that the Massachusetts Department of Environmental Protection ("DEP" or "the Department") take action upon the Title V permit renewal application for Solutia Inc., in Springfield, Massachusetts. Solutia Inc.'s ("Solutia") Springfield facility is one of the largest chemical manufacturing plants in New England and is powered by an on-site power plant consisting of a coal-fueled industrial boiler and two natural gas/oil burners. This facility has an expired air quality operating permit which contains numerical sulfur dioxide ("SO<sub>2</sub>") and nitrogen dioxide ("NO<sub>2</sub>") emission limits that fail to prevent the power plant from causing significant exceedances of the 1-hour SO<sub>2</sub> National Ambient Air Quality Standards ("NAAQS") and possible exceedances of the 1-hour NO<sub>2</sub> NAAQS in the Springfield region.<sup>2</sup> These violations of the NAAQS are reflected in the attached air dispersion modeling report prepared for Arise by a third party engineer using EPA's designated modeling software. The SO<sub>2</sub> and NO<sub>2</sub> emissions authorized by the expired permit for Solutia's coal burning facility endanger public health, and the health of Arise's members, by polluting the air in Springfield and surrounding communities. These permit limits are also a violation of the Massachusetts State Implementation Plan ("SIP"), which includes an applicable requirement that

- 1 Arise is a non-profit group in Springfield, Massachusetts that works to build awareness and political power for the poor. Arise is located at 467 State Street, Springfield, MA 01101. Arise has been extensively involved in local and state activities related to environmental, public health and permitting reviews for the PRE project. By and through its members, Arise is substantially and specifically affected by the Department's failure to act on Solutia's Title V Permit renewal application.
- 2 Title V of the 1990 Amendments to the Clean Air Act established a national system of operating permits for large stationary sources of air pollution and Massachusetts' Title V program set forth at 310 C.M.R. 7.00: App. C incorporates the requirements of the NAAQS into Massachusetts law and applies these requirements to Massachusetts sources.

prohibits permitting or operating a facility that would cause a condition of air pollution.<sup>3</sup>

Springfield is an environmental justice community and one of Massachusetts' poorest cities. The Springfield region is recognized by the American Lung Association as having some of the worst air quality in the state, and it has childhood asthma rates twice the state average. Springfield residents, largely members of low-income communities, communities of color, and recent immigrant communities,<sup>4</sup> suffer a disproportionate burden of pollution due to the heavy industrial legacy of this city. The Solutia facility should be of prime concern to DEP because the Massachusetts Executive Office of Environmental Affairs ("EOEA") has stated that environmental justice shall be an integral consideration in the enforcement of environmental laws, regulations, and policies,<sup>5</sup> and EOEA has committed to implementing its Environmental Justice Policy by ensuring that existing facilities in environmental justice neighborhoods comply with all environmental rules and regulations.<sup>6</sup> Reducing emissions from Solutia's power plant would improve air quality and by extension, respiratory health in the Springfield region; the State's commitment to environmental justice adds to the imperative to act expeditiously.

The existing Title V permit for Solutia has been administratively continued since its expiration in January 2010. Although Solutia submitted a timely and complete renewal application in July 2009, the Department failed to take final action on this permit within the nine month deadline prescribed by 310 C.M.R. 7.00: App.C(4)(c)5, and to our knowledge has not acted on the application to date.

We request that DEP respond to this letter, and engage in good faith negotiations to develop a legally enforceable schedule for issuance of a draft and final Solutia Title V permit, as discussed below. We further request that DEP apply the stricter SO<sub>2</sub> and NO<sub>x</sub> emissions limitations that are necessary to bring this facility into compliance with state and federal law and protect public health. If the Department and Arise are unable to agree on a schedule, we intend to file a lawsuit under G.L. c. 30A, § 14 asserting that the Department has unlawfully withheld and unreasonably delayed taking action on the Solutia permit renewal within the nine-month time frame required by 310 C.M.R. 7.00: App. C(4)(c)5, and we will request that the court compel issuance of the Solutia Title V permit pursuant to a court-ordered schedule.

## I. BACKGROUND

### A. Solutia's Expired Title V Operating Permit

Solutia is the owner and operator of an industrial chemical manufacturing facility located at 730 Worcester St. in Springfield, Massachusetts. The facility's power plant includes two natural gas/#2 oil boilers (112 and 196 MMBtu/hr) and a coal boiler (249 MMBtu/hr). The allowable emissions from these boilers are currently found in the facility's air quality operating permit issued by the Department (Transmittal #109627, a minor modification to existing permit). The coal boiler burned 49,457 tons of coal in 2011.<sup>7</sup> Recently, the Solutia facility has effectively been powered by

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<sup>3</sup> 310 C.M.R. § 7.00(1).

<sup>4</sup> See 2010 Environmental Justice Populations, Western Region, Executive Office of Energy and Environmental Affairs.

<sup>5</sup> Environmental Justice Policy of the Executive Office of Environmental Affairs.

<sup>6</sup> Environmental Justice Policy of the Executive Office of Environmental Affairs.

<sup>7</sup> Energy Information Administration. 2011 Final EIA-923 Monthly Time Series File. Sources: EIA-923 and EIA-860.

coal alone because the natural gas/oil boilers appear to be used infrequently.<sup>8</sup>

The Solutia power plant and its permit need to be updated. Solutia's air quality operating permit includes air pollution emissions limitations intended to ensure that the facility does not violate EPA's NAAQS for SO<sub>2</sub> and NO<sub>2</sub>, but the limits in the permit do not appear to prevent violations of the current NAAQS. Compliance with emissions limits for NO<sub>x</sub> and particulate matter ("PM") is tested periodically with stack tests, but emissions of SO<sub>2</sub> are only estimated, based on the sulfur content of the coal burned. It does not appear that DEP has ever conducted air quality impacts modeling for the facility, nor is it required to have continuous emissions monitoring. The facility has no emissions control technology installed to reduce SO<sub>2</sub> emissions.

Solutia's current air quality operating permit expired on January 26, 2010. Solutia submitted an application to DEP for renewal of its air quality operating permit in a timely fashion, and this renewal application was received by DEP on July 27, 2009. On August 31, 2009, the Department found Solutia's permit renewal application administratively complete. Following expiration of its permit on January 26, 2010, Solutia continued to operate on the terms of its expired permit (as is permitted when DEP has found a renewal application administratively complete) and has continued to do so to date.

DEP is required by Massachusetts law to take final action on a Title V permit renewal application within nine months of submission.<sup>9</sup> However, over three years have passed since Solutia's renewal application submission, and DEP has not issued a renewed permit for Solutia.

## B. Solutia's Modeled NO<sub>2</sub> and SO<sub>2</sub> Emissions

Recent air dispersion modeling prepared for Arise by a third party engineer using EPA's designated modeling software, AERMOD, demonstrates that Solutia is causing violations of the 1-hour SO<sub>2</sub> NAAQS in the Springfield region under the expired operating permit's allowable emissions limits.<sup>10</sup> The modeling also demonstrates a possible violation of the 1-hour NO<sub>2</sub> NAAQS.<sup>11</sup> Specifically, while the 1-hr NAAQS for SO<sub>2</sub> is 196.2 µg/m<sup>3</sup>, the modeling demonstrates that coal-burning at Solutia produces actual SO<sub>2</sub> emissions that would result in ambient concentrations<sup>12</sup> as high as 295.4 µg/m<sup>3</sup>, and allowable SO<sub>2</sub> emissions as high as 697 µg/m<sup>3</sup>. While the 1-hr NO<sub>2</sub> NAAQS is 189 µg/m<sup>3</sup>, coal-burning at the Solutia facility produces actual NO<sub>2</sub> emissions at rates that would result in ambient concentrations as high as 204.5 µg/m<sup>3</sup>, and allowable NO<sub>2</sub> emissions as high as 280.7 µg/m<sup>3</sup>, using Tier I modeling. However, these NO<sub>2</sub> results require further analysis to determine whether the violation occurs under more refined modeling.<sup>13</sup>

8 EIA -923 monthly times series files report only coal use by the facility for 2007, 2008, 2009, and 2011. No data are reported for 2010.

9 310 C.M.R. § 7.00: Appendix C(4)(c)(5)

10 Wingra Engineering, 2013. Evaluation of compliance with the NAAQS: Solutia, Inc. and Masspower, Springfield, Massachusetts. January, 2013.

11 Wingra Engineering, 2013. Evaluation of compliance with the NAAQS: Solutia, Inc. and Masspower, Springfield, Massachusetts. January, 2013.

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13 The modeling prepared for Arise included Tier 1 modeling for NO<sub>2</sub> and found a violation. While a violation using Tier I modeling is not fully diagnostic, requiring Tier II and Tier III modeling as follow-up, we believe that the Tier 1 violation of the NAAQS merits further investigation of whether this source is in violation of the NAAQS for NO<sub>x</sub>, particularly given the co-location and simultaneous operation of the Solutia and Masspower facilities.

No previous air quality modeling appears to have been conducted for the Solutia power plant by DEP or the owners. Air quality modeling was completed for the neighboring Masspower plant in 1989, but that modeling focused on the impact of emissions from that facility, not emissions from Solutia. At least three factors suggest that the current modeling results probably underestimate air pollution impacts from the site. First, modeling was conducted to evaluate operation of the Solutia coal-burner alone, and does not take into account the additional emissions that occur when the co-located 2,500 MMBtu Masspower utility natural gas plant is operating.<sup>14</sup> Second, the modeling does not include startup/shutdown emissions for NO<sub>x</sub> or SO<sub>2</sub>. Emission controls for NO<sub>x</sub> only operate at high temperatures and so are not as effective during startup and shutdown events, and low stack exit velocity can allow pollutants to accumulate to unusually high levels in the region of facility. Third, the emissions modeling assumed an average coal sulfur content of 0.67%, and did not take into account the effect of higher coal sulfur contents recorded in Solutia's fuel use records, like a shipment on 02/08/11 that had a sulfur content of 0.76%. The exceedances of the NAAQS demonstrated in this modeling therefore likely underestimate actual exceedances.

We note that the modeling determined that permitted emissions for SO<sub>2</sub> at the Masspower facility, alone, also cause exceedances of the 1-hr SO<sub>2</sub> NAAQS. The Masspower permit therefore also appears to require revision to bring it into compliance with current air quality standards.

### C. Context of the Solutia Springfield Facility

Solutia's coal boiler is a major source of air pollution in Western Massachusetts despite its relatively small size. For example, though Solutia's industrial coal boiler has a much smaller capacity than the Mount Tom Power Station utility power plant coal boiler located a few miles away, the Solutia plant burned slightly more coal in 2011 than did Mount Tom.<sup>15</sup> Solutia's air permit does not contain any limit on emissions of mercury or lead and the facility does not use a "scrubber" (a neutralizing sorbent system) to remove sulfur from its emissions, thus also does not control emissions of hydrochloric acid (HCl), a hazardous air pollutant that is a significant respiratory irritant. Total permitted emissions of NO<sub>x</sub> from the coal-fired boiler are 572 tons per year, and for all three boilers are 1,063 tons per year;<sup>16</sup> actual NO<sub>x</sub> emissions from the coal burner appear to be around 330 - 360 tons per year.<sup>17</sup> Permitted SO<sub>2</sub> emissions from the coal-fired boiler are 1,308 tons per year; actual emissions appear to be around 600 - 700 tons per year.<sup>18</sup>

Solutia has available options for on-site generation other than coal and did not always burn coal. In the past, Solutia has generated power for its facility by both burning natural gas and using steam generated by the neighboring gas/oil utility power plant, Masspower Inc. Masspower, built in the early 1990's, was intentionally built on the same site as Solutia in order to allow Solutia to

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14 The Masspower plant has two 1,250 MMBtu oil/natural gas boilers and is located immediately adjacent to the Solutia coal burner.

15 According to EPA's "Clean Air Markets" report, The Mount Tom coal plant operated less than 20% of the time in 2011. Solutia burned 49,457 tons of coal in 2011, Mt. Tom burned 48,041 tons of coal in 2011. Data on coal use was obtained from the Energy Information Administration 2011 December EIA-923 monthly time series file (sources: EIA-923 and EIA-860).

16 Nitrogen oxides emissions are 0.3 lb/mmbtu and 0.4 lb/mmbtu for the two oil/gas boilers, and 0.525 lb/mmbtu for the coal boiler, which is 7 – 8 times the rate that would be achieved if the facility used a NO<sub>x</sub> reduction system such as those required on modern facilities.

17 Based on operating report submitted to MA DEP for 2010 and 2011.

18 Based on operating reports submitted to MA DEP for 2010 and 2011.

purchase steam and retire its coal boiler. Solutia reduced its use of coal for several years after Masspower became operational under this arrangement. Subsequently, Masspower began operating intermittently, at which time Solutia returned to burning coal.

#### D. Clean Air Act Enforcement History at Solutia's Springfield Facility

Solutia recently entered into a Consent Decree settlement with the EPA to resolve a 2009 Administrative Order and Notice of Violation for Clean Air Act violations by its manufacturing facility. The settlement includes a civil penalty of \$970,000 and addresses years of poor management of manufacturing emissions, specifically volatile organic compounds.<sup>19</sup> Solutia has also been subject to at least three additional EPA enforcement actions at this facility for Clean Air Act violations and fined \$54,000.<sup>20</sup> This enforcement history indicates that this facility has been public health hazard and should be closely monitored in the future.

#### E. Environmental Justice and Public Health Concerns

Solutia is located close to downtown Springfield, one of Massachusetts' poorest cities and an environmental justice community. Springfield is recognized as having some of the worst air pollution in the state, with the region receiving a rating of "F" from the American Lung Association. Childhood asthma rates in Springfield are twice the state average, and the Massachusetts Department of Public Health has confirmed, in correspondence dated October 2, 2009 from Associate Commissioner Suzanne Condon, Director of the Bureau of Environmental Health, that "the rates of hospitalization for asthma (i.e. hospital emergency room visits) for Springfield residents were statistically significantly higher than the statewide rates." Additionally, levels of lead in blood are much greater in Springfield's children than average levels in the state.<sup>21</sup>

While the Solutia facility does employ emissions controls for particulate matter, Solutia's operating report shows that the coal boiler still emitted 12.7 tons of PM<sub>2.5</sub> in 2011, making it a significant source of PM in the region. There are numerous days when PM spikes to unhealthy levels in the Springfield region. Such spikes are well documented to correspond with elevated incidence of asthma attacks, hospitalizations, and death from respiratory and cardiac failure. Given the demonstrated emissions exceedances from the Solutia coal burner for SO<sub>2</sub> and potentially NO<sub>2</sub>, and its proximity to downtown Springfield, reducing emissions at the Solutia facility could significantly improve air quality and respiratory health in the surrounding area.

## II. APPLICABLE LEGAL REQUIREMENTS

#### A. Massachusetts DEP is Legally Required to Take Final Action on a Timely Submitted Title V Permit Renewal Application Within Nine Months of Submission.

DEP is required by Massachusetts law to take final action on a timely submitted Title V permit renewal application within nine months of submission, pursuant to 310 C.M.R. § 7.00:

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19 Proposed Consent Decree, *United States of America v. Solutia Inc. and INEOS Melamines LLC*, D.J. Ref. No. 90-5-2-1-09980, published Tuesday, January 8, 2013, proposing to resolve *United States of America v. Solutia, Inc. and INEOS Melamines, LLC*, Civil Action No. 3:12-cv-12377- KPN.

20 Data retrieved from EPA's Enforcement and Compliance History Database, at <http://www.epa-echo.gov/cgi-bin/get1cReport.cgi?tool=echo&IDNumber=2504200086>.

21 Letter from Suzanne Condon, Associate Commissioner, Massachusetts Department of Public Health to Michaelann Bewsee (Oct. 2, 2009).

Appendix C(4)(c)(5).

B. The Massachusetts SIP Prohibits an Owner of an Air Contamination Source from Causing a Condition of Air Pollution.

Pursuant to 310 C.M.R. 7.01(1) of the Massachusetts State Implementation Plan, the owner of an air contamination source is prohibited from causing a condition of "air pollution." Under the regulations, "air pollution" is defined as "the presence in the ambient air space of one or more air contaminants . . . in such concentrations and of such duration as to: . . . (b) be injurious, or be on the basis of current information, potentially injurious to human or animal life, to vegetation, or to property..." 310 C.M.R.7.00(1). The federally established NAAQS are incorporated into Massachusetts law through the Massachusetts SIP set forth at 310 C.M.R. 7.00: App. C, and apply to stationary sources of air pollution in Massachusetts including Solutia. Direct violation of the NAAQS or causing violation of the NAAQS is equivalent to causing a condition of air pollution. EPA has determined that modeling is the appropriate methodology for ascertaining compliance with the SO<sub>2</sub> NAAQS.<sup>22</sup>

III. ARGUMENT

A. DEP Is Required to Take Immediate Action on Solutia's Permit Renewal Application.

DEP must take immediate action on Solutia's permit renewal application because DEP is required by Massachusetts law to take final action on a timely submitted, complete Title V permit renewal application within nine months of submission.<sup>23</sup> Solutia submitted a permit renewal application over three years ago and this application was found administratively complete but DEP has not yet issued a draft permit based on this application. Therefore, DEP must act now to review this application and issue a draft permit.

B. In Acting Upon the Solutia Renewal Application the Department Must Address the Deficiencies in the Existing Permit, Which Fails to Include SO<sub>2</sub> and NO<sub>x</sub> Emission Limits Sufficient to Prevent Exceedances of the 1-Hour SO<sub>2</sub> NAAQS, And Possibly the 1-Hour NO<sub>2</sub> NAAQS, and Thus Causes Air Pollution.

Air modeling of Solutia prepared for Arise based on Solutia's current air quality operating permit and Solutia's own reporting to DEP shows violations of the NAAQS, as illustrated in Table 1 below.

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22 Primary National Ambient Air Quality Standard for Sulfur Dioxide Final Rule, 75 Fed. Reg. 35,520, 35,551 (June 22, 2010), describes dispersion modeling as "the most technically appropriate, efficient, and readily available method for assessing short-term ambient SO<sub>2</sub> concentrations in areas with large point sources."

23 310 C.M.R. § 7.00: Appendix C(4)(c)(5).

**Table 1 - NAAQS Violations Based on Allowable and Actual Emissions**

Air Pollutant	Averaging Period	Emissions Basis	Impact ( $\mu\text{g}/\text{m}^3$ )	Background ( $\mu\text{g}/\text{m}^3$ )	Total ( $\mu\text{g}/\text{m}^3$ )	NAAQS ( $\mu\text{g}/\text{m}^3$ )	Exceeds NAAQS?
SO <sub>2</sub>	1-hour	Allowable <sup>1</sup>	639.4	57.6	697	196.2	YES
SO <sub>2</sub>	1-hour	Actual <sup>2</sup>	237.8	57.6	295.4	196.2	YES
NO <sub>2</sub>	1-hour	Allowable	186.2	94.5	280.7	189	Maybe
NO <sub>2</sub>	1-hour	Actual	110.0	94.5	204.5	189	Maybe

1. Calculations of allowable emissions are based on emissions limits in the current permit.

2. Actual emissions are based on the reported sulfur content of coal for the case of SO<sub>2</sub> and reported stack test emissions for NO<sub>x</sub>.

As shown here, the numerical SO<sub>2</sub> emissions limits in Solutia's permit fail to prevent the plant from causing significant exceedances of the one-hour SO<sub>2</sub> NAAQS in Springfield and surrounding communities. The numerical NO<sub>x</sub> emissions limits in Solutia's permit may also fail to prevent exceedances of the one-hour NO<sub>2</sub> NAAQS. Arise's members who live and work in the vicinity of the plant face increased risk of harm to their health and welfare as a result of DEP's failure to issue a permit that properly prevents air pollution. Renewal of the permit with numerical NO<sub>x</sub> and SO<sub>2</sub> emission limits that ensure compliance with the one-hour NO<sub>2</sub> and one-hour SO<sub>2</sub> NAAQS is required to ensure that Solutia complies with the applicable requirement that the facility not cause or contribute to conditions of air pollution.

#### IV. CONCLUSION

We request that DEP act expeditiously to renew the air quality operating permit for this facility and include new, lower emissions limits for NO<sub>x</sub> and SO<sub>2</sub> that are more protective of public health, as demonstrated by compliance with the NAAQS for these air pollutants. Additionally, we hope DEP will amend the permit to remove authorization for operation of the coal-fired unit entirely, as this would greatly reduce emissions and nearly eliminate PM emissions. There is no place for coal in our city. Please do not hesitate to contact PFPI Attorney Kelly Bitov in response to this letter.

Sincerely,

**For Arise for Social Justice:**

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