Docket Number EPA-HQ-OAR-2011-0081
Response to Petition From New Jersey Regarding SO_2
Emissions From the Portland Generating Station
(76 FR 19662; April 7, 2011)

Response to Comments Document

U.S. Environmental Protection Agency
Office of Air and Radiation
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I. Introduction

On April 7, 2011, the United States Environmental Protection Agency (the EPA or agency) published a Federal Register Notice 76 FR 19662 for the "Response to the Petition From New Jersey Regarding SO_2 Emissions From the Portland Generating Station." In this notice, the EPA requested comments from the public on the proposed rulemaking from April 7, 2011 to May 27, 2011. On May 26, 2011, the EPA published a Federal Register Notice 76 FR 30602 extending the comment period from May 27, 2011 to June 13, 2011.

The purpose of this response to comment (RTC) document is to respond to public comments submitted to the docket (EPA-HQ-OAR-2011-0081: available online at www.regulations.gov) from interested parties.

II. General Comments in Support of the Rule

Commenter: Commissioner Bob Martin, NJDEP
Comment:
First, I would like to thank EPA for proposing to grant New Jersey's Section 126 petition to address air pollution from GenOn's Portland Generating Station and for holding this hearing to receive comments on EPA's proposed findings and remedy.

The Portland power plant ranks in the top five in the nation in highest sulfur dioxide emission rate per megawatt of electricity generated. The plant also emits more mercury than all New Jersey coal-fired power plants combined. New Jersey supports EPA's proposal to require this largely uncontrolled coal-fired power plant to minimize its harmful sulfur dioxide emissions in the short term, with a 50 percent reduction in the first year. New Jersey also supports EPA's proposal to require the plant to dramatically reduce its significant sulfur dioxide emissions within three years, as the Clean Air Act requires, but New Jersey wants a 95 percent reduction rather than the 81 percent proposed by EPA. These are reasonable measures to begin to address this public health problem that has existed for far too long.

Sitting here today, we are about halfway between the Portland plant and DEP's Chester air monitoring station in Morris County, which is about 22 miles from Portland. The Chester monitor historically has measured the highest short-term sulfur dioxide levels in all of New Jersey. Trajectory analysis indicates this occurred when the wind was blowing from the Portland plant, demonstrating the long-range adverse impacts of the plant.

Commenter: Christine Guhl, New Jersey Beyond Coal Associate Organizing Representative, Sierra Club
Comment:
The GenOn coal plant has been polluting New Jersey and Pennsylvania for far too long. This facility is one of the oldest and dirtiest coal plants in the United States. It emits millions of tons of air pollution every year, destroying the environment and putting public health at risk. The Sierra Club supports the efforts by New Jersey and the EPA to address pollution from this plant. Plant exemplifies how critically important the EPA is for protecting our health. Because of the

GenOn facility in Portland, New Jersey is not able to protect its residents from dangerous air pollution. As a lifelong resident of New Jersey, I have been fortunate to live in a state with strong air quality regulations. Our DEP has consistently taken steps to protect New Jerseyans from dangerous and unhealthy air pollution. But the New Jersey DEP cannot prevent air pollution from blowing across the Delaware River into our state. It cannot prevent asthma attacks and respiratory illness caused by the Portland coal plant. The New Jersey DEP cannot protect the people of Warren, Sussex, Morris and Hunterdon counties from toxic emissions produced by GenOn. The EPA's proposal to require an 81 percent reduction in sulfur dioxide from the Portland plant would have direct benefits on the affected counties in New Jersey. Sulfur dioxide has significant adverse health impacts and leads to increased hospital visits and death. The impacts from sulfur dioxide can result event from five minutes of exposure to the pollutant. Just five minutes, that's all it takes to put children, asthmatics and the elderly at risk. The EPA exists to protect all of us, but especially those at risk populations, from harmful pollution. Congress enacted Section 126 of the Clean Air Act to provide a means by which downwind states could protect their residents from unhealthy air blowing from upwind power plants, in states such as New Jersey to petition the EPA to determine if upwind states are causing unhealthy air downwind. Pennsylvania has done nothing to prevent unhealthy air pollution from blowing into New Jersey. That is why the EPA needs to take the lead and address this serious public health issue. Coal-fired power plants in Pennsylvania have been making New Jerseyans sick for over 50 years. It is not acceptable to put GenOn or any other coal company's profits above public health. We, the people of New Jersey, are looking to the EPA to ensure that this practice comes to a swift end. It is time to end the use of coal and dangerous, polluting fossil fuels, and move toward a clean, healthy energy future.

Commenter: Erin Phalon and Joshua R. Stebbins, The Sierra Club
Comment:
The Sierra Club commends EPA for taking action to reduce harmful SO2 emissions from the Portland Generating Station, which negatively impact New Jersey's public health and air quality. As discussed below, the Portland facility emits SO2 in violation of the Clean Air Act's (CAA) prohibition of emissions that significantly contribute to nonattainment or interfere with maintenance of the Nationwide Ambient Air Quality Standards (NAAQS).

Commenter: Herbert J. Yardley, Administrator, Sussex County Department of Environmental and Public Health Services
Comment:
I am writing on behalf of the Sussex County Department of Environmental and Public Health Services to support the proposed petition submitted by the New Jersey Department of Environmental Protection (NJDEP) under section 126 of the Clean Air Act, Docket ID Number EPA–HQ–OAR–2011–0081. This petition is asking the EPA to determine that the coal-fired Portland Generating Station (Portland Plant) in Northampton County, Pennsylvania, is emitting air pollutants that are impacting air quality in Warren, Sussex, Morris and Hunterdon Counties in New Jersey in violation of the interstate transport provisions of the Clean Air Act (CAA).

According to a Fact Sheet from the NJDEP, "air quality modeling results have shown that the Portland Plant is contributing significantly to nonattainment of the 1-hour sulfur dioxide (SO2) national air quality standard in New Jersey based on NJDEP's air quality modeling." The

Portland Plant is located directly across the Delaware River from Sussex County and based on preliminary data from the site, ground level concentrations are exceeding the level of the 1-hour SO2 standard.

Poor air quality and harmful levels of emissions has a direct correlation between adverse health effects, contributing to respiratory illnesses, such as asthma, and heart and lung diseases. Statistics available from the New Jersey Cancer Registry show that Sussex County has higher Invasive Cancer Incidence and Mortality Rates that the State average.

Our department serves as the County Health Department, responsible for providing both health and environmental services to the residents of Sussex County. Therefore, the health and well-being of our community is our primary concern and we support the proposed actions by the EPA regarding SO2 emissions limits and compliance schedules at the Portland Plant.

Commenter: Jeff Tittel, Sierra Club, New Jersey Chapter
Comment:
We call on the EPA to accept the petition and adopt the rule on this plant. Through monitoring of sulfur dioxide levels in Warren County it has been found that these levels are exceeding the EPA national air quality standard and the Portland plant is the main source of emissions. This is an important step forward in improving New Jersey's air quality.

“It is important for the EPA to force the clean up of these coal plants in Pennsylvania that pollute New Jersey's air. This is an important step forward in allowing the residents of New Jersey to breathe easier,” said Jeff Tittel, director, NJ Sierra Club.

This action underscores the EPA's commitment to reducing pollution from coal-fired power plants. In recent months the EPA has released a series of proposed rules to regulate coal ash, and reduce mercury, SoX and NoX emissions from these plants. Sulfur dioxide exposure can pose health risks especially to people with asthma, children, and the elderly. By forcing this plant to clean up we would not only reduce SoX, but NoX and mercury as well that threaten our public health and environment.

One-third of New Jersey's pollution comes from out-of-state and the Portland power plant is the largest source of air pollution in Northwest New Jersey. Coal fired power plants in Pennsylvania have been making people in New Jersey sick for far too long, and bringing Pennsylvania’s dirty plants under control is long overdue. Residents on New Jersey should not have to sacrifice our health for Pennsylvania's profits or for electricity. By cleaning up or building new plant with newer cleaner technology we will create jobs in this region not reduce them. We should also be encouraging wind, solar, and other renewable energy rather than continue with these dirty forms of energy.

New Jersey petitioned to reduce the pollution coming from the plant under the federal Clean Air Act. State action against the Portland Plant originally began under DEP Commissioner Lisa Jackson during the Corzine administration and is part of a long-standing commitment by New Jersey to clean up pollution from coal-fired power plants. Corzine also closed the Martins Creek Coal Plant in Pennsylvania through a lawsuit.

Commenter: Rene Mathez, Knowlton Township Committee
Comment:
I am speaking to support the proposed regulation of the Portland Power Plant. All across northern NJ but especially in Warren County our children, our parents, our grandparents are being harmed by the toxic discharge from the Portland Plant.

Commenter: Robert Menedez, Senator, United States Senate
Comment:
I write in strong support of the proposed rule under the Clean Air Act to significantly limit pollution from the Portland Generating Station. Your action to significantly limit pollution from the Portland Generating Station demonstrates how the Clean Air Act directly improves their quality of life.

Commenter: Jean Public, Pewtrust.org
Comment:
I support the EPA and NJ DEP in requiring this Portland plan to stop the harmful emissions. I support this fully.

Commenter: Lyn Vanderheart
Comment:
I know that this plant is producing literally tons of sulfur dioxide into the air. I live in Warren County where I know a ton of the pollution is blown and knowing that that's one of the dirtiest plants in the country, I would like to see this plant be cleaned up in any way possible, therefore, I support any decision to make this plant cleaner.

Commenter: Leona and George Fluck
Comment:
I am here to support the Clean Air Act section 126 petition submitted by the New Jersey DEP. I am in support of the EPA's proposal to grant NJ's petition that will require the GenOn Portland Plant to reduce the plant's toxic emissions.

Commenter: Anonymous citizen 1
Comment:
Thank you for the opportunity to comment on this proposed rule. I strongly support this rule and believe that the Portland Plant should be mandated to decrease their SO2 emissions. Not only does the high intensity of SO2 emissions from this Portland Plant have an impact on the health and well being of those living near it but this Plant alone has largely contributed to the overall increased levels of SO2 in the state of New Jersey. In our government's continued effort to try to improve the environment and prevent global warming by decreasing pollution, this Plant has a clear obligation to decrease their SO2 emissions. Both New Jersey and the EPA found similar findings in their analysis of the SO2 emissions showing that the Plant is violating its 1 hour National Air Guideline Standard. I believe that this is an easily fixable problem that would have significant benefits. The EPA scientists explained how SO2 emissions are extremely harmful to children, those with asthma and the overall health of the general public. Not only is the SO2 itself dangerous but it can react with other compounds and form even more harmful particles

that can cause respiratory diseases, worsen heart disease and lead to greater hospital admissions and deaths. It is clear that in a situation so easily solvable and with such significant benefits, something must be done immediately. While there are so many other forms of pollution that are harder to regulate, this is a prime example of something that can be fixed. The fact that other Plants in New Jersey are not causing the same drastic emissions of SO2 means that there are clearly other alternative forms of fuel and technology that could be used to reduce SO2 emissions.

Commenter: Anonymous citizen 2
Comment:
Reducing toxic emissions from power plants is something that all power plants in the United States should do. Not only does it improve the state of the economy, but it also improves the health of citizens living in proximity to the power plant in question. The Clean Air Act of 1990 gave the EPA the power to control toxic air pollutants, and the EPA has found that the Portland Generating Station, a coal generated plant in Pennsylvania, is emitting pollutants that are harmful and against the Clean Air Act. The proposed rule would reduce these emissions. According to the rule, the regulations would help decrease the amount of heavy metals released into the air, which are known to be toxic and cause health complications, such as cancer and asthma. There are already power plants in operation that do not have the same problems, so it is not impossible for the power plants in question to change their practices to be more environmentally friendly and responsible with people's health. While this may be unrealistic with current technology and not economically feasible, the goal for power plants should be to have zero harmful emissions to either the environment or to people's health. The plants should also be on a faster time line. Allowing dangerous emissions for prolonged periods of time know that we know the damage seems irresponsible on the part of the government. While the plants do need time to implement the changes, 4 years seems to allow the problem to go on longer than necessary. The bottom line is that coal powered plants should have been regulated long ago to reduce harmful emissions. This is a necessary step as it concerns both the health of the people and the environment. I am not an expert by any means on the environment and pollution, but I care about the future of this country and hope that we can reduce harmful emissions.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
The State of New Jersey supports the proposed approval of the Section 126 petition for the Portland Plant. The State recognizes the significant effort the USEPA invested in its review of New Jersey's 126 petition and appreciates the favorable proposal to eliminate the negative impact of the Portland Plant emissions on air quality and human health.

Commenter: Candice Nattland
Comment:
I have been a Knowlton Township resident since 1988. I am aware of the fact that the Portland PA power plant is sending harmful levels of sulfer dioxide into the air which directly affects me, my neighbors, friends and loved ones. Information published in reliable newspapers note that the Portland power plant, owned by GenOn emits some of the highest levels of sulfer dioxide in the nation! An EAP study conducted as a result of a NJ complaint states "extensive analysis shows a clear connection between emissions from the Portland plant alone and the elevated level of SO2

in New Jersey." It is unacceptable to me that one power plant is responsible for so much harmful pollution. This company must be ordered to be in compliance with safe levels of emissions.

Commenter: Claire Sutherland
Comment:
I strongly urge you to go forward immediately with the proposed regulations for the GenOn owned Portland Generating Station (PGS) in Portland PA to take the necessary steps to reduce sulfur dioxide (SO2) emissions.

I live approximately 5 miles downriver from PGS and so have a strong vested interest in how they run and do maintenance on their plant, and have followed the local media on this subject avidly. I am most concerned with 2 things i have read in the media: 1) that PGS has not historically (ever????) abided by previous regulations as regards SO2 emissions and 2) that the SO2 emissions are extremely high, and may well be the cause of serious health problems for many in the area. As well, it would seem that as the PGS is positioned ON the Delaware River, which is part of the Wild and Scenic Act, that GenOn should be that much more careful about the surrounding environment.

I would also like to add that it became apparent to me recently that PGS and their parent company GenOn do not seem to feel, in general, that they should be a "good neighbor." In October 2010, our Northampton County PA elected officials flirted with the idea of enticing a private prison management into this area; the property in question was a parcel currently owned by PGS/GenOn. It became apparent in the ensuing months, from discussions i personally had with both local elected officials and at least one of our national representatives that PGS has never worked to be a part of our community - Upper Mt Bethel Township (UMBT). Further, they have sought to sell their property, which they have owned for several decades, without consulting with UMBT officials, as would seem normal. This is yet another example to me, of how they think they do not need to work within a local community. Again, I strongly urge you to mandate that PGS take the necessary steps to cut their SO2 emissions immediately.

Commenter: CREDO Action from Working Assets [7,926 identical comments]
Comment:
Thank you for proposing a plan to reduce Sulfur Dioxide emissions from the Portland Generating Station. As a New Jersey resident, I'm deeply troubled by the fact that my health and the health of my neighbors is threatened by pollution from a Pennsylvania coal plant. New Jersey has implemented strong reductions in Sulfur Dioxide, yet the EPA's plan for the Portland Generating Station falls short of these targets. Please meet the emissions reductions targets requested by the State of New Jersey, and implement the strongest possible plan to make GenOn clean up its dangerous Sulfur Dioxide pollution that puts the health of both New Jersey and Pennsylvania residents at risk.

Commenter: D. Arad-Neeman
Comment:
This is a very salient topic in today's United States, especially the East Coast. The proposal to reduce fuel emissions from power plants seems to be in line with other EPA regulations and its mission. It is crucial to monitor the emissions from power plants, especially when there is

evidence of a clear connection between the power plant and the toxic emissions in the air. It is indeed important to preserve the air quality in the area near a power plant, specifically if the power plant is located in an altogether different state. The proposed rule reducing Pennsylvania's Portland power plant's emissions of SO2 will create a precedent for lowering emissions from these power plants in general. A reduction of 81% is a very steep decline in toxic fuel emissions, and will make a significant difference in the air quality. The allowance of three years to change this is adequate for a full transition, I believe. This rule is both fair and effective in protecting the environment. As a college student in Pennsylvania from the west coast, I've seen the change the EPA has created in the past, and I see what impacts it has had. For me, the environment is a huge part of my life, and it is of the utmost importance for me to see it protected from noxious fumes and emissions. Therefore, it is very important to me to see toxic fuel emissions reduced substantially here, and in addition, to see that the EPA takes a stand on these issues. Therefore this is a cause that I can very much relate to, and should become a rule.

Commenter: D.M. Lohman
Comment:
First I want to compliment the EPA on conducting a comprehensive and unbiased assessment of New Jersey's petition. The proposed finding that emissions of sulfur dioxide (SO2) from the Portland Plant significantly contribute to nonattainment and interfere with maintenance of the 1-hour SO2 national ambient air quality standard (NAAQS) in New Jersey is based on valid reasoning and sound science.

Commenter: Diana Morales
Comment:
As a concerned citizen, I deeply encourage the passing of the EPA proposed rule that aims to reduce the emission of toxic air pollutants from power plants. It is in my opinion that these regulations will not only be of environmental and health benefit but that the passing of this rule will motivate power plants to seek innovative and safer energy sources. Now is the time to take action in pursuing these measures for limiting power plants emissions, which are hazardous to people and the environment.

Revising standards in performance of the power plants will certainly aid in reducing hazardous air pollutants that can cause serious health effects. Not only can many health benefits arise but the proposal also states that there are long-term benefits to the reduced exposure of pollutants overcome the costs. In fact, the cost of maintaining the proposed regulations are many times lower than will be the cost of future repercussions. There will also be a wide array of technical and economically feasible practices available to all power plants in order for them to abide by the emission limits.

Overall, the proposal takes adequate actions to ensuring that the regulations are fair and provide an equal playing field to all power plants. No loopholes will be allowed where one power plant has a preferred status and could get away with disregarding the limits of toxic emission limits.

If our environment is at risk, if the population is at exposure to developing serious health hazards, and if there is something that can be done to avert the dangers, prevention should take

place. How can prevention be manifested? Taking action and passing this EPA proposed rule that aims at reducing toxic air emission is the first step.

Commenter: Melanie Bowman
Comment:
I am writing to express my support for the proposed rule finding that the Portland Generating Station in Northampton County, PA is in violation of the Clean Air Act. I support this rule because it outlines a means for compliance with the CAA guidelines, allowing the plant to remain open at the same time as is reduces SO2 emissions. I encourage the EPA to continue enforcing its regulations, but think that it is important to provide industries with a means for complying to these regulations; shutting down plants that do not comply reduces jobs and energy production, increasing the demand for environmental travesties like natural gas production and hydrofracking in Pennsylvania. I urge the EPA to adopt this rule in order to demonstrate a commitment to clean air and water standards. It is important that the EPA be as strict as possible without shutting down plants and reducing jobs in already economically depressed communities. Enforcing rules like this one demonstrate that commitment.

Commenter: Mike O'Malley
Comment:
Thank you for the opportunity to comment on the proposed action to require the Portland Generating Station to meet its obligations under the interstate transport provisions of the Clean Air Act (CAA). My family and I reside in Warren County, New Jersey and are directly impacted by the poor air quality created by this power plant. As New Jersey Department of Environmental Protection Commissioner has testified, the Portland Power Plant ranks in the top five in the nation in highest sulfur dioxide emission rate per megawatt of electricity generated and also emits more mercury than all New Jersey coal-fired power plants combined.

Residents of Warren County should not be subjected to the continued, unnecessary and unwarranted exposure to the un-remediated emissions of this power plant. My son has asthma and the air quality of Warren County is in such a state that it may be a contributing factor to such medical conditions or exacerbate the symptoms. Furthermore, our home already sits on top of one of the geographically largest Superfund sites in the country -- the Pohatcong Valley Ground Water Contamination Site (EPA ID: NJD981179047). So, our area of New Jersey faces enough environmental challenges without suffering the indignity of poor air quality caused by a generating facility that is inadequately regulated by a neighboring state. While our water table will likely not reach safe drinking levels of certain contaminants in my lifetime (and I'm not even 50 yet!), I sincerely hope that Warren County can achieve improved air quality much sooner.

We urge you to follow through, grant New Jersey's petition and force the Portland Generating Station to install modern pollution controls. Alternatively, the Portland Power Generating Station should be closed if its owners are unwilling to meet its obligations under the Clean Air Act.

Commenter: Richard Wilford-Hunt
Comment:
I am writing in support of the EPA to make the Portland Generating Plant take the necessary steps to reduce sulfur dioxide (SO2) emissions.

Commenter: Suda Kantor
Comment:
So I really support and applaud the EPA and New Jersey DEP. I'm not against business. I'm not against generating business, this is a very important thing, but there has to be a balance. And the science has already determined what the level should be. And you are the only people that can hold these companies accountable for meeting those levels. And their excuses of, well, give us some time, we have to look at the economic impacts. The economic impact of the pollutants are also huge, and the time is now to recognize that. Not only because of the time I'll lose from work, not only because of my needs, but also my daughters needs. She can't go to school, I can't go to work. There is an economic impact on my work. There is an economic impact on my health insurance for what they have to pay for my asthma, what they have to pay for a nebulizer, what they have to pay for -- if I have a severe asthma attack, when I have to be in the emergency room and my visits to the doctor so I can get medication to monitor my lungs to make sure I can breath. I only ask that -- there are business interests at hand here, and I appreciate that you are listening to people. I work for a big business and I want big business to succeed, but, at the same time, I wouldn't be working for my employer if I thought my employer brought harm to me. There are people who need their lungs to keep our business going. I'm sure the Portland plant doesn't want the residents to die or suffer from lung issues or any other related health issues. So I applaud you and ask that you adopt these regulations and hold the plant accountable for its emissions. Hold them to the regulations to the level that the scientist determined already is healthy for us, and please protect Warren County residents and all the other people who travel to this area.

Commenter: R. G. Herrmann
Comment:
I wish to add my comments in support of the cleanup of the Portland generating station that the cleanup of the polluting emissions should be done as soon as possible.

Commenter: Derrick Loy, Energy Independence of America Corp. (EIAC)
Comment:
I am here today to speak in support of keeping the Portland Generating Station operating, with the understanding that upgrading which will eliminate existing emissions, is warranted.

Commenter: E. Murray
Comment:
I urge you to support the petition by the NJDEP to reduce the sulfur dioxide emissions from the Portland Generating Station. This reduction will help to protect the health and lungs of the people of New Jersey!

Commenter: V. Allen
Comment:
I urge the EPA to: Follow through with its proposed action calling for an 81 % reduction in Sulfur Dioxide (SO2) emissions from RRI 's Portland Power Generating Station over the next three years and consider revisions to the NAAQS for SO2.

Commenter: Lorraine Gold
Comment:
I'm a resident here in Warren County, and I'm here to support the proposed reduction of the sulfur dioxide emissions of this plant. According to the NJ-DEP Sulfur Dioxide emissions from the Portland plant have been measured up to ten times above federal standards. The existing coal fired power plant is a major contributor to sulfur dioxide in this region.

The Delaware River flows directly by the Portland power plant which emits tons of sulfur dioxide. I am demanding an end to the defilement of this river that nourishes life in so many ways. As citizens and agencies and yes, even as power companies, it is our responsibility to protect this river.

Commenter: Stephanie Clarke
Comment:
To whom it may concern, I am a student at Bryn Mawr College as well as a concerned resident. As I currently reside in Pennsylvania, I feel that I am impacted by decisions made concerning the state. Following my reading of the rule, I have come to agree with the proposal. Hazardous air pollution is a large problem in the United States. Many people's health is affected by these air pollutants, especially people with asthma, children, and the elderly. Not only are humans impacted, but the environment and other organisms as well. I feel that it is important to advocate for human (and living organisms) health. Individuals are being affected by a company that is not following the rules that are in place. The plant should be capable of making the appropriate changes, especially with the current technology that has been discovered to reduce air pollutant emissions.

I understand that this might financially affect the plant. However, they have violated the CAA act, and thus should be required to conform to those rules, the same as other power plants have done. This financial burden might have been avoided, had the plant chosen to follow the regulation from the beginning. The amount of time given for them to decrease their emissions could possibly be extended if it was found that this would help with the financial impact. However, action must be taken as soon as possible, as the emissions are having adverse health effects on the residents in New Jersey.

I urge the EPA to follow through with your proposed action calling for an 81 percent reduction in sulfur dioxide emissions from RRI's Portland PA Power Generating Station over the next three years.

Commenter: Steve Marvin, County Administrator (Warren Co), Board of Chosen Freeholders of the County of Warren
Comment:
Enclosed please find a resolution approved by the Warren County Board of Chosen Freeholders at their Regular Meeting held May 11, 2011. This resolution supports the petition to reduce emissions from GenOn Portland Generating Station in Portland, Pennsylvania. Resolution 282-11 certified and adopted by the Board of Chosen Freeholders of the County of Warren.

Response:

The EPA thanks the commenters for their support of this rule. The EPA is working as expeditiously as possible and within the full extent of its authority, under section 126 of the Clean Air Act, to ensure improved human health for all citizens through reductions in interstate transport of sulfur dioxide emissions from the Portland power plant located in Northampton County, Pennsylvania.

III. General Comments in Opposition of the Rule

Commenter: J. W. Dobzyn
Comment:
I live across the river in Northampton Pa where lLarfarge burns tires to make Cement, i live not far from Northampton Generating station where they burn tires, Keystone cement burns tires and Chemicals and then all the other cement plants around the allentown bethelehem and easton area, why did you single Portland out in the suite, and do you know for sure that the bad air you blame on Portland is from from Portland, How do we know the air is monitered correctly and not tilited to non compliance, who oversees this ,How do we know for sure portland station is causing this spike in sulfer dioxide, and why isnt Nj trying to make them come into compliance I think we could come to a amicable solution, Pennsylvania will tax every Garbage truck that come into pennsylvania 10 a ton and put that money to putting coal scrubbers at portland, just a thought Id appetiate answers on the monitering of equipment and why the pass on cement plants XXXXXXX@rcn.com any comments to me will be answered

Response:
In this action, the EPA is granting a section 126 petition from NJDEP. This action will ultimately lead to significant air quality improvements in the area. To address the commenter's concerns regarding Portland's impact to air quality, *see* the explanations are contained in sections IV and V of the preamble of the final rule and the final rule Air Quality Modeling TSD. To the extent the commenter is making statements broader than this section 126 action, the comments are beyond the scope of this rulemaking and the EPA is not responding here to such comments.

IV. EPA's Authority for this Action

Commenter: Senator Pat Toomey, Senator Robert P. Casey and Congressman Charles Dent
Comment:
As required by EPA's implementation guidance for the June 2010 revised SO2 National Ambient Air Quality Standard, the Pennsylvania Department of Environmental Protection is developing plans that will result in compliance for all Pennsylvania sources. We are concerned that acting on the New Jersey petition prior to implementation of Pennsylvania's State Implementation Plan deviates from this process and rushes compliance with the new standard solely for the Portland facility.

Response:
The EPA's discretion with respect to NJDEP's section 126 petition is constrained by the terms of the statutory language which instructs the Administrator to grant or deny a section 126 petition

within 60 days. Moreover, the statute does not restrict the state's right to file such a petition with respect to the progress of the section 110(a)(2)(D) SIP procedure. NJDEP's petition demonstrated that emissions from Portland were significantly contributing to nonattainment in and interfering with maintenance of the 1-hour SO_2 NAAQS in New Jersey. Accordingly, it would be inappropriate and contrary to the statutory language for the EPA to defer action on the petition pending the completion of the SIP procedure in Pennsylvania.

Congress intended the section 110 SIP procedure and the section 126 petition process to be two independent and alternate means of addressing interstate pollution problems; the former depends on state regulation and the latter depends on federal regulation. Congress expressed no preference for one means of address the problem over the other. *See* preamble Section III for further discussion.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
The most expeditious procedural route to reducing the harmful impacts of the Portland Plant's emissions is through the Section 126 timeframes and not the State Implementation Plan (SIP) process. Delaying action on a 126 petition in order to wait for the SIP process is also unlawful under Section 126 of the Clean Air Act. The SIP process would not achieve reductions until potentially the attainment date in 2017, whereas the 126 petition can result in reductions by 2012, five years earlier than the SIP timeframes. The citizens of New Jersey have suffered long enough, and the EPA has the power to provide them immediate relief.
Response:
The EPA agrees that section 126 is an independent and alternate means of addressing interstate pollution problems from the section 110 SIP procedures. The EPA is granting the section 126 petition consistent with the requirements of the CAA and implementing emission limits and a compliance schedule to eliminate Portland's significant contribution to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
VI. EPA Does Not Have Discretion Under The Act To Delay Action On a 126 Petition Even Though a State Implementation Plan Submission Deadline Has Not Passed

A. Section 126 of the Act Sets Forth Strict Deadlines For Compliance

In its proposed rule, EPA explains that remedies pursuant to a Section 126 petition in certain situations must be promulgated prior to the date a State Implementation Plan ("SIP") is due after a NAAQS is promulgated or revised. See 76 Fed. 19,665. EPA's promulgation of the 1-hour SO2 NAAQS, see 75 Fed. Reg. 35,520 (June 22, 2010), triggered States' obligations to submit a SIP addressing how the state will attain the NAAQS. 42 U.S.C. § 7410.

Pennsylvania, like other states, will be required to submit a 1-hour SO2 SIP in February 2014 that provides for attainment of this new NAAQS by August 2017. See 42 U.S.C. § 7514a(a) (providing that the SIP must provide for the attainment of the applicable NAAQS, which must occur as expeditiously as practicable but in no case later than five years from the effective date

of the nonattainment designation). The August 2017 attainment deadline is well beyond the maximum statutory deadline applicable to New Jersey's Section 126 petition (2014).

Pursuant to Section 126, once EPA finds that a source violates the Act, it must require abatement from that source within three months, or it may permit the continued operation of a violating source beyond three months if the source complies with "emission limitations and compliance schedules (containing increments of progress) as may be provided … to bring about compliance … "as expeditiously as practicable, but in no case later than three years after the date of such finding." 42 U.S.C. § 7426(c). See also 40 C.F.R. §§ 50.4, -.5 and -.7. The Administrator may allow the source to operate beyond the three month time frame only if the source complies with emission limitations and compliance schedules (containing increments of progress) as the Administrator may direct to bring about compliance. 42 U.S.C. § 7426(c). Here, EPA is proposing to require Portland to meet certain SO2 emission limits for Units 1 and 2 by no later than three years after the effective date of the final rulemaking (i.e., by 2014) and interim emission limits within a year. Any compliance schedule, including one that waits for the SIP process, that allows for the continued operation beyond three years from the date of EPA's finding without full compliance with Section 126 is unlawful. 42 U.S.C. § 7426(c).

Moreover, the SIP process is more complex and time-consuming than the Section 126 process. Pursuant to Section 110, action may be taken on a group of sources that are contributing to a violation and emission reductions are allocated to various sources only after planning and rulemaking. In addition, the Act's SIP deadline for attainment is the maximum time allowed, and the deadline could be sooner (i.e., "as expeditiously as practicable"). See 42 U.S.C. § 7514a(a). Hence, it is appropriate and reasonable that a Section 126 petition remedy provide for attainment in advance of the maximum time frame for SIP attainment, especially against a single source where the evidence demonstrates that it alone violates the NAAQS.

EPA's recognition that it may not delay remedial action here is also consistent with its 1999 Section 126 petition findings. 64 Fed. Reg. 28,250 (May 25, 1999) In that action, EPA found that Section 126(c) establishes a maximum three-year period for implementation of controls regardless of "the timing of attainment needs downwind." 64 Fed. Reg. at 28,279. "Congress made it clear that it intended Section 126 to provide an additional means of attacking interstate pollution that would supplement, not replace, the SIP requirement."

Similarly, in Appalachian Power Co. v. EPA, 249 F.3d 1032, 1046 (D.C. Cir. 2001), the Court explained that under Section 110, EPA determines the required level of air quality, but defers in the first instance to the states on how to achieve that level. Id. In contrast, Section 126 contemplates direct EPA regulation of sources within a state. Id. The D.C. Circuit further explained that both sections are independent upon each other, agreeing with the Second Circuit that "an argument that one proceeding must be completed as a prerequisite to a final decision in the other makes no sense." Id. at 1047. The Court ultimately deferred to EPA, finding EPA's 2000 126 findings reasonable that "Congress provided both [provisions] without indicating any preference for one over the other." Id. at 1048 (citing 65 Fed. Reg. 2674, 2680 (January 18, 2000)). For these reasons, Section 126 sets forth nondiscretionary deadlines within which EPA must act, even if a SIP submission deadline has not passed.

Response:
The EPA is requiring, consistent with the requirements of section 126, that Portland comply with emissions limits and compliance scheduled designed to eliminate Portland's significant contribution to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS within three years of this finding. The EPA agrees that section 126 provides an independent and alternate means of achieving reductions of impermissible interstate emissions from the section 110 SIP process. *See* preamble Section III for further discussion.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
B. Section 110 Calls for 126 Remedies to Be Included In a SIP That Is Submitted After a NAAQS Is Promulgated Or Revised

New Jersey also agrees with EPA, see 76 Fed. Reg. 19,665, that EPA may not delay action here because Section 110 requires Section 126 remedies to be included in a SIP submission that is due three years after a NAAQS is promulgated or revised. See 42 U.S.C. § 7410(a)(2)(D)(ii). The Section 110 "good neighbor" provision requires each state's SIP to contain adequate provisions prohibiting any source from contributing significantly to nonattainment in, or interfering with maintenance by, any other State with respect to a NAAQS. Id. Accordingly, New Jersey agrees with EPA that this structure contemplates action on a 126 petition prior to a SIP submission pursuant to Section 110. See 76 Fed. Reg. 19,665 ("the statute requires the State SIP submittal to include any emission limits promulgated by EPA pursuant to Section 126. The fact that Congress required the SIP submittals due 3 years after promulgation or revision of a NAAQS to include any emission limits promulgated pursuant to section 126 is meaningful. If Congress had intended to limit EPA's authority to act on Section 126 petitions until after the deadline for States to submit 110(a)(2)D)(i) SIPs, it could have done so"). In addition, although the compliance requirement of EPA's action on a 126 petition must be incorporated into the Pennsylvania SIP and Title V major facility operating permit through a major modification of the permit by the Pennsylvania Department of Environmental Protection, these procedural requirements should not delay measures to comply with Section 126.

Response:
The EPA agrees with the commenter that section 110(a)(2)(D)(ii) of the CAA contemplates that a section 126 petition maybe be granted before the deadline to submit section 110(a)(2)(D) SIP for a particular NAAQS. *See* preamble Section III for further discussion.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
C. There Are No Assurances That Portland's Section 126 Violations Would Be Remedied Under Pennsylvania's SO2 SIP

An additional reason that the EPA may not delay remedial action on New Jersey's petition is because there are no assurances that Pennsylvania's SIP for the 1-hour SO2 NAAQS would remedy the Section 126 violations at Portland. In North Carolina v. EPA, 531 F.3d 896, 907-08 (D.C. Cir. 2008), the Court found that EPA has a duty under Section 110(a)(2)(D)(i)(I) to "achieve something measurable toward the goal of prohibiting sources" from contributing to

nonattainment or interfering with maintenance in order to meet the requirements of Section 110(a)(2)(D)(i)(I), and that the cap and trade program at issue, with the purchasing of allowances, could lead to no reduction in a source's significant contribution. Similarly here, only with the reduction of emissions at Portland (as opposed to a cap and trade program where sources other than Portland would be controlled) in the time frames required under Section 126 can the 126 violations be remedied.

Moreover, the Pennsylvania Department of Environmental Protection (PADEP) has publicly noticed its proposed designation recommendation for the 1-hour SO2 NAAQS of "Unclassified" for Northampton County where the Portland Power Plant is located. 41 Pa. Bull. 2283 (April 30, 2011). This notice indicates that the PADEP does not yet recognize EPA's finding that the Portland Power Plant is causing 1-hour SO2 impacts and provides no confidence that the Pennsylvania SIP will include the necessary controls to timely address the transport of emissions from the Portland Power Plant into New Jersey.

Because EPA finds that New Jersey has demonstrated, and EPA has confirmed, that one source alone causes NAAQS violations in New Jersey, and because the background concentrations are relatively low, see 76 Fed. Reg. 19,667, it is appropriate for EPA to directly regulate this offending source and not delay action until after Pennsylvania submits its SIP.

Response:
EPA agrees it is appropriate to act on NJDEP's section 126 petition at this time. *See* preamble Section III for further discussion.

Commenter: Donald C. Seigel, International Vice President, Third District of the International Brotherhood of Electrical Workers (IBEW)
Comment:
We believe that granting this extraordinary petition would generate a flood of similar petitions across the country, shifting responsibility for control strategies to attain the new one-hour SO2 standard from the states to U.S. EPA. Granting the petition would undermine the traditional Federal-State partnership in administering programs to comply with National Ambient Air Quality Standards under the Clean Air Act ("CAA").

Response:
The EPA is granting the section 126 petition consistent with the requirements of the CAA. The EPA will address future petitions filed under section 126 on a case-by-case basis consistent with the CAA. The EPA does not have the discretion under the Act to deny a section 126 petition based solely on the prospect of additional petitions being filed at a future date.

Commenter: Donald C. Seigel, International Vice President, Third District of the International Brotherhood of Electrical Workers (IBEW)
Comment:
EPA's proposal to grant New Jersey's Section 126 petition includes revisions to the Commonwealth of Pennsylvania's State Implementation Plan, effectively substituting EPA's judgment for the appropriate control strategies to be applied at Portland to satisfy CAA requirements to attain the new one-hour SO2 standard. There is no clearer demonstration of the

usurpation of state discretion inherent in the 126 petition process than this proposed amendment to Pennsylvania's SIP: [commenter quotes Subpart NN- Pennsylvania Section 52.2039 from the proposed rule]. [*See detailed comment document attached to in docket at* EPA-HQ-OAR-2011-0081-0127.]

Response:
The EPA disagrees with the commenter's assertion that the agency is usurping state discretion by granting this section 126 petition. Congress intended the section 110 SIP procedure and the section 126 petition process to be two independent and alternate means of addressing interstate pollution problems; the former depends on state regulation and the latter depends on federal regulation. Congress expressed no preference for one means of addressing the problem over the other. *See* preamble Section III for further discussion.

Commenter: Donald C. Seigel, International Vice President, Third District of the International Brotherhood of Electrical Workers (IBEW)
Comment:
These comments are submitted on behalf of the Third District of the International Brotherhood of Electrical Workers ("IBEW"), representing approximately 120,000 IBEW members in Delaware, Pennsylvania, New Jersey and New York. We are writing to convey our strong opposition to U.S. EPA's proposal to grant the Section 126 petition filed by New Jersey regarding sulfur dioxide (SO2) emissions from the Portland Generating Station ("Portland") located in Upper Mount Bethel Township, Northampton County, Pennsylvania. Our principal position is that Section 126 is not the appropriate means for EPA or the states to use as a first resort to implement new National Ambient Air Quality Standards.

Response:
The EPA is not using the section 126 petition process as a means of implementing the NAAQS. Rather, as described in more detail in the preamble, Pennsylvania retains its discretion and obligation to develop a SIP and implement the NAAQS throughout the state. *See* preamble section III for further discussion.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
A. The Proposal Is Contrary to the Structure of the CAA, Undermines the NAAQS Implementation Process Designed by Congress and Infringes on States' Rights

EPA's Proposal is inconsistent with the express language of Sections 110(a)(2)(D) and 126, conflicts with the intended interplay of Sections 110 and 126, violates the CAA's structure of cooperative federalism, and tramples on the primacy of the states' authority in the first instance to regulate their own sources.

Response:
The EPA disagrees with the commenter's broad assertion that the EPA does not have the legal authority to grant this petition. *See* preamble Section III for further discussion.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC

Comment:
EPA established the new 1-hour SO2 NAAQS less than one year ago. New Jersey filed a Section 126 petition asking EPA to find that emissions from Portland contribute to nonattainment or maintenance of the new 1-hour NAAQS almost immediately after the standard became effective and long before EPA has even established nonattainment areas for the states or directed the states to take action to address such nonattainment areas. EPA proposes to make a finding granting New Jersey's petition and imposing on Portland obligations that do not apply to any other power plant, notwithstanding that EPA knows there will be many areas that cannot meet the new 1-hour SO2 NAAQS absent emissions limitations on stationary sources in those areas, including power plants, and that EPA has yet to issue implementation guidance for the use of either modeling or monitoring to show future compliance with the 1-hour SO2 NAAQS.

EPA's proposed action is based on an interpretation of Sections 110 and 126 of the CAA that is inconsistent with the clear structure and intent of those sections. It would depart from the logical and orderly process that Congress established for setting and complying with new NAAQS. Congress made clear that Section 110 is the primary, and in the first instance, exclusive means for achieving attainment of NAAQS under the CAA. Only if the source violates the SIP or the state fails to develop an adequate state implementation plan ("SIP") that protects against excessive transport of pollution can EPA find a violation pursuant to a Section 126 petition and undertake a Section 126 rulemaking. EPA's interpretation in the Proposal of Sections 110 and 126 also would assign priority under the CAA to addressing nonattainment caused by interstate transport over nonattainment resulting from in-state emissions; in this case, giving priority to New Jersey's nonattainment claims over all other areas that will be declared nonattainment as a result of the new NAAQS.

EPA's proposed action also would break with EPA's own prior actions with respect to the interplay of Sections 110 and 126. EPA should defer any action until the states have had an opportunity to respond to the new NAAQS and develop their SIPs, and until the myriad other regulatory programs have been more fully developed. By doing so, EPA can avoid disrupting the established Section 110 SIP process, trampling on state prerogatives, and forcing GenOn to make premature investment decisions before knowing the impact of all of EPA's regulatory initiatives on Portland and other power plants.

Response:
The EPA disagrees with the commenter's interpretation of section 126. The statutory language does not restrict a state's right to file a section 126 petition in relation to any step in the section 110(a)(2)(D) SIP procedure. Nor does the statutory language imply a preference for the section 110(a)(2)(D) SIP procedure over the section 126 petition process. Congress intended the section 110 SIP procedure and the section 126 petition process to be two independent and alternate means of addressing interstate pollution problems; the former depends on state regulation and the latter depends on federal regulation. Congress expressed no preference for one means of addressing the problem over the other. Pennsylvania retains the discretion and obligation to develop a SIP and implement the NAAQS throughout the state. *See* preamble Section III for further discussion.

Moreover, as explained in further detail in the preamble, this final rule is being issued after the Transport Rule has been finalized and near in time to when the MATS rule is expected to be finalized. GenOn will have sufficient knowledge of the recent, relevant regulatory actions to make informed investment decisions to respond to this and other regulatory requirements. *See* preamble Section V.E for further discussion.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
1. Section 126 cannot supplant the NAAQS implementation process

The CAA establishes a clear, orderly process for implementing new and revised NAAQS. After EPA promulgates a new or revised NAAQS, states must submit a list to EPA within one year to designate each air quality control region within the state as "nonattainment," "attainment," or "unclassifiable." 42 U.S.C. § 7407(d)(1)(A). EPA must act on these recommendations and finalize NAAQS designations within two years of promulgating the NAAQS. Id. At § 7407(d)(1)(B). To allow consideration of these designations and other factors, states have three years to submit SIP revisions implementing the new or revised NAAQS. 42 U.S.C. § 7410(a)(1).

Section 110(a)(2)(D)(i) obligates each state to develop a SIP that must "contain adequate provisions . . . prohibiting . . . any source . . . from emitting any air pollutant in amounts which will . . . contribute significantly to nonattainment, or interfere with maintenance" of the NAAQS in any other state. Id. at § 7410(a)(2)(D)(i). For areas designated as nonattainment, SIPs must provide for attainment within five years from the nonattainment designation. 42 U.S.C. § 7502. This structure - regional designations followed by SIP revisions and a statutory period in which to bring areas into attainment - assures the orderly implementation of new and revised NAAQS in a manner that prohibits significant contribution to, or interference with the maintenance of, NAAQS in another state. EPA's recent promulgation of the 1-hour SO2 standard adheres to the implementation procedure and timeline laid out in Section 110 of the CAA. *See supra* Section III.A.

The Proposal ignores this statutory mechanism for assuring attainment of the new 1-hour SO2 NAAQS and instead seeks to usurp Pennsylvania's right to devise control solutions tailored to meet Pennsylvania's CAA obligations in the time permitted by the process set forth in the statue and EPA regulations. Even though the CAA establishes a clear three-year schedule for submitting SIP revisions, New Jersey filed its Petition less than one month after EPA's new 1-hour SO2 NAAQS became effective and long before implementation guidance for using dispersion modeling or monitoring to assure compliance with the NAAQS has even been issued. Despite the fact that Pennsylvania's SIP was adequate to meet its Section 110(a)(2)(D) obligation before EPA revised the SO2 NAAQS, the Proposal would impose requirements on Portland before EPA will even complete attainment designations for the 1-hour SO2 NAAQS.

Id., 75 Fed. Reg. 35520. By responding to New Jersey's Section 126 petition without first allowing for the orderly implementation of a new NAAQS, the Proposal's approach encourages NAAQS implementation by petition and litigation rather than through the orderly process prescribed by Congress in Section 110. See 76 Fed. Reg. 19678-79.

Response:
The EPA disagrees with the commenter's assertion that granting NJDEP's section 126 petition at this time usurps Pennsylvania's right to implement the NAAQS. As described in more detail in the preamble, Pennsylvania retains the discretion and obligation to develop a SIP and implement the NAAQS throughout the state. *See* preamble section III for further discussion. The fact that Pennsylvania's SIP may have been adequate to meet the prior SO_2 standards is irrelevant to whether emissions from Portland are currently contributing to nonattainment in or interfering with maintenance of the 2010 1-hour SO_2 NAAQS in New Jersey.

Moreover, Congress intended the section 110 SIP procedure and the section 126 petition process to be two independent and alternate means of addressing interstate pollution problems; the former depends on state regulation and the latter depends on federal regulation. Congress expressed no preference for one means of addressing the problem over the other. *See* preamble section III for further discussion.

The EPA's interpretation of section 126 is consistent with the structure of Title I of the CAA. Under the system of cooperative federalism in Title I, States are primarily responsible for determining the mix of control measures necessary to achieve the NAAQS, while the federal government sets the uniform national goals and ensures that States act to meet them. Train v. NRDC, 421 U.S. 60, 78-79 (1975). However, Congress directed the EPA to regulate sources directly under several provisions of Title I. In particular, Congress mandated Federal action under sections 110(c) (FIP provisions), 126, and 183 (Federal ozone measures). Where a SIP is adequate but a source is violating its provisions, it would be counter to the cooperative federalism structure of the Act and would serve no purpose to essentially replace those adequate SIP limits with redundant direct federal controls on a source. In contrast, where a state is not yet regulating an interstate pollution problem, it makes sense to provide an alternative mechanism to directly achieve the necessary emissions reductions from the sources. A state would always be free to regulate the sources itself in that instance by revising its SIP to include the necessary emission limits (and indeed, section 110(a)(2)(D)(ii) requires the state to ensure compliance with such measures in its SIP). The EPA believes that this understanding of Congress's overall design for air pollution control supports the EPA's interpretation that the tools in section 126 may be used whenever sources in one state are emitting impermissible amounts of transported air pollutants.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Section 126 was not intended to take precedence over the Section 110 NAAQS implementation process. New Jersey's Petition and EPA's Proposal are clearly premature. Section 110(a)(2)(D)(i) imposes an obligation on each state to develop a SIP that contains adequate provisions "prohibiting…any source…from emitting any air pollutant that will contribute significantly to nonattainment in" a downwind state. Section 126 refers expressly to this "prohibition" and allows a downwind state to petition EPA to find that a source in another state emits an air pollutant "in violation of the prohibition of Section 110(a)(2)(D)[i]." The "prohibition" referred to in Section 126, however, is not the act of emitting, or even contributing to transboundary nonattainment. Rather, the prohibition is against emitting at levels that violate the limits imposed by the SIP regulations promulgated in response to EPA requirements. [FN3]

[FN3]: EPA opposed this view in its 1999 rule regarding Section 126 petition on interstate ozone transport. 64 Fed. Reg. 28250,28272 (May 25, 1999). However, EPA's position has not been addressed by a court, as recognized by the D.C. Circuit in *Appalachian Power*, 249 F.3d at 1045, n. 4 ("No petitioner, however, argued [this]view in its opening brief, and we therefore need not decide it.").

Response:
The EPA disagrees with the commenter's assertion that the "prohibition" referred to in section 126 only arises to the extent it is contained in a state's SIP regulations. The EPA contends that the statutory language, the structure of the CAA, and the Act's legislative history support the EPA's conclusion that the "prohibition" on impermissible interstate transport exists irrespective of the content of a state's SIP. *See* preamble section III for further discussion.

Moreover, the EPA disagrees with the commenter's contention that the section 110 SIP procedure was intended to take precedence over section 126. Congress intended the section 110 SIP procedure and the section 126 petition process to be two independent and alternate means of addressing interstate pollution problems; the former depends on state regulation and the latter depends on federal regulation. Congress expressed no preference for one means of addressing the problem over the other. *See* preamble section III for further discussion.

Finally, the EPA disagrees with the commenter's interpretation of Appalachian Power v. EPA, 249 F.3d 1032 (D.C. Cir. 2001). While the Court's holding did not directly address whether the EPA's interpretation of the "prohibition" in section 110 was reasonable it acknowledged ambiguity in the statutory language. Id. at 1045 n.4. The EPA maintains that the statute is unambiguous in that nothing in the statutory language links the section 126 petition process to the section 110 SIP procedure. However, to the extent a court were to find the language ambiguous, for the reasons stated above and consistent with its past precedent in addressing section 126 petitions, the EPA maintains that the better interpretation is that the "prohibition" in section 110 exists independent of its regulation in an approved SIP. The EPA is therefore entitled to deference under step two of Chevron. Furthermore, while the Court did not address the EPA's interpretation of "prohibition," it did hold that the EPA's consistent interpretation of the relationship between sections 110 and 126 was reasonable. *See* preamble section III for further discussion.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Even if EPA's view of Section 126 in the Proposal is correct that the "prohibition" in Section 126 does not refer to situations where a source is violating an adequate SIP, its own interpretation of how Section 126 should be construed dictates a finding that the Petition is premature and must be denied. According to EPA, "sources emit in violation of the prohibition of section 110(a)(2)(D)(i) only where the applicable SIP, SIP submission, or federal plan fails to bar the excessive emission of transported pollutants prohibited by section 110(a)(2)(D)(i)." 64 Fed. Reg. 28276 (emphasis added). Section 126 is available only to the extent that a state fails to meet its SIP revision obligations under Section 110(a)(2)(D), and not to supplant the carefully

Response:
The language quoted from the May 1999 rulemaking is not in conflict with the EPA's interpretation of the statutory language in this case. Unlike the May 1999 rulemaking, where the EPA determined that elimination of the excessive transboundary emissions would be timely obtained via the pending SIP call, there is no assurance that an imminent SIP submission will address the transport problem originating at Portland within the three-year time period required by section 126. Thus, consistent with the EPA's statement in the May 1999 rulemaking, no SIP, SIP submission or federal plan currently exists that bars the excessive emission of transported pollution from Portland to New Jersey.

Moreover, when the SIP call at issue in the May 1999 rulemaking was judicially stayed, the EPA moved forward in a January 2000 rulemaking to grant several of the pending section 126 petitions because, like here, there was no longer any assurance that the SIP call would achieve the necessary reductions in a timely basis. Therefore, the EPA's action on the present section 126 petition is consistent with the actions that the EPA took in the prior petitions.

Finally, EPA retains the right, where reasonable, to alter its interpretation of statutory provisions through notice and comment rulemaking.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
If EPA allows a disgruntled state or political subdivision to circumvent the SIP process by filing Section 126 petitions immediately on the heels of a NAAQS revision, as New Jersey has done, the SIP process laid out in Section 110 effectively would become superfluous. This result would invite states to pursue attainment through petitions, disrupt the NAAQS implementation process established by Congress in Section 110, usurp state authority and prerogatives under Section 110, and force actions not intended by Congress that are harmful to the orderly administration of the CAA. By allowing New Jersey to "leapfrog" the NAAQS implementation process in this manner, the Proposal is contrary to the CAA and detrimental to its purpose.

Response:
The EPA disagrees with the commenter's contention that the section 110 SIP procedure will become superfluous under the EPA's interpretation of section 126. Congress intended the section 110 SIP procedure and the section 126 petition process to be two independent and alternate means of addressing interstate pollution problems; the former depends on state regulation and the latter depends on federal regulation. Congress expressed no preference for one means of addressing the problem over the other. Moreover, even though section 126 permits the EPA to impose emission limits on particular sources or groups of sources, states retain the discretion and obligation to develop a SIP and implement the NAAQS throughout the state. *See* preamble section III for further discussion.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Since New Jersey filed its petition before the ink was dry on the 1-hour SO2 standard, and EPA issued the Proposal less than 10 months later, EPA has not given Pennsylvania any opportunity to develop a SIP that "prohibits" emissions from Portland that may contribute to downwind

nonattainment or maintenance. As EPA recognized when interpreting the requirements of Sections 110 and 126, "it would be difficult to conclude that an affected source in the upwind State 'emits or would emit in violation' of the prohibition that the [SIP] is not yet required to contain." 64 Fed. Reg. 28256. Until Pennsylvania has had the opportunity to establish such a SIP and fails to adequately enforce such prohibition, EPA cannot take action on the Petition.

Response:
The EPA disagrees with the commenter's interpretation of the "prohibition" referred to in section 126. Even though section 126 permits the EPA to impose emission limits on particular sources or groups of sources, states retain the discretion and obligation to design a SIP and implement the NAAQS throughout the state. *See* preamble section III for further discussion.

Moreover, the commenter takes this quotation from the May 1999 rulemaking out of context, and ignores EPA's explanation of the language in a subsequent rulemaking. When the language is considered in context, it is consistent with the interpretation adopted in this rulemaking. The full paragraph from which the comment is taken follows:

> As discussed in the NPR, EPA believes that sources in an upwind State should not be considered to be emitting an air pollutant in violation of the section 110 prohibition, and hence EPA should not grant a petition naming such sources, if the State is adhering to the NO_x SIP call rule's schedule for submission of an approvable SIP revision, and EPA is acting speedily to approve the SIP – or, failing that, if EPA has promulgated a SIP for the State. *After all, if EPA's rule provides a particular path for the development of a plan calling on sources to reduce interstate pollution by May 1, 2003, and under that rule either the upwind State or EPA is moving forward to develop, take action on or promulgate a satisfactory plan meeting that rule and achieving attainment as expeditiously as practicable, it would be difficult to conclude that an affected source in the upwind State "emits or would emit in violation" of the prohibition that the plan is not yet required to contain.*

64 Fed. Reg. 28250, 28256 (emphasis added).Thus, the EPA determined that the SIP call would be sufficient to address the transport issues raised by petitioners as "expeditiously as practicable" because the upwind States had already been placed on an expedited schedule for SIP submissions, such that the necessary emissions reductions would be obtained within three years – the same schedule that a section 126 finding would require. There would have been no benefit gained if the EPA had granted the section 126 petitions at that time.

Moreover, when the SIP call was later stayed under a court order from the D.C. Circuit, the EPA moved forward to grant several of the section 126 petitions at issue. 65 Fed. Reg. 2674. The EPA explained that the reason the Agency initially delayed granting the petitions was not because SIP requirements should take precedence over such petitions, but because the SIP call was particularly responsive to the issues raised in the section 126 petitions:

> The EPA believes that the circumstances under which the linkage between action on the section 126 petitions and the NO_x SIP call was appropriate are no longer present. Specifically, with no explicit and expeditious deadlines for compliance with the NO_x SIP

> call, it does not make sense for the section 126 findings to depend upon a State's failure to act under the NO_x SIP call. It also would be contrary to the language and purposes of section 126 to delay the section 126 findings pending State action under the NO_x SIP call, absent a schedule with explicit and expeditious deadlines for compliance with the NO_x SIP call. Nor is retention of the linkage between the two rules required by the language of section 110, the cooperative federalism structure of title I of the CAA, or the court's decision to stay the deadlines for States to submit SIP revisions under the NO_x SIP call.
>
> * * * *
>
> Promulgation of the NO_x SIP call with explicit and expeditious deadlines for SIP submissions and emissions reductions afforded EPA a reasonable expectation that the needed emissions reductions would be expeditiously required through SIP revisions. In those circumstances it made sense for EPA to briefly defer findings under section 126, as long as the States stayed on track to control the emissions. Further, it made sense for EPA to approve findings under section 126 once a State fell off track (as indicated by a lack of EPA proposed or final approval of the required SIP submission by specified dates) because under those circumstances, EPA could no longer reasonably expect that the needed emissions reductions would be timely achieved through a SIP revision. Similarly, under the present circumstances with the stay of the SIP call submission deadlines, EPA is no longer assured that the emissions reductions will be achieved in accordance with the SIP call deadlines. Hence, EPA now must obtain the emissions reductions under section 126 and has no basis for further deferring making the findings under section 126 pending State action under the NO_x SIP call.

Id. at 2680. Similarly here, there is no assurance that any emissions reductions Pennsylvania might require under the standard SIP process would be obtained within the three years of this finding as required by section 126, and thus, there is no legal basis for deferring the section 126 process pending Pennsylvania's 110(a)(2)(D) SIP submission.

Finally, EPA retains the right, where reasonable, to alter its interpretation of statutory provisions through notice and comment rulemaking.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
2. Congress did not place greater value on control of emissions affecting interstate attainment than on intrastate attainment

EPA's interpretation of Section 126 would imply that Congress gave a greater priority to protecting interstate transport than on addressing NAAQS problems within each state. By proposing to find a violation under Section 126 before Pennsylvania possibly could react to EPA's revised NAAQS, much less develop a new SIP, EPA suggests that Congress places a greater value on protecting New Jersey's air quality than Pennsylvania's air quality and that Pennsylvania has to address New Jersey's air quality before New Jersey is obligated to do so. That is, in EPA's view it is more important and urgent to address a single state's complaint of

emissions transport than it is to improve overall air quality through the well-structured NAAQS attainment process under Section 110(a)(1). That interpretation of the CAA is clearly wrong.

Section 110 contains a set of complementary and coordinated requirements that assure an orderly NAAQS implementation process. See supra Section IV.A.1. There is nothing in the legislative history or the CAA itself to indicate that Congress intended to emphasize one provision of Section 110 over any other. Id. EPA's proposed interpretation of Section 126 -which would prioritize interstate transport issues over intrastate NAAQS attainment - is contrary to the structure and plain language of the CAA in general and Section 110 in particular. Accordingly, before issuing any findings under Section 126, EPA must allow states to promulgate SIP revisions that address both intrastate and interstate emissions in the manner prescribed by Section 110.

Response:
The EPA disagrees with the commenter's contention that granting NJDEP's section 126 petition indicates that the EPA is placing greater priority on interstate transport than on a state's right to implement the NAAQS. Congress intended the section 110 SIP procedure and the section 126 petition process to be two independent and alternate means of addressing interstate pollution problems; the former depends on state regulation and the latter depends on federal regulation. Congress expressed no preference for one means of addressing the problem over the other, and the EPA's interpretation gives no preference to either section. Contrary to the commenter's assertion, the EPA's interpretation of sections 110 and 126 is supported by the plain language and structure of the statute, as well as the legislative history of the Act. *See* preamble section III for further discussion.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
B. The Proposal is Inconsistent with EPA's Prior Interpretation of Section 126 and Responses to Other Section 126 Petitions.

The Proposal deviates from EPA's prior position regarding Section 126 petitions. For example, EPA received a Section 126 petition from Delaware on December 18, 2008, requesting a finding that EGUs in Maryland, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Virginia, and West Virginia are emitting air pollutants, including SO2, in violation of the provision of Section 110(a)(2)(D)(i) of the CAA. 74 Fed. Reg. 7820, 7821 (Feb. 20, 2009). EPA's own modeling, conducted as part of the rulemaking process for the Clean Air Interstate Rule ("CAIR"), supports Delaware's contentions. See 70 Fed. Reg. 25162, 25247-50, t. VI.8-9, (May 12, 2005) (describing downwind nonattainment linkages in certain states). Notwithstanding EPA's analysis confirming Delaware's assertions, EPA nonetheless deferred its response and has yet to take action. 74 Fed. Reg. 7821.

Response:
Whether or not EPA has taken action on other, unrelated section 126 petitions is not relevant to the agency's interpretation of the statutory language in section 126 or its obligation under the statute to address NJDEP's section 126 petition in this case.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Similarly, in August 1997, eight northeastern states[FN4] submitted Section 126 petitions asking EPA to mitigate interstate transport of NOx to address their ozone nonattainment problems. Rather than issuing individual, source-specific mandates, EPA coordinated its response to these petitions by "linking" its determinations to the then-pending "NOx SIP Call." As EPA explained, "Congress intended section 126 to apply where upwind states' SIPs are inadequate." 64 Fed. Reg. 28272. Accordingly, portions of Section 126 petitions that EPA found "technically meritorious" were "deemed granted or denied at certain later dates pending certain actions by the states and EPA regarding state submittals in response to the final NOx [SIP Call]." Id. at 28250. As EPA explained, linking its Section 126 response to the then-pending NOx SIP call was necessary because compliance with the NOx SIP call would eliminate the basis for a Section 126 finding. See 64 Fed. Reg. 28271-74.5

Although EPA subsequently de-linked the NOx SIP Call and its final action on the Section 126 petitions, which was upheld in Appalachian Power, the circumstances were very different than those at issue here. There, EPA was in the process of developing its NOx SIP Call to address states' long-term failures to promulgate SIPs to eliminate their contribution to downwind ozone nonattainment of the 1-hour ozone standard - a standard that had been established 18 years earlier, in 1979. EPA originally linked the compliance deadline of the NOx SIP Call with the compliance deadline for action in response to the Section 126 petitions. When EPA delayed the NOx SIP Call's compliance deadline by one year, various petitioners argued in Appalachian Power that EPA also had to delay its final action on the Section 126 petitions. The court rejected the argument, holding that the Section 126 process could be pursued independent of the NOx SIP call. Appalachian Power, 249 F.3d at 1047. However, the court in Appalachian Power was confronted with long-standing SIPs that had failed for over 12 years to address the states' obligations under Section 110(a)(2)(D) with respect to the 1-hour ozone standard and with a new EPA regulatory program to address ozone transport that was being delayed. In that situation, with states failing for many years to develop SIPs that complied with Section 110(a)(2)(D), the court concluded that action on the Section 126 petitions should proceed, notwithstanding EPA's delay of the NOx SIP Call.

[FN4] Connecticut, Maine, Massachusetts, New Hampshire, New York, Pennsylvania, Rhode Island, and Vermont.

Response:
As explained in detail above, the EPA's action here is consistent with the interpretation of section 126 that the EPA applied in both the May 1999 and January 2000 rulemakings. The EPA originally linked action on the section 126 petitions and the NOx SIP call in the May 1999 rulemakings because the upwind states had already been placed on an expedited schedule for SIP submissions by the SIP call, such that the necessary emissions reductions would be obtained within three years – the same schedule that a section 126 finding would require. There would have been no benefit gained if the EPA had granted the section 126 petitions at that time.

As the commenter correctly points out, when the SIP call was later stayed under a court order from the D.C. Circuit, the EPA moved forward to grant several of the section 126 petitions at

issue. The EPA explained that the reason the Agency initially delayed granting the petitions was not because SIP requirements should take precedence over such petitions, but because the SIP call was particularly responsive to the issues raised in the section 126 petitions. When there was no longer any assurance that the SIP call would achieve the necessary reductions within the three years required by section 126, the EPA implemented a separate remedy that would do so. Similarly here, there is no assurance that any emissions reductions Pennsylvania might require under the standard SIP process would be obtained within the three years of this finding as required by section 126, and thus, there is no legal basis for deferring the section 126 process pending Pennsylvania's 110(a)(2)(D) SIP submission.

The EPA disagrees with the commenter's interpretation of Appalachian Power, 249 F.3d 1032 (D.C. Cir. 2001), which upheld both rulemakings. The court's decision did not turn on how long the existing SIPs had been in place or how long they had been deficient. Rather, the court determined that the EPA's interpretation of the relationship between sections 110 and 126, as independent provisions to address interstate transport, was reasonable. Id. at 1048.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Here, by complete contrast, Pennsylvania's current SIP clearly is adequate to address its Section 110(a)(2)(D) obligations for the SO2 standards that applied prior to August 2010. The new 1-hour SO2 NAAQS has been effective for only 10 months and EPA has not even designated nonattainment areas, much less given states an opportunity to propose such designations or develop SIPs in response. Nor has EPA proposed to delay any regulatory actions to address the 1-hour SO2 standard. Until SIPs addressing the 1-hour SO2 NAAQS are in place, any action in response to the Petition is premature and inconsistent with EPA's prior interpretation of and approach to implementing Section 126. As EPA has recognized when interpreting the requirements of Sections 110 and 126, "it would be difficult to conclude that an affected source in the upwind State 'emits or would emit in violation' of the prohibition that the [SIP] is not yet required to contain." 64 Fed. Reg. 28256. There simply is no evidence in the legislative history, or support in the statutory structure, to indicate that Congress intended to give priority rights to downwind states through a 126 petition over the Section 110 process.

Response:
Whether or not Pennsylvania's SIP was adequate with respect to a different SO2 standard is irrelevant where the EPA has determined that emissions from Portland are significantly contributing to exceedances of 2010 1-hour SO_2 NAAQS in New Jersey. Moreover, we have already thoroughly addressed in this section the commenter's erroneous reliance on the quote from the May 1999 rulemaking, above.

Finally, The EPA disagrees with the commenter's assertion that one state's right to file a section 126 petition is dependent on the section 110 SIP procedure. As explained in more detail in the preamble, the statutory language, the structure of the CAA, and the Act's legislative history support the EPA's conclusion that the "prohibition" on impermissible interstate transport exists irrespective of the content of a state's SIP and that a state's right to file a section 126 petition is not dependent on the section 110 SIP procedure. The EPA's interpretation of section 126 does not give priority to downwind states' right to petition under section 126 over the section 110 SIP

procedure. Rather, the EPA's interpretation supports Congress's intention to create two independent and alternate means of addressing interstate pollution problems. *See* preamble section III for further discussion.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
The Proposal represents a sharp and unjustified deviation from EPA's prior approach to addressing Section 126 petitions. When addressing other Section 126 petitions, EPA has either not acted or has coordinated its response with broader rulemaking processes addressing interstate transport. The Proposal ignores EPA's prior sound logic linking Section 126 requirements to the SIP revision process of Section 110. EPA has refrained from taking action on other Section 126 petitions addressing sources that have had a significant impact on nonattainment of the NAAQS in other states, even after the SIP process has run its normal course; yet EPA now proposes to impose such requirements on Portland at the very onset of the SIP process. See generally DC01:613186.14 - 14 - 70 Fed. Reg. 25162 (promulgating the CAIR). EPA's contention that very stringent deadlines apply and that "EPA is bound by the language of the CAA" [FN6] is an unqualified departure from past regulatory determinations. Specifically, EPA's statement of how and when it must act on Section 126 Petitions is blatantly contradicted by the Agency's present inaction on New Jersey's May 13, 2010 petition. [FN7] Accordingly, the Proposal is inconsistent with EPA's prior interpretation f Section 126, an abuse of discretion, and an arbitrary and capricious response to the Petition.

[FN6] 76 Fed. Reg. 19665.
[FN7] Although GenOn does not believe New Jersey's May 13, 2010 Section 126 petition has any merit, as detailed in GenOn's letter to EPA dated November 24, 2010 (attached), EPA has offered no justification for why it must act on New Jersey's September 17, 2010 petition while simultaneously ignoring New Jersey's first petition.

Response:
Whether or not EPA has taken action on other, unrelated section 126 petitions is not relevant to the agency's interpretation of the statutory language in section 126 or its obligation under the statute to address NJDEP's section 126 petition in this case.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
2. <u>Pennsylvania's implementation of the new 1-hour SO2 NAAQS and EPA's response to New Jersey's first Section 126 petition may impose additional requirements on Portland.</u>

Pennsylvania must submit a SIP revision addressing the new 1-hour SO2 NAAQS by June 2013. See supra Section III.A. Because the 1-hour standard represents a more stringent revision to prior SO2 emissions standards, Pennsylvania's SIP revision will impose more stringent SO2emissions limits on sources in Pennsylvania. As mandated by the CAA, that SIP revision also must contain provisions addressing interstate transport requirements, according to the orderly implementation process prescribed by Congress. Id. But because SIP revisions are not due until June 2013, sources in Pennsylvania will not be able to evaluate their obligations under Pennsylvania's new SIP for at least another two years. Even if Portland acts to comply with the emissions limits and

compliance schedule contained in the Proposal, Pennsylvania's implementation of the 1-hour SO2 NAAQS may impose different requirements during the Proposal's three-year compliance schedule.

In addition to requirements imposed by the new 1-hour SO2 standard, Portland may face other obligations resulting from EPA's response to the May 13, 2010 Section 126 petition submitted by New Jersey, which asked EPA to find that emissions from Portland were causing exceedances of or interfering with the maintenance of the 2006 24-hour PM2.5 NAAQS and the 1971 3-hour and 24-hour SO2 NAAQS in various areas in New Jersey. 76 Fed. Reg. 19665. While the Proposal does not address this first New Jersey petition, EPA stated that it plans to respond to the May 13 petition concurrently with its response to the Petition, "or as soon as possible thereafter." Letter from EPA to New Jersey (Nov. 10, 2010), Docket No. EPA-HQ-OAR-2011-0081-0015. The first New Jersey petition also addresses SO2 emissions, along with particulate matter emissions (of which SO2 is a precursor), and response by EPA in a subsequent rulemaking may seek to impose additional emissions limits or other obligations on Portland. Not only do such obligations have the potential to conflict with those in the Proposal, they may impact GenOn's analysis and planning with respect to the Proposal's emissions limits, compliance schedule, and other requirements.
In short, the final requirements imposed by multiple pending regulations and requirements will make it impossible to make a rational investment decision regarding Portland while so many issues are in flux. Because these multiple requirements must be considered in concert to make such determinations, EPA's Proposal is premature and should be linked with other pending rules to allow for proper, reasoned decision-making as to Portland's ongoing and future operations.

Response:
Section 110(a)(2)(D)(ii) of the Act requires Pennsylvania to ensure compliance with the requirements of section 126, including the requirements imposed on Portland by this final rule, in its section 110(a)(2)(D) SIP. It is within Pennsylvania's discretion to determine the means of compliance with the requirements section 110(a)(2)(D) in its SIP. If Pennsylvania, knowing Portland's obligations pursuant to this section 126 finding, determines that it is necessary to impose additional requirements on Portland in order to satisfy its section 110(a)(2)(D) obligations, that is within Pennsylvania's discretion. However, the fact that Pennsylvania may impose additional requirements on Portland in its SIP development does not permit or require the EPA to defer consideration of NJDEP's section 126 petition.

Moreover, the EPA is not addressing the May 13, 2010 petition filed by NJDEP in this action. However, to the extent reductions in SO_2 may address any concerns raised by NJDEP in the May 13, 2010 petition, we note that Portland is already required to make an 81 percent reduction in allowable SO_2 emissions in order to meet its obligations under this rule. It is probable that such a reduction would also significantly decrease Portland's alleged contribution to downwind nonattainment problems with respect to the 2006 24-hour $PM_{2.5}$ NAAQS and the 1971 3-hour and 24-hour SO_2 NAAQS.

The EPA cannot refuse to act on a section 126 petition merely because we may not know all of the future obligations to which a source may subject. The statute provides a short timeframe

within which to act on a section 126 petition, and the EPA must make a rational decision based on the available information within the confines of the statute.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
I. The Proposal's Request for Comments on the Definition of "Expeditiously as Practical" Is Inappropriate

EPA's request for comments on whether the definition of "expeditiously as practical" in the case of planned shutdown is inappropriate in this case. The 1-hour SO2 NAAQS and the CAA identify a clear timeline for implementing the 1-hour SO2 NAAQS and provide a five-year timeline for bringing any identified "nonattainment" areas into compliance after a SIP is established. Indeed, the legality of this standard is being challenged in the D.C. Circuit and a decision as drastic as the shutdown of an electric generating plant with several hundred related jobs at stake should not be made until the NAAQS challenge is fully resolved. *See supra* Section IV.A. Moreover, the continued operation provisions of Section 126 are expressly linked to the requirements of Section 110(a)(2)(D). As EPA has recognized in similar situations:

> *Moreover, there does appear to be tension between section 110(a)(2)(D), which does not establish the timing as to when the SIP prohibition needs to be effective against sources (i.e., when sources need to implement controls to reduce emissions) and the timing in section 126, which requires implementation no later than 3 years following a section 126(b) determination. The EPA does not believe that Congress intended section 126 to be used to shorten timeframes for action that EPA has previously determined are approvable for purposes of eliminating significant contribution to nonattainment areas in other States."*

64 Fed. Reg. 28256, n. 1 (emphasis added). Because Section 126 is not intended to "shorten timeframes for action" with respect to the 1-hour SO2 NAAQS - for which EPA has already determined a clear implementation timeline, see supra Section III.A - and because no attainment designations or SIPs have been submitted for the 1-hour SO2 NAAQS under Section 110, any interpretation of "expeditiously as practicable" under Section 126 is inappropriate in this case, inconsistent with the structure of the CAA, and in conflict with EPA's own implementation timeline for the 1-hour SO2 NAAQS.

Response:
Although the commenter is ostensibly concerned with the definition of "expeditiously as practicable," the commenter's argument really addresses the EPA's legal authority to grant NJDEP's section1 26 petition before the deadline for the states to submit their section 110(a)(2)(D) SIPs with respect to the 1-hour SO_2 NAAQS.

The ongoing legal challenges to the 1-hour SO_2 NAAQS are not a basis for the EPA to defer consideration of NJDEP's section 126 petition. In an order issued April 7, 2011, the U.S. Court of Appeals for the D.C. Circuit denied the petitioners' motion to stay the effectiveness and implementation of the revised primary SO_2 NAAQS, having determined that the motion failed to

satisfy the stringent standards for a stay pending court review. Therefore, the Court clearly expects that the EPA and states will proceed to implement the now-effective revised NAAQS, unless and until the Court in the future directs otherwise. If the EPA were to adopt the commenters' reasoning, it would defy the result of the Court's April 7, 2011, order denying the motion for stay. Nothing in section 126 or elsewhere in the statute gives EPA the authority to defer action on a statutory duty whenever there is litigation over a NAAQS.

Moreover, the quote that the commenter relies upon from the May 1999 rulemaking does not contradict EPA's interpretation of section 126. In that rulemaking, the EPA determined that the actions taken by the upwind states pursuant to the pending SIP call would be sufficient to eliminate each state's significant contribution to nonattainment in the downwind states as expeditiously as possible. Thus, in the May 1999 rulemaking, the EPA had already determined in a prior rulemaking that the SIP call would eliminate the upwind states' significant contribution to downwind nonattainment. The EPA was not evaluating the situation here where no imminent action from the upwind state could be relied upon to address the interstate transport problem at issue. Here, the EPA has made no previous finding that any particular action by Pennsylvania will eliminate its significant contribution to nonattainment in New Jersey.

Moreover, when the SIP call at issue in the May 1999 rulemaking was judicially stayed, the EPA moved forward in a January 2000 rulemaking to grant several of the pending section 126 petitions because there was no longer any assurance that the SIP call would achieve the necessary reductions as expeditiously as practicable. Therefore, the EPA's action on the present section 126 petition is consistent with the actions that the EPA took in the prior petitions. Nonetheless, the EPA retains the right, where reasonable, to alter its interpretation of statutory provisions through notice and comment rulemaking.

Finally, as described in more detail in the preamble, Pennsylvania retains the discretion and obligation to develop a SIP and implement the NAAQS throughout the state. *See* preamble section III for further discussion.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
EPA also should defer action on the Petition until regulated entities and states have more certainty regarding the level of the SO2 NAAQS. The 1-hour SO2 NAAQS is the subject of several lawsuits, which have been consolidated in National Environmental Development Association's Clean Air Project v. EPA, No. 10-1252 (D.C. Cir.). Until this litigation is complete, and the D.C. Circuit has issued a decision on whether the new 1-hour SO2 standard is appropriate, it is premature to require sources to undertake SO2 reductions linked to the new 1-hour SO2 NAAQS. For the same reason, any response to a Section 126 petition based on the new 1-hour SO2 standard is premature. Any final rule promulgated in response to the Petition would necessarily fail if the D.C. Circuit were to invalidate the 1-hour SO2 standard. Accordingly, EPA should defer a final finding in response to the Petition until the D.C. Circuit has acted and either affirmed the validity of the new 1-hour SO2 NAAQS or invalidated it and obviated the need for EPA to act on the petition.

Response:

The ongoing legal challenges to the 1-hour SO_2 NAAQS are not a basis for the EPA to defer consideration of NJDEP's section 126 petition. In an order issued April 7, 2011, the U.S. Court of Appeals for the D.C. Circuit denied the petitioners' motion to stay the effectiveness and implementation of the revised primary SO_2 NAAQS, having determined that the motion failed to satisfy the stringent standards for a stay pending court review. Therefore, the Court clearly expects that the EPA and states will proceed to implement the now-effective revised NAAQS, unless and until the Court in the future directs otherwise. If the EPA were to adopt the commenters' reasoning, it would defy the result of the Court's April 7, 2011, order denying the motion for stay. Nothing in section 126 or elsewhere in the statute gives the EPA the authority to defer action on a statutory duty whenever there is litigation over a NAAQS.

Commenter: Scott J. Nally, Director, Ohio EPA
Comment:
Ohio EPA has serious concerns regarding the implications of this proposed action. Clearly the intent of Section 126 of the CAA was to provide an intervening mechanism for a State affected by emissions from another State that has not met its obligation under Section 110 of the CAA (specifically Section 110(a)(2)(D)) regarding the development and submittal of a State Implementation Plan (SIP) with adequate provisions to prevent emissions that significantly contribute to nonattainment and interfere with maintenance of the NAAQS in another State. Section 126 of the CAA should not be construed as a preemptive measure that entirely circumvents the CAA process for the achievement and maintenance of the NAAQS, including a States' obligation, and right, to develop SIPs.

Section 126(b) of the CAA provides a mechanism for a State to petition U.S. EPA when a source emits or would emit a pollutant in violation of the prohibition of Section 110(a)(2)(D)(ii) of the CAA. Section 110(a)(1) of the CAA requires each State to prepare a plan providing for "implementation, maintenance, and enforcement" of a newly established/revised NAAQS within three years after promulgation. Under Section 110(a)(2) of the CAA, this plan must include a myriad of requirements such as emission limitations and control measures, monitoring, programs for enforcement of those emission limitations and control measures, permitting and adequate provisions to prevent emissions that significantly contribute to nonattainment and interfere with maintenance of the NAAQS in another State. The purpose of a SIP is to ensure timely attainment and maintenance of the NAAQS within the state and to ensure that its sources do not interfere with downwind attainment in another state. If a State fails to adopt and implement an approved SIP by the time periods provided in the CAA, U.S. EPA has the responsibility under the CAA to adopt a Federal Implementation Plan (FIP) to ensure that all the CAA requirements are met.

However, this proposed action circumvents this entire process. The 2010 1-hour SO2 NAAQS was promulgated on June 3, 2010. Three months later New Jersey submits its petition and U.S. EPA is proposing to establish emission limitations and controls measures more than two years before Pennsylvania is afforded the opportunity, as required, to submit its SIP which is required to include such provisions.

Ohio EPA does not agree with U.S. EPA's analysis regarding the plain language of Section 126 of the CAA (76 FR 19665) confirming that Section 126 remedies can, and in some cases must, be promulgated prior to the due date for a State's SIP. Section 126(b) of the CAA clearly states a

petition is appropriate when a source "emits or would emit any air pollutant in violation of the prohibition of Section 110(a)(2)(D)(ii)" of the CAA. Section 110 of the CAA is a section of requirements for inclusion in a SIP. Section 110(a)(2)(D)(ii) of the CAA is one such provision to be included in a SIP, specifically a provision in the SIP to prohibit such emissions. There can be no violation under Section 126(b) of the CAA until such time as the provision is included and the SIP is submitted and approved or a State fails to submit such a SIP. While U.S. EPA asserts that Congress did not intend to limit U.S. EPA's authority to act on a Section 126 petition prior to the SIP submission deadline because the CAA did not specifically state as such, Ohio EPA asserts that it is more plausible that Congress obviously did not intend for U.S. EPA to be able to circumvent the entire SIP process because the CAA did not specifically state a Section 126 petition can be acted upon prior to the very prohibition existing in the SIP. In fact, there is no other way to read Sections 110(a)(2)(D)(ii) and 126(b) together than to uphold the integrity of the SIP development process and allow a State to take the first shot at constraining its own sources from interfering with downwind attainment in the context of an comprehensive SIP before allowing those sources to be potentially shut down by the Administrator under Section 126(c), a rather draconian prospect.

Clearly this is not the intent of the CAA. Ohio EPA urges you to not establish such precedence and to deny this petition. Pennsylvania should have the first opportunity to correct any potential violations of the ambient air quality standards, if the State fails to act, then the Section 126 petition process is appropriate.

Response:
In the preamble, the EPA has extensively addressed the commenter's argument that the EPA's decision to grant NJDEP's section 126 petition circumvents the section SIP process of section 110. The EPA has also addressed the commenter's contention that the "prohibition" only exists to the extent is has been included in an approved SIP or to the extent that a state has failed to submit such a SIP by the statutory deadline. Finally, the EPA addressed the commenter's concern with respect to the state's discretion to develop SIPS and implement new or revised NAAQS in the context of section 126. *See* preamble section III for further discussion of these topics.

Moreover, to the extent the commenter contends that a 126 petition may be filed either when a source violates a prohibition contained in a SIP or when a State fails to submit a section 110(a)(2)(D) SIP by the statutory deadline, the commenter's argument is internally inconsistent. First, the commenter has failed to identify any statutory language restricting a state's right to file a section 126 petition until after a SIP submission. Second, the commenter asserts that the "prohibition" on interstate transport referred to in section 126 does not exist independent of an approved SIP. However, if no SIP has been submitted, under the commenters' interpretation of section 126, there would be no prohibition which a source could violate once the deadline for SIP submission has passed, and thus no basis for the filing of a section 126 petition. Thus, the commenter cannot claim both that the "prohibition" only exists under state regulation, and argue that the EPA has authority to find a violation of such a prohibition where a state has failed to regulate interstate transport pursuant to section 110(a)(2)(D).

The commenter also points out that if a state fails to submit a SIP with the time periods provided by the CAA, the EPA has an obligation to adopt a FIP. This argument, however, demonstrates the reasonableness of EPA's interpretation of section 126. Since separate statutory provisions require EPA to promulgate FIPs when it finds states have failed to submit required SIPs, the commenter's suggested interpretation would, in essence, read section 126 out of the statute. If EPA were to lack authority to respond to a section 126 petition until it also had an obligation to adopt a FIP, any relief provided by the section 126 petition process under such circumstances would be duplicative and unnecessary.

Accordingly, the commenter's interpretation of the statutory text as restricting the right of a state to file a section 126 petition until after a section 110(a)(2)(D) SIP deadline has passed is unreasonable.

Commenter: Stephanie Clarke
Comment:
One question I have is if other power plants in Pennsylvania, as well as New Jersey, are additionally contributing to the air quality in New Jersey. I am not sure if research has occurred yet concerning this question, but I believe that it is important to not only target the Portland Plant. It might be found that it is the largest contributor, but that should not mean that it should be the only plant that has to reduce their emissions.

Response:
Section 126 permits a state or political subdivision to petition the Administrator for a finding that any major source or group of stationary sources significantly contributes to nonattainment or interferes with maintenance of any NAAQS. In this case, NJDEP filed a petition for a finding that Portland significantly contributes to nonattainment in New Jersey. The EPA has determined that the petition is justified with respect to Portland and has implemented a remedy designed to eliminate Portland's significant contribution to nonattainment in New Jersey. As the petition focuses exclusively on the Portland Plant, EPA's response does also.

Moreover, the modeling conducted by NJDEP and the EPA demonstrates that once Portland's significant contribution is eliminated, the affected areas in New Jersey will no longer show exceedances of the NAAQS. *See* preamble section V for further discussion.

Commenter: UARG
Comment:
As described in greater detail below, UARG believes that, contrary to EPA's reading of the CAA, no legal basis exists to grant New Jersey's 126 petition**.**

Response:
See preamble section III for a thorough discussion of the EPA's legal basis for granting NJDEP's section 126 petition.

Commenter: UARG
Comment:

In particular, UARG's comments respond to EPA's suggestions (in the April 7, 2011 notice) that CAA section 126 requires the Agency to grant the NJDEP section 126 petition. In fact, EPA has discretion to take a broad range of actions in response to the NJDEP petition.[FN14] 76 Fed. Reg. 19665/1. And under the circumstances at issue in this case, EPA should exercise that discretion by denying the NJDEP petition.

[FN14] That EPA believes it has discretion not to act precipitously on a pending section 126 petition is demonstrated by the fact that EPA continues not to act on the section 126 petition that New Jersey filed in May 2010.

Response:
The EPA's discretion with respect to NJDEP's section 126 petition is constrained by the terms of the statutory language which instruct the Administrator to grant or deny a section 126 petition within 60 days. Section 307(d) permits up to a 6 month extension of this deadline, but there are no other extensions provided by the Act. Whether or not the EPA has taken action on other section 126 petitions is not relevant to the agency's interpretation of the statutory language in section 126 or its obligation under the statute to address NJDEP's section 126 petition in this case.

Commenter: UARG
Comment:
I. CONTRARY TO THE CAA, EPA'S PROPOSED ACTION WOULD UNDERMINE PENNSYLVANIA'S ABILITY TO PLAY A MEANINGFUL ROLE IN IMPLEMENTATION OF THE 1-HOUR SO2 AMBIENT STANDARD.

Under the terms of the 1970 Act, the 1977 CAA Amendments, and the 1990 Amendments, states are to play the primary role in implementing NAAQS and addressing interstate pollution. Contrary to Congress's intent in enacting the CAA, EPA's proposed action in this case would undermine Pennsylvania's role in implementing the 1-hour SO2 NAAQS.

A. Congress Intended the States to Have the Primary Role in Implementation of NAAQS. [*See additional text in docket at* EPA-HQ-OAR-2011-0081-0094]

B. EPA's Approval of New Jersey's Section 126 Petition Would Prevent Pennsylvania from Playing a Meaningful Role in Implementation of the 1- Hour SO2 NAAQS.
It is plain from the language of the CAA, from EPA's own regulations, and from the legislative history of key CAA provisions (as summarized above) that states are to play the primary role in implementation of NAAQS. EPA's failure to allow states to play that role will limit the range of options that can be considered for improving air quality and put unreasonable burdens on affected sources.

In particular, the CAA and EPA's rules for implementing the 1-hour SO2 NAAQS expressly give Pennsylvania until at least June 2013 to develop a state plan for implementing and achieving compliance with the new NAAQS,[FN32] and they allow Pennsylvania to give affected source owners additional time (until August 2017) in which to design, apply for and obtain permits for, and install the control technologies required to achieve any emission reductions mandated under the revised Pennsylvania SIP. If Pennsylvania has available to it the

time provided under the CAA and implementing rules, then Pennsylvania would (and should) be able to consider – and source owners would (and should) be able to implement – a wide range of options for improving air quality in in-state areas that are not attaining the new standard and for reducing emissions from sources that are significantly contributing to in-state or to out-of-state nonattainment with the new standard. EPA acknowledges that the Agency could not undertake such an analysis in this case: "There are many different combinations of emissions limits for units 1 and 2 that would eliminate violations of the SO2 NAAQS in New Jersey, but we are not able to examine an unlimited number of combinations." 76 Fed. Reg.19676/1. In short, if EPA approves New Jersey's September 2010 section 126 petition, then that action would undermine Pennsylvania's statutory right to develop its own program for addressing interstate pollution.

[FN32] As noted above, in implementing the 1-hour SO2 NAAQS promulgated in June 2010, each state – including Pennsylvania – has until at least June 2013 (and perhaps until February 2014) to develop and submit to EPA a SIP that provides for attainment of the new NAAQS within the state and that satisfies the requirements of section 110(a)(2)(D). See 75 Fed. Reg.35553.

Response:
The EPA disagrees with the commenter's assertion that granting this section 126 petition undermines the state's right to implement the NAAQS and develop its own SIP. Congress intended the section 110 SIP procedure and the section 126 petition process to be two independent and alternate means of addressing interstate pollution problems; the former depends on state regulation and the latter depends on federal regulation. Congress expressed no preference for one means of addressing the problem over the other. Even though section 126 permits the EPA to impose emission limits on particular sources or groups of sources, states retain the discretion and obligation to design a SIP and implement the NAAQS throughout the state. *See* preamble section III for further discussion.

The EPA's interpretation of section 126 is consistent with the structure of Title I of the CAA. Under the system of cooperative federalism in Title I, States are primarily responsible for determining the mix of control measures necessary to achieve the NAAQS, while the federal government sets the uniform national goals and ensures that States act to meet them. Train v. NRDC, 421 U.S. 60, 78-79 (1975). However, Congress directed the EPA to regulate sources directly under several provisions of Title I. In particular, Congress mandated Federal action under sections 110(c) (FIP provisions), 126, and 183 (Federal ozone measures). Where a SIP is adequate but a source is violating its provisions, it would be counter to the cooperative federalism structure of the Act and would serve no purpose to essentially replace those adequate SIP limits with redundant direct federal controls on a source. In contrast, where a state is not yet regulating an interstate pollution problem, it makes sense to provide an alternative mechanism to directly achieve the necessary emissions reductions from the sources. A state would always be free to regulate the sources itself in that instance by revising its SIP to include the necessary emission limits (and indeed, section 110(a)(2)(D)(ii) requires the state to ensure compliance with such measures in its SIP). The EPA believes that this understanding of Congress's overall design for air pollution control supports the EPA's interpretation that the tools in section 126 may be used whenever sources in one state are emitting impermissible amounts of transported air pollutants.

Commenter: UARG
Comment:
Finally, it is worth noting that this is not the first time EPA has tried to limit the role of states in the NAAQS implementation process. Indeed, this is only the most recent in a series of EPA actions to reduce – or eliminate – the role that states are to play in that process. For example, when it promulgated the final 1-hour SO2 NAAQS in June 2010, EPA purported to remove most of the states' discretion to determine what approaches to use in determining whether areas within their jurisdiction are attaining or not attaining that NAAQS. [FN35] Also, within the past year, EPA proposed a Transport Rule, which is designed to help implement the current ozone and fine particulate matter NAAQS but which contains a schedule that would make it nearly impossible for states to develop, submit, and receive EPA approval of SIPs in time to use them for implementation of the first phase of the program. [FN36] In its proposed Transport Rule, EPA noted that it is reconsidering the current ozone NAAQS [FN37] and is simultaneously developing another proposed transport rule under which EPA – rather than the states – would take the lead in determining what emission reductions are needed to address interstate contributions to nonattainment with whatever new ozone NAAQS emerges from EPA's reconsideration proceeding. [FN38]

In summary, EPA's proposal to grant New Jersey's section 126 petition is a continuation of the Agency's efforts to limit the role of states in the NAAQS implementation process. Such an approach, however, is contrary to Congress's intent in enacting the CAA and should not be followed here. EPA should – indeed, it must – deny New Jersey's petition and allow Pennsylvania to meet its CAA obligation to eliminate within-Pennsylvania SO2 emissions that contribute significantly to nonattainment of the 1-hour SO2 NAAQS in New Jersey.

[FN35] See, e.g., 75 Fed. Reg. 35520, 35570 (where EPA describes its decision not to adopt the more flexible implementation approach it had "originally proposed" and instead to require states to use a "hybrid analytic approach for assessing compliance with the new 1-hour SO2 NAAQS for initial designations . . . .").

[FN36] See 75 Fed. Reg. 45210 (Aug. 2, 2010). The Transport Rule schedule described by EPA contemplates promulgation of a final rule by the end of June 2011 and imposition of a January 1, 2012 compliance date for an initial set of emission reductions.

[FN37] The decision to reconsider the current ozone NAAQS was EPA's alone; it was not undertaken in response to a request from stakeholders or the public.

[FN38] See, e.g. 75 Fed. Reg. 45301/3 ("EPA has already begun the technical background work necessary to allow it to move quickly, once the revised ozone standards are promulgated, with a proposal to address upwind emissions that significantly contribute to nonattainment of or interfere with maintenance of those standards.").

Response:

This action addresses the section 126 petition submitted by NJDEP in September 2010. To the extent the comment addresses other regulatory actions pursued by the agency, it is beyond the scope of this rulemaking.

Moreover, the EPA disagrees with the commenter's assertion that granting this section 126 petition undermines the state's right to implement the NAAQS and develop its own SIP. Congress intended the section 110 SIP procedure and the section 126 petition process to be two independent and alternate means of addressing interstate pollution problems; the former depends on state regulation and the latter depends on federal regulation. Congress expressed no preference for one means of addressing the problem over the other. Even though section 126 permits the EPA to impose emission limits on particular sources or groups of sources, states retain the discretion and obligation to design a SIP and implement the NAAQS throughout the state. See Preamble Section III for further discussion.

Commenter: UARG
Comment:
C. EPA's Interpretation of the CAA as Requiring It To Grant New Jersey's Section 126 Petition in These Circumstances Is Unfounded and Contrary to Congressional Intent.

EPA's proposed decision to approve New Jersey's section 126 petition is apparently premised on EPA's reading of the language of section 110(a)(2)(D)(ii), which, as noted above, requires each state to submit a SIP that contains "adequate provisions . . . insuring compliance with the applicable requirements of . . . [CAA section 126]." EPA says this means that in developing SIPs to implement new NAAQS, states must "include any emission limits promulgated by EPA pursuant to section 126," which – in turn – means that Congress did not intend to "limit EPA's authority to act on section 126 petitions until after the deadline for States to submit 110(a)(2)(D)(i) SIPs." 76 Fed. Reg. 19665/1. Rather, says EPA, section 110(a)(2)(D)(ii) provides "a mechanism for section 126 remedies promulgated prior to the SIP submission deadline to be incorporated into the State SIPs." Id. In other words, EPA suggests that the Act may – and that perhaps the Act must – be read as cutting short Pennsylvania's three-to four-year window for addressing interstate pollution and as requiring EPA to step in now to impose its own program for addressing the alleged impact of SO2 emissions from Pennsylvania sources on air quality in New Jersey. See id.

EPA's interpretation of these provisions is incorrect. On its face, all section 110(a)(2)(D)(ii) says is that each state's implementation plan must contain adequate provisions to ensure compliance with "the requirements of [section 126]." Recall, though, what section 126 provides:

> • Section 126(a) requires each state to include in its SIP a provision under which the state must notify other states of the possible construction of new or modified sources that might significantly affect air quality in those other states. [FN39]
>
> • Section 126(b) directs EPA to respond to section 126 petitions.

• And section 126(c) says that if EPA makes a section 126(b) finding, then affected existing sources must promptly cease operations or operate only in compliance with emissions limitations and compliance schedules set by the Administrator.

Thus, the only directive in section 126 concerning what SIPs must contain appears in section 126(a), which provides that each SIP must contain certain notice provisions. There is nothing further that section 126 "require[s]" Pennsylvania to have in its implementation plan. In short, EPA is not "bound by the language of the CAA" (76 Fed. Reg. 19665/1) to impose emission limit on SO2 emissions from the Portland Plant before Pennsylvania has had a reasonable period of time in which to develop its own SO2 emission limits on sources in Pennsylvania, including – if appropriate – the Portland Plant.

Moreover, by reading the statute as EPA proposes, EPA essentially deprives Pennsylvania (and other similarly situated states) from playing their statutorily assigned role in the implementation of new NAAQS. This contradicts Congress's clear intention that states be active partners in the implementation of the CAA with respect to sources within their borders, and that they have the principal role in the NAAQS implementation process in particular. [FN40]

In summary, contrary to EPA's statements in its proposed rule, EPA is not required by section 110(a)(2)(D)(ii) or any other provision of the CAA to approve New Jersey's section 126 petition.

[FN39] See CAA section 126(a)(1). In addition, section 126(a)(2) provides that by November 1977, each state was supposed to have ensured that its SIP would identify existing sources significantly contributing to air pollutant concentrations in excess of the NAAQS in other states and provide notice of such sources to the other states.

[FN40] As noted in n.15, supra, and the accompanying test, section 107(a) of the Act specifically provides that "[e]ach State shall have the primary responsibility for assuring air quality within the entire geographic area comprising such State by submitting an implementation plan for such State which will specify the manner in which national primary and secondary ambient air quality standards will be achieved and maintained with each air quality control region in such State."

Response:
The EPA does not agree with the commenter's interpretation of section 110(a)(2)(D)(ii). Section 110(a)(2)(D)(ii) requires states to include in their SIPs provisions necessary to ensure compliance with the "requirements" of sections 126 and 115 of the CAA. If Congress intended a state's SIP to only include the specific requirements of section 126(a), it could have specified such in the text of section 110(a)(2)(D)(ii). Moreover, emissions limitations and compliance schedules are to be imposed pursuant to section 126(c) after a finding of a violation pursuant to section 126(b). These emissions limitations and compliance schedules are clearly "requirements" imposed upon the source or sources pursuant to section 126 and thus it is reasonable to interpret the language of 110(a)(2)(D)(ii) as requiring these provisions to be incorporated into the SIPs for the states in which the affected sources are located. Since Congress did not limit the language of section 110(a)(2)(D)(ii) only to the requirements contained in section 126(a), it is logical to conclude that Congress intended that a state's SIP should also include any requirements imposed pursuant to section 126(c). Accordingly, the statute anticipates that the Administrator may

address a section 126 petition prior to the deadline for the initial submission of a section 110(a)(2)(D) SIP.

If the EPA adopted the commenter's interpretation of section 110(a)(2)(D)(ii) as only referring to the explicit directives regarding what a SIP must contain outlined in section 126(a), the reference to section 115 would be rendered meaningless. Under section 115, the Administrator may issue a SIP call to a state, at the request of an international agency or the Secretary of State, based upon a finding that an air pollutant or pollutants emitted in the United States "cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare in a foreign country." Thus, like the section 126 petition process, any "requirements" under section 115 only arise upon a finding issued by the Administrator after a review process that is initiated at the request of a third party. There are no independent requirements contained in section 115 absent such a finding. If section 110(a)(2)(D)(ii) were interpreted consistent with the commenter's explanation – such that obligations imposed by the Administrator after a finding of a violation are not "requirements" – then the obligation to insure compliance with section 115 would be rendered meaningless.

Furthermore, the EPA disagrees with the commenter's assertion that granting this section 126 petition deprives the state of its role in implementing the NAAQS and developing its own SIP. Rather, as described in more detail in the preamble, Pennsylvania retains the discretion and obligation to develop a SIP and implement the NAAQS throughout the state. Congress intended the section 110 SIP procedure and the section 126 petition process to be two independent and alternate means of addressing interstate pollution problems, the former depends on state regulation and the latter depends on federal regulation. Congress expressed no preference for one means of addressing the problem over the other. See Preamble Section III for further discussion.

Commenter: UARG
Comment:
II. EPA SHOULD DENY NEW JERSEY'S PETITION BECAUse THE LEGAL AND FACTUAL FOUNDATIONS FOR THAT PETITION DO NOT EXIST

EPA should deny New Jersey's section 126 petition because section 126 is properly interpreted as providing a mechanism for enforcement only of already-promulgated SIP provisions that address the interstate transport prohibition of section 110(a)(2)(D)(i) of the Act. As discussed below, section 126 should not be construed as providing "downwind" states an independent mechanism to implement the "functional prohibition" of section 110(a)(2)(D)(i) apart from existing implementation plan provisions.

Response:
The EPA disagrees with the commenter's interpretation of section 126 as applying only to violations of existing SIP provisions. *See* preamble section III for further discussion.

Commenter: UARG
Comment:

A. The Act Does Not Refer to Section 110(a)(2)(D); Rather, It Refers to a Subsection of Section 110(a)(2)(D).

Section 126(b) authorizes petitions only for a finding that any major source or group of stationary sources emits or would emit any air pollutant "in violation of the prohibition" of section 110(a)(2)(D)(i).[FN41] Section 110(a)(2)(D)(i) in turn provides that a state's implementation plan must "contain adequate provisions . . . prohibiting, consistent with the provisions of this title [CAA Title I]," sources from emitting any air pollutant in amounts that will contribute significantly to nonattainment in another state. Accordingly, the "prohibition" to which section 126(b) refers exists only to the extent an implementation plan contains "provisions" within the meaning of section 110(a)(2)(D)(i). A source or group of sources therefore cannot be in "violation" of the section 110(a)(2)(D)(i) "prohibition" within the meaning of section 126(b) until: (1) that section 110(a)(2)(D)(i) prohibition has come into existence through promulgation and approval of implementation plan "provisions," in the form of emission limits to which those sources are subject; and (2) those sources have violated those implementation plan provisions. Thus, section 126(b) can be used only to seek EPA action to remedy a violation of any existing implementation plan provisions that address "significantly contributing" emissions. [FN42]

As examination of the statutory text demonstrates, the language of section 110(a)(2) does not establish a free-standing prohibition on emissions independent from the provisions of the implementation plan. The implementation plan "provisions prohibiting" sources from emitting significantly contributing emissions by definition do not exist unless they are contained in an "implementation plan" for a state. CAA § 110(a)(2) (first sentence). Consequently, section 110(a)(2)(D)(i) is not a "functional prohibition" on emissions that exists independently of the "provisions," CAA § 110(a)(2)(D) (introductory clause), that are "contain[ed]," id., in an "implementation plan," CAA § 110(a)(2) (first sentence).

[FN41] As noted above, although section 126 on its face refers to section 110(a)(2)(D)(ii) rather than to section 110(a)(2)(D)(i), the D.C. Circuit accepted EPA's argument that those references should be read as references to section 110(a)(2)(D)(i). Appalachian Power Co. v. EPA, 249 F.3d 1032, 1040-44 (D.C. Cir. 2001).

[FN42] Although EPA took the opposite view on this issue in a section 126 rulemaking action in 1999, the issue has not been resolved by the courts. In its 2001 decision addressing that 1999 rulemaking and construing section 126, the D.C. Circuit explicitly did not decide this question of statutory interpretation. To the contrary, because the court concluded that the parties challenging EPA's section 126 action before the court had not addressed this question in their opening briefs, the court said that it "need not decide it." Appalachian Power, 249 F.3d at 1045 n.4.

Response:
The EPA disagrees with the commenter's assertion that the "prohibition" referred to in section 126 only arises to the extent it is contained in a state's SIP regulations. The EPA contends that the statutory language, the structure of the CAA, and the Act's legislative history support the EPA's conclusion that the "prohibition" on impermissible interstate transport exists irrespective of the content of a state's SIP. *See* preamble section III for further discussion.

Moreover, the EPA disagrees with the commenter's interpretation of Appalachian Power v. EPA, 249 F.3d 1032 (D.C. Cir. 2001). The court did not speak to whether the EPA's interpretation of the "prohibition" in section 110 was reasonable since the petitioners did not raise the issue in court, but the court acknowledged ambiguity in the statutory language. Id. at 1045 n.4. The EPA maintains that the statute is unambiguous in that nothing in the statutory language links the section 126 petition process to the section 110 SIP procedure. However, to the extent a court were to find the language ambiguous, for the reasons stated above and consistent with its past precedent in addressing section 126 petitions, the EPA maintains that the better interpretation is that the "prohibition" in section 110 exists independent of its implementation through an approved SIP. The EPA is therefore entitled to deference under step two of Chevron. *See* preamble section III for further discussion.

Commenter: UARG
Comment:
II.B There Is No Basis for EPA To Claim the Statute Is Ambiguous On This Point.

In addressing earlier section 126 petitions in 1999, EPA concluded – incorrectly, in UARG's view – that the statute's relevant text is "ambiguous" in this regard. 64 Fed. Reg. 28272/1 (May 25, 1999). To the contrary, the relevant statutory language is clear: section 126(b) must be read as referring narrowly to the section 110(a)(2)(D)(i) "prohibiti[ons]" – i.e., specific emission limits, contained in the implementation plan, prohibiting "significantly contributing" emissions as described in section 110(a)(2)(D)(i) – not to the section 110(a)(2)(D) requirement that implementation plans "contain adequate provisions" prohibiting significantly contributing emissions. EPA nonetheless effectively construed section 126(b) as referring to that section 110(a)(2)(D) requirement rather than to implementation plans' provisions described in section 110(a)(2)(D)(i).

Response:
The EPA disagrees with the commenter's assertion that the "prohibition" referred to in section 126 only arises to the extent it is contained in a state's SIP regulations. The EPA contends that the statutory language, the structure of the CAA, and the Act's legislative history support the EPA's conclusion that the "prohibition" on impermissible interstate transport exists irrespective of the content of a state's SIP. *See* preamble section III for further discussion.

Commenter: UARG
Comment:
C. When Congress Wanted to Refer to the Requirement of Section 110(a)(2)(D) –Rather Than to Implementation Plans' Provisions Described in Section 110(a)(2)(D)(i) – It Knew How To Do So.

In contrast, CAA interstate transport provisions other than section 126 do refer to the requirement of section 110(a)(2)(D) – rather than section 110(a)(2)(D)(i) – that SIPs "contain adequate provisions." Specifically, sections 176A and 184 of the CAA refer to section 110(a)(2)(D)'s requirements for the implementation plans themselves – separate and apart from "prohibitions" on sources' emissions that are to be included in implementation plans'

"provisions." Section 176A directs interstate transport commissions to recommend to EPA "such measures as the Commission determines to be necessary to ensure that the plans for the relevant States meet the requirements of section 110(a)(2)(D)." CAA § 176A(b)(2) (emphasis added). That section also authorizes an interstate transport commission to request EPA "to issue a finding under section 110(k)(5) of this Act that the implementation plan for
one or more of the States in the transport region is substantially inadequate to meet the requirements of section 110(a)(2)(D . . . .." CAA § 176A(c) (emphasis added). Using almost identical language, section 184 authorizes EPA to issue "a finding under section 110(k)(5) of this Act that the implementation plan for [a] State is inadequate to meet the requirements of section 110(a)(2)(D)." CAA § 184(c)(5) (emphasis added).

Accordingly, Congress knew well how to use language to refer to the requirement of section 110(a)(2)(D) that an implementation plan contain adequate provisions prohibiting "significantly contributing" emissions. Congress used no such language in section 126(b). Rather, Congress in section 126(b) referred to the "prohibition" of "significantly contributing" emissions that is to be included as emission limitation provisions within implementation plans, and Congress authorized affirmative EPA action under section 126(b) only if that "prohibition" – i.e., an emission limitation contained in a SIP – was being "violat[ed]." CAA § 126(b).

Indeed, in light of the Act's provisions, it would be highly anomalous to construe section 126(b) to force federal imposition of what amounts to SIP revisions to impose emission limitations within 60 days (extendible by up to six months under CAA section 307(d)(10)) after EPA receives a section 126 petition. As EPA acknowledged in promulgating the 1-hour SO2 NAAQS, states have until at least June 2013 to develop and submit SIP provisions to implement, maintain, and enforce the NAAQS within the state, and they have until August 2017 to show they have achieved attainment and maintenance of the 1-hour SO2 NAAQS. See 75 Fed. Reg. 35553. In light of these statutory deadlines, it is implausible to conclude that section 126(b) authorizes a state, merely by filing a petition, to force a wholesale rewriting of another state's emission control plan within a few months – and with no input by the state whose sources are being controlled.

In sum, in light of the statutory text, EPA may make section 126 findings and grant a section 126 petition only where a stationary source or group of stationary sources is in violation of a prohibition of "significantly contributing" emissions that is contained in an implementation plan. The power plant units targeted by New Jersey's September 2010 section 126 petition are not – and are not alleged to be – in violation of any existing section 110(a)(2)(D)(i) interstate transport provisions contained in an implementation plan. Those sources, therefore, are not in violation of any prohibition to which sections 126 and 110(a)(2)(D)(i) refer. As a result, no legal basis exists to grant the September 2010 petition.

Response:
The commenter's argument is not supported by the statutory language. Both sections 176A and 184 authorize a commission established under the Act to issue a finding that a SIP is deficient under 110(k)(5) because it fails to include the requirements of section 110(a)(2)(D) in either an interstate transport region or an ozone transport region, respectively. Thus, it is logical that these sections would address whether the section 110 requirements have been addressed in the SIPs

themselves. It is also logical that the sections would refer to section 110(a)(2)(D) rather than section 110(a)(2)(D)(i) because both subsections (i) and (ii) include "requirements" that must be included in the states' SIPs. Thus, the fact that sections 176A and 184 do not solely refer to subsection (i) is an indication of nothing more than the fact that these commissions can also make a section 110(k)(5) finding where the requirements of subsection (ii) have not been properly included in the states' plans. On the other hand, section 126 refers explicitly to the violation of the prohibition contained in section 110(a)(2)(D)(i), rather than the violation of a SIP provision that addresses the requirements of section 110(a)(2)(D)(i). As evidenced by sections 176A and 184, Congress clearly knew how to specify when it wished to refer to the requirements of section 110 as they are contained in a state's SIP. Accordingly, the EPA disagrees with the commenter's assertion that the "prohibition" referred to in section 126 only arises to the extent it is contained in a state's SIP regulations.

The EPA further disagrees with the commenter's assertion that granting this section 126 petition undermines the state's right to implement the NAAQS and develop its own SIP. Rather, as described in more detail in the preamble, Pennsylvania retains the discretion and obligation to design a SIP and implement the NAAQS throughout the state, and Pennsylvania had an opportunity to comment in this rulemaking. Moreover, Congress intended the section 110 SIP procedure and the section 126 petition process to be two independent and alternate means of addressing interstate pollution problems; the former depends on state regulation and the latter depends on federal regulation. Congress expressed no preference for one means of address the problem over the other. *See* preamble section III for further discussion.

Finally, despite the commenter's claim that the state had "no input," Pennsylvania was invited to provide comment both on the EPA's proposal to grant the section 126 petition and on the proposed emissions limits that are being finalized in this rule.

Commenter: Hunton & Williams LLP
Comment:
Whether EPA has discretion to delay action on a section 126 petition "just because the State SIP submission deadline has not yet passed" (id. at 19665/1): For the reasons set out above, EPA does not now have discretion to grant New Jersey's section 126 petition. Rather, EPA must deny the petition at this time. If New Jersey were to re-file its petition at a later date, after Pennsylvania has had the time allowed by the Act to address any nonattainment problems that its sources may be causing, EPA could revisit the question of the approvability of New Jersey's request at that time.

Response:
The EPA disagrees with the with the commenter's assertion that a state's right to file a section 126 petition is tied to an upwind's states' action on its section 110(a)(2)(D) SIP obligations. There is nothing in the statutory language which restricts the timing of a state's right to file such a petition. *See* preamble section III for further discussion.

V. Air Quality Modeling

1. General Comments

Commenter: Commissioner Bob Martin, NJDEP
Comment:
New Jersey strongly supports EPA's proposal to grant New Jersey's petition. The emission limits that EPA proposes to require, however, are not consistent with the results of NJDEP's modeling, are inadequate to reach and maintain attainment of the 1-hour SO2 standard, and therefore are inadequate to fully protect the public health in New Jersey and Pennsylvania. New Jersey's modeling demonstrates that between 89% (based on AERMOD predictions) and 95% (based on CALPUFF predictions) emissions reductions from allowable emissions are needed to reduce air quality concentrations to barely attain the air quality standard. The EPA should therefore ensure emissions reductions at Portland by at least 95% in order to provide certainty that public health will be protected. Application of New Jersey's adopted sulfur dioxide emission limit of 0.150 pounds per million BTU would result in a 95% reduction of sulfur dioxide at Portland. Based on New Jersey's analysis, at least a 95% reduction is also required to maintain the NAAQS.

New Jersey is also providing comments on the independent modeling study performed by the USEPA. New Jersey's modeling correctly demonstrates that a reduction of 95% or better is needed to ensure our public's health is protected and to achieve and maintain attainment with the I-hour SO2 NAAQS.

New Jersey insists that EPA ensure that the sulfur dioxide emission limit it sets for this coal-fired power plant is fully protective of public health. The technical evaluations done by New Jersey (with two models) and by EPA (with one model) indicate that emission reductions between 81 and 95 percent are required to ensure the health standard is not exceeded.

[See detailed comment document attached to available in the docket at EPA-HQ-OAR-0081-0126]

EPA found that "due to the magnitude of the modeled violations in the NJDEP AERMOD modeling, the NJDEP modeling was sufficient to make a finding that the Portland Plant significantly contributes to nonattainment and interferes with maintenance in New Jersey." 76 Fed. Reg. 19,673. The results from New Jersey's modeling analyses using both CALPUFF and AERMOD and the results from EPA's modeling analysis all show violations of the 1-hour SO2 standard in New Jersey and Pennsylvania due to Portland's emissions. AERMOD confirms the findings of CALPUFF and similarly shows NAAQS violations, and the monitoring results corroborate the modeling analyses. EPA should accordingly issue a final rule granting NJDEP's petition. But the level of emission reductions should be based on NJDEP's CALPUFF analysis to ensure maintenance of the NAAQS and certainty of public health protection.

Response:
The EPA continues to agree that both the NJDEP and EPA modeling support a finding that SO_2 emissions from Portland significantly contribute to nonattainment and interfere with maintenance in New Jersey. Based on a careful analysis of the numerous NJDEP modeling related comments,

the EPA does not agree that an emissions reduction of "95% or better" from allowable emissions is needed to eliminate the significant contribution to nonattainment and interference with maintenance from Portland to New Jersey. In the final rule analysis, the EPA has determined that a reduction of 81 percent from allowable emissions levels is needed. Appropriate emissions limits for Portland units 1 and 2 have been set in the final rule.

The EPA has provided detailed responses to the NJDEP AERMOD and CALPUFF modeling analyses and comments in both the final rule preamble and later in this document. See preamble sections IV and V for more information on the modeling analysis and setting of the emissions limits. *See* preamble section IV.B.1. and appendix A of the final rule Modeling TSD for a more detailed discussion on the NJDEP CALPUFF model evaluation.

Commenter: D.M. Lohman
Comment:
In addition I have a comment about the stack parameters of temperature and exit velocity as they relate to the modeling to confirm the adequacy of the new emission limits to protect the standard. Although the stack parameters in reality do vary it is usually necessary for the purpose of modeling future conditions to specify some representative values. It should be recognized that some methods of complying with the required emissions reductions will result in substantially different, meaning lower, temperatures of the stack exhaust. This will reduce the plume rise and result in estimated concentration patterns which differ from simple emissions rollback calculations. In accordance with my understanding that the EPA does not want to specify a particular control strategy I suggest that the directive for a modeling protocol to be developed by the owner and operator of the Portland Plant specify analyses of the anticipated stack parameters.

Response:
As discussed in section V.C. of the preamble, the EPA agrees that changes in stack parameters may occur due to compliance with the emissions limits and these changes may result in reduced plume rise and affect downwind concentrations. Therefore, along with compliance with emissions limits, the EPA is requiring as part of the rule for GenOn to submit a modeling protocol within 6 months of the final rule and a final modeling report within 1 year of the final rule. The modeling report must include dispersion modeling that shows compliance with the SO_2 NAAQS using the final compliance strategy selected by GenOn, including revised stack parameters, as appropriate.

Reduced plume rise also occurs when the Portland boilers are operating at less than full operating load. To address this, the final rule also includes a lbs/mmBtu emissions rate limit which will ensure that emissions (in lbs/hr) are reduced at lower operating loads. This will help ensure that the NAAQS are protected at reduced operating loads, regardless of the control device or compliance option chosen by GenOn.

Commenter: D.M. Lohman
Comment:
Finally I have a comment on the Validation of CALPUFF submitted by the New Jersey DEP which purports to demonstrate that CALPUFF is a better performing model than AERMOD and is therefore more appropriate to use to establish emission limits for the Portland Plant. The EPA has prudently rejected the analysis by New Jersey and reaffirmed the applicability of AERMOD.

EPA does seem to have overlooked a key criterion of Appendix W for selecting an alternative model. None of the validation monitoring cited by New Jersey is anywhere near the area of maximum concentrations due to the Portland Plant predicted by either CALPUFF or AERMOD. (With the exception of the background site, AMS08, the cited monitoring took place at areas of maximum concentration from the Martins Creek power plant as predicted by the MPTER model. The fact that MPTER is genetically closer to CALPUFF than to AERMOD might introduce a slight bias towards CALPUFF.) If the performance of CALPUFF relative to AERMOD for Martins Creek were to be considered as a reasonable demonstration of the applicability of CALPUFF anywhere else (such as the Portland Plant) it would by extension be a reasonable demonstration everywhere else. As EPA has declared the AERMOD model has been extensively tested and found to be appropriate for a wide variety of applications and it should not casually be discarded.

Response:
The EPA's final position regarding the inadequacy of the NJDEP CALPUFF validation study to support the use of CALPUFF for this application has not changed. As part of our responses to NJDEP's comments regarding the EPA assessment of their validation study, additional concerns have emerged that have strengthened the technical basis for that position, as described in more detail in our responses to NJDEP's comments and in Appendix A of the final rule Modeling TSD.

The commenter appears to suggest that a model performance evaluation used in support of an alternative model demonstration under condition (2) of Section 3.2.2 of Appendix W must include ambient monitoring data focused on evaluating impacts from the facility for which the alternative model is being proposed. While we concur that alternative model performance evaluations conducted based on the facility for which the model is proposed would be more relevant and carry greater weight in judging the adequacy and appropriateness of the performance evaluation to support the use of the alternative model for that application, we do not agree that the language in Appendix W implies that to be a requirement. We note that such a narrow interpretation would effectively preclude the use of an alternative model for any application involving a new facility. As explained in more detail in our response to NJDEP comment #3.b, our assessment of NJDEP's validation study acknowledges that the proximity of the Martin's Creek field study to Portland and the fact that Portland was included as one of the sources impacting the ambient monitors sited on Scotts Mountain southeast of Martin's Creek may add to the relevance of the study for this case. However, we also note that the main focus of the study, as reflected in where ambient monitors were located and meteorological data were collected, was clearly on the complex terrain impacts in the vicinity of Martin's Creek emission units rather than Portland. A more detailed discussion of the issue is provided in our response to NJDEP comment #3.b.

The fact that the siting of the complex terrain ambient monitors included in the Martin's Creek field study may have introduced a slight bias towards CALPUFF due to the similarities in the MPTER model used to identify areas of expected maximum concentrations is an interesting point that serves to further highlight the technical challenges associated with the design, implementation and analysis of field studies conducted for the purpose of evaluating model performance. However, we would not expect this potential issue to alter our conclusions in

relation to this validation study, and it would be difficult to demonstrate and quantify the existence of such a bias a posteriori. We also note that several AERMOD-like model options were used in the application of CALPUFF in NJDEP's validation study, which could tend to undo any bias associated with monitor placement that might contribute to model performance statistics.

Commenter: D.M. Lohman
Comment:
The proposed new emission limits for the Portland Plant units 1 and 2 are based upon what is essentially a rollback from the maximum fourth highest 1-hour average concentration calculated from the single year of meteorological data available. Since the 1-hour standard is expressed as the 99th percentile averaged over three years the calculated emission limit is based upon the assumption that the fourth highest concentration in one particular year is not greater than the average fourth highest concentration for any three consecutive years in the future lifetime of the universe. While this may be true, it is equivalent to ensuring the protection and maintenance of the standard on the basis of a coin flip. It is true that the proposed emission limits will result in not exceeding the standard for the great majority of the time. Considering the uncertain nature of the protection of the 1-hour standard I suggest that, in an instance such as this, when there is only one year of meteorological data to model the source(s) in question that a more conservative estimate of the design concentration be used. It would be quite easy and reasonable to use the prosaic high-second-high concentration to establish the design concentration for the Portland Plant.

Response:
The final emissions limits must ensure that Portland's significant contribution to nonattainment and interference with maintenance are eliminated. The EPA has determined that significant contribution to nonattainment and interference with maintenance will be eliminated if all 1-hour SO_2 NAAQS violations in New Jersey (caused by Portland) are eliminated. To determine if modeled violations of the NAAQs exist and will be eliminated, modeling with one year of site-specific data fulfills the requirements of Appendix W related to modeling demonstrations for compliance with the NAAQS. Therefore, the final rule AERMOD modeling was completed with one year of site-specific meteorology.

Another related issue is how variability in meteorology can be used to evaluate interference with maintenance. Modeling with additional years of meteorology could be evaluated to determine if higher concentrations could occur due to alternative meteorological conditions. However, in this case there is only a single year of site-specific meteorological data available. Therefore, the EPA evaluated the issue of meteorological variability by modeling five years of Allentown National Weather Service data. The EPA found the variability associated with the highest 3 year average period (from the 5 years) compared to the lowest one year period to be approximately 6 percent. When put into the emissions limit calculation, the 6 percent concentration variability translates into an additional approximate 1 percent emissions reduction (e.g., an 81 percent reduction in allowable emissions instead of an 80 percent reduction). However, the EPA is also using a relatively conservative estimate for background concentrations (which is also part of emissions limit calculation). In the final rule AERMOD modeling, the design value receptor had a modeled concentration from Portland units 1 and 2 of 855.4 ug/m^3 with a background concentration of

39.3 ug/m^3. Reducing the background concentration to approximately 30 ug/m^3 (which is still high compared to typical background concentrations measured at the nearby Columbia monitor in New Jersey) would have the effect of lowering the emissions control requirement by approximately 1 percent. Therefore, the EPA has concluded that use of a relatively conservative background concentrations is an appropriate way to account for variability in modeled concentrations that would otherwise be present of multiple years of meteorological data were available. *See* preamble sections IV.A.2, IV.B.2, and IV.C for further discussion on interference with maintenance. See the final rule Modeling TSD, Appendix C for more details on the meteorological variability analysis.

Commenter: UARG
Comment:
Limits on EPA's authority to "develop a reasonable methodology for determining whether a section 126 finding should be made" (id. at 19666-19667): In those circumstances where EPA has the authority to entertain a section 126 petition (which it does not here), EPA should evaluate any data presented by the petitioner in support of its request for an EPA order. In considering any such data presented by the petitioner, EPA must seek input not only from the petitioning state, but also from other stakeholders, including the owners of targeted sources and the state(s) in which such sources are located.

Response:
The EPA evaluated the data presented by NJDEP and input from others, including the owner of the source and the state which was consider in draft the final rule.

Commenter: E. Wade
Comment:
EPA's model was more encompassing than NJDEP's version. They used a fine receptor grid of 100 m squares as well, showing concentrations of 811.8 ug/m3 that were directly attributable to the Portland Plant and slightly higher than that of the coarse grid. They also accounted for σw, which is standard deviation of vertical velocity fluctuation from actual weather data instead of AERMOD standard values. However, their data is older; if the actual σw is large, the plume could reach the ground earlier, creating higher concentrations close to the source and less overall dispersion. EPA could have improved their model by providing a range of concentrations based upon different conditions and their probable occurrence, such as wind speed, temperature, emissions that day, or atmospheric stability. In lieu of accounting for their more deterministic rather than probabilistic model, they could have made it more apparent that the singular measure used was the highest possible concentration and was chosen to be most conservative.

Response:
The EPA AERMOD modeling was very similar to the NJDEP AERMOD analysis, except for several adjustments to the meteorological data (including the use of SODAR sigma-w data). EPA used the same initial modeling domain with coarsely-spaced receptors as NJDEP to identify the potential areas of maximum modeled impacts. Due to differences in the spatial pattern of modeled impacts attributable to the EPA adjustments to the Portland meteorological data, there were some differences between the EPA and NJDEP finely-spaced (100 meter) receptor grids. The NJDEP 100 meter fine grid was limited to a 1 km by 1 km domain focused on the Delaware

Water Gap area where the peak impacts from the initial coarse grid were located. The EPA 100 meter fine grid included two separate grids focused on the areas where peak impacts from the initial coarse grid were located, including a 1.5km by 1.5km grid focused on the Delaware Water Gap area and a 6k by 6km grid focused on the other area of peak impacts located northeast of Portland, with the Columbia monitor located near the center of the grid, Both the EPA and NJDEP AERMOD modeling used a single year of site-specific meteorology from the July 1993-June 1994 time frame (which is the only available site-specific data).

Both EPA and NJDEP ran AERMOD for a full year for each hour of the year with allowable emissions from Portland. This simulates the maximum impact from Portland emissions under all meteorological conditions that occurred during that particular year (which we assume is representative of other years). This accounts for thousands of different combinations of temperatures, wind speeds, wind directions, and atmospheric stability. In the modeling analysis, there is no variation in emissions because we ran the AERMOD with worst case emissions (allowable emissions) for every hour of the year. See the final rule Modeling TSD for more details on the EPA AERMOD modeling setup and results.

Commenter: E. Wade
Comment:
In proposing emission limits, they could have presented the requirements for each unit as a sliding scale, where emissions in Unit 1 are dependent on levels in Unit 2. This makes compliance easier for the plant. The EPA also failed to answer how additional uncertainty was accounted for. How do the SO2 concentrations relate to the PM2.5 concerns? Would changing the emission system at the Portland Plant create other problems for the nearby New Jersey community? What about specific pollution events that could increase concentrations downwind, such as the formation of an inversion layer?

Response:
See preamble section V.C for a discussion on combined emissions limits for units 1 and 2. This final rule only addresses NJDEP's 126 petition for the 1-hour SO_2 NAAQS and does not make any findings regarding the $PM_{2.5}$ NAAQS. GenOn will be required to model the final 126 compliance strategy to demonstrate that, after application of that compliance strategy, emissions from Portland will not significantly contribute to nonattainment or interfere with maintenance of the 1-hour SO_2 NAAQS in New Jersey. Installation of control devices or modifications to the plant could cause an increase in other pollutants such as $PM_{2.5}$ or NO_X. If that occurred, GenOn would be required to address the other pollutants as part of a Prevention of Significant Deterioration (PSD) or New Source Review (NSR) requirement.

A full year of meteorology was modeled with allowable SO_2 emissions for each hour. This accounts for all different combinations of meteorological conditions that may occur during the year, including inversions and other potentially worst case conditions. Also see Preamble section IV.A.2 for a discussion of how additional uncertainty related to meteorological variability was addressed in order to assess Portland's potential interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey.

Commenter: E. Wade

Comment:
More than one year's meteorological data should have been used to form the basis for their modeling. More recent data would also have been more representative, and may also allow for the EPA to account for year-to-year variability. Their model could also have been calibrated to existing air monitoring data, or at least compared to measured levels to ensure their assumptions were relatively on track. In the same vein, the Columbia background monitor could have been used when not affected by Portland Plant emissions, as it is much closer to the area of concern and could give a better idea of true background levels of SO2. Other emission sources nearby could also have been explicitly modeled to better examine their contributions to the nonattainment of the NAAQS in New Jersey, as well as their input to background levels. Potentially, "what if" scenarios could have been run with the model, producing the worst case scenario should all sources of SO2 in the vicinity be exacerbated by certain weather conditions. The resulting information could be used to make more informed regulatory decisions. Finally, it is ambiguous why the EPA included Unit 5, a turbine at the Portland Plant, in their analysis. This unit contributes a fraction of a percent towards total emissions, and its effect on downwind concentrations of contaminants is almost negligible. Leaving out this portion of the analysis in the proposed rule would prevent the core issue of Units 1 and 2 from being clouded.

Response:
There are several comments to address:

1) One year of site-specific meteorological data was used in the EPA and NJDEP AERMOD analyses because there is only one year of data available. Use of one year of site-specific data meets the requirements for modeling analyses in Appendix W, and Appendix W also expresses a clear preference for the use of site-specific meteorological data, when available, instead of National Weather Service (NWS) or other airport data. Therefore, the use of five years of more recent NWS data would not be considered as being more representative for this application than the one year of site-specific data for Portland.
2) The EPA used the recent measured ambient data at the Columbia monitoring station in New Jersey to compare against AERMOD modeled data. *See* preamble section IV.B.5 and Appendix B of the final rule Modeling TSD for more details on the Columbia data and analysis.
3) In the final rule AERMOD modeling analysis, the EPA accounted for SO_2 contributions from other sources by using a relatively conservative background concentration (derived from measured data at the Chester site in New Jersey). The Columbia monitoring site was not used in the development of background concentrations due to its short data record (less than one year).
4) The EPA modeled a full year of meteorology with allowable emissions and conservative background concentrations. We believe these conditions to represent worst case concentrations that may occur in any year.
5) For completeness, the EPA included Portland unit 5 in the final analysis even though it does not impact the final remedy. The EPA did not include the smaller units 3 and 4 due to a lack of emissions data.

Commenter: E. Wade
Comment:

Another element that was lacking from the proposed rule was an explanation of why models were used to make remedial decisions instead of taking actual measurements of SO2 concentrations. There was enough time between the petition submission by NJDEP and the proposed rule submission by the EPA to conduct actual measurements in the town in question. It was also ambiguous as to why NJDEP did not cite the measurements that put them in unattainment [sic]. However, in general the EPA's modeling was done in a competent manner.

Response:
In the final rule, EPA does cite the recent SO_2 measurements at the Columbia monitor in New Jersey. In its first year of operation there were 30 exceedances of the 1-hour SO_2 NAAQS at the monitor located approximately 2 km from the Portland plant. NJDEP submitted a trajectory analysis which provides evidence that many of the exceedance days were caused primarily by emissions from Portland. The EPA also completed an analysis which compared AERMOD and CALPUFF modeling results to the measured data at the Columbia monitor. However, no amount of ambient data from a single monitor would be adequate to fully assess Portland's significant contributions to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey due to the significant spatial gradients of concentrations associated with impacts from the Portland emission units. Dispersion modeling is therefore the most appropriate approach for assessing ambient SO_2 impacts from Portland emissions for this purpose. We also note that area designations have not been promulgated yet for the 1-hour SO_2 NAAQS; therefore the areas in New Jersey being impacted by Portland SO_2 emissions have not yet been designated as nonattainment. *See* preamble section IV.B.5 and Appendix B of the final rule Modeling TSD for more details on the Columbia data and modeling analysis.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
Ambient impacts are the product of source emissions and dispersion resulting from plume characteristics and meteorological conditions. Units 1 and 2 are not identical but exhibit relatively similar plume characteristics with their emissions released in proximity at nearly the same elevation. For example, GenOn could elect to operate only one of the two units (Unit 1 or Unit 2) during portions of this interim period to achieve progress toward compliance, while not exceeding the current emission limit for either unit (or the combined unit emission rate established, whichever is lower). To verify that this example results in approximately the same or a lower modeled design concentration (highest 99th percentile peak daily 1-hour maximum over all model receptors) than EPA's proposed interim remedy, GenOn provides a modeling demonstration. See Appendix C. The results of the modeling prove the equivalency of full-load two unit and single unit operations at the proposed interim reduction or existing permit limits, as applicable.

Response:
The EPA reviewed the GenOn modeling analysis and also completed a similar analysis. The GenOn analysis showed that unit 1 operating at its current allowable limit would lead to similar or better air quality than the proposed interim limit (which would have been imposed individual limits on both units 1 and 2). The analysis also showed that unit 2 operating at the combined limit would also lead to similar or better air quality in New Jersey. The EPA does not dispute the results of the GenOn analysis. However, the analysis is not relevant to the emissions limits set in

the final rule. The final rule interim limits are not based on specific improvements in air quality. They are based on emissions reductions that are equivalent to burning widely available Central Appalachian coal, which will drive progress toward the final remedy. But since the interim limits are not based on specific air quality improvements, we agree that the interim limit can be in the form of a combined limit for units 1 and 2. See preamble sections VI.A.2 and VI.A.3. for more detailed discussion on availability of low sulfur coal and interim limits.

The EPA conducted an additional analysis to examine a combined limit for the final emissions limits. Using the EPA final rule AERMOD setup, the EPA modeled the combined final rule emissions limit of 2,796 lbs/hr (1,105 lbs/hr for unit 1 plus 1,691 lbs/hr for unit 2) and found that the combined emissions emitted through unit 2 would not violate the NAAQS. But the same emissions emitted through unit 1 would violate the NAAQS. Therefore, the final emissions limit cannot be a combined limit because it would not be protective of the 1-hour SO2 NAAQS if all of the emissions were emitted through unit 1. See preamble section V.C. for a more detailed response and see the final rule Modeling TSD for more information on the EPA modeling analysis.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
GenOn supports the use of AERMOD over CALPUFF to model the impact of Portland's SO2 emissions on New Jersey if the use of a dispersion modeling approach is ultimately selected. AERMOD is protective of air quality and more accurately identifies the projected impacts of Portland than CALPUFF, although AERMOD also overestimates actual concentrations. GenOn generally supports the modeling that EPA did in support of the Proposal but has some suggested revisions to the modeling procedures to more accurately evaluate Portland's emissions impacts. On behalf of GenOn, AECOM reviewed both EPA's and New Jersey's modeling and has provided specific comments on the modeling, which are attached as Appendix D.

Response:
The EPA agrees that AERMOD is the appropriate model to use to set the emissions limits for the Portland plant in order to eliminate significant contribution to nonattainment and interference with maintenance in New Jersey. The EPA's analyses indicate that AERMOD more accurately identifies projected impacts from Portland than CALPUFF. However, we do not agree that AERMOD overestimates actual concentrations. In order to identify modeled violations of the 1-hr SO_2 NAAQS and the requisite remedy, AERMOD was run with allowable emissions from Portland. It was necessary to run AERMOD with allowable emissions in order to calculate an enforceable emissions limit. Since Portland most often emits SO_2 at rates well below allowable emissions, we would not expect the AERMOD results with allowable emissions to closely match observed concentrations at ambient monitors.

The EPA performed an analysis to specifically compare AERMOD results to recent SO_2 measurements at the Columbia monitor in New Jersey and AERMOD performed quite well. *See* preamble section IV.B.5. and Appendix B of the final rule modeling TSD for more details on the EPA Columbia monitor analysis. Additional responses to the comments in GenOn Appendix D are addressed below.

Commenter: Michael L. Krancer, Secretary, PADEP
Comment:
The NJDEP submitted two different modeling analyses of the SO2 impacts from the Portland Plant on downwind areas in New Jersey. The first analysis used the AERMOD dispersion model and the second analysis used the CALPUFF dispersion model. EPA has determined that the AERMOD modeling analysis provides a more appropriate technical basis for the Section 126 finding. 76 FR 19670. The DEP supports this conclusion and believes that AERMOD should be used for the modeling analysis. Additionally, CALPUFF is not the EPA-preferred model for near-field applications and NJDEP's petition fails to demonstrate that CALPUFF is the more appropriate model in this case. As a result, EPA's final Section 126 finding must be based on AERMOD, which is the superior application model.

Response:
The EPA agrees that AERMOD is the most appropriate model to be used for the technical basis for the section 126 finding. We also agree that NJDEP has failed to demonstrate that CALPUFF is the more appropriate model in this case. *See* preamble section IV.B.1. and Appendix A of the final rule Modeling TSD for more information on EPA's evaluation of the use of AERMOD and CALPUFF for the section 126 petition.

Commenter: UARG
Comment:
Modeling done in support of New Jersey's section 126 petition (id. at 19669-19672): The air quality models currently available for the assessment of compliance with the 1-hour SO2 NAAQS – and the way in which EPA directs users to run those air quality models – can lead to predictions of air quality concentrations many times higher than those actually being measured in the ambient air. It is essential that EPA take steps to improve the models now recommended for use in assessing short-term SO2 concentrations and the inputs into those models.

Response:
The EPA is committed to continuing its efforts to improve the air quality dispersions models that are used to support assessment with compliance with the 1-hour SO2 and other NAAQS, and we regard the promulgation of the AERMOD in 2005 as a preferred model for near-field applications under Appendix W as a major accomplishment in the effort, significantly reducing the potential bias toward overestimating impacts in complex terrain settings as compared to previous models. The performance of the AERMOD model has been extensively validated, including a total of 17 field study datasets and has demonstrated very good agreement with observed concentrations of importance to compliance demonstrations across a wide range of terrain settings and source characteristics. As described in more detail in Appendix B of the EPA final rule Modeling TSD, we also have evidence directly supporting the ability of AERMOD to predict 1-hour SO_2 impacts in New Jersey associated with emission from Portland.

We do acknowledge the fact that some aspects of the manner in which dispersion models are applied in support of NAAQS compliance demonstrations can lead to model predictions of ambient concentrations that may be much higher than measured concentrations at a specific monitoring location and at specific times. In many such cases, the differences between modeled and observed concentrations can be directly attributable to the standard practice based on

guidance in Appendix W regarding the use of maximum allowable emissions in the modeling analysis, whereas the monitored concentrations will only reflect impacts associated with actual emissions. However, it is also important to recognize that other factors can affect the comparison of a modeled concentration with a monitored concentration, including the representativeness of the meteorological data input to the model. Another key factor that affects comparisons of modeled vs. monitored concentrations, paired in time and space, is the potential error or uncertainty in the wind direction input to the model for that specific hour since the wind direction will determine the transport direction of the plume. Slight errors in the transport wind direction may account for significant differences in modeled vs. monitored concentrations for a specific hour, especially for elevated plumes under stable atmospheric conditions where the lateral spread of the plume can be very limited for relatively long transport distances, and errors of a few degrees in wind direction can make the difference between the plume directly impacting the monitor for a particular hour or missing the monitor completely.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
EPA defines "significant contribution" in its proposal "as those emissions that must be eliminated to bring the downwind receptors in New Jersey affected by the Portland Plant into modeled attainment in the analysis year." 76 Fed. Reg. 19,667. EPA also specifically seeks comment on its methodology with respect to the "interference with maintenance" prong of Section 126. Id. at 19,668. EPA is required to ensure sufficient emission reductions to ensure maintenance of NAAQS. See North Carolina v. EPA, per curiam, 531 F.3d 896, 910 (D.C. Cir. 2008)("[a]n outcome that fails to give independent effect to the 'interfere with maintenance' prong violates the plain language of section 110(a)(2)(D)(i)(I)"). EPA has an affirmative duty5 to regulate sources that contribute significantly to NAAQS exceedances in a nonattainment area *or* interfere with maintenance of NAAQS in an attainment area. See id. At 908.

Response:
The final emissions limit was determined to be the emissions reduction needed to eliminate both significant contribution to nonattainment and interference with maintenance. In this case, EPA determined that a more stringent emissions limit was not needed to eliminate interference with maintenance due to the use of allowable emissions and relatively conservative background concentrations in the remedy modeling. *See* preamble sections IV.A.2, IV.B.2, and IV.B.4. for more detailed discussion on the elimination of interference with maintenance.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
New Jersey agrees with EPA's proposal that the emissions limit has to be assigned to each individual unit and cannot be a combined limit, see 76 Fed. Reg. 19,676, because NJDEP's modeling predicted NAAQS violations from emissions at each coal unit. For the same reason, the emissions limit cannot be met by over controlling one unit, or by shutting down just one unit. Both units need to shut down or to operate with modern control measures that achieve at least 95% control efficiency. However, shutting down one unit could be utilized as an interim measure.

Response:

The EPA agrees that final emissions limit cannot be a combined limit because it may not be protective of the NAAQS. EPA conducted an analysis to examine a combined limit for the final emissions limits. Using the EPA final rule AERMOD setup, the EPA modeled the combined final rule emissions limit of 2,796 lbs/hr (1,105 lbs/hr for unit 1 plus 1,691 lbs/hr for unit 2) and found that the combined emissions emitted through unit 2 would not violate the NAAQS. But the same emissions emitted through unit 1 would violate the NAAQS. Therefore, the final emissions limit cannot be a combined limit because it would not be protective of the 1-hour SO_2 NAAQS if all of the emissions were emitted through unit 1. *See* preamble section V.C. for a more detailed response and see the final rule Modeling TSD for more information on the EPA modeling analysis.

As explained in other responses and in the preamble, the EPA does not agree that Portland needs to achieve a 95 percent reduction in allowable emissions. In the final rule, the EPA is setting the emissions limit to require an 81 percent reduction in allowable emissions.

The EPA agrees that the interim emissions limit can be a combined limit between units 1 and 2. The interim limit is not based on specific air quality reductions and can therefore be achieved by reducing emissions from one or both units. In the final rule we have set an interim SO_2 limit of 6,253 lbs/hr that is based on the combined emissions between units 1 and 2.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
The modeling results are corroborated by recent monitoring. A SO2 air quality monitor located 1.2 miles northeast of the coal-fired Portland Power Plant in Knowlton Township, Warren County, New Jersey at the Columbia Lake Wildlife Management Area began operation in September 2010. Between September 23, 2010 and June 6, 2011, the monitor measured 1-hour SO2 concentrations that exceeded the 1-hour SO2 NAAQS threshold on 18 days. These monitoring results are also consistent with the results of NJDEP's and EPA's modeling analyses, showing a good correlation between the modeling analyses and the monitoring data.

Response:
The EPA agrees that the Columbia monitoring data corroborates the NJDEP and EPA's AERMOD modeling for the section 126 rule. The EPA conducted an analysis which compared AERMOD and CALPUFF modeling results to the measured data at the Columbia monitor. The AERMOD modeling compared favorably to the Columbia measured data. However, the CALPUFF model results significantly over-predict the measured concentrations. *See* preamble section IV.B.5 and Appendix B of the final rule Modeling TSD for more details on the Columbia data and modeling analysis.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
NJDEP also performed a trajectory analysis to evaluate the cause of the high monitored concentrations that exceeded the 1-hour SO2 NAAQS during four episodes when concurrent hourly emissions data was available. See Analysis of the Sulfur Dioxide Measurements from the Columbia Lake NJ Monitor, March 4, 2011, Bureau of Technical Services, Division of Air Quality, NJDEP. The analysis found that Portland Power Plant Units 1 and 2 were the cause of

each high SO2 episode at the monitor. NJDEP submitted the results of the monitor and its trajectory analysis to EPA.

Response:
The EPA agrees that the trajectory analysis supports the conclusion that SO_2 emissions from Portland contribute to violations of the 1-hour SO_2 NAAQS in New Jersey. *See* preamble section IV.B.5 and Appendix B of the final rule Modeling TSD for more details on the EPA's analysis of Columbia data and modeling.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
NJDEP's AERMOD modeling utilized a meteorological dataset that has been historically used in regulatory applications to model emission sources at Portland. However, EPA made several modifications to this meteorological data when it modeled Portland's emissions. Some of EPA's modifications are unsupported and may result in the impacts of emissions from the Portland plant being under-predicted.

Response:
We believe that the adjustments made to the Portland site-specific meteorological data are technically justified and consistent with current EPA guidance regarding site-specific meteorological monitoring. We also believe that additional analyses conducted by the EPA based on compared AERMOD modeled concentrations with ambient concentrations from the Columbia monitor tend to corroborate those adjustments. *See* preamble section IV.B.2 and Appendix B of the final rule Modeling TSD for more details on comments related to EPA's meteorological data adjustments.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
There is a natural variation in the meteorological conditions at a site from year to year. The predicted AERMOD concentrations used for the proposed remedy were based on meteorological conditions that occurred during one year (July 1, 1993 to June 30, 1994). However, there is a very high likelihood that use of another year's meteorological conditions in the modeling would produce higher predicted SO2 concentrations. Given the uncertainty and the range of meteorological conditions from year to year, it is recommended that a margin be added to any remedy based on AERMOD to ensure maintenance of the NAAQS. Requiring 95% reduction provides such a margin to ensure protection of health. Without an adequate safety margin built into the required reduced emission rates, NAAQS violations could continue depending upon the meteorological conditions of different year(s).

Response:
Modeling with additional years of meteorology could be evaluated to determine if higher concentrations could occur due to alternative meteorological conditions. However, in this case there is only a single year of site-specific meteorological data available. Therefore, the EPA evaluated the issue of meteorological variability by modeling five years of Allentown National Weather Service data. The EPA found the variability between the individual year with the lowest modeled design value and the 5-year average modeled design value was about 6 percent.

When put into the emissions limit calculation, the 6 percent concentration variability translates into an additional approximate 1 percent emissions reduction (e.g. an 82 percent reduction in allowable emissions instead of an 81 percent reduction). However, the EPA is also using a relatively conservative estimate for background concentrations (which is also part of the emissions limit calculation). In the final rule AERMOD modeling, the design value receptor had a modeled concentration from Portland units 1 and 2 of 855.4 ug/m^3, including a monitored background concentration of 39.3 ug/m^3. Reducing the background concentration to approximately 30 ug/m^3 (which is still high compared to typical background concentrations measured at the nearby Columbia monitor in New Jersey) would have the effect of lowering the emissions control requirement by approximately 1 percent, essentially cancelling out the effect of increased modeled contributions due to meteorological variability. Therefore, the EPA has concluded that use of relatively conservative background concentrations is an appropriate way to account for variability in modeled concentrations that would otherwise be present if multiple years of meteorological data were available. *See* preamble sections IV.A.2, IV.B.2, and IV.C for further discussion on interference with maintenance. *See* the final rule Modeling TSD, Appendix C for more details on the meteorological variability analysis.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
GenOn supports the use of AERMOD over CALPUFF to model the impact of Portland's SO2 emissions on New Jersey if the use of a dispersion modeling approach is ultimately selected. AERMOD is protective of air quality and more accurately identifies the projected impacts of Portland than CALPUFF, although AERMOD also overestimates actual concentrations. GenOn generally supports the modeling that EPA did in support of the Proposal but has some suggested revisions to the modeling procedures to more accurately evaluate Portland's emissions impacts. On behalf of GenOn, AECOM reviewed both EPA's and New Jersey's modeling and has provided specific comments on the modeling, which are attached as Appendix D.

Response:
The individual comments included in Attachment D of GenOn's comments are addressed later.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
For data taken through mid-May 2011, at the Columbia, NJ monitor, over 75% of the monitored values are reported as exactly zero (or below the minimum detection limit of the monitor), with the next highest values at 3 ppb. Given the lack of values between the zero and 3 ppm range, it would be reasonable to interpret the reported zero values as actually being at a value somewhere between 0 and 3 ppb. A south-southwest wind transports the plumes from Portland directly to the Columbia, NJ monitor, as shown in Figure 1. Wind roses of site-specific sodar data presented by New Jersey indicate that winds from Portland (within a 90-degree sector) blow toward the monitor nearly 30% of the time. Therefore, non-zero monitored values due to emissions from Portland could be expected for nearly 30% of the hours, but they actually occur less than 30% of the time, and the remainder of the monitored hours can be interpreted as background. This indicates that the true background concentration that should be used in modeling is between 0 and 3 ppb, or virtually zero. The values obtained from the Chester, NJ monitor, even with the Portland impacted hours removed, represent a conservative component of the total modeled

impact, ranging from 4 to 19 ppb with an average of 8 ppb. This represents an overestimate of the background concentration ranging from 15 to 20 μg/m3.

Response:
We disagree with the comment that the true background concentration that should be included in the modeling for Portland is between 0 and 3 ppb, based on the following factors. Given the relatively short transport distance of about 2 kilometers from Portland to the Columbia, NJ monitor, we believe that using the frequency of winds within a 90-degree sector is likely to overestimate the percentage of hours that Portland emissions would be expected to impact the Columbia monitor, although we also note that the correlation between the frequency of winds from the southwest and the number of hours with non-zero concentrations at the Columbia monitor is quite high. In addition to the width of the sector, this analysis overlooks the fact that elevated plumes emitted under stable atmospheric conditions are likely to be transported over the Columbia monitor before dispersing enough to impact the ground, and also neglects the possibility that background concentrations attributable to other sources could be associated with sources upwind of Portland relative to the Columbia monitor and may therefore be reflected in the non-zero monitored concentrations in addition to the impacts from Portland. Although contributions at the Columbia monitor from other sources are likely to be relatively small compared to impacts from Portland, due to the higher emissions and closer proximity of Portland, we are not aware of any evidence that clearly discounts any possible contributions from such sources. As shown in Figure 4 of the proposed rule Modeling TSD, nearly all of the other major emission sources (with SO_2 emissions greater than 100 tons/year based on the 2005 NEI v2) within 50 kilometers of Portland are located southwest of Portland and would therefore have the potential to contribute to monitored concentrations at the Columbia monitor during the same periods that Portland is impacting the monitor. The fact that monitored concentrations are close to zero for those hours when the monitor is not impacted by Portland is consistent with the lack of any major SO_2 sources upwind of the monitor for those periods.

Furthermore, as explained in more detail in the EPA final rule Modeling TSD, one aspect of our assessment of the appropriateness of the background monitored concentration included in the EPA cumulative modeling analysis for Portland is the potential contribution of Portland to interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey due to meteorological variability, which could not be accounted for explicitly in our modeling analysis due to only one year of site-specific meteorological data being available. We therefore agree in general with the comment that actual background concentrations in the areas of New Jersey that are impacted by Portland emissions is relatively low, but also believe that use of a somewhat conservative estimate of background concentrations based on a three-year period of record from the Chester, New Jersey monitor is appropriate for this analysis in order to account for meteorological variability in relation to Portland's interference with maintenance of the 1-hour SO_2 NAAQS.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
As discussed below in Section II.D and F, GenOn suggests some changes to the approaches for the NAAQS compliance modeling for the proposed remedy, which results in an emission reduction of 80.5% from current allowable SO2 emission rates; equivalent to a lb/MMBtu emission rate of about 0.68 at full load operations. The remedy modeling indicates a 99th

percentile (4th highest) peak daily 1-hour maximum concentration of about 139.0 µg/m3 at the monitoring site,13 which is more than 70% of the peak value modeled anywhere (about 194.5 µg/m3). Due to the near-zero SO2 background measured at the monitor, and assuming that virtually all of the measured SO2 at the monitor (especially for the highest concentrations) is due to emissions from Portland, it is possible to determine the monitored concentrations that would have been detected for various remedy emission rates. These can then be compared to the modeled results to determine whether AERMOD is providing a level of conservatism in its Exhibit 11 to the May 2010 NJDEP Section 126 Petition filing, available at http://www.state.nj.us/dep/baqp/petition/Exh%2011%20Portland_met_field.pdf; see Figures 3 and 4. The nearest receptor is at location 494300 Easting and 4530400 Northing, NAD83, Zone 18. We have already noted that the regional background concentration already provide an over-prediction level of about 15-20 µg/m3. For a target SO2 emission rate (at full load conditions) equivalent to 0.68 lb/MMBtu, the linearly adjusted monitored values over a period of over six months result in a highest and second highest16 adjusted 1-hour concentrations of about 120.2 and 103.5 µg/m3, respectfully [sic]. These values are well below the modeled result (including background) of 139.0 µg/m3, which represents the 4th highest daily peak 1-hour maximum. This comparison indicates that the AERMOD modeling approach results in an overestimate of the concentrations derived from "rolling back" the monitored values. In fact, a rollback using an SO2 emission rate equivalent to 0.9 lb/MMBtu results in a second highest peak daily 1-hour maximum adjusted monitor value of 136.9 µg/m3, which is still below the modeled result for the remedy case mentioned above.

The comparison of modeling to monitor noted here indicates that a modeling approach described by EPA with slight modifications recommended by GenOn would be protective of air quality. In fact, the comparisons suggest that seasonal variations in the SO2 emission rates as high as 0.9 lb/MMBtu could be protective of air quality and the 1-hour SO2 NAAQS. http://www.njaqinow.net/Default.aspx http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard. For a 6-month period, the 99th percentile day would be the second highest day. EPA's implementation guidance is finalized, Portland will propose either a modeling or monitoring approach to demonstrate compliance with the 1-hour SO2 NAAQS. Compliance remedies for Portland will be addressed after the final rule is published through the submittal of a protocol.

Response:
GenOn describes an analysis based on scaling of Columbia monitoring data which purportedly indicates that the AERMOD modeling approach used by the EPA as the basis for determining the remedy necessary to eliminate Portland's significant contribution to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey is overly conservative. This conclusion is based on inferences made about the monitored concentrations that would be expected under various remedy emission rates using the Columbia monitoring data.

From the description provided in GenOn's comments, it appears that the hourly monitored values at Columbia were scaled by the ratio of the final remedy emission rate of 0.68 lb/mmBtu divided by the actual lb/mmBtu emission rate from the hourly CEMS data in order to estimate what the monitored concentration would be based on the final remedy, i.e.,

$CHI_{remedy} = CHI_{obs} * (0.68 \text{ lb/mmBtu} / \text{CEMS lb/mmBtu})$

where

CHI_{remedy} = estimated hourly concentration at monitor after final remedy
CHI_{obs} = observed hourly concentration at monitor

Since the lb/mmBtu emission level is generally independent of operating load, unlike the lb/hr emission rate, this is a reasonable approach for adjusting monitored values to reflect future emission reductions.

Although the analysis presented in the comment is a reasonable approach to estimating what impact the final remedy would have on monitored concentrations, due to the fact that monitored concentrations reflect impacts from actual emissions, the adjusted concentrations will also be representative of actual concentrations after application of the final remedy, and therefore could be biased to underestimate the final remedy modeling which is based on allowable emissions. However, when the contribution from monitored background of about 26 $\mu g/m^3$ is removed from the final remedy concentration modeled at the Columbia monitor, the modeled contribution from Portland units 1 and 2 is about 112 $\mu g/m^3$, which is very consistent with the highest and second highest adjusted 1-hour concentrations of about 120.2 and 103.5 $\mu g/m^3$, respectively. Since the second highest daily maximum 1-hour value represents the 99^{th} percentile for the 6 months of monitoring data analyzed by GenOn, the ratio of the modeled design value to the monitored design value (after adjusting for the final remedy) is about 1.08, which is very consistent with other analyses that the EPA has performed indicating very good agreement between AERMOD modeled and monitored concentrations at the Columbia monitor.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
In support of the Proposal, EPA conducted its own modeling using AERMOD and corrected many of the deviant modeling procedures used by New Jersey in the modeling for the Petition. GenOn supports EPA's selection of the AERMOD model if modeling the ground-level SO2 concentrations due to Portland's emissions is the selected approach for demonstrating compliance with the NAAQS. As noted in a review of New Jersey's Section 126 petition that was provided by GenOn to EPA in December 2010, the selection of CALPUFF as the preferred dispersion model for this modeling application is not justified for the reasons summarized below.

> -The database used to justify New Jersey's use of CALPUFF is not appropriate because the monitors are over 10 km from Portland and they are not located in the areas nearby Portland where CALPUFF predicts the peak impacts.
>
> - The contention that "complex winds" necessitate the use of CALPUFF is not borne out by the finding that the peak impacts from both CALPUFF and AERMOD are within 2 km of PGS that occur with "line-of-sight" impacts featuring steady-state plume trajectories over the short distances involved. EPA guidance clearly indicates that AERMOD is the appropriate model for such impacts.

-The meteorological database New Jersey used for CALPUFF has no observation stations within the computational domain. The lack of any observation stations in the CALPUFF computational domain calls into question whether the meteorological database is adequate for this modeling application.

- Even though the Martins Creek Evaluation Study is not designed or approvable for evaluating model performance applicable to Portland, we find that reasonable statistical assessments of the study data show that AERMOD's performance is nearly unbiased, and that CALPUFF consistently over-predicts. Importantly, the peak predictions by the two models are within about 20% of each other, further illustrating the lack of need for alternative modeling approaches.

Response:
The EPA generally concurs with the commenter's assessment of NJDEP's justification for the use of CALPUFF for this application. However, as discussed above in response to a comment from D.M. Lohman and further explained in our response to NJDEP's comment asserting that the EPA invoked a higher standard regarding approval of CALPUFF as an alternative model in this application than provided for in Appendix W, we do not agree that the provisions in Section 3.2.2 of Appendix W require that a performance evaluation in support of an alternative model justification must be conducted specifically for the facility being considered in the regulatory modeling application. On the other hand, we certainly recognize that the relevance of a performance evaluation for such purposes would likely be much greater in that case, and that the relevance of the field study for the "given application" must be considered as part of the overall assessment of the adequacy of an alternative model demonstration.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
We agree with and accept the EPA modifications to the assignment of the sodar measurement heights for purposes of AERMOD modeling.

Response:
The EPA agrees with GenOn's assessment that the height adjustments are appropriate in this application. *See* preamble section IV.B.2 for further discussion on the EPA meteorological data adjustments.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
EPA decided to exercise a new (beta) version of AERSURFACE to determine the surface characteristics for input to AERMET. Due to the extensive availability of wind, temperature, and turbulence data from the tower and sodar data, it is unlikely that the parameterizations of these variables would be substantially altered by the change in surface characteristics. Therefore, we agree with EPA's approach.

Response:

The EPA agrees with GenOn's assessment that the use of the new version of AERSURFACE is appropriate in this application. *See* preamble section IV.B.2 for further discussion on the EPA meteorological data adjustments.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
An ENSR technical paper that compares tower and sodar meteorological variables across several monitoring projects very similar to the one at Portland indicates good correlation between the sodar and tower data for wind direction, wind speed, and sigma-w, but not for sigma-theta.EPA revised its guidance in a later version of the same document, which is still in effect today.22 This version indicates that use of sodar sigma-w is now acceptable for regulatory modeling. Therefore, we agree with EPA's recent review of the available guidance and use of the sodar sigma-w in the current modeling analysis.

Response:
The EPA agrees with GenOn's assessment that the use of the sigma-w data is appropriate in this application and the use of sigma-theta data is not. *See* preamble section IV.B.2 for further discussion on the EPA meteorological data adjustments.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
EPA decided to omit the 30-m tower turbulence data due to the fact that they "may be influenced by local shear-induced turbulence that would not be representative of turbulence profiles at that measurement height within the valley." We do not have the same concern that EPA has because both the tower and the plant sites are generally unobstructed by obstacles or trees. Although EPA noted that omission of these values would not materially affect the modeling results, there are some hours for which the turbulence data is missing from the tower 100-m level and the sodar is missing, so that EPA is omitting the *only* source of turbulence data available to AERMOD. We therefore request that EPA reinstate the use of the 30-m tower turbulence data in the modeling.

Response:
We disagree with GenOn's recommendation to include the 30-meter turbulence data due to the concerns regarding the representativeness of such data, which are documented in the proposed rule Air Quality Modeling TSD. The EPA explained that it excluded the 30-meter turbulence data due to concerns regarding the representativeness of the data at that level relative to stack base elevation given that the measurement heights from the 100-meter tower were not adjusted and would therefore be treated as being representative of meteorological conditions within the valley. Due to the narrowness and depth of the valley in the vicinity of Portland, there is a potential for terrain-induced turbulence at a level of 30-meter level above ground within the valley, especially for cross-valley flows in the direction of maximum modeled impacts from Portland in New Jersey. Measurements taken from the actual tower location at those heights would not reflect such terrain-induced turbulence, which is one of the main factors in our concern regarding representativeness of the 30-meter tower-based turbulence data. The fact that the tower site and valley locations are generally unobstructed by surface obstacles is not relevant to this concern regarding terrain-induced turbulence.

We also note that inclusion of the 30-meter turbulence data would have a negligible effect on the modeling results since the elevated plumes from Portland units 1 and 2 will be well above 30 meters such that transport and dispersion of the plumes will be determined by measurements at higher levels from the tower and SODAR. Therefore, the 30-meter turbulence data is only expected to influence the plumes in the rare cases where turbulence data were missing from the 100-meter level on the tower and from the SODAR. Due to the representativeness issues, we believe it would be inappropriate to rely on the 30-meter turbulence data in those cases.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
We concur with EPA's approach for using a backup station (Dulles, VA) for upper air data input to AERMET.

Response:
The EPA agrees with GenOn's assessment that the use of the Dulles, VA meteorological data as a backup station in AERMET is appropriate in this application. *See* preamble section IV.B.2 for further discussion on the EPA meteorological data adjustments.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
We note that with the use of the 99th percentile statistic, the added background concentration will be higher than the actual value most of the time, adding a considerable degree of conservatism to the background concentration EPA-454/R-99-005 (2000); available at http://www.epa.gov/ttn/scram/guidance/met/mmgrma.pdf. In fact, as discussed above, the monitoring data from the Columbia, NJ site installed in 2010 by New Jersey shows that the background concentrations are at or very near zero most of the time.

The important issue here is that the periods for which the monitor is impacted by the source in question (in a 90-degree upwind sector centered on Portland) should be removed from the determination of the background concentration look-up tables. Our review of the EPA procedures indicates that EPA did not remove these hours from consideration. We request that the background concentration look-up tables be redone after removing hours for which Portland is upwind, as noted above. The resulting background concentrations will still be higher than those indicated by the Columbia, NJ monitoring data.

Response:
We have addressed concerns regarding the conservatism of the monitored background component of the EPA modeling conducted to determine an appropriate remedy for Portland in our responses to other comments, indicating our acknowledgement of some degree of conservatism as well as our rationale that such conservatism is appropriate in this case to adequately account for meteorological variability in relation to Portland's interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey. With those factors in mind, we do not take issue with the approach described in the comment of removing those periods from the selected background monitor for which the monitor may be impacted by emissions from Portland in other contexts, and further acknowledge that the approach described in the comment is

consistent with guidance in Section 8.2 of Appendix W for demonstrating compliance with NAAQS in support of PSD permit applications.

We also note that the differences between the background concentrations used in the EPA modeling analysis and the background concentrations submitted by GenOn were less than about 5 parts per billion (ppb) in most cases, and would have a negligible impact of about 0.5 percent on the remedy necessary to eliminate Portland's significant contribution to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey.

Commenter: Keith Schmidt, Director, Environ-mental Policy, GenOn REMA LLC
Comment:
The Portland Unit 1 and 2 stack parameters used by EPA and New Jersey were obtained for Units 1, 2, and 5 from data sets on a CD submitted by Reliant Energy Portland, L.L.C.entitled "Dispersion Modeling File Archive Revised NAAQS and PSD Increment for SO2 and 23 "Summary of 1-Hour SO2 Monitoring Data from the Columbia Monitor in Warren County, New Jersey" (New Jersey, 2011). Available at http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2011-0081-0005. Available at http://www.epa.gov/ttn/scram/Additional_Clarifications_AppendixW_Hourly-NO2-NAAQS_FINAL_03-01-2011.pdf. This information is approximately 10 years old and needs to be updated due to:
-Updated physical measurements of the stack height and diameter.

-Review of continuous emissions monitoring data for stack gas flow rate and temperature. During 2001, stack inspections and maintenance work, as well as new stack measurements, resulted in minor changes to the physical stack dimensions, as noted below. These stack dimension changes were provided to PADEP in 2002 for a proposed 800-MW expansion of the Portland Generating Station for which the permit application was subsequently withdrawn. The updated Portland stack parameters summarized in Table 1 feature the following updates.

-The Unit 1 stack height was reduced by 24 inches, and the Unit 2 stack height was reduced by 4 inches (both reduced from the original 400-ft heights).
-The inside stack diameters at the top of the stack for Portland Units 1 and 2 were revised to 3.15 and 3.84 m, respectively.
-Median flow rates and temperatures obtained from 2010 hourly emissions monitoring data26 for Portland Units 1 and 2 have been used to provide updates for the exit velocity and temperature.

Response: The EPA has updated the final rule modeling to include the stack parameters submitted by GenOn. The final rule emissions limits are based on modeling of these parameters.

2. Comments on the EPA's Assessment of the CALPUFF Validation Study

Commenter: Commissioner Bob Martin, NJDEP provided a detailed response to EPA's assessment of their CALPUFF Validation Study in Appendix A, "Response to EPA's Comments on the CALPUFF and AERMOD Validation Study", submitted with NJDEP's June 13, 2011 comments on EPA's proposed rule to grant New Jersey's September 17, 2010

Section 126 petition regarding the Portland Generating Station (Portland). A summary of the comments and the EPA responses is provided in this section.

Comment:
1. EPA's Summary Points in Section II.F of the Technical Support Document

EPA rejected the New Jersey Department of Environmental Protection's (NJDEP) proposed use of CALPUFF based on EPA's review of NJDEP's submitted validation study. EPA's assessment of NJDEP's model validation study is discussed in Section II.B (Model Selection) of the April 7, 2011 Federal Register. Additional details of EPA's review are given in the document *Air Quality Modeling Technical Support Document: NJ 126 Petition of September 17, 2010* (referred to as the TSD through the remainder of this appendix). The reasons why EPA rejected NJDEP's proposed use of CALPUFF are summarized in Section II.F on page 18 of the TSD (Summary of EPA's Analysis of the NJEDP Modeling). NJDEP's response to each of the alleged deficiencies is given below.

EPA Point #1 – '*NJDEP's use of the CALPUFF model instead of EPA's preferred model for near-field applications, AERMOD, is based on a claim that CALPUFF was shown to have performed better and produced predictions of greater accuracy than AERMOD' based on a single model validation study focused on the nearby Martins Creek plant.'*

NJDEP Response #1.a - Better performance by a model in a single validation study meets the requirements in 40 CFR Part 51, Appendix W paragraph 3.2.2 regarding the use of an alternative model such as CALPUFF. NJDEP's use of CALPUFF was based on paragraph 3.2.2.b (condition 2) of the regulations. Paragraph 3.2.2.b (condition 2) states the alternative model such as CALPUFF may be approved for use when the following has been met;

'(2) if a statistical performance evaluation has been conducted using measured air quality data and the results of that evaluation indicate the alternative model performs better for the given application than a comparable model in Appendix A.'

This statement refers to a single statistical performance evaluation, not multiple evaluations. On page ten of the TSD, EPA accurately summarizes what needs to be done under condition 2. "Condition (2) relies solely on a demonstration that the alternative model has been shown to perform better than a comparable Appendix A model, and does not entail a demonstration that the preferred model (AERMOD in this case) is inappropriate for the application." NJDEP's model validation study is a demonstration that CALPUFF performs better than AERMOD for this given application."

Response to #1.a:
The two key issues raised in NJDEP's comment related to the EPA's rejection of their proposed use of the CALPUFF model to support their petition are the number of performance evaluations that are necessary to satisfy the alternative model provisions of Appendix W and the interpretation of the criterion that an alternative model "performs better" than the preferred model. Appendix W establishes the following requirement for acceptance of an alternative model under condition (2) of Section 3.2.2: "if a statistical performance evaluation has been conducted using measured air quality data and the results of that evaluation indicate the alternative model

performs better for the given application than a comparable model in Appendix A." Appendix W does not establish a minimum number of field study evaluations needed to meet this requirement, and EPA's assessment of the CALPUFF validation study does not imply one. On the other hand, it would be inappropriate to interpret the phrase "a statistical performance evaluation" as implying that the statistical performance evaluation is necessarily limited to a single field study. A statistical performance evaluation for a proposed model may, and typically does, include multiple evaluation datasets, and it goes without saying that the confidence in an alternative model demonstration will depend in some measure on the amount of evidence provided, as well as the confidence that can be placed in the evidence.

The fact that the Portland was one of the emission sources included in the Martin's Creek field study could suggest that evaluation results based on this particular field study are especially relevant to modeling applications for the Portland, and should therefore be given greater weight in judging the relative performance of models in this case. There is some merit in this argument, and we acknowledged in our assessment of the validation study that the proximity of the Martin's Creek field study to the Portland Plant may add to its relevance in this case. However, the fact that AERMOD has been extensively validated, including a total of 17 field study datasets with at least 5 datasets involving elevated or complex terrain, also holds some weight in assessing the overall performance of AERMOD relative to an alternative model.
In addition, Section 3.2 of Appendix W does not explicitly define the meaning of "performs better," but states that:

> For condition (2) in paragraph (b) of this subsection, established procedures and techniques [15 16] for determining the acceptability of a model for an individual case based on superior performance should be followed, as appropriate. Preparation and implementation of an evaluation protocol which is acceptable to both control agencies and regulated industry is an important element in such an evaluation.

Reference 15 is EPA's protocol for determining the best performing model (EPA, 1992), often referred to as the Cox-Tikvart protocol based on the authors of the protocol, which was used as the basis for EPA's evaluation of AERMOD prior to its promulgation.[1]

The Cox-Tikvart protocol establishes statistical methods and metrics that are appropriate for evaluating model performance, including a bootstrap resampling approach that can be used to objectively determine whether differences in performance between two models are statistically significant. The 1992 protocol provides the following explanation regarding the statistical comparison of model performances (page 13):

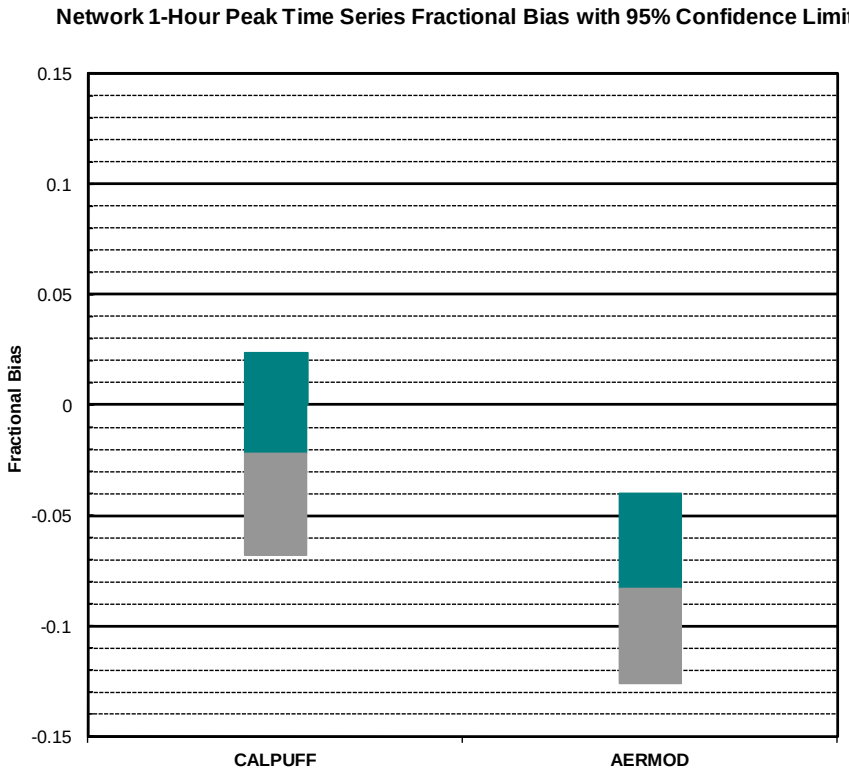
> For each pair of model comparisons, the significance of the model comparison measure depends upon whether or not the confidence interval overlaps zero (0). If the confidence interval overlaps zero, the two models are not performing at a level which is statistically different. If the confidence interval does not overlap zero (upper and lower limits are both

[1] EPA, 1992. Protocol for Determining the Best Performing Model. EPA-454/R-92-025. U.S. Environmental Protection Agency, Research Triangle Park, NC, available at: http://www.epa.gov/ttn/scram/guidance/guide/modleval.zip

negative or both positive), then there exists a statistically significant difference between the two models at the stated level of confidence.

The only interpretation of "performs better" that is logically consistent with the intent of this section in Appendix W and EPA's own protocol for determining the best performing model is this test of statistically significant differences in model performance, and the key question at issue here is whether the validation study conducted by NJDEP adequately demonstrated that CALPUFF performs "significantly better" than AERMOD for this application in a statistical sense. Based on this interpretation, any reference to whether an alternative model "performs better" than the preferred model or "performs significantly better" should be read as "performs better in a statistically significant sense."

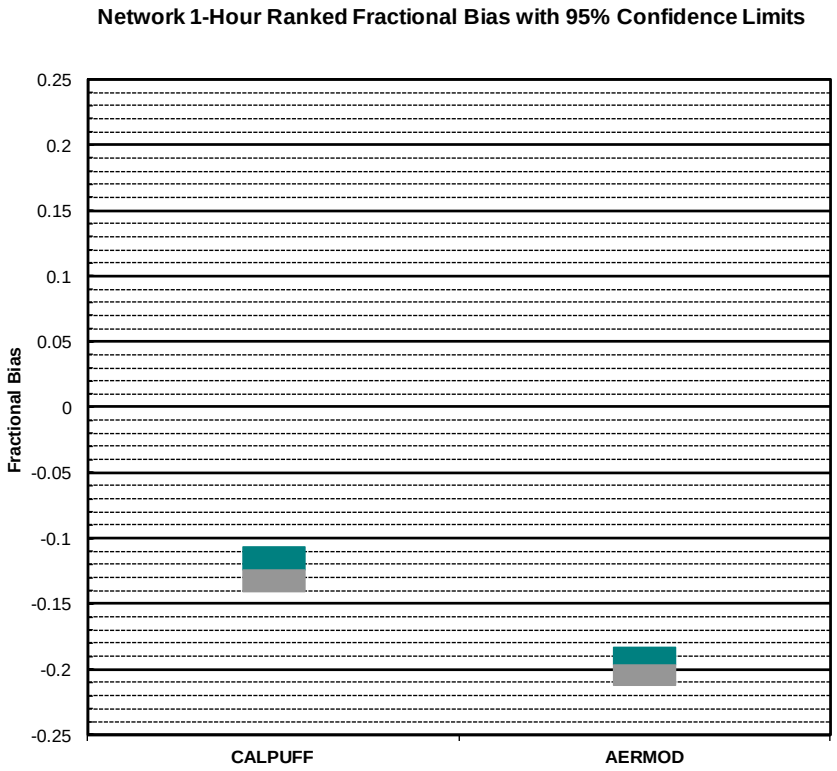
NJDEP's CALPUFF validation study indicates on page 17 that "the statistical measures from this document [EPA, 1992] have been included in the model validation." One of the statistics recommended in the Cox-Tikvart protocol is the Composite Performance Measure (CPM). The CPM represents a composite "score" of model performance and is determined based on a combination of fractional bias statistics across several components of the model evaluation for a particular model. The NJDEP study reported CPMs of 0.405 and 0.521 for CALPUFF and AERMOD, respectively, where a smaller value of CPM indicates "better" model performance. However, NJDEP did not apply the bootstrap resampling approach to determine confidence intervals for the CPMs, or for the Model Comparison Measure (MCM) which is defined as the difference between CPMs for a pair of models. Although NJDEP did report confidence intervals on some individual aspects of the model performance based on bootstrap resampling of the predicted and observed concentrations, most of those comparisons were based on approaches that are not appropriate for evaluating model performance, as explained in more detail below. In summary, the NJDEP validation study did not provide the objective metrics described in the Cox-Tikvart protocol that could be used to determine whether the CALPUFF model performance is <u>significantly better</u> than AERMOD for this application <u>in a statistical sense</u>.
As discussed in the proposed rule modeling TSD, there are several aspects of the evaluation procedures used by NJDEP in their CALPUFF validation study that EPA has taken issue with, such as the varying choices of the number of samples (N) for calculating robust highest concentrations (RHCs), the use of residuals (ratios of predicted to observed concentrations) based on results paired by rank, and the inclusion of the AMS8 monitor in the model-to-monitor comparisons. However, even if those issues are set aside and NJDEP's validation study is accepted at face value, their validation results do not support the contention that CALPUFF performs <u>significantly</u> better than AERMOD on this dataset in a statistical sense. We base this assessment on the only statistical model performance comparison included in the NJDEP validation study that would be appropriate to use to assess whether one model is performing significantly better (statistically) than the other model, namely the confidence limits on the fractional bias (FB) results based on the time series of network peak 1-hour values (paired in time), shown below (presented as Figure 10 in the NJDEP validation study):



These statistical evaluation results based on the network peak 1-hour time series serve as part of the diagnostic component of the evaluation rather than the operational component because they examine hourly modeled vs. observed results paired in time instead of focusing on the peaks of the concentration distributions. Both models show little overall bias in this comparison, with FBs of -0.022 for CALPUFF and -0.083 for AERMOD (note that negative FB indicates overprediction based on the formula used by NJDEP). Although the FB for CALPUFF is closer to 0 (zero) than AERMOD, the 95% confidence intervals of FB for CALPUFF and AERMOD overlap, indicating that the difference in performance between the two models is not statistically significant. This is comparable to the confidence intervals for model comparison measure crossing zero in the explanation cited above from the Cox-Tikvart protocol. In fact, NJDEP acknowledges this interpretation of Figure 10 on page 30 of their validation report stating that "[t]he model output also shows that the two models' network 1-hour time series FBs are not significantly different from each other." These statistical results based on the network peak 1-hour time series are also consistent with the general impression given by the Q-Q plots shown in Figure 8 of NJDEP's validation report of similar overall performance between CALPUFF and AERMOD with both models showing generally good agreement with observations. Therefore, setting aside the technical issues associated with the evaluation methodology, these model evaluation results provided by NJDEP do not meet the threshold of demonstrating that CALPUFF performs "significantly better" than AERMOD in a statistical sense based on this particular field study evaluation.

It should also be noted that the FB results included in this figure based on the network peak 1-hour time series analysis were computed based on the average predicted vs. average observed concentrations across the full period of the field study, with a minimum value of 16 $\mu g/m^3$ being assigned to all monitored or modeled concentrations that were less than 16 $\mu g/m^3$, which is considered to be the detection limit for the SO_2 monitors. Since the fractional bias is computed based on the average concentration rather than paired 1-hour values, the aspect of pairing results in time for this analysis is only relevant from the perspective of the bootstrap resampling conducted to determine confidence limits on the results, such that the temporal pairing of predicted vs. observed concentrations is preserved in the resampling of the results. The fact that the FB comparisons from the network peak 1-hour time series analysis are actually computed based on average concentrations also diminishes the relevance of these results in terms of assessing the performance of these models for predicting the peak of the distribution of hourly concentrations which is an important aspect of the operational evaluation.

The other statistical comparisons cited by NJDEP as indicating that CALPUFF performs better than AERMOD, including the network 1-hour ranked FBs that were also included in Figure 10 and the 1-hour FBs by atmospheric stability in Figure 11 of the NJDEP study, were based on bootstrap resampling from distributions of predicted vs. observed concentrations paired by rank. Bootstrap resampling from a distribution of concentrations paired by rank is not meaningful and would likely lead to very small confidence intervals since data pairs from ranked distributions are likely to show much less scatter than data pairs from distributions paired in time. This is evident from a comparison of the network peak 1-hour ranked FB results shown below (also included in Figure 10 of NJDEP's validation study) with the network peak 1-hour time series FB results shown above. The fact that the confidence intervals do not overlap for the ranked FB results is simply an artifact of an inappropriate use of bootstrap resampling from distributions of predicted/observed concentrations paired by rank, and provides no information relevant to determining the relative performance of these models.



Since NJDEP's CALPUFF validation study lacked several elements of the Cox-Tikvart protocol, EPA conducted an independent assessment of the performance of CALPUFF vs. AERMOD for the Martin's Creek field study based on a full application of the Cox-Tikvart protocol for determining the best performing model using the modeled and observed evaluation data provided by NJDEP. This assessment was also based on inclusion of the AMS8 "stack top" monitor and the use of NJDEP's meteorological categories, two aspects of the NJDEP evaluation protocol that EPA objected to in the proposed rule modeling TSD. Using a value of N=26 to determine the Robust Highest Concentrations (RHC), as recommended in the Cox-Tikvart protocol, the CPM for CALPUFF based on this independent assessment was 0.313, and the CPM for AERMOD was 0.277. These results show slightly "better" performance for AERMOD than for CALPUFF, but the difference between the CPMs is smaller than the difference reported by NJDEP. As mentioned above, the CPM combines model performance results from the operational component and the diagnostic component of the evaluation protocol into a single metric as an indicator of model performance, and a lower value of CPM indicates better performance.

To examine the sensitivity of these model performance metrics to different values of N for the RHC calculation, EPA also applied the evaluation protocol based on values of N = 15 and N = 8 for comparison. Note that the software used to generate these model performance metrics allows the user to specify the value of N for use in all of the RHC calculations for a particular study, but does not allow separate values of N to be specified for different components as was done by NJDEP (see further discussion below regarding NJDEP's use of different values of N). The

model comparison measure (MCM) results for this independent assessment are presented in Figure 1.

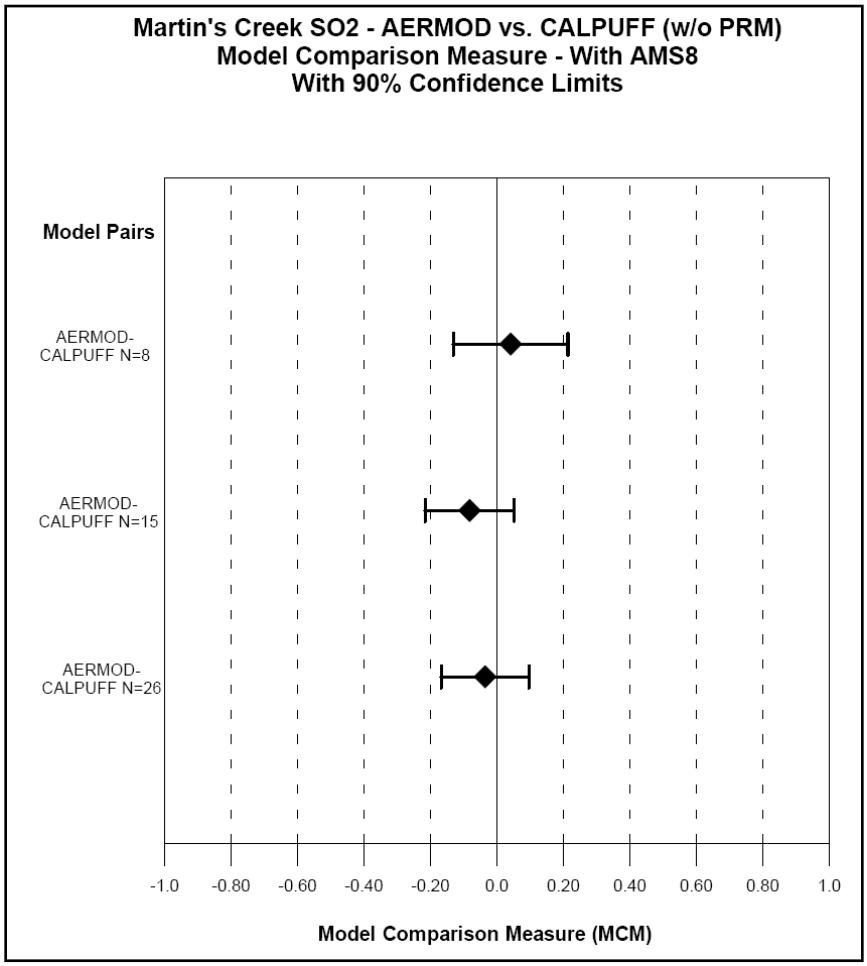


Figure 1. Model Comparison Measure for Martin's Creek Evaluation without PRIME Downwash in CALPUFF (MCM < 0 means AERMOD performs better than CALPUFF)

A value of 0.0 for MCM indicates that the CPM is the same for each model, a value of MCM less than 0.0 in this case indicates that AERMOD performs "better" than CALPUFF and a value of MCM greater than 0.0 indicates that CALPUFF performs "better" than AERMOD. In either case, if the confidence interval crosses 0.0, the difference in performance between the two models is not statistically significant at the 90% confidence interval. Figure 1 shows that AERMOD performs slightly better than CALPUFF for N=26 and N=15, but CALPUFF performs slightly better for N=8. However, the confidence intervals on the MCMs cross 0.0 in all cases indicating that differences in model performance are not statistically significant at the 90% confidence level. Similar to the fractional bias results for the network peak 1-hour time series reported by NJDEP, the results from EPA's independent assessment based on the Cox-Tikvart protocol are consistent with the general impression given by the Q-Q plots included in NJDEP's validation report.

As noted above, direct application of the Cox-Tikvart protocol using the evaluation data provided by NJDEP resulted in CPM values of 0.277 for AERMOD and 0.313 for CALPUFF, which are significantly different than the values reported in NJDEP's CALPUFF Validation Study of 0.521 for AERMOD and 0.405 for CALPUFF. One of the key factors contributing to this difference in CPM values was the varying values of N that NJDEP used in calculating the RHC values for the various components of the model evaluation. However, another important difference in terms of the methodology employed by NJDEP became apparent as a result of these additional comparisons. As mentioned above, the CPM reflects a combination of the operational component of the evaluation, based on the highest individual monitor's observed 3-hr and 24-hr RHCs vs. the highest individual monitor's modeled 3-hr and 24-hr RHCs (unpaired in space), and the diagnostic (or scientific) component, based on the individual monitor's observed 1-hr RHCs vs. the individual monitor's modeled 1-hr RHCs (paired in space) for each of the meteorological categories used to group the results. Although the diagnostic component of the evaluation is intended to be applied for each individual monitor (paired in space) based on the Cox-Tikvart protocol, the NJDEP evaluation combined all "complex terrain" monitors together as one group and treated the AMS8 monitor separately as a "stack top" monitor (since it is located at approximately the same elevation as the Martin's Creek stack tops). In this approach, NJDEP used the highest observed RHC across the seven complex terrain monitors vs. the highest modeled RHC across the complex terrain monitors, unpaired in space, as representing the diagnostic component of the evaluation for the complex terrain monitors. By weighting the seven complex terrain monitors as a group equally with the single stack-top monitor, the approach taken by NJDEP for the diagnostic component of the evaluation effectively gives much greater weight to the model comparison metrics for the AMS8 "stack top" monitor than for any of the seven individual complex terrain monitors. The AMS8 monitor had been used solely to account for background concentrations in the original evaluation of the AERMOD model, and was not the main focus of the field study. Therefore, placing much greater weight on this monitor is clearly an unwarranted and unacceptable deviation from the standard protocol for evaluating model performance for this field study.

Using NJDEP's approach to the diagnostic component of the evaluation of treating the complex terrain monitors as a single group resulted in CPM values (based on N=26) of 0.558 for AERMOD and 0.352 for CALPUFF, as compared to CPM values of 0.277 for AERMOD and 0.313 for CALPUFF using the approach recommended in the Cox-Tikvart protocol. While the CPM for CALPUFF improved by about 10 percent using each complex terrain monitor, the CPM for AERMOD improved by about 50 percent. This comparison serves to highlight the potential impact that subtle changes in model evaluation methodology can have on model evaluation metrics, and further undermines NJDEP's claim that their validation study shows CALPUFF performance as superior to AERMOD's for this field study.

As a result of a more detailed review of the modeling files used by NJDEP in their CALPUFF validation study, conducted as part of the EPA's application of the Cox-Tikvart protocol using the evaluation data provided by NJDEP in order to respond to NJDEP's comments on the EPA assessment of their validation study, the EPA identified another technical issue related to NJDEP's CALPUFF validation study. Namely, NJDEP used the "ISC Type" downwash option in CALPUFF instead of the PRIME downwash option when applying CALPUFF for the Martin's Creek validation study, although the CALPUFF input file included the necessary building input

parameters to run the PRIME option. The AERMOD modeling results for Martin's Creek used for comparison were based on the PRIME downwash algorithm. Although building downwash associated with the cooling towers at Martin's Creek exhibited only a modest influence on results based on AERMOD evaluations, it is important enough to be treated properly in the model evaluation, and the PRIME downwash option should have been used in the CALPUFF modeling since AERMOD's promulgation effectively established the PRIME algorithm as the "preferred" downwash algorithm for near-field applications. NJDEP's CALPUFF validation report identifies that the "ISC type" downwash option was used in the table of CALPUFF inputs (the MBDW parameter in Table 8.2), but provides no explanation or justification for not using the PRIME downwash option. Note that other "AERMOD-like" options in CALPUFF were appropriately selected in NJDEP's evaluation, including MDISP=2, MCTURB=2, and MPDF=1. Although EPA had not explicitly addressed the status of the PRIME downwash option within CALPUFF prior to NJDEP's validation study, in part because CALPUFF is not the preferred model for near-field applications, it is reasonable to expect that if EPA were to approve the use of CALPUFF in the near-field, we would require the use of the PRIME option if downwash were considered to be important. Based on analyses of the CALPUFF model performance based on the use of the PRIME downwash algorithm, CALPUFF exhibits a greater tendency to overestimate concentrations at Martin's Creek with the PRIME downwash option as compared to the ISC-Type downwash option, with some deterioration in the model performance metrics. More details regarding these additional analyses related to the effect of the PRIME downwash option on CALPUFF model performance are provided in Appendix A of the EPA final rule Modeling TSD.

Comment:

"*NJDEP Response #1.b - EPA also uses the EPA September 26, 2008 clarification memo as justification for rejecting the use of CALPUFF. However, the EPA September 26, 2008 memo 'Technical Issues Related to CALPUFF Near-field Applications' has little or no applicability to the proposed use of CALPUFF under Appendix W, paragraph 3.2.2b (condition 2).*

On page 11 of the TSD, EPA states the following: "These technical issues identified in the September 2008 clarification memo are generally applicable to the use of CALPUFF as an alternative model in near field applications under condition (2) or (3), and inform our assessment of the appropriateness of CALPUFF for this application."

The issues discussed in this memo, which is Attachment I of this appendix, apply to the use of an alternative model following paragraph 3.2.2b (condition 3), not condition 2. Pages 4-12 of the memo discuss in detail the requirements of paragraph 3.2.2(e). As the beginning of paragraph 3.2.2(e) notes, its requirements only apply to a model validation based on condition 3. It is not applicable to NJDEP's proposed use of an alternative model based on condition 2.

The remainder of the September 26, 2008 memo discusses complex wind determinations, specifically Appendix W, paragraph 7.2.8 (Complex Winds). However, even here the discussion on the use of CALPUFF is tied to meeting the requirements of paragraph 3.2.2(e). The memo states that setup and application of CALPUFF in complex wind is a case-by-case situation and must be "consistent with the limitations of paragraph 3.2.2(e)." As stated earlier, paragraph 3.2.2(e) clearly applies to model validations based on paragraph 3.2.2(b) (condition 3), not condition 2. Regardless, the existence of complex wind fields at this location is not in question. This fact was acknowledged by EPA in their proposed adjustment to measured winds above 100 meters as discussed in Appendix B of the TSD."

Response:
As explained in the proposed rule Modeling TSD, EPA issued a memo on August 13, 2008 providing "Clarification on Regulatory Status of CALPUFF for Near-field Applications," such as the application under review here. The August 2008 memo specifically addressed the use of CALPUFF for near-field applications under Section 7.2.8 of Appendix W on "Complex Winds" subject to the limitations and requirements for use of alternative models under condition (3) that are addressed in paragraph 3.2.2(e). EPA later issued additional guidance related to the application of CALPUFF for near-field situations in a memo dated September 26, 2008 on "Technical Issues Related to CALPUFF Near-field Applications." The September 26, 2008 memo provides a detailed discussion on each of the main components involved in addressing the appropriateness of CALPUFF for use in near-field applications under Section 7.2.8 for complex winds, and also identified several specific technical issues and concerns regarding the limitations of the CALPUFF /CALMET modeling system to adequately simulate the 3-dimensional wind and temperature fields at a fine enough resolution to give confidence in the results, which are generally applicable to the use of CALPUFF as an alternative model in near field applications under condition (2) or condition (3).

The September 26, 2008 memo referenced in NJDEP's response was not a "clarification memo" as suggested by NJDEP. Although the use of CALPUFF as an alternative model to address "complex winds" under Section 7.2.8 of Appendix W was clearly the main focus of the August 13, 2008 clarification memo regarding the regulatory status of CALPUFF for near-field applications, and the organization of the September 26, 2008 memo was also oriented toward the use of CALPUFF to address complex wind situations under condition 3 in paragraph 3.2.2(e) consistent with all past cases where CALPUFF had been considered for near-field applications, the technical issues discussed in Section 4.2, 'Applicability to the Problem', and Section 4.3, 'Availability of Necessary Data Bases', of the September 26, 2008 memo are broadly applicable to the use of CALPUFF in near-field applications under any of the alternative model criteria in Section 3.2.

Contrary to NJDEP's assertion, EPA has not acknowledged the existence of "complex winds" in this case, as defined in Section 7.2.8 of Appendix W. EPA's and NJDEP's own modeling analyses show that the controlling modeled impacts are associated with line-of-sight plume impacts for which a steady-state model is appropriate. The adjustments made to the Portland site-specific meteorological data were made to address concerns regarding the representativeness of the data for dispersion modeling of Portland emissions due to differences between the base elevation of the met tower and the base elevation of the stacks. The mere fact that wind directions vary with height is not evidence that non-steady-state complex winds are important to determining modeled design values, but may raise questions regarding the representativeness of the meteorological data for a particular application. The atmosphere is inherently complex in terms of the temporal and spatial patterns of wind, temperature and other properties, and in that sense one could easily make an argument for "complex winds," interpreted broadly, in nearly every case. However, the issue of complex winds in terms of dispersion modeling in accordance with Appendix W guidance is associated with the relative importance of specific complex wind patterns, such as mountain/valley drainage flows and valley channeling of winds, lake/sea breeze circulations, and stagnation conditions, to the proper assessment of modeled concentrations for

purposes of comparison to the NAAQS that would not be adequately accounted for by a steady-state model.

Comment:
"EPA Point #2 – "NJDEP's validation of the CALPUFF model using the Martins Creek field study data showed very similar model performance of CALPUFF vs. AERMOD based on the QQ plots and other components of the evaluation. However, a close examination of key assumptions incorporated in their analysis, especially the deviation from standard practice on the number of data samples used in the calculation of RHCs and the use of predicted/observed ratios paired by rank, rather than paired in time, in the residual analysis, raises questions regarding some of the statistical model performance measures used to support their claim that CALPUFF performs better than AERMOD based on this particular field study database.
NJDEP Response 2.a - Although both CALPUFF and AERMOD's performance appear similar in the Q-Q plots that include all data, NJDEP's use of exploratory data analysis techniques (residual plots) and standard statistical measures (Boot program output) demonstrated that AERMOD was found to be biased towards under-prediction. As is discussed later in the appendix, Q-Q plots binned as a function of atmospheric stability are a more meaningful measure of model performance and can be used to further evaluate the models' performance. In the peer review of the Model Validation Kit (MVK) and the ASTM (American Society Testing and Material) model validation protocol, Cooper[2] (1999) questions the statistical validity of Q-Q plots and suggested the following: 'Two (related) changes are required so that the pooling of data used in Q-Q plots can be justified on a theoretical basis. These changes are to restrict the pooling to data from the same distance and stability regime as is done in the ASTM methodology. Once the observations and modeled results have been separated into distance/regime categories then the values within these categories could be reordered for Q-Q plots using the same justification as is used in ASTM. The resulting plots would obviously be expected to have a spread of data points somewhere between the existing scatter and Q-Q plots.' In EPA's document, AERMOD: Latest Features and Evaluation Results (EPA,2003), it is stated 'For the other nondownwash data sets (Kinkaid SO2, Lovett, Baldwin, Clifty Creek, Martins Creek, and Westvaco), where the sampler array was not sufficiently dense to arrange the data in arcs, residual plots by distance were not meaningful.' Therefore, Cooper's suggested change to separate data by distance is not possible with the Martins Creek data set. However, it was possible to arrange the 1-hour SO2 data by stability regimes as was done using the Monin-Obukov length (L) following the same methodology outlined in the NJDEP CALPUFF validation study (NJDEP, 2010). Figure 1 below illustrates the results of this analysis.
From the Q-Q plots in the figure it becomes obvious that AERMOD's predicted concentration distribution during measured unstable and neutral hours is biased towards under-prediction. This confirms what NJDEP's exploratory data analysis techniques and standard statistical measures demonstrated in the submitted model validation. AERMOD's distribution of concentration during neutral and unstable conditions never crosses the 1 to 1 line. For the unstable category, AERMOD's distribution at the upper end drops below the factor of 2 from observed line. However, the opposite is true of AERMOD's distribution for the stable category. During stable conditions, AERMOD is biased towards over-prediction with a large portion of

[2] Cooper, N.,S, 2001. A review of evaluation procedures for atmospheric dispersion models. *International Journal of Environment and Pollution*, **16,** pp116-128.

the distribution exceeding the factor of 2 observations line. CALPUFF shows the same tendency to over-predict during all stability regimes.

EPA's contention that AERMOD and CALPUFF show very similar concentration distributions focused solely on the comparison of each model's overall concentration distribution Q-Q plots and discounted the other statistical results submitted by NJDEP in the model validation study. The newly generated Q-Q plots in Figure 1 indicate poor model performance for AERMOD in complex terrain around Martins-Creek when the concentration distributions are pooled by stability regime."

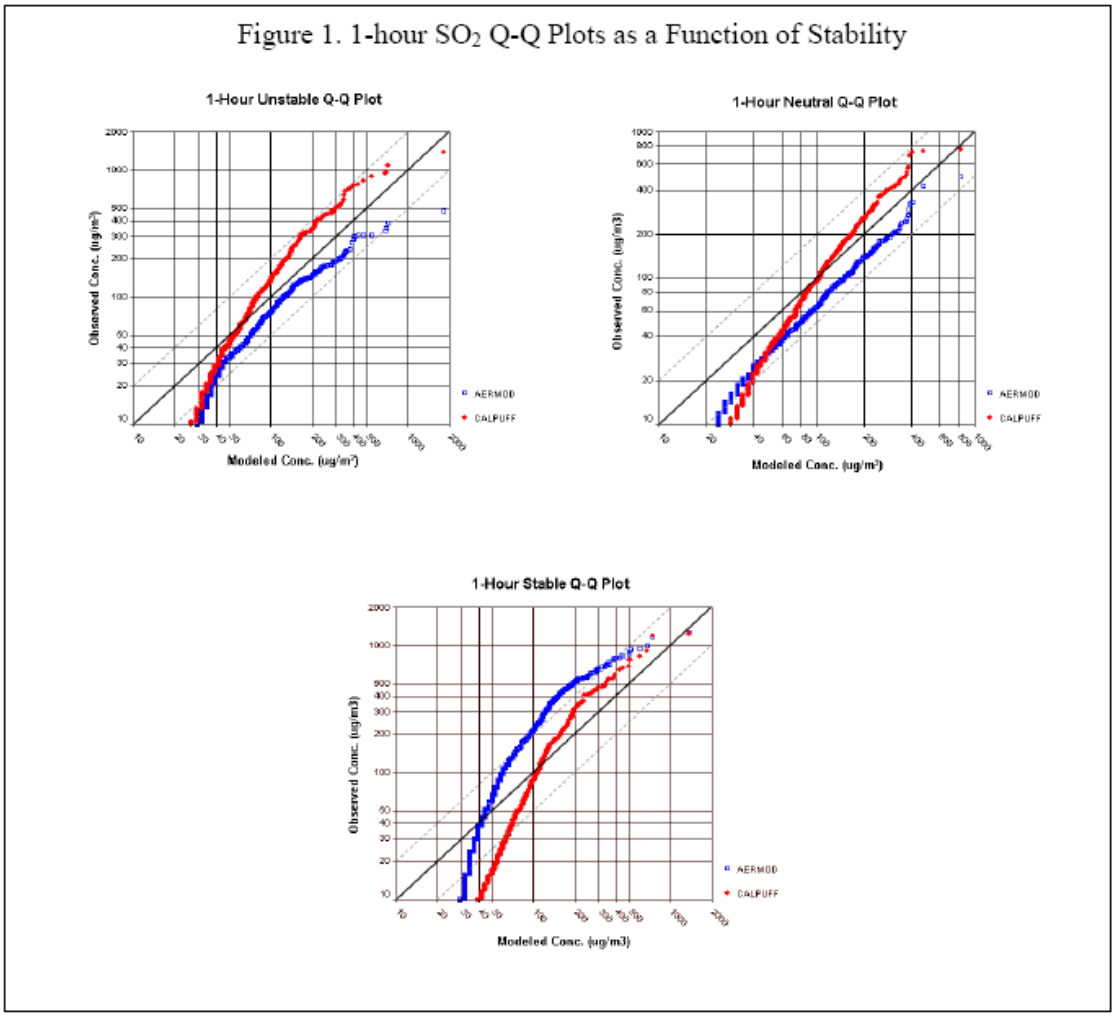


Figure 5. Q-Q plots of 1-hour Network-wide SO2 for Martin's Creek Based on Meteorological Category (based on Figure 1 (from Appendix A to NJDEP's Comments)."

Response:

Figure 1 of NJDEP's comments (shown above as Figure 5) provides Q-Q plots by stability category, which NJDEP asserts demonstrate that AERMOD is biased toward underprediction. Note that the axes in these Q-Q plots appear to be reversed; the vertical axis should be the predicted concentrations and the horizontal axis should be the observed concentrations (otherwise the plots would suggest that CALPUFF significantly underpredicts). Pooling of data

in Q-Q plots by stability class is an appropriate method to diagnose potential biases in model performance, and EPA has routinely generated Q-Q plots by stability in past model performance evaluations. However, Cooper's peer review cited in NJDEP's comment appears to be focused primarily on model validation procedures appropriate for intensive field studies, such as Prairie Grass, and are less relevant for more limited field studies such as Martin's Creek. This is suggested by Cooper's earlier statement in the same peer review that "*Whilst QQ plots show model performance there is no theoretical justification for independently ordering the model and observational data in this way. Normally even for the highest values the model and observations are taken from different experiments. (For instance, in Figure 2 of Carruthers et al, 1998, the highest 10 model concentrations are from a completely different 10 experiments than the highest 10 observations.)*" Cooper seems to have misunderstood the role of Q-Q plots as part of the operational component of model validation studies (i.e., those aspects of model performance that are most relevant to the operational application of the model), where the ability of a model to estimate the peak of the concentration distribution, unpaired in time and space, is clearly relevant and justified.

As noted above and described in more detail in Appendix A of the EPA final rule Modeling TSD, a technical flaw affecting all of the CALPUFF evaluation results for Martin's Creek is the fact that NJDEP used the ISC-Type option within CALPUFF to account for building downwash, rather than the PRIME downwash option. Additional analysis of CALPUFF model performance indicates that CALPUFF exhibited a greater tendency to overestimate concentrations for Martin's Creek under stable conditions when the PRIME downwash option was used.

Comment:
"*NJDEP Response #2.b - NJDEP's selection of the values of N used to define the Robust High Concentration (RHC) had a clear technical basis and represents an improvement in the accuracy of this statistical metric over past practices.*
The RHC for modeling validation purposes is first defined in the paper A Statistical Procedure for Determining the Best Performing Air Quality Simulation Model[3] *(Cox and Tikvart, 1990). It is later defined in EPA's guidance document, Protocol for Determining the Best Performing Model (USEPA, 1992). Both define the RHC as follows:*

$$RHC = X(N) + [X - X(N)]\ [Ln((3N-1)/2)]$$

where:
$X(N)$ = *Nth highest value*
X = *average of the N-1 highest values*
N = *number of values exceeding a threshold value*

On pages 12, 18, 36-38 of the TSD, EPA discusses the changes that were made by NJDEP to the validation procedures contained in EPA's document, Protocol for Determining the Best Performing Model (EPA, 1992). EPA alleges that these changes were made with no clear technical basis or clear objective criteria for selecting a value for N. EPA indicates that setting

[3] Cox, W. and J. Tikvart, 1990: A statistical procedure for determining the best performing air quality simulation model. *Atmos. Environ.*, **24A**, 2387-2395.

N=26 is 'standard practice' that has been used in the past and therefore must be used here for consistency. NJDEP disagrees for the following reasons.

N Value of 26 is not Standardized

The Cox and Tikvart 1990 paper contains the statement, '[t]he value of N is arbitrarily chosen to be equal to 26 but may be lower when there are fewer concentrations exceeding the threshold value.' In EPA's guidance document Protocol for Determining the Best Performing Model (USEPA, 1992) the following is stated: 'The value of N is nominally set equal to 26 so that the number of values averaged is arbitrarily 25.' Webster's Dictionary defines arbitrary as 'based on or determined by individual preference or convenience rather than by necessity or the intrinsic nature of something.' Nominal is defined as 'of, being, or relating to a designated or theoretical size that may vary from the actual: approximate.' It is obvious the authors of these documents were not recommending a universal or standardized use of N as 26."

The 2003 validation study, AERMOD: Latest Features and Evaluation Results (EPA, 2003), also acknowledges that the selected value of N can vary and the use of 26 is not standardized. Footnote 1 on Table 2 is the following: "The Robust Highest Concentration (RHC) is a statistical estimator for the highest concentration. It is determined from a tail exponential fit to the high end of the frequency distribution of observed and predicted values. The number of points used for the fit is arbitrary, but usually ranges between 10 and 25" (emphasis added). NJDEP is aware of other peer reviewed studies that have used N values other than 26[4] (Hurley, 2006).
In addition, EPA has never given guidance or specified that use of N=26 is "standardized" when calculating a RHC. The selection of N=26 is arbitrary and has been made as a matter of convenience. There is no statistical basis for believing that use of N=26 will produce accurate RHCs.

"Technical Basis for Selection of N:

The technical basis and objective criteria used for the selection of N was to produce a RHC that best represented a smoothed estimate of the highest concentration based on an exponential fit to the upper tail-end of the concentrations. Therefore, N was selected so that it included all values that best represent this exponential upper-end distribution of concentrations. This selection criteria [stet] is based on the original definition of the RHC and later discussions of its use (Cox and Tikvart, 1990; EPA, 1992; Perry, et.al., 2005).

Visual review of the highest concentrations in a given data set will usually show a discernible pattern where the slope of concentration values rise rapidly in an exponential fashion. Inclusion of only these concentrations at the upper end of the concentration distribution will result in a RHC value that most closely represents the true RHC. ***The value where the concentrations begin their rapid rise represents the threshold value discussed in the RHC equation given earlier*** *(emphasis added).*

[4] Hurley, P., J., 2006. An evaluation and inter-comparison of AUSPLUME, AERMOD, and TAPM for seven field datasets of point source dispersion. *Clean Air and Environmental Quality*, **40**, 45-50.

Contrary to what is stated on page 38 of the TSD, the overall number of samples in the large data sets used by NJDEP will not influence the selection of N. The value of N is determined by the number of samples defining the upper-end distribution of concentrations. By applying the ***objective criteria*** *discussed, the value selected for N will more often result in the calculation of an accurate RHC (emphasis added). There is no technical basis for the recommendation in the TSD to standardize the use of N=26.*"

Response:
NJDEP provides a lengthy discussion to support their position regarding the selection of varying values of N in calculating RHCs based on "objective criteria." A key assumption in their discussion of this issue is that "the value where the concentrations begin their rapid rise represents the threshold value discussed in the RHC equation given earlier." While we acknowledge that the definition of RHC provided by Cox-Tikvart indicates that the selection of N should generally represent the "upper end of the concentration distribution," we find no technical basis for NJDEP's interpretation of the "threshold value" referenced in the Cox-Tikvart definition of the RHC. In fact, the Cox-Tikvart definition of the RHC (EPA, 1992) states the following: "The value of N is arbitrarily chosen to be equal to 26 but may be lower in cases where there are fewer concentrations exceeding the threshold value. Whenever N < 3, the RHC statistic is set equal to the **threshold value where the threshold is defined as a concentration near background which has no impact on the determination of the robust highest concentration**" (emphasis added).

NJDEP's interpretation of the threshold value as being "the value where the concentrations begin their rapid rise" is not consistent with the Cox-Tikvart explanation of the threshold value, and the approach used by NJDEP to adjust the value of N for individual elements of the evaluation represents a significant departure from the Cox-Tikvart protocol. It should be noted that all monitored values in the Martin's Creek field study were adjusted to remove the background contribution, and none of the cases included concentrations among the top 26 values that were "near background." Furthermore, it is unclear how this interpretation could be applied as an objective criterion. For example, how rapid does the rise in concentrations need to be to determine the threshold? Is there a specific slope in concentrations that can be used to objectively define "rapid rise"? If so, is the slope computed between adjacent points or is it averaged across several points? What if the distribution includes more than one point where the concentrations exhibit a rapid rise? NJDEP provided no discussion regarding any of these issues in relation to their interpretation of the threshold value, and also provided no explanations justifying the specific values of N chosen for any of the individual cases.

NJDEP also makes much of the term "arbitrary" regarding the value of N in the definition of the RHC. There is clearly no disputing the fact that N is in some respects "arbitrary" and that values of N other than 26 may sometimes be warranted and justified. However, we do not accept the notion that the value of N is entirely arbitrary. The clear purpose of the RHC metric is to mitigate "the undesirable influence of unusual events." These "unusual events" are generally more likely to occur with long term field studies associated with operational plants, such as the Martin's Creek study, due in part to the typically limited number of monitors. Such outliers clearly show up in the Q-Q plots from the Martin's Creek study where differences of 50% or more occur between the first highest observed value and the rest of the distribution in some

cases. NJDEP's comments also make reference to "the true RHC" and "an accurate RHC." In our view there is no such thing as a "true RHC" or an "accurate RHC" based on a given distribution of monitored or modeled concentrations. As explained on page 8 of the Cox-Tikvart protocol , "because the highest concentration value is subject to extreme variations, the robust highest concentration is preferable in this analysis because of its stability," where the RHC "represents a 'smoothed' estimate of the highest concentration."

NJDEP's use of varying values of N and the term "entirely arbitrary" in relation to the value of N is at odds with the motivation for the EPA developing a protocol for determining the best performing model, which, as described in Appendix W was "to assist in developing a **consistent approach** when justifying the use of other-than-preferred modeling techniques recommended in the Guideline. The procedures in this protocol provide a **general framework for objective decision-making** on the acceptability of an alternative model for a given regulatory application. These **objective procedures** may be used for conducting both the technical evaluation of the model and the field test or performance evaluation (emphasis added)." NJDEP's use of the RHC metric based on various values for N could be considered as somewhat "arbitrary and contrary to the notion of a "consistent approach" cited in Appendix W. It replaces the use of "objective procedures" that are needed as the basis for "objective decision-making" with an approach that is dependent on somewhat subjective determinations of that portion of the concentration distributions that should be used in calculating RHCs. Despite our concerns regarding the approach taken by NJDEP in selecting different values of N to use in calculating RHCs for various distributions of observed and modeled concentrations, we do acknowledge that the selection of N=26 is at least somewhat arbitrary, which is consistent with our interpretation that there is no "true RHC." NJDEP's results based on varying values of N and EPA's analysis of RHCs using different values of N summarized above serve to highlight a point that may deserve further consideration in terms of "robustness" of the RHC metric as a tool for use in making objective determinations of model performance. Perhaps the use of an average RHC across a range of values for N may provide a more "stable" and meaningful statistical metric, especially when used with more limited field studies such as the Martin's Creek study where "unusual events" and "extreme variations" are more likely to occur than for more intensive field studies with controlled tracer releases and denser receptor grids. For example, based on the comparison of predicted vs. observed RHCs for Martin's Creek across a range of values for N shown in Table A.1 of the EPA's proposed rule modeling TSD, the following table shows predicted/observed ratios based on averaged RHCs for AERMOD of 0.99 and 0.97 for 3-hr and 24-hr averages, respectively, compared with predicted/observed ratios based on averaged RHCs for CALPUFF of 1.23 and 1.17 (the shaded rows highlight the values of N used by NJDEP for these RHCs). Note that these RHCs are based on "network-wide" 3-hour and 24-hour results including the AMS8 monitor, but do not include PRIME downwash in CALPUFF.

Comparison of Predicted vs. Observed RHCs averaged across range of N for Martin's Creek

	Observed	CALPUFF	AERMOD
3-hr; N=8	659.0	720.2	570.0
3-hr; N=11	613.3	711.7	604.2
3-hr; N=15	587.5	757.7	605.5
3-hr; N=26	556.6	785.5	609.4
Average RHC	604.1	743.8	597.3
Pred/Obs Ave RHC		1.23	0.99

	Observed	CALPUFF	AERMOD
24-hr; N=8	165.6	215.1	161.4
24-hr; N=11	162.5	202.4	169.5
24-hr; N=15	162.5	193.1	166.7
24-hr; N=26	187.0	183.7	158.1
Average RHC	169.4	198.6	163.9
Pred/Obs Ave RHC		1.17	0.97

As stated elsewhere, these results based on average RHCs show generally good agreement between modeled and observed concentrations for both AERMOD and CALPUFF, but with AERMOD showing somewhat better agreement with observations than CALPUFF.

Comment:
"*Review by EPA: NJDEP discussed several times with William Cox of EPA's Air Quality Analysis Group at Office of Air Quality Policy and Standards (now retired) the procedure used by NJDEP in the Section 126 Petition to define the value of N in the RHC equation. Mr. Cox is principal author of both documents that introduced the use of the RHC, 'A Statistical Procedure for Determining the Best Performing Air Quality Simulation Model' (Cox and Tikvart, 1990) and 'Protocol for Determining the Best Performing Model' (USEPA, 1992). Contrary to statements on Page 12 of the TSD, Mr. Cox was given an opportunity to comment on the method of calculating RHC used in this model validation and agreed with NJDEP's method of calculating the RHC and the procedures it used.*"

Response:
NJDEP cited a personal communication with William Cox (co-author of the Cox-Tikvart protocol for determining the best performing model, retired from EPA) in their original CALPUFF validation study to support of their interpretation of the varying values of N used in the RHC calculations. NJDEP expanded on the role of Mr. Cox in their comment quoted above, stating that "NJDEP discussed several times with William Cox . . . the procedure used by NJDEP in the Section 126 Petition to define the value of N in the RHC equation." NJDEP goes on to suggest that these personal communications with Mr. Cox invalidated EPA's claim made on page 12 of the modeling TSD that "EPA did not have an opportunity to review or comment on these changes to the model evaluation protocol implemented in NJDEP's validation study." To

the best of our knowledge, no written documentation of Mr. Cox's interaction with NJDEP regarding their model evaluation protocol exists in EPA records. Furthermore, no one from the Air Quality Modeling Group, the group within EPA/OAQPS responsible for reviewing and deciding upon the appropriateness of model evaluation protocols under Section 3.2 of Appendix W, was ever contacted by NJDEP regarding this model validation study. A formal process must exist in order to approve a model evaluation protocol under Appendix W Section 3.2. Personal communication with a single EPA statistician without any written record clearly cannot serve as EPA approval (tacit or otherwise) of the model evaluation methodologies used by NJDEP.

Comment:

"NJDEP Response 2.c *- The previous demonstration using Q-Q plots to plot the concentration distributions as a function of stability [see Figure 1 of NJDEP's comments] is very similar to the residual plots shown in Figure 11 of NJDEP's model validation*[5] *(NJDEP, 2010). However, EPA questioned the use of predicted/observed ratios paired by rank, rather than paired in time, in the residual analysis."* It should be pointed out that neither Q-Q plots nor residual plots are statistical metrics but rather exploratory data analysis tools.

The usefulness of these plots is dependant [sic] on the quality of the available data sets. Paine in his Comments on Evaluation Procedures for Air Quality and Meteorological Models presented at EPA's 9th Modeling conference describes two types of evaluation databases: tracer studies and long-term monitoring networks (Paine, 2008). Tracer studies usually have monitors arranged in arcs at multiple distances around some release point. Tracer study databases can determine the plume centerline and plume sigma-y, and concentration trends with distance. Arc maximum concentrations are useful for time and space data comparisons. However, the long-term database collected at Martins-Creek and used in the CALPUFF model validation study is described by EPA as follows: "In contrast to the tracer studies (where a Co, Cp pair are available for each arc distance of each time period), the long-term databases have only a single Co, Cp pair selected (for each time period) as the maximum observed and predicted concentrations, respectively in the entire receptor array" (EPA, 2003).

The validation of AERMOD and CALPUFF using the Martins-Creek database involved a very limited number of elevated point sources and a sparse, network of monitors. As a result, the effect of discrepancies between the measured wind direction and the actual wind direction can be significant. Paine in his presentation at the 14th IUPPA World Congress, 2007 concluded "Both short-range and long-range models are not able to predict plume impacts paired in time and space. This is caused by random wind fluctuations near a source that will distort the average plume trajectory over the course of an hour and result in deviations from an ideal trajectory." (Paine, 2007) Given the limitations of the Martins Creek evaluation database and the fact that EPA relied solely on Q-Q plots and RHC's calculated on data unpaired in time and space in its AERMOD validations (EPA, 2003; Perry, et.al., 2005), the model performance should not be evaluated with the Martins-Creek evaluation database using exploratory data analysis techniques designed for tracer study databases.

[5] NJDEP, 2010. Validation of CALPUFF in the Near-Field, dated February 25, 2010. http://www.state.nj.us/dep/baqp/petition/Exh%2012%20Validation_doc_050710_final.pdf

NJDEP's use of residual plots in its CALPUFF validation was to assess model performance based on the quality and limitations of the Martins-Creek database rather than just the Q-Q plot of the overall concentration. The NJDEP residual plots in the CALPUFF validation provided the same results as the Q-Q plots in Figure 1 [of their comments], just in a different form."

Response:
NJDEP correctly points out that the residual plots in Figure 9 of their CALPUFF validation study provided the same results as the Q-Q plots shown in Figure 1 of their comments on EPA's assessment of their validation study, but in a different form, a fact that was also pointed out on page 44 of the modeling TSD. This explanation also serves to clarify why EPA took issue with those residual plots in our assessment of the NJDEP validation study. Plotting modeled vs. monitored concentrations paired by rank in the form of Q-Q plots is an appropriate method to determine how well the modeled concentration distribution matches the observed concentration distribution, in a visual manner that is relatively clear and simple. The Q-Q plots should be considered as part of the operational evaluation of the model since they focus on how well the model captures the peak of the observed concentration distribution which is relevant for regulatory application of the model. Overall model bias in relation to the peak of the concentration distribution can be easily discerned from these Q-Q plots. That being said, we also recognize the potential limitation of Q-Q plots in that the modeled and monitored values are generally unpaired in time and perhaps unpaired in space, and may mask serious deficiencies in the model's ability to accurately predict ambient concentrations. These factors would argue for combining Q-Q plots with other methods for evaluating model performance, but do not detract from the appropriate role of Q-Q plots as an operational component of model evaluations.

The EPA commented (on page 44 of the proposed rule modeling TSD) that the use of residual plots (which summarize the distribution of predicted/observed concentration ratios) based on distributions of modeled and monitored concentrations paired by rank is an inappropriate use of residual plots. As noted above by NJDEP, the residual plots presented in Figure 9 of their validation study provide the same results as the Q-Q plots shown in Figure 1 of their comments, but in a different form. We believe that the Q-Q plots are a much more appropriate and meaningful method than residual plots for presenting modeled vs. monitored results paired by rank. In terms of model performance, the ratios of predicted/observed concentrations paired by rank at the upper end of the concentration distribution (i.e., the upper portion of a Q-Q plot) are more meaningful and important than predicted/observed ratios paired by rank at the lower end of the distribution (i.e., the lower portion of a Q-Q plot). It is not uncommon for predicted concentrations to significantly underestimate observed concentrations at the lower end of the distribution, especially for field studies with a limited number of monitors associated with an operating facility, due to uncertainties and sensitivities associated with the accuracy of ambient monitoring data near the threshold of the instrument and uncertainties associated with adjusting the monitored data to account for background concentrations. However, a residual plot based on predicted/observed ratios paired by rank essentially gives equal "weight" to predicted/observed ratios across the full range of values. Therefore, we believe that residual plots should not be used for distributions paired by rank since they may be difficult to interpret and the information presented may be misleading in terms of relative model skill or performance.

Chang and Hanna (2004), developers of the BOOT program utilized by NJDEP in their validation study, offer the following explanation regarding residual plots as compared to Q-Q plots:

> Residual plots employing box diagrams: The scatter and quantile–quantile [Q-Q] plots mentioned above clearly do not provide a complete understanding of the physical reasons why a model performed in a certain way. The issue can be addressed using residual analyses, and combined with box diagrams if necessary. In this plot, model residuals, defined as the ratio of predicted (Cp) to observed (Co) concentrations (or dosages or other outputs) are plotted, **in the form of a scatter plot**, versus independent variables such as hour of day, downwind distance, ambient wind speed, mixing height, atmospheric stability. If there are many points, it is not effective to plot all of them, and instead the residuals are binned according to different ranges of independent variables, and the distribution of all data points in each bin is represented by a box diagram. The significant points for each box diagram represent the 2nd, 16th, 50th, 84th, and 98th percentiles of the cumulative distribution of the n points considered in the box. A good performing model should not show any trend of the residuals when they are plotted versus independent variables (emphasis added).

This explanation of residual plots supports EPA's concern, as stated in modeling TSD, that statistical comparisons based on residuals of predicted/observed concentrations paired by rank are not appropriate or meaningful as indicators of model performance. Such comparisons are also inconsistent with the Cox-Tikvart protocol.

The following hypothetical example should serve to illustrate these concerns regarding the use of residual plots with predicted/observed ratios paired by rank. Figure 7 shows a Q-Q plot of predicted-vs.-observed concentrations paired by rank for two hypothetical cases. This figure clearly shows that Case 1 overpredicts the upper end of the observed distribution by more than a factor of 2 while Case 2 underpredicts the upper of end of the distribution by a similar amount. These biases are reversed for the lower end of the distributions. Figure 8 presents a comparison of residuals for these two hypothetical distributions, based on ratios of predicted/observed values paired by rank, using the same method of plotting residuals as used by NJDEP in Figure 9 of their validation study. The residual plots in Figure 8 for these two hypothetical distributions are exactly identical, i.e., the distribution of the predicted/observed ratios of concentrations paired by rank is identical between these two hypothetical cases. In this hypothetical case the residual plots paired by rank mask the important difference between these two distributions that is clearly highlighted in the Q-Q plots, which is that one distribution shows a significant bias to overestimate the peak concentrations and the other distribution is biased to underestimate the peak concentrations. In other words, the distribution of predicted/observed concentration ratios paired by rank has no meaning or relevance to the assessment of model performance and could mask significant differences between models.

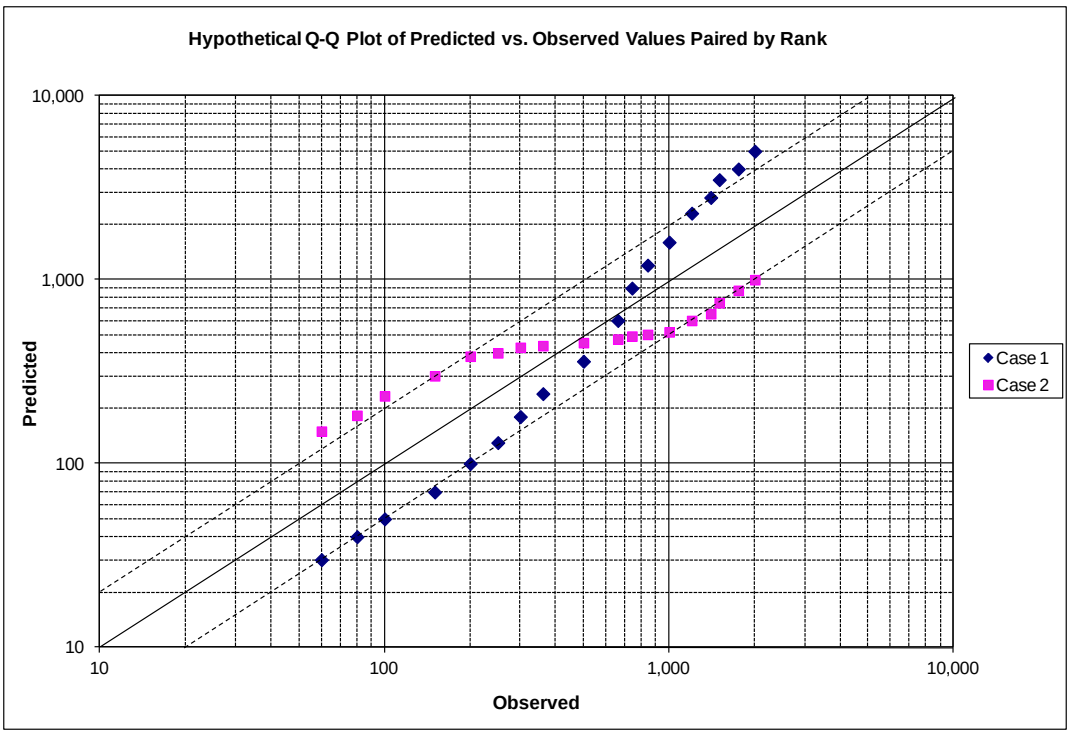


Figure 7. Q-Q Plot of Predicted vs. Observed Values Paired by Rank for Hypothetical Distributions.

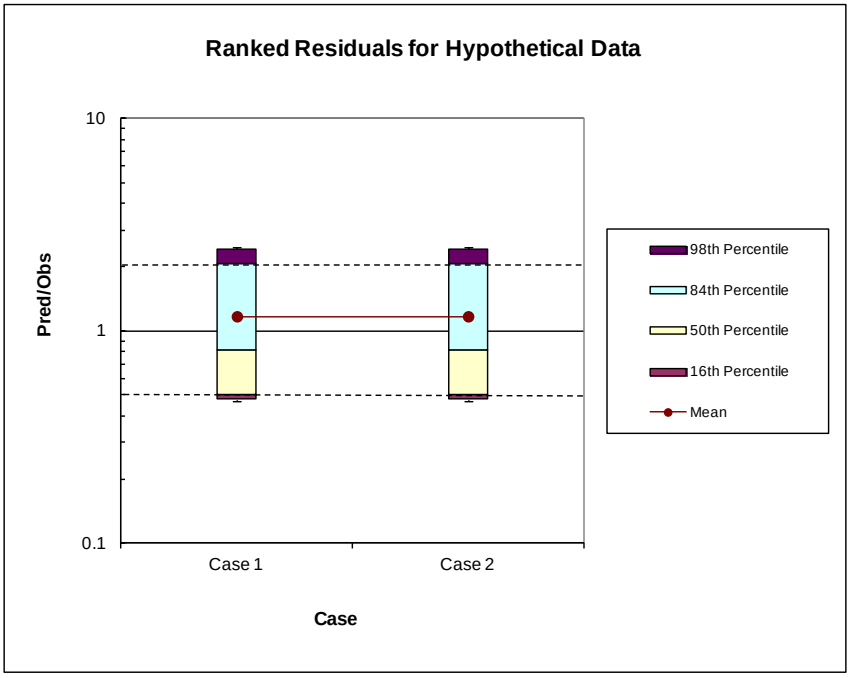


Figure 8. Residual Plot of Predicted vs. Observed Ratios Paired by Rank for Hypothetical Distributions Shown in Figure 7.

Comment:

"***NJDEP Response 2.c (cont.) -*** *EPA provides residual plots in the TSD in Figures A.6 and A.7. These plots show CALPUFF and AERMOD results as a function of stability paired in time. It is suggested that these plots show relatively unbiased performance of both models based on the arithmetic mean and median values. EPA's plots show both models ratios well beyond a factor of two above and below observed. EPA's residual plots are analogous to a scatter plot where as NJDEP's residual plots are analogous to a Q-Q plot. Figure A.7 is the same as Figure A.5 with a different vertical axis scale. The Figure A.7 provides no new information concerning model performance.*"

Response:
As with the previous comment, we agree with NJDEP's characterization that "*EPA's residual plots are analogous to a scatter plot whereas NJDEP's residual plots are analogous to a Q-Q plot.*" The hypothetical example described above should clarify EPA's position that residual plots based on values paired by rank are not meaningful, and may actually be misleading. On the other hand, residual plots are an appropriate method to compare two different distributions paired in time and space in a manner that is more useful than simple scatter plots, as explained in the passage cited above from Chang and Hanna (2004). The fact pointed out by NJDEP that these residual plots show model-to-monitor ratios well beyond a factor of two above and below is not surprising, especially in comparison to the much smaller range of "residuals" shown by NJDEP for results paired by rank, since the distribution of predicted/observed concentration ratios is expected to be much larger for results paired in time and space, as compared to results paired by rank. The residual plots as presented by EPA provide a method to diagnose potential biases within a model that might otherwise be difficult to discern, and plotting residuals for subgroups of the data based on meteorological conditions or distance is also consistent with that intent. NJDEP is also correct that Figure A.7 of the EPA's proposed rule Modeling TSD is the same as Figure A.5 but with a different scale and provides no new information regarding model performance. Our purpose for including Figure A.7 was to highlight the much larger range of residuals based on predicted/observed ratios paired in time and space as compared to NJDEP's plots based on residuals of concentrations paired by rank. This point is addressed further in our response to the following comment.

Comment:
"***NJDEP Response 2.c (cont.) -*** *Note that in EPA's Figure A.6 the median value of each model for each stability regime is close to 1. This is due to the large number of hours of monitor concentrations near or below the SO_2 detection threshold. The data provided to EPA used to generate figure A.6 had been adjusted by NJDEP as follows: all monitor and modeled values in the dataset were set equal to the detection limit of 16 $\mu g/m^3$* [stet]. *This results in a large number of data pairs whose ratio is close to one which biased the percentiles generated for the residuals in figure A.6. To properly create the residual plots using the methodology EPA claims should be done, the data must be quality assured and filtered using both the monitors SO_2 detection limit (16 $\mu g/m^3$) and SO_2 drift rate of (26 $\mu g/m^3$). Monitored values less than 42 $\mu g/m^3$ should be removed prior to generating the residual plots. After filtered based on the detection limit and base-line drift, there are 2,448 hours of meaningful monitoring data out of a total of 9,215 total hours. NJDEP maintains that use of all 9,215 hours in this analysis is incorrect since this methodology of using residuals is inconsistent with the design of the Martin Creek evaluation*

database. As a result, Figure A.6 and A.7, if relied upon, should be revised based on these comments."

Response:
We assume that NJDEP intended to state that "*all monitor and modeled values in the dataset less than 16 µg/m^3 were set equal to the detection limit of 16 µg/m^3," otherwise that statement would imply that all values were set to16 µg/m^3*. Other than the concentrations being paired in time and space in EPA's residual plots vs. paired by rank in NJDEP's residual plots, the data points included in the residual plots presented in Figure A.6 of EPA's modeling TSD are exactly the same data points used by NJDEP in the plots shown in Figure A.5 of EPA's TSD (Figure 9 of NJDEP's validation study), including the adjustments described above in relation to the detection limit. NJDEP's assertion that the reason for the median values being close to 1 in EPA's residual plots is due to a large number of monitored values at or below the detection threshold is unfounded. In fact, the effect of setting monitored and modeled values below the detection limit to a uniform value of 16 µg/m^3 is much more likely to impact the distribution of residuals presented in NJDEP's residual plots based on concentrations paired by rank since the low values in both the observed and predicted distributions were set to the same limit. This is one of the reasons why EPA's plots show a much wider range of predicted/observed ratios than NJDEP's residual plots, as discussed in the previous comment.

Comment:
"EPA Point #3 – 'NJDEP's validation of CALPUFF based on the Martins Creek data represents the only near-field complex terrain evaluation that we are aware of involving the CALPUFF modeling system, including the use of CALMET-generated wind fields, whereas AERMOD has been evaluated on at least five tall-stack/complex-terrain field studies and has shown consistently good model performance. Therefore, even if we judge the NJDEP evaluation to be an adequate demonstration that CALPUFF performs better than AERMOD in this particular case, the weight of evidence would still favor the AERMOD model as the preferred model for this application, unless the NJDEP evaluation presented compelling evidence that CALPUFF is clearly superior to AERMOD for this application and that the proximity of the Martins Creek field study to the Portland Plant adds greater emphasis to that conclusion.'

***NJDEP Response 3.a** – NJDEP's Evidence Demonstrates that CALPUFF Performs Better for This Application Than AERMOD*
In addition to point #3, the statement "…AERMOD has been evaluated on at least five tall-stack/complex terrain field studies and has shown consistently good model performance" is made several other times in the TSD and on page 19670 of the April 7, 2011 Federal Register Notice. The references given for these five model evaluations are Perry, et. al., 2005[6] and EPA, 2003[7].

[6] Perry, S. G., A. J. Cimorelli, R. J. Paine, R. W. Brode, J. C. Weil, A. Venkatram, R. B. Wilson, R.F. Lee, and W. D. Peters, 2005. AERMOD: A dispersion model for industrial source applications. Part II: Model performance against seventeen field-study databases. *J.Appl.Meteor.*, **44**, 694-708.

[7] EPA, 2003. AERMOD: Latest Features and Evaluation Results. EPA-454/R-03-003. U.S. Environmental Protection Agency, Research Triangle Park, NC.

These field studies do not change that NJDEP's Validation Study demonstrates that CALPUFF performs better for this application than AERMOD. NJDEP also notes that in none of the five studies referenced was CALPUFF one of the competing models. In addition, field studies such as Lovett were used in the "developmental evaluation" of AERMOD, see "AERMOD: Latest Features and Evaluation Results"(EPA, 2003), and were not part of the "independent evaluation" of AERMOD. See id."

Response:
As explained in our responses to other NJDEP comments presented above, we do not agree that NJDEP has demonstrated that "CALPUFF performs better for this application than AERMOD." The fact that CALPUFF was not included in the field study evaluations conducted for AERMOD is irrelevant and merely highlights the fact that the performance of the CALPUFF modeling system, including the CALMET meteorological processor, has not been well documented. The fact that the Lovett field study was part of the "developmental evaluation" of AERMOD does not detract from the validity or relevance of AERMOD's performance based on that study, but merely highlights the fact that model validation is a complex process and that evaluations of a model conducted during the development of a model must at some stage be supplemented by independent evaluations conducted on data bases that were not part of the development of the model. The development and evaluation of the AERMOD model certainly conformed with this approach to a much greater degree than any other near-field dispersion model that EPA has ever promulgated. In contrast, the CALPUFF validation study conducted by NJDEP using the Martin's Creek field study remains the only such evaluation of the CALPUFF modeling system for near-field applications that we are aware of.

Comment:
"Response 3.b *- <u>EPA's "Clearly Superior" Standard for Use of CALPUFF in this Application is not Supported by the Regulations</u>*
The higher standard invoked by EPA for approval of CALPUFF as an alternative model in EPA's proposal on NJDEP's 126 Petition is not included in EPA's regulations at 40 Part 51, Appendix W.
In the TSD and the April 7, 2011 FR Notice, EPA states the following, 'we would not determine CALPUFF to be a more appropriate model in this case absent compelling evidence that CALPUFF is ***clearly superior*** *to AERMOD for this application' (emphasis added). This obviously is demanding a higher level of performance than that required in paragraph 3.2.2(b) (condition 2). Paragraph 3.2.2(b)(condition 2) states that an alternative model may be approved for use "if a statistical performance evaluation has been conducted using measured air quality data and the results of that evaluation indicate the alternative model* ***performs better*** *for the given application than a comparable model in Appendix A" (emphasis added [in original]).*
The NJDEP evaluation study demonstrates that CALPUFF performed better in predicting SO2 concentrations than AERMOD in this application and, therefore, meets the standard set forth in the regulations."

Response:

We acknowledge that the terminology "clearly superior" is subject to varying interpretations and that we failed to provide a clear definition of our intent in this context. However, we do not believe that the statement quoted above from the modeling TSD demands a "higher level of performance than that required in paragraph 3.2.2(b) (condition 2)", and it was not our intention to demand that a higher level than required in Appendix W be applied in this case. We have already addressed several elements related to this comment in our responses to previous comments, in particular our response to NJDEP comment #1.a. One of the key elements that is clarified in our response to #1.a is that applying the criterion under condition (2) in Section 3.2.2 for a statistical performance evaluation to indicate that the alternative model "performs better" than the preferred model necessitates something more than a subjective assessment of how much better the alternative model needs to be in order to be accepted, when viewed in the context of the EPA protocol for determining the best performing model (EPA, 1992). Reiterating what was explained in the response for #1.a, the EPA protocol provides a "general framework for objective decision-making" based on a "consistent approach" that employs "objective procedures." Viewed in that context, the demonstration that an alternative model "performs better" implies that the difference in performance between the alternative model and preferred model is statistically significant based on appropriate and objective procedures for establishing appropriate confidence intervals on the model performance statistics. With these clarifications in mind, one element of the term "clearly superior" is the demonstration of whether the "better performance" shown for the alternative model is statistically significant.

In the section of the proposed rule Modeling TSD referenced in this comment we also cite the fact that the preferred model for this application, AERMOD, has undergone an extensive peer review process and an extensive model validation effort in support of its promulgation in 2005. Although we believe that it would be inappropriate to establish a minimum number field study datasets that would be needed in order to satisfy the provisions for condition (2) of Section 3.2.2 of Appendix W, we still assert that the large number of field studies used in the AERMOD validation holds some weight in judging whether an alternative model has been demonstrated to perform better than AERMOD. Ideally, the proposed alternative model would be subjected to the same model evaluations as the preferred model, similar to the procedure used in support of promulgating AERMOD, where AERMOD performance was systematically compared to the existing preferred models, including ISCST3 and CTDMPLUS. Short of that, the field study or studies that most closely resemble the circumstances of the proposed application of the alternative model would be most relevant and carry the most weight in making a determination of the adequacy of the demonstration for that application. In this case, the source being considered was one of the sources included in the Martin's Creek field study used by NJDEP, which we have acknowledged may add to the relevance of the study for this case. However, we also note that the main focus of the study, as reflected in where ambient monitors were located and meteorological data were collected, was clearly on the complex terrain impacts in the vicinity of Martin's Creek emission units rather than Portland.

Another element of this issue worth further explanation is the question of whether "the alternative model performs better for the **given application**" than the preferred model (emphasis added). Although field studies conducted to assess model performance in relation to a specific facility, such as the Martin's Creek and similar field studies that have been conducted for operating power plants, would have special relevance to modeling applications conducted in

relation to that facility, we do not believe that the term "given application" should be interpreted narrowly to imply that the evaluation study must be associated with the actual facility being modeled in a specific application. Of course, the more similar the circumstances of the field study to the intended application, including source characteristics, topographic and land use characteristics, and meteorological conditions, the more relevant the model evaluation results from such a field study would be for the given application. Another element of this consideration that we have noted in relation to NJDEP's validation study in support of the Portland application is the difference in terms of the type of meteorological data available in the field study as compared to the meteorological data used for the intended application. This issue was raised in the proposed rule Modeling TSD and is further discussed below in response to NJDEP's comment 4.a.

A final point to mention in relation to this particular alternative model (CALPUFF) and validation study are the technical issues and concerns that the EPA has identified regarding the use of the CALPUFF modeling system, including the CALMET meteorological processor, for near-field applications. These issues and concerns were documented in the September 26, 2008 memo issued by the EPA titled "Technical Issues Related to CALPUFF Near-field Applications," which is also discussed above in NJDEP comment #1.b. In light of these concerns, which NJDEP has not adequately addressed, we believe that some caution is warranted in judging the adequacy of a single validation study as a basis for determining that CALPUFF "performs better" than AERMOD for this application. We also believe that additional analyses that the EPA has performed assessing model-to-monitor comparisons using the Columbia, New Jersey ambient monitor, discussed elsewhere in these responses to NJDEP's comments and documented in more detail in Appendix B of the EPA final rule Modeling TSD, serve to justify these concerns regarding the use of CALPUFF in this near-field application. To put these technical concerns into context in relation to the issue of alternative model demonstrations, we point out that Section 3.2.2b of Appendix W states that "[a]n alternative model should be evaluated from both a **theoretical** and a performance perspective before it is selected for use (emphasis added)."

Taking all of these factors into account, we believe that our statement in the proposed rule Modeling TSD that "the weight of evidence would still favor the AERMOD model as the preferred model for this application, unless the NJDEP evaluation presents compelling evidence that CALPUFF is clearly superior to AERMOD for this application" is justified and appropriate. We also note that issues or questions regarding the adequacy of a statistical performance evaluation, in terms of the number and relevance of the field study datasets that are included in the performance evaluation, and in terms of the performance evaluation methods, metrics and benchmarks that will be used in judging the adequacy of the alternative model demonstration, should be addressed prior to conducting the evaluation as part of an "evaluation protocol which is acceptable to both control agencies and regulated industry" (Appendix W, Section 3.2.2d).

Comment:
"NJDEP Response #3.c *- <u>EPA's "Clearly Superior" Standard for Use of CALPUFF in this Application is not Supported by the Location of Portland Power Plant</u>*
The applicability of a model validation study using the Martins Creek dataset to the Portland Power Plant site has been established in past regulatory actions and in the TSD. AERMOD was

not designated a preferred model by EPA until 2005. However, AERMOD's use in a regulatory framework for modeling the area around Portland had been approved multiple times before that date. Specifically, AERMOD as a non-guideline model was approved for use in the 1999 Warren County Sulfur Dioxide Modeling Study for modeling emissions from Portland Power Plant. This use of AERMOD was approved by the Technical Assessment Group (TAG) whose members included GPU (the former owner of Portland Power Plant), Pennsylvania Power and Light (PPL), EPA Region 2, EPA Region 3, Pennsylvania DEP, and New Jersey DEP. The document presenting the results of this modeling analysis (ENSR, 1999) contains the following quote: "Due to the recent availability of AERMOD (dated 98314) to be formally proposed by U.S. EPA for guideline status and ***its evaluation history for the Martins Creek area****, the involved regulatory agencies requested that a compliance modeling protocol using AERMOD be submitted for considerations" (emphasize added). The owner of Portland Power Plant at that time (GPU) strongly favored the use of AERMOD over EPA's preferred models. The receptor grid used in the Warren County Sulfur Dioxide Modeling Study was identical to the coarse receptor grid used by both NJEP and EPA in the 126 Petition AERMOD modeling.*
The TAG approval was later used as justification for another use of AERMOD at the Portland site, the modeling of a proposed 560 MW combined-cycle natural gas facility (ENSR, 2000). AERMOD was still considered an alternative model at that time.

In addition to the historic precedence, there are other factors supporting the applicability of the submitted model validation using the Martins Creek data to the Portland Power Plant site. Both AERMOD and CALPUFF predict that emissions from Portland Power Plant cause a large impact on all validation monitors (especially AMS#8) and both the Portland Power Plant and the validation monitors are located in the same river valley. Use of the Martins Creek meteorological data by EPA to justify adjustments to the meteorological data collected near the Portland Power Plant as discussed in Appendix B of the TSD imply that the wind fields in this area are impacted by similar terrain effects.."

Response:
EPA does not take issue with the potential applicability of the Martin's Creek field study to the Portland Power Plant, but this issue is moot considering our overall assessment of the inadequacy of the NJDEP CALPUFF validation study as documented in the TSD and further explained above.

Comment:
"NJDEP Response 4.a *- EPA's comment that NJDEP's application of CALPUFF to estimate ambient SO2 impacts associated with Portland Plant emissions only used MM-5 data and did not use any site-specific meteorological data is incorrect. The 2003 CALPUFF meteorological data did have site-specific meteorological data within the CALMET domain. The 2003 CALMET diagnostic model was run utilizing two on-site meteorological 10 meter towers located at Demeter Farm (approximately 10 km south southeast of PGS on Scotts Mountain) and at Belvidere High School (approximately 6 km south of PGS in the Delaware River valley). In addition, four NWS ASOS meteorological stations located within the CALMET domain were also used. The table below lists the site-specific data used to inform the CALMET diagnostic model.*

WMO	Station Name	State	Latitude (deg)	Longitude (deg)	Zone	Surface Elevation (m)	Anemometer Height (m)
725020	NEWARK INTERNATIONAL AIRPORT	NJ	40.716	74.169	5	9.0	10.0
725170*	ALLENTOWN LEHIGH VALLEY INTL	PA	40.651	75.449	5	117.0	10.0
724077*	AEROFLEX ANDOVER	NJ	41.009	74.737	5	178.0	10.0
724094	CALDWELL/ESSEX CO.	NJ	40.876	74.283	5	53.0	10.0
724104*	SOMERSET AIRPORT ASOS	NJ	40.633	74.667	5	32.0	10.0
725113	DOYLESTOWN	PA	40.333	75.123	5	117.0	10.0
725434*	MT POCONO MUNI	PA	41.139	75.379	5	577.0	10.0
90001**	Demeter Farm	NJ	40.782	75.040	5	250.0	10.0
90002**	Belvidere High School	NJ	40.827	75.066	5	91.0	10.0

* ASOS station located within CALMET Domain
** On-site station located within CALMET Domain

"

Response:

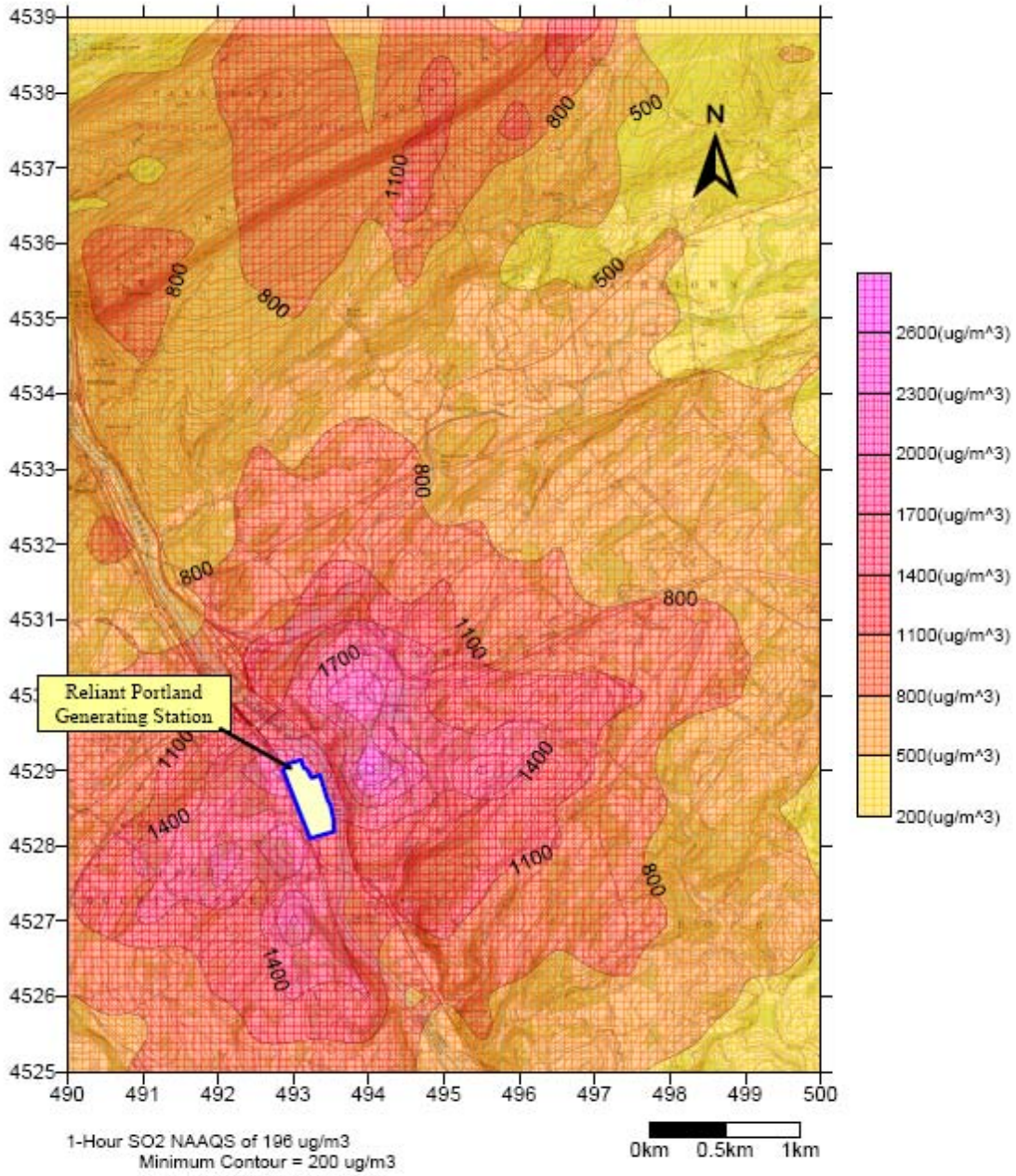
The reference to the lack of site specific meteorological data in the application of CALPUFF to estimate ambient SO_2 impacts associated with the Portland Plant was in relation to the combination of a 10-meter tower with multi-level SODAR winds collected in the vicinity of the Martin's Creek plant that were used as input to AERMOD and CALMET for the Martin's Creek evaluation study. We do not believe that the single level 10-meter towers at Demeter Farm and Belvidere High School referenced in NJDEP's comment are in any way comparable as site specific data for the Portland Plant as compared to the multi-level wind observations associated with the Martin's Creek field study given that they are located about 10 to 15 km from Portland and that the main Portland emission units are tall stacks. Although the Demeter Farm met tower is located on Scotts Mountain, the same terrain feature that was the main focus of the Martin's Creek field study, and due to its ground elevation in relation to the Martin's Creek stacks may be informative of meteorological conditions associated with impacts from the Martin's Creek plant on that terrain feature, it is clearly not site specific in relation to the elevated sources at the Portland Plant. The inclusion of other non-site-specific surface NWS and FAA ASOS meteorological stations within the domain as input to CALMET is also irrelevant to the issue raised in our comment.

Comment:

"NJDEP Response 4.b *- EPA has raised the concern that the Supplemental 126 Petition CALPUFF modeling did not include on-site meteorological data such as that used in NJDEP's validation study. This concern can first be addressed by looking at the exhibits of NJDEP's first 126 petition that was submitted to EPA on May 12, 2010. Exhibit 10 of that submittal is entitled "Calpuff 1992-1993 Modeling Analysis of the Sulfur Dioxide Impacts due to Emissions from Portland Generating Station", dated February 25, 2010. This document details CALPUFF modeling of the allowable SO2 emissions from Portland using the same meteorological data as used in NJDEP's model validation study. The results of this modeling predicted the SO2 impacts caused by Portland would be 67 percent higher than 3-hour NAAQS and over twice the SO2 24-hour NAAQS. Exhibit 6 of the May 12, 2010 126 Petition (Attachment II to this appendix) shows that when modeling the allowable emissions from Portland, use of the 1992-93 meteorological data results in predicted 3-hour and 24-hour impacts equal to or higher than those predicted with the 2002 and 2003 MM-5 meteorological dataset.*

EPA's concern regarding NJDEP's meteorological data was next addressed with additional CALPUFF modeling to determine compliance with the 1-hour SO2 NAAQS using the same 1992-93 meteorological data used by CALPUFF in the model validation. The results of the modeling analysis are shown in Figures 2 and 3. The CALPUFF model results using the on-site model validation meteorology data set produce impacts that are consistent both in spatial distribution and magnitude with the previous CALPUFF results submitted by NJDEP in support of the Supplemental 126 Petitions. Out of 8,280 receptors covering an area of approximately 30km by 40 km, 6739 receptors were found to have impacts above the National Ambient Air Quality Standard (see Figure 3). The maximum predicted violation of the 1-hour SO2 NAAQS due to emissions of Portland Power Plant was 2,785 ug/m3. At this receptor with the maximum impact (494.000 km E, 4,528.800 km N), 153 days were predicted to exceed the National Ambient Air Quality Standard. A 94 percent reduction in Portland Power Plant's allowable SO2 emission rate would be needed to bring this receptor into compliance with the 1-hour SO2 NAAQS."

Figure 2. CALPUFF Predictions of the 99th Percentile 1-Hour Sulfur Dioxide Impacts with 1992-1993 Meteorological Data

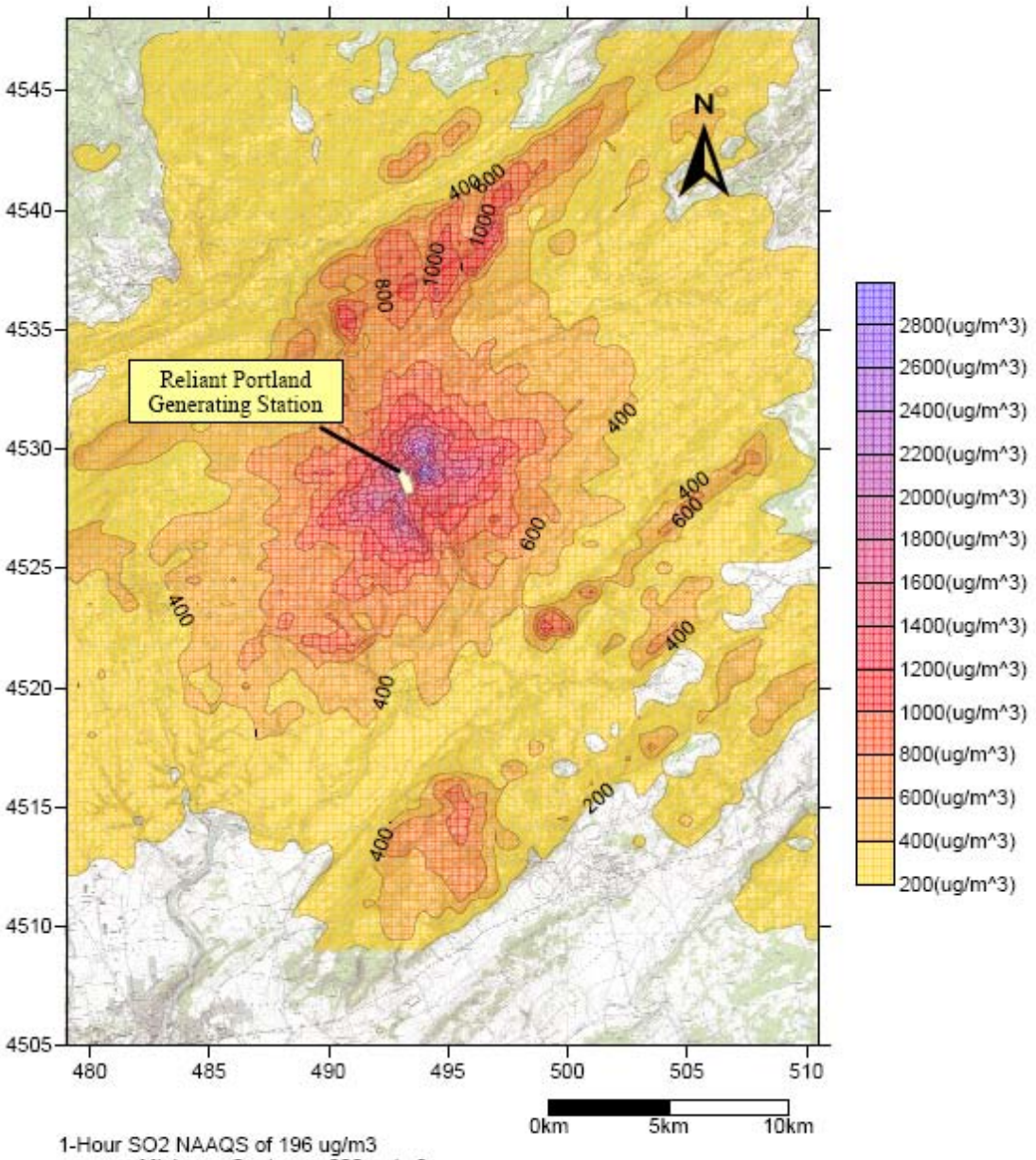


1-Hour SO2 NAAQS of 196 ug/m3
Minimum Contour = 200 ug/m3
Contour Interval = 300 ug/m3

Maximum Impact = 2,785 ug/m3

Includes no background concentrations
1992-93 CALMET processed wind fields

Figure 3. CALPUFF Predictions of the 99th Percentile 1-Hour Sulfur Dioxide Impacts with 1992-1993 Meteorological Data



1-Hour SO2 NAAQS of 196 ug/m3
Minimum Contour = 200 ug/m3
Contour Interval = 300 ug/m3

Maximum Impact = 2,785 ug/m3

Includes no background concentrations
1992-93 CALMET processed wind fields

Response:
The concern raised by the EPA in relation to this comment was that the CALPUFF validation study, which incorporated site-specific meteorological data from the Martin's Creek field study, would not be relevant to this application of CALPUFF due to the fact that the CALPUFF

modeling submitted in support of the section 126 petition did not incorporate site-specific meteorological data, which was based on 2002 12-kilometer MM5[8] meteorological data and 2003 4-kilometer MM5 meteorological data. The fact that the multi-level site specific meteorological data from the Martin's Creek field study were used in the CALPUFF modeling conducted from 1992-93 that was submitted with NJDEP's comment on the proposed rule is somewhat responsive to our comment, but we also note that the 1992-93 site specific data were collected in proximity to the Martin's Creek plant, which is about 14 kilometers southwest of Portland, and the issue of whether the 1992-93 Martin's Creek meteorological data could be considered as site specific for Portland has not be addressed. Furthermore, the issue raised in this comment is only relevant if the CALPUFF validation study had adequately demonstrated that CALPUFF is better than AERMOD for this application, and since our position on that fundamental question has not altered in response to these comments, this issue is moot.

2.a Comments on Other Issues Raised by the EPA on the Validation Study

Comment:

"2. The use of the AMS#8 Monitor in the Validation Study is Inappropriate (pages 40-42 of Air Quality Modeling TSD)

On page 40 of the TSD, EPA states that its evaluations based on the Martins Creek field study data did not include the AMS#8 monitor as part of the model-to-monitor comparisons since it was sited and used specifically to account for background concentrations, particularly when the emissions from Martins Creek would be impacting the complex terrain monitors on Scotts Mountain. On page 41, EPA questions the use of AMS#8 by NJDEP in the model-to-monitor comparisons of the validation study for two reasons:

- *The highest 24-hour average monitored RHC was from AMS#8, and AERMOD predicted 24-hour concentrations more accurately if AMS#8 data was not included.*
- *When northeast winds blow and the emissions from Portland Plant impact the monitor, the other ambient SO2 monitors on Scotts Mountain are not well-situated to account for background concentrations.*

These reasons provide no bases for removing the AMS#8 monitoring data as recommended. First, the NJDEP validation study used data from all eight monitors. It would have been inappropriate for NJDEP to eliminate specific monitors from the validation study to improve CALPUFF's accuracy in predicting monitored concentration. The same criteria apply to removing monitors from the validation to improve AERMOD's performance.

Second, it is not true that when northeast winds blow and the emissions from Portland Plant impact AMS#8, the other ambient SO2 monitors on Scotts Mountain are not well-situated to account for background concentrations. As can be seen in Figure 4 of the TSD, the only SO2 source within 50 km upwind of the Scotts Mountain monitors when winds are from the northeast quadrant is the Warren County District Landfill. The SO2 emissions from this source are minimal, only 25.9 tons in 2009. The concentrations measured at the Scotts Mountain monitors during northeast winds are representative of background air quality and are not being impacted by emissions from either Portland or Martins Creek Power Plants.

[8] MM5 refers to the "Fifth-Generation NCAR / Penn State Mesoscale Model".

There are many hours during both the EPA and NJDEP validation studies when the AMS#8 monitor was not used as background. Table 1 below is taken from a 1994 modeling report (TRC, 1994). This report summarizes the number of hours each of the eight monitors was used as background, the average background concentration at each monitor when used for background, and the highest 1-hour background value from each monitor. This table shows that the number of hours AMS#8 is used as background, its average background value, and the maximum background value are very similar to these other monitors.

Use of the SO2 measurement data from AMS#8 results in a more comprehensive model validation. The elevation of AMS#8 is near the stack-top elevation of both the Martins Creek and Portland Power Plant stacks. Because it is below the final height of the plumes emitted from these facilities, AMS#8 does not represent a complex terrain receptor as the other seven monitors do. Also, during the validation study the 99th percentile of the daily maximum1-hour SO2 concentration at AMS#8 of 406 ug/m3 represents a violation of the new 1-hour SO2 NAAQS. Wind trajectory analysis indicates emissions from Portland Power Plant caused the violation. This fact adds to AMS#8's relevancy in NJDEP's model validation study.
In summary, EPA's omission of the SO2 data collected at AMS#8 monitor is not justified. The use of the measurements from this uniquely located monitor enhances the Martins Creek model validation.

Table 1. Air Quality Model Performance Evaluation and Comparison Study for Martins Creek Steam Electric Station

Monitor Name	Number of Hours*			Average for the		Highest 1-Hour for the	
	Avail-able	Percent Data Capture	Used for Background **	Available Hours ($\mu g/^3$)	Background Hours ($\mu g/m^3$)	Available Hours ($\mu g/m^3$)	Background Hours ($\mu g/m^3$)
AMS05	9,080	98.5 %	1,547	11.9	9.6	692	86.5
AMS07	9,038	98.1 %	1,323	12.3	9.6	571	65.5
AMS08	8,903	96.6 %	3,152	12.7	11.9	820	105
AMS09	8,995	97.6 %	2,805	10.4	10.4	689	81.2
AMS10	9,115	98.9 %	2,557	12.8	12.8	718	126
AMS11	9,090	98.6 %	1,624	13.0	7.4	742	96.9
AMS12	9,091	98.6 %	2,675	12.1	10.4	1,362	102
AMS13	9,093	98.7 %	1,558	13.1	13.6	1,824	89.1

* The total number of hours for the study was 9,216 hours (May 1, 1992 through May 19, 1993).
** If two or more stations had equal, low concentrations, then both stations were counted as measuring the background concentration.

Response:
NJDEP's statement the "EPA questions the use of AMS#8 by NJDEP" because "the highest 24-hour average monitored RHC was from AMS#8, and AERMOD predicted 24-hour concentrations more accurately if AMS#8 data was not included" is a misstatement of EPA's proposed rule modeling TSD. In the TSD we point out that the inclusion of AMS#8 is an important issue due to the fact that one of the key metrics in the model evaluation, the highest 24-hour monitored RHC, occurs at AMS#8 and will therefore have an effect on the modeling evaluation results. It should be emphasized that our objection to inclusion of the AMS#8 monitor is based on the facts stated in the TSD, which are that the monitor was sited for the purpose of characterizing background concentrations in relation to the complex terrain monitors located on Scotts Mountain, and it was never intended for inclusion in the validation study.

Furthermore, given the location of the AMS#8 monitor in relation to the emission sources and topography of the domain, there will be additional uncertainty regarding the estimates of background concentrations relative to modeled impacts at the AMS#8 monitor. The focus of the field study was clearly related to assessing impacts from elevated plumes on the complex terrain southeast of the Martin's Creek facility and not related to assessing impacts in the vicinity of AMS#8. The burden is therefore on NJDEP to justify including AMS#8 in their validation study given the clear intent and history of this field study. As discussed above in response to #1.a, a more significant issue in relation to NJDEP's inclusion of the AMS#8 monitor in the model evaluation was their approach of combining all monitors except AMS#8 as a single "complex terrain" group, which was given equal weight as a group to the weight given the AMS#8 monitor by itself in the diagnostic component of the evaluation, effectively giving model performance at the AMS#8 monitor much more weight in the evaluation than performance at any of the individual complex terrain monitors.

Nevertheless, as demonstrated in our response to NJDEP comment #1.a, the assessment of whether or not CALPUFF performs "statistically significantly better" than AERMOD is not dependent on whether AMS#8 is included or excluded from the study. Furthermore, NJDEP's statements that "*These reasons provide no bases for removing the AMS#8 monitoring data*" and "*It would have been inappropriate for NJDEP to eliminate specific monitors from the validation study to improve CALPUFF's accuracy"* ignore the fact that the AMS#8 monitor was never part of the evaluation data base in the first place, other than for the purpose stated above of accounting for background concentrations.

Comment:
"3. Modeling Results Contained in the TSD, Table A.3 of Appendix A
Page 46 of the TSD contains a table comparing CALPUFF and AERMOD 3-hour and 24-hour RHC with seven of the monitor's RHC (AMS#8 was ignored). This table is similar to Table 3-5 in the document "Independent NAAQS Modeling Study and Review of NJDEP Modeling of SO2 and PM2.5 Impacts from the Portland Generating Station" that was submitted by the current owner of Portland to the EPA 126 Petition Docket[9] *(AECOM, 2010). Though not specified, it appears that in the AECOM 2010 report and EPA's table, the RHC were calculated with an N value equal to 26. Therefore, the values used by AECOM and EPA have the uncertainties and inaccuracies discussed earlier in NJDEP Response #2.a due to the arbitrary selection of N.*"

Response:
The RHCs presented in Table A.3 of the modeling TSD were based on the same value of N as used by NJDEP, i.e., N=11 was used for the 3-hour RHCs and N=16 was used for the 24-hour RHCs. Other than reporting observed and modeled RHCs by receptor and using a geometric mean to represent the mean value for a set of ratios, neither of which is novel, there are no other similarities between the two tables mentioned in this comment and it is unclear what point NJDEP intends to make by this statement. As stated in our response to NJDEP comment #2.b

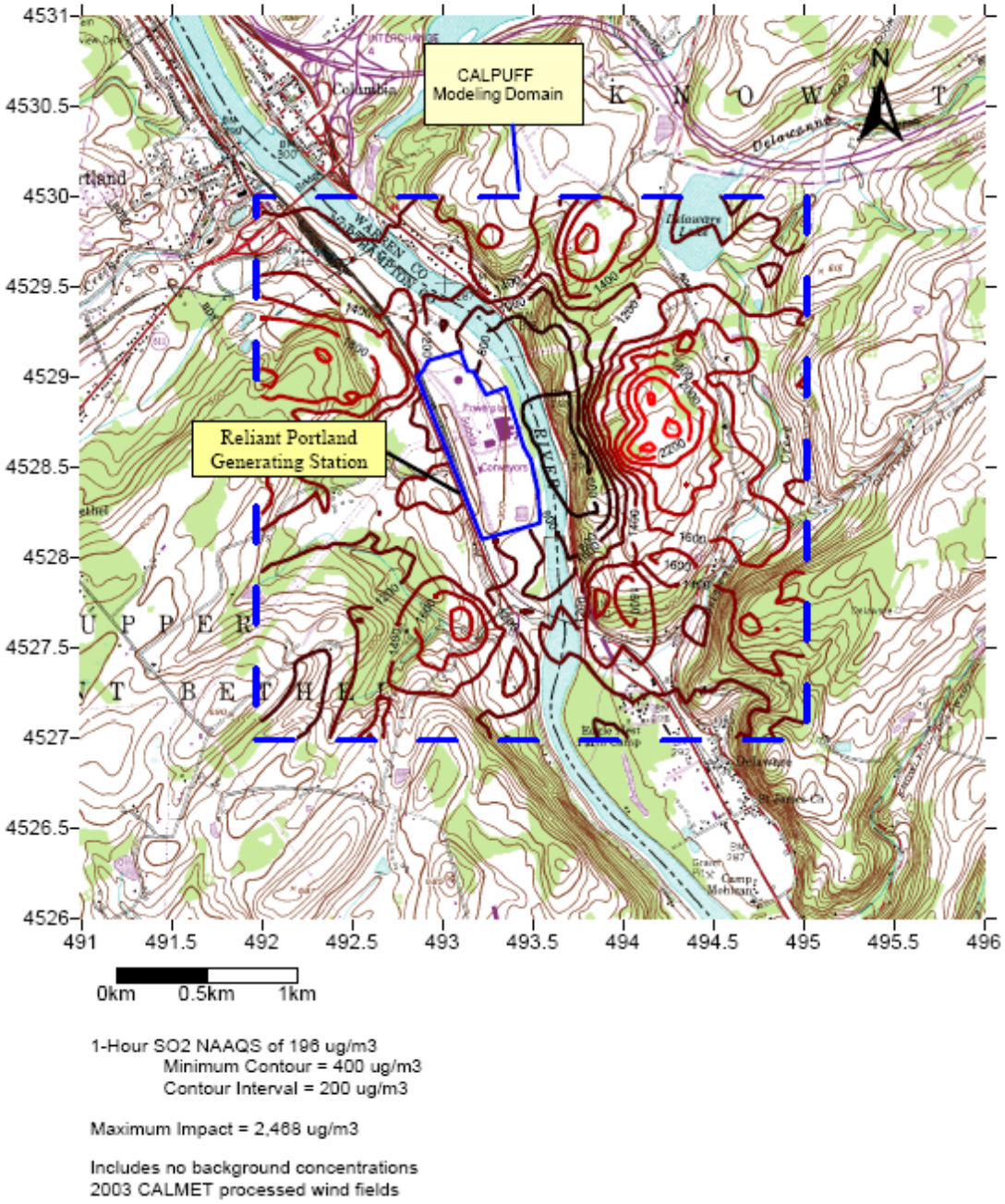
[9] AECOM, 2010. Independent NAAQS Modeling Study and Review of NJDEP Modeling of SO2 and PM2.5 Impacts from the Portland Generating Station. Prepared for: RRI Energy, Canonsburg, PA. Prepared by: AECOM Environment, Canonsburg, PA Westford, MA 60158681. November 2010.

regarding the value of N for RHC calculations, we strongly disagree with NJDEP's assessment that selecting different values of N based on "the value where the concentrations begin their rapid rise" in any way reduces uncertainties or inaccuracies in the model evaluation.

Comment:
"4. The 2002 CALPUFF Results are Incorrectly Criticized as Physically Unrealistic And EPA Ignores the 2003 CALPUFF Results (pages 8, 12, and 47 of the TSD)
EPA's comments incorrectly state that the results of the 2002 CALPUFF modeling analysis are unrealistic and also ignore the results of the 2003 CALPUFF modeling. The 2002 CALPUFF modeling used a course 12 km MM-5 grid with no nearby surface observations. EPA must also consider the submitted CALPUFF modeling that used 2003 meteorological data that was part of the NJDEP supplemental 126 Petition.

The 2003 CALPUFF modeling used a much more refined wind field from CALMET that utilized a 4 km MM-5 meteorological grid and the winds from two local 10 meter meteorological towers, and 10-meter DEM data. A receptor grid with 50 meter receptor spacing close in to the facility was used in CALPUFF. Figure 4 graphically depicts the spatial distribution of impacts surrounding the facility for the CALPUFF 2003 modeling run. Maximum impacts are located in elevated terrain approximately 1 km across the Delaware River in New Jersey. The spatial distribution of impacts is very similar to that predicted by EPA's AERMOD modeling."

Figure 4. CALPUFF Predictions of the 99th Percentile 1-Hour Sulfur Dioxide Impacts due to 2003 Allowable Emissions from the Portland Power Plant



Response:

NJDEP's comment does not offer any explanation as to why the 2002 CALPUFF results, which show peak 1-hour SO_2 impacts occurring within about 100 meters of the Portland Plant at an elevation of 3 meters above stack base, are physically realistic given the release height and buoyancy of the plumes from units 1 and 2. The 2003 CALPUFF results are not as dramatic in this respect as the 2002 results, but still show peak impacts much closer to the plant than

AERMOD. Figure 4 included in Appendix A of NJDEP's comments on our assessment of the CALPUFF validation study only shows contours for the 2003 CALPUFF results across a 3km-by-3km domain, but exhibits several localized peaks above 1,800 µg/m^3 within about 1 km of the plant, with concentrations exceeding 1,200 µg/m^3 within about 500 meters NW of the main stacks at elevations well below stack top, several times higher than AERMOD modeled impacts in that area. We disagree with NJDEP's assertion that "the spatial distribution of impacts [based on 2003 CALPUFF results] is very similar to that predicted by EPA's AERMOD modeling." Although we do not have any ambient SO_2 monitored data in the vicinity of the peak impacts from Portland predicted by the CALPUFF model, we believe that the EPA analysis of modeled vs. monitored concentrations using the Columbia, New Jersey ambient SO_2 monitor located about 2 kilometers northeast of Portland support our assessment that the CALPUFF modeling results for Portland submitted by NJDEP show ambient SO_2 impacts that are unrealistically high. Based on the EPA analysis, which is similar to the analysis included in NJDEP's trajectory analysis for the Columbia monitor, the average of the predicted/observed ratios of the top 10 daily maximum 1-hour values for CALPUFF were 3.26 for the 1992-93 meteorological data and 3.87 for the 2002 meteorological data. For comparison, the average of the predicted/observed ratios of the top 10 daily maximum 1-hour values for AERMOD was 1.14. The EPA analysis used an emission scenario of 100 percent load and 70 percent of allowable emissions for Portland units 1 and 2, which is representative of peak operating conditions for Portland during the period of monitoring data and reflects the fact that the sulfur content of the fuel being burned at Portland was typically about 70 percent of the allowable sulfur content. Additional details regarding these analyses related to the Columbia monitoring data are provided in Appendix B of the EPA final rule Modeling TSD.

3. Comments on the EPA's Meteorological Data Adjustment

Commenter: Commissioner Bob Martin, NJDEP provided detailed comments regarding EPA's adjustments to the Portland site specific meteorological data in Appendix B, "EPA's Meteorological Data Adjustment", submitted with NJDEP's June 13, 2011 comments on EPA's proposed rule to grant New Jersey's September 17, 2010 Section 126 petition regarding the Portland Generating Station (Portland). A summary of their comments and EPA responses is provided in this section.

Comment:
METEOROLOGICAL DATA ADJUSTMENT BY EPA

EPA's adjustments to the meteorological dataset input into AERMOD are discussed in the Air Quality Modeling Technical Support Document: NJ 126 Petition of September 17, 2010 Section II.E (Meteorological Data), Section II.F (Summary of EPA's Analysis of the NJEDP Modeling) and Appendix B (EPA Assessment of Site Specific Meteorological Data). EPA made several significant changes to the meteorological data that have been historically used in the modeling of Portland with AERMOD (including NJDEP 126 Petition modeling). One was the addition of the sigma-w data (standard deviation of vertical wind velocity fluctuations) measured by SODAR. An additional concern is the recalculation of the land surface characteristics using a beta version AERSURFACE that has not been released to the public.

As a result of these changes and other changes by the EPA to the meteorology and surface parameters, AERMOD's prediction of Unit 1 and 2's maximum 99th percentile daily maximum 1-hour SO2 concentration decreased by over 40 percent from that predicted in the NJDEP modeling (1402 ug/m3 vs. 835.8 ug/m3).

In addition, NJDEP believes that some of the other modifications made by EPA to the meteorological data used to determine the remedy level should not have been made. NJDEP is concerned that relatively new, untested techniques have been used to adjust the meteorological data instead of more well established procedures.

1 - Historical Precedence

The meteorological data used by NJDEP is consistent with that which has historically been used when modeling Portland's emissions with AERMOD. The meteorological data collected near Portland was first used in AERMOD in the 1999 Warren County Sulfur Dioxide Modeling Study (ENSR, 1999). Use of an AERMOD meteorological dataset similar to that used by NJDEP was approved by the Technical Assessment Group (TAG) that was assembled for this 1999 modeling effort. Members of the TAG included GPU (the former owner of Portland Power Plant), PPL, EPA Region 2, EPA Region 3, Pennsylvania DEP, and New Jersey DEP. All parties signed onto the February 26, 1999 "Agreement of Principal" regarding this modeling analysis.

It is also important to note that a meteorological dataset similar to that used by NJDEP without EPA's modifications was considered appropriate for use by the current and previous owners of Portland Power Plant. AERMOD modeling using this data has been submitted to PADEP, EPA Region 3, and NJDEP on numerous occasions by Portland's owners' consultants (ENSR, 1999[10]; ENSR, 2000[11]; AECOM, 2010[12]). Previous owners of the Portland Power Plant have made detailed technical arguments on why the tower and SODAR meteorological data collected is representative of meteorological conditions in the Delaware River Valley where Portland is located without adjustment (Reliant, 2001).[13]

The modeling results based on a meteorological dataset similar to that used by NJDEP without EPA's modifications were the basis for Reliant (owner of Portland Power Plant at that time)

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[10] ENSR, 1999. SO2 NAAQS Compliance Modeling for GPU's Portland Generating Station. ENSR Document 3142-003-301. May, 1999

[11] ENSR, 2000. Amended Protocol for the Reliant Energy Portland Project. ENSR Document Number 6045-003-451. December, 2000.

[12] AECOM, 2010. Independent NAAQS Modeling Study and Review of NJDEP Modeling of SO2 and PM2.5 Impacts from the Portland Generating Station. Prepared for: RRI Energy, Canonsburg, PA. Prepared by: AECOM Environment, Canonsburg, PA Westford, MA 60158681. November 2010.

[13] Reliant, 2001. Letter from Vincent J. Brisini (Reliant) to Jane Mahinske (PADEP), Subject: *Responses to Items #1 and #2 of NJDEP Correspondence of March 27, 2001*, dated May 4, 2001.

September 11, 2001 application for a Minor Modification to Portland's Title V Air Operating Permit. The permit modification placed a 3-hour SO_2 emission limit of 8.73 tons on Units 1 and 13.35 tons on Unit 2. These values effectively lowered the 3-hour full load allowable SO_2 limit of these units by approximately 12 percent. A copy of the Reliant's September 11, 2001 permit application is Attachment I to this appendix.

40 CFR Part 51, Appendix W paragraph 8.3.1.2 recommends that when an emission limit for a source is based on a specific year of meteorological data, this same meteorological data be used in any future modeling of the source. Though from the same year, the changes made by EPA to the previously used meteorological data are significant enough to consider it a new set of data. The fact that the maximum 99th percentile daily maximum 1-hour SO_2 concentration predicted by AERMOD using the two meteorological datasets differ by 40 percent (1402 $\mu g/m^3$ vs. 835.8 $\mu g/m^3$) support this conclusion. The guidance in Appendix W implies that EPA should follow precedence and also model with a meteorological data similar to that used in previous evaluations."

Response:
NJDEP raises several concerns regarding adjustments that the EPA made to the site specific meteorological data for use in the AERMOD modeling conducted to support the EPA assessment of NJDEP's Section 126 petition for the Portland Plant, in light of historical precedence on the use of this data to support past assessments. Since the dispersion modeling conducted by the EPA using the Portland site specific meteorological data served as the basis for determining an appropriate remedy under Section 126 to eliminate Portland's significant contribution to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey, EPA is obligated to conduct as accurate an assessment as possible given the circumstances of this case, and it would be inappropriate for our actions to be bound by past precedents related to the use of this data in light of legitimate concerns regarding the representativeness of the data for that purpose documented in Appendix B of the EPA proposed rule Modeling TSD. The fact that these concerns regarding representativeness had not been raised nor addressed in past applications involving the use of this data is immaterial to the legitimacy of these concerns in relation to the technical basis for this action.

NJDEP cites Section 8.3.1.2(c) of Appendix W as justifying the use of historical versions of the site specific data in this case, irrespective of EPA's concerns related to the representativeness of the data. The referenced section of Appendix W recommends that "for permitted sources whose emission limitations are based on a specific year of meteorological data, that year should be added to any longer period being used (e.g., 5 years of NWS data) when modeling the facility at a later time." Section 8.3.1.2(c) addresses situations where additional years of data have been added to modeling for a particular facility at a later time, but does not address inclusion of different version of the same meteorological data period and is therefore not applicable to this situation.

Comment:
"2 - Use of SODAR Sigma-w Data

EPA modified the meteorological data it used to include the SODAR sigma-w data collected near the site. NJDEP raises three concerns about inclusion of the SODAR sigma-w data.

2.a – AERMOD Validation Studies

Review of the validation studies as referenced in the Technical Support Document indicates SODAR sigma-w data were never included as part of an AERMOD validation study, including those field studies conducted in complex terrain study (EPA, 2003[14]; Perry, et al., 2005[15]). The AERMOD validation study at Martins Creek only included turbulence measurements taken from meteorological towers, not from the SODAR. Consistent with these studies, the AERMOD meteorological data set used by NJDEP only included turbulence data from the meteorological towers.

AERMOD averages the vertical turbulence values such as sigma-w throughout the atmospheric layer through which the plume travels from the source to the receptor. Therefore, the SODAR sigma-w measurements at Portland taken above 100 meters will have a significant impact on the vertical dispersion of the plume. As mentioned on page 38 of the TSD, one would expect the model would perform better if measured sigma-w data at all levels were available. However, this theory has never been tested. In the AERMOD validation studies (EPA, 2003; Perry, et al., 2005) and in the modeling analysis conducted by NJDEP, the sigma-w values above the height of the meteorological tower were calculated internally by AERMOD. The accuracy of the model in predicting ground-level impacts using SODAR measured sigma-w above the height of the meteorological towers has never been demonstrated. Any inference that the model will make more accurate predictions of ground-level concentrations with the SODAR sigma-w data is speculation and not supported by the existing validation studies."

Response:

NJDEP's review of the AERMOD validation studies is correct in that none of those studies included SODAR derived sigma-w data. However, several data bases did include sigma-w data collected from meteorological towers. One reason that the Martin's Creek and original Portland site specific data sets did not include SODAR sigma-w data is that the meteorological monitoring guidance at the time those monitoring programs were conducted recommended against the use of SODAR-derived turbulence data, including sigma-w or sigma-theta (EPA, 1987)[16], since it was still an emerging technology at the time. When EPA's meteorological monitoring guidance was updated in 2000, many of the changes in the guidance were related to remote sensing, including

[14] EPA, 2003. AERMOD: Latest Features and Evaluation Results. EPA-454/R-03-003. U.S. Environmental Protection Agency, Research Triangle Park, NC.

[15] Perry, S. G., A. J. Cimorelli, R. J. Paine, R. W. Brode, J. C. Weil, A. Venkatram, R. B. Wilson, R.F. Lee, and W. D. Peters, 2005. AERMOD: A dispersion model for industrial source applications. Part II: Model performance against seventeen field-study databases. *J.Appl.Meteor.*, **44**, 694-708.

[16] EPA, 1987. On-Site Meteorological Program Guidance for Regulatory Modeling Applications", EPA-450/4-87-013. U.S. Environmental Protection Agency, Research Triangle Park, NC, 27711.

the use of SODAR data. Citing numerous studies comparing SODAR-based turbulence statistics (sigma-theta and sigma-w) with tower-based data, where reasonably good agreement was found for sigma-w, but not for sigma-theta, the current guidance considers SODAR-based sigma-w to be acceptable for use in dispersion modeling (EPA, 2000).[17]

Although a systematic analysis of the relative contribution of measured sigma-w to AERMOD model performance has not been conducted, the overall good agreement between modeled and observed concentrations for AERMOD across 17 field study databases, of which 8 included sigma-w data, provides no indication that inclusion of sigma-w actually degrades model performance, and NJDEP provides no technical rationale to suspect that to be the case. On the contrary, based on an analysis of predicted/observed robust highest concentration (RHC) ratios across the 17 field studies (EPA, 2003), there is some indication that inclusion of sigma-w data improves model performance. The average RHC ratio for the 8 studies that included sigma-w data was 0.999, compared to an average RHC ratio of 1.105 for the 9 studies that did not include sigma-w data. The range of RHC ratios was also narrower for the studies that included sigma-w data, ranging from 0.77 to 1.11, compared to a range from 0.44 to 1.78 for the studies that did not include sigma-w data.

NJDEP's statement that "*sigma-w values above the height of the meteorological tower were calculated internally by AERMOD* " appears to suggest that even when sigma-w data are available, the data will not be utilized within the model above the highest measurement level. While NJDEP is partially correct in stating that sigma-w values above the height of the meteorological tower are calculated internally by AERMOD, that statement overlooks the fact that the measured sigma-w values do affect the values used within AERMOD above the highest measurement level since the profile computed within AERMOD is fitted to all available measurements. See Section 7 of the AERMOD model formulation document (Cimorelli, *et al.*, 2004)[18] for more details.

Comment:

"2.b - Effect of SODAR Sigma-w Data on Model Predictions

To assess the impact of EPA's inclusion of the SODAR sigma-w data, the meteorological dataset developed by the EPA for their 126 petition modeling was modified by NJDEP by removing all the SODAR sigma-w data. No other changes to the meteorological dataset used by EPA were made. The AERMOD was rerun with this modified meteorological dataset. Table 1 gives the model's predictions of the five highest 99th percentile of the daily maximum1-hour concentrations for the two scenarios: meteorological data with the SODAR sigma-w data and meteorological data without the SODAR sigma-w data.

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[17] EPA, 2000. Meteorological Monitoring Guidance for Regulatory Modeling Applications.EPA-454/R-99-005. U.S. Environmental Protection Agency, Research Triangle Park, NC, 27711.

[18] Cimorelli, A. J., S. G. Perry, A. Venkatram, J. C. Weil, R. J. Paine, R. B. Wilson, R. F. Lee, W. D. Peters, R. W. Brode, and J. O. Paumier, 2004. AERMOD: Description of Model Formulation, EPA-454/R-03-004. U.S. Environmental Protection Agency, Research Triangle Park, NC.

Table 1. AERMOD Top Five Predicted Impacts With and Without SODAR Sigma-W

East UTM (km)	North UTM (km)	Receptor Elv. (m)	Units 1 and 2 [a] (ug/m^3)
With SODAR Sigma-W			
494.400	4531.400	157	835.8
494.500	4531.600	168	826.9
494.400	4531.300	159	820.7
494.300	4531.200	156	813.8
494.400	4531.500	157	810.9
Without SODAR Sigma-W			
488.000	4533.400	401	938.5
488.100	4533.400	379	935.1
488.200	4533.500	402	922.4
489.300	4534.700	381	916.8
487.800	4533.600	397	913.5

a. Represents maximum 99th percentile of the daily maximum1-hour concentrations

Modeling the emissions from Units 1 and 2 not using the SODAR sigma-w data increases the predicted maximum 99th percentile daily maximum 1-hour SO_2 concentration by 12 percent. The other receptors with the high predicted impacts show a similar increase. The location of the maximum impacts also changes to the elevated terrain on Kittatinny Ridge. These results bring into question whether AERMOD would have performed as well as in did in the previous validation studies (EPA, 2003; Perry, et al., 2005) if SODAR sigma-w data had been used."

[EPA notes that the top five values with SODAR sigma-w data presented in Table 1 of NJDEP's comments are not the top five 99th-percentile values based on impacts from Units 1 and 2, but represent the contribution from Units 1 and 2 to the top five 99th-percentile values for source group ALL including contributions from Units 1, 2, and 5 plus monitored background.]

Response:
We disagree with NJDEP's assertion that the mere fact that the predicted maximum 99th percentile daily maximum 1-hour SO_2 concentration for Portland increased by 12 percent and that the location of maximum impact changed based on exclusion of SODAR sigma-w data brings "into question whether AERMOD would have performed as well as it did in the previous validation studies if SODAR sigma-w data had been used." As noted above in response to comment 2.a, an analysis by the EPA of predicted/observed RHC ratios across the 17 field studies provides some indication that inclusion of sigma-w data improves model performance. In addition, of the 17 field study databases on which AERMOD was validated, only two studies included SODAR data, Martin's Creek and Tracy. As with the Portland SODAR data, both Tracy and Martin's Creek field studies predated the 2000 update to EPA's meteorological monitoring guidance regarding the use of SODAR-derived sigma-w data, and these applications were therefore consistent with the EPA meteorological monitoring guidance at the time. For these two field studies, the ratio of AERMOD predicted/observed 1-hour robust highest concentrations (RHCs) for Tracy was 1.04, and the ratio of AERMOD predicted/observed 3-hour RHCs for Martin's Creek was 1.12 (EPA, 2003). The Tracy study was an intensive field study

with robust site-specific meteorological data, including five levels of sigma-w data up to 150 meters from an instrumented tower and vertical temperature profiles up to 400 meters from a tethersonde. Given the extent of data available from the Tracy field study, it seems unlikely that inclusion of SODAR sigma-w data would have significantly altered the performance of AERMOD. The data available for the Martin's Creek field study was more comparable to the site specific meteorological data available for Portland, and Martin's Creek is located within about 15 kilometers of the Portland tower. Based on the AERMOD evaluation results for Martin's Creek, a reduction in peak concentrations of about 10 percent, comparable to the reduction noted by NJDEP for Portland based on inclusion of SODAR sigma-w data, would actually improve the performance of AERMOD for that field study, contrary to NJDEP's assertion.

An additional assessment of the potential contribution to modeled concentrations associated with inclusion of SODAR sigma-w data was conducted by the EPA based on NJDEP's analysis (NJDEP, 2011[19]) of Portland's impacts on the Columbia, NJ ambient SO_2 monitor, located about 2 kilometers northeast of the Portland plant.

The EPA Table 1 below summarizes the results of the model-to-monitor comparisons for the Columbia monitor conducted by EPA to assess the potential effects on model performance associated with inclusion of SODAR sigma-w data and the adjustments to the measurement heights to account for the difference in base elevation of the meteorological tower and SODAR relative to the Portland stack base elevation, both separately and combined. The monitored and modeled concentrations in Table 1 are based on the top 10 daily maximum 1-hour values for consistency with the form of the 1-hour SO_2 NAAQS, and the monitored values reflect observed concentrations for a complete year, from September 23, 2010 through September 22, 2011. The results presented in Table 1 show that the average ratio of modeled/predicted concentrations for the top 10 daily maximum 1-hour values for AERMOD based on the EPA adjustments to the meteorological data is 1.14, indicating very good agreement between modeled and monitored concentrations, with a slight bias toward overestimation consistent with the fact that the modeled emission scenario represents peak operating conditions during the period. The average predicted/observed ratio drops to 0.68 when the SODAR sigma-w data are removed. A less significant drop in the average predicted/observed ratio to 0.85 occurred when the SODAR sigma-w data were included but without EPA's adjustments to the measurement heights. However, the average predicted/observed ratios were even lower at 0.61 when both the SODAR sigma-w and measurement height adjustments were excluded. For comparison, the average predicted/observed ratio for the 100%-load/70%-allowable emission scenario for AERMOD based on the meteorological data used by NJDEP was 0.77. Although these model-to-monitor comparisons are based on a single monitoring location and the use of 1993-1994 meteorological data for the modeled concentrations vs. 2010-2011 for the monitored concentrations, the results tend to corroborate the use of SODAR sigma-w data and other adjustments to the meteorological data incorporated in EPA's AERMOD modeling. Additional details regarding these analyses

[19] NJDEP, 2011. Analysis of the Sulfur Dioxide Measurements from the Columbia Lake NJ Monitor. Bureau of Technical Services, Division of Air Quality, New Jersey Dept. of Environmental Protection, March 4, 2011. Docket ID No. EPA-HQ-OAR-2011-0081-0019

related to the Columbia monitoring data are provided in Appendix B of the EPA final rule Modeling TSD.

Table 1. Comparisons of daily maximum 1-hour SO_2 AERMOD modeled concentrations (ug/m3) based on 100% load and 70% allowable emissions vs. Columbia monitored concentrations, with and without the EPA adjustments to Portland meteorological data

1-hr Rank	Columbia Obs Conc	AERMOD All Adj	Pred/Obs All Adj	AERMOD No sigw	Pred/Obs No sigw	AERMOD No H Adj	Pred/Obs No H Adj	AERMOD No Adj	Pred/Obs No Adj
1	479	782	1.633	384	0.802	401	0.839	310	0.648
2	426	531	1.245	337	0.791	379	0.890	263	0.617
3	413	433	1.047	224	0.542	357	0.863	216	0.523
4	356	416	1.169	218	0.614	313	0.881	212	0.595
5	348	356	1.023	212	0.609	296	0.851	210	0.602
6	327	351	1.073	210	0.643	265	0.811	204	0.625
7	306	309	1.010	206	0.673	248	0.810	186	0.609
8	290	301	1.038	205	0.704	248	0.852	182	0.625
9	283	299	1.059	201	0.713	232	0.823	179	0.634
10	277	296	1.068	190	0.684	230	0.830	176	0.635
Ave	**350.5**	**407.4**	**1.136**	**238.8**	**0.678**	**297.1**	**0.845**	**213.8**	**0.611**

Comment:

"3. Rerunning of AERSURFACE for Land Surface Characteristics

Page 62 of the TSD discusses NJDEP's modification of the surface roughness, Bowen ratio, and albedo used by NJDEP to characterize the land use around the Portland meteorological site. A beta version of AERSURFACE that has had very limited public review or availability was used by EPA to recalculate the surface roughness, Bowen ratio, and albedo.

3.a – Snow Cover

It appears EPA did not account for snow cover during the winter season in its beta AERSURFACE model run. The Allentown PA Airport is located approximately 25 miles southwest of the Portland meteorological tower. Review of the Climatological Data Monthly Summaries from the Allentown Airport indicates there was snow cover on the ground for approximately 67 percent of the time between December 1, 1993 to February 28, 1994. Similar to NJDEP, all previous uses of AERSURFACE to generate meteorological data for AERMOD assumed snow cover during the winter months (ENSR, 1999; ENSR, 2000).

3.b – Surface Roughness Radius of Influence

A value of 5 km was used for the surface roughness radius of influence used in EPA's beta AERSURFACE run. This value is extremely large for wind data with a 10 meter reference height.

3.c - Beta Version of AERSURFACE

Very little information concerning the beta version of the AERSURFACE used by EPA is available to the public so it is difficult to comment on its use. It is assumed this version of

AERSCREEN uses the methodology briefly discussed in the AERSURFACE presentation at the 2010 Regional/State/Local workshop in Portland, Oregon (use of the internal boundary layer to calculate an effective surface roughness). Since this method is experimental, a sensitivity analysis was conducted by NJDEP to compare AERMOD's predictions using the surface roughness, Bowen ratio, and albedo generated using the beta version of AERSURFACE to AERMOD's predictions using the current version of AERSURFACE (version 08009) on the EPA SCRAM website and a 1 km surface roughness radius of influence. Snow cover in the winter months was also assumed.

Other than the recalculated surface roughness, Bowen ratio, and albedo values and the removal of the SODAR sigma-w data as described in comment 1.c, NJDEP made no other changes to the EPA meteorological data set. Table 2 shows the model's prediction of the five highest 99th percentile of the daily maximum1-hour concentrations between the EPA 126 Petition modeling and the modeling with this revised meteorological dataset.

The results in Table 2 suggest that if EPA had used the current AERSURFACE (version 08009) on the EPA SCRAM website and included snow cover for the winter months, AERMOD's maximum predicted impacts would have been 16 percent higher. As with the results in Table 1, when the SODAR sigma-w was removed, the location of the maximum impacts using the AERSURFACE (version 08009) values is on the elevated terrain at Kittatinny Ridge."

Table 2. AERMOD Top Five Predicted Impacts With EPA's Meteorological Dataset and Without SODAR Sigma-W and Revised AERSURFACE Data

East UTM (km)	North UTM (km)	Receptor Elv. (m)	Units 1 and 2 [a] (ug/m^3)
With SODAR Sigma-W and beta AERSURFACE			
494.400	4531.400	157	835.8
494.500	4531.600	168	826.9
494.400	4531.300	159	820.7
494.300	4531.200	156	813.8
494.400	4531.500	157	810.9
Without SODAR Sigma-W and AERSURFACE version 08009			
488.100	4533.400	379	1,067.0
487.900	4533.700	389	1,057.8
488.000	4533.400	401	1,057.5
488.200	4533.500	402	1,009.0
487.800	4533.600	397	1,007.9

a. Represents maximum 99th percentile of the daily maximum1-hour concentrations

Response:
First, it is unclear what NJDEP's statement that "AERMOD's maximum predicted impacts would have been 16 percent higher" if "EPA had used the current AERSURFACE (version 08009) on the EPA SCRAM website and included snow cover for the winter months" is based on. The differences in Table 2 of the NJDEP comments show an increase of about 28 percent between the EPA modeling with SODAR sigma-w and the Beta version of AERSURFACE vs.

without SODAR sigma-w and with AERSURFACE version 08009. On the other hand, comparing the highest result from Table 1 of NJDEP's comments without SODAR sigma-w data to the highest value from Table 2 of NJDEP's comments without SODAR sigma-w data with the use of AERSURFACE version 08009 represents an increase of only 13.7% attributable to surface characteristics. However, the latter results are without the use of SODAR sigma-w data and therefore would not apply directly to EPA's modeling results.

Regarding the use of a Beta version of AERSURFACE, EPA has indicated that the AERSURFACE tool is not currently part of the AERMOD regulatory modeling system (EPA, 2008[20]), and therefore is not required for use in regulatory applications of AERMOD. EPA elected to utilize a Beta version of AERSURFACE based on an assessment of the most appropriate methodology currently available to determine surface characteristics for use in processing meteorological data with AERMET. The Beta version of AERSURFACE estimates the effective roughness based on an internal boundary layer (IBL) approach and the radius used in determining the effective roughness depends on the surface characteristics of each site and sector (EPA, 2011[21]). NJDEP incorrectly interpreted the header record from the Beta version of AERSURFACE included in the AERMET Stage 3 input file as indicating that a 5 kilometer radius was used for the roughness estimates. The Beta version of AERSURFACE initially extracts land cover data based on a default radius of 5 kilometers, but the radius associated with effective roughness estimates varies depending on the land cover characteristics at the site and the height of the reference wind measurement associated with the effective roughness. For the 10m level at the Portland meteorological tower site the effective radius varied between about 600 and 800 meters depending on the sector. EPA regrets any confusion that may have been introduced by this information.

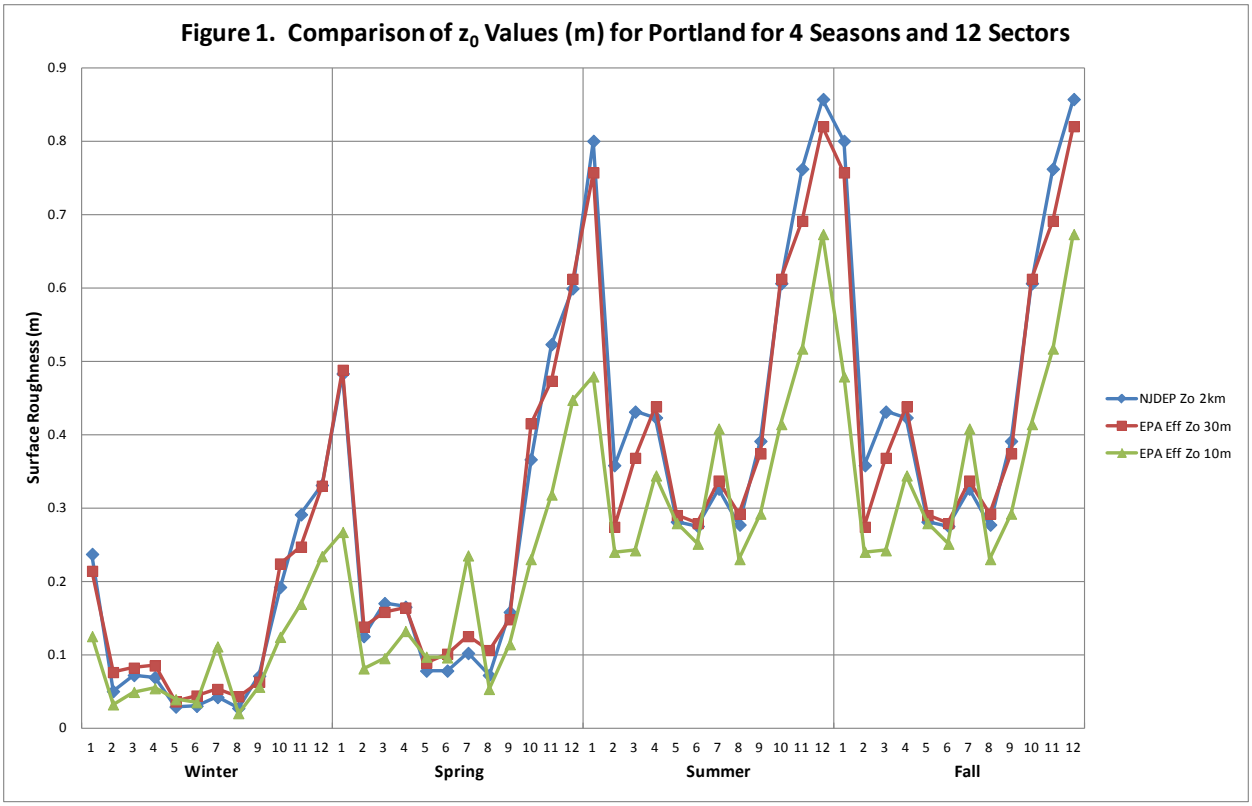
One of the adjustments that EPA made to the Portland site specific meteorological data was to include the 10-meter wind speed as the reference wind, rather than using the 30-meter wind speed as was done by NJDEP (see EPA proposed rule Modeling TSD). Since the effective roughness method incorporated in the Beta version of AERSURFACE utilizes the measurement height in determining the radius associated with the effective surface roughness, it would be inappropriate to utilize the surface roughness determined by NJDEP based on version 08009 of AERSURFACE, given the fact that NJDEP used a non-default radius of 2 kilometers for estimating surface roughness to account for the 30-meter reference wind measurement height. NJDEP's use of the larger radius to account for the 30-meter measurement height resulted in somewhat higher surface roughness values than those determined by EPA for most sectors. Furthermore, as noted in Appendix B of the proposed rule Modeling TSD, the EPA applied the Beta version of AERSURFACE to determine effective roughness values at the Portland tower site based on a 30-meter wind measurement height in order to assess the appropriateness of the

[20] EPA, 2008. AERSURFACE User's Guide. EPA-454/B-08-001. U.S. Environmental Protection Agency, Research Triangle Park, NC.

[21] EPA, 2011. AERSURFACE Update. Presentation at 2011 Regional/State/Local Modelers Workshop, Atlanta , GA, June 2011. Available at: http://www.cleanairinfo.com/regionalstatelocalmodelingworkshop/archive/2011/Presentations/4-Wednesday_AM/4-2_Brode_RSL2011_AERSURFACE_Update.pdf

non-default radius used by NJDEP. The results of this comparison are presented below in Figure 1, which shows generally good agreement between the effective roughness values from the Beta version based on a 30m measurement height and the roughness values determined by NJDEP using a non-default radius of 2 kilometers, essentially confirming the appropriateness of the non-default radius used by NJDEP.

Based on a further review of available climatological data for the Portland area for 1993-94, the EPA agrees that it may be reasonable to assume continuous snow cover for the winter months, as was done by NJDEP in their AERMOD modeling analysis. We note that the highest seasonal snowfall total reported between 1979 through 2011 at the Allentown airport, located about 40 kilometers southwest of Portland, occurred during the 1993-94 winter season. We also note that climatological observations of snow cover for the Belvidere Bridge coop station, located about 10 kilometers south of Portland, indicated relatively continuous snow cover from late December 1993 through about mid-March 1994. However, this change in the meteorological data processing resulted in less than 0.1 percent change in the modeled design value, and therefore would have no effect on the final remedy emission limit of 81 percent reduction from allowable emissions. Furthermore, the inclusion of snow cover in the surface characteristics generally resulted in slightly lower ambient impacts from the Portland plant, contrary to NJDEP's assertions. This review of climatological data related to snow cover for the area also indicates that the 1993-94 winter season was not typical for the area. Given the minimal influence that the snow cover assumption has on modeled impacts from Portland, the fact that assuming continuous snow cover introduces a very slight bias toward reducing ambient impacts, and the fact that an assumption of continuous snow cover for winter months would not be representative of typical conditions for the area, we believe that the AERMOD modeling results without the assumption of winter snow cover are a more appropriate basis for assessing the potential for Portland emissions to contribute significantly to nonattainment or interfere with maintenance of the 1-hour SO_2 NAAQS in New Jersey.



NJDEP Comment:

"4 - Conclusion

The AERMOD modeling submitted by NJDEP utilized the meteorological measurements collected near Portland as they have historically been used. The previous use of this meteorological data as approved by EPA Region 2, EPA Region 3, PADEP, NJDEP, and the owners of Portland Power Plant establishes a precedent that should be followed. There are also technical concerns with EPA's adjustments as explained in this Appendix. As compared to the result obtained by EPA using their adjusted meteorological data, the maximum 99th percentile daily maximum 1-hour SO_2 concentration increased by approximately 28 percent when NJDEP modeled Portland's emissions not using the SODAR sigma-w data, surface data from the beta version of AERSURFACE, and winter snow cover. The modifications made by EPA result in lower predicted SO_2 concentrations and increase the likelihood that actual SO_2 concentrations will be under-predicted. The consequence of this would be an inadequate remedy for Portland Power Plant and the exposure of nearby residents to SO_2 concentrations above the 1-hour NAAQS."

Response:

There is no technical, policy or legal reason for EPA's use of the Portland site specific meteorological data in support of this analysis to be constrained by past precedents on the use of the data by EPA Region 2, EPA Region 3, PADEP, NJDEP, or the owners of Portland Power Plant. In addition to a clear change in EPA's meteorological monitoring guidance in 2000 related to the use of SODAR-derived sigma-w data, as further shown in EPA's response to NJDEP's comment 2.b, the inclusion of SODAR sigma-w data and other adjustments to the meteorological data made by EPA appear to improve the performance of AERMOD as compared

to the unadjusted meteorological data based on model-to-monitor comparisons with the Columbia, NJ monitor, as shown in Table 1 included above in the EPA response to NJDEP comment #2.b, and these comparisons would therefore tend to corroborate EPA's adjustments to the meteorological data. NJDEP offers no empirical evidence or any technical justification to support their assertion that the EPA modifications to the Portland site specific meteorological data "increase the likelihood that actual SO_2 concentrations in will be under-predicted." In fact, with the exception of a few isolated peaks on the complex terrain along the Kittatinny Ridge near the Delaware Water Gap about 7 kilometers northwest of Portland, the AERMOD modeled concentrations in New Jersey based on the EPA adjustments to the Portland site specific meteorological data are higher than the AERMOD modeled concentrations based on the unadjusted meteorological data used by NJDEP. About 96 percent of the 4th-highest 1-hour values based on the EPA 100-meter receptor grid show higher impacts based on the EPA adjusted meteorological data as compared to results based on the data used by NJDEP, with an average difference across the full 100-meter receptor grid of about 44 percent higher concentrations.

VI. Economic Benefits of the Portland Facility

Commenter: Alicia M. Karner, Economic Development Administrator, Department of Community and Economic Development, Northampton County, Pennsylvania
Comment:
Over the past several years, Northampton County has been working to bring additional industrial development to the area around the Portland Station, investing more than $4 million dollars in infrastructure improvements. Additionally, the county is aggressively pursuing the planning and development of an industrial park on the 700+ acres adjacent to the Portland Power Plant. The recent relocation of two businesses across from the power station, investing in and occupying more than 500,000 square feet is a positive development for the community. However, an out-of-work, shut down power plant will deter businesses from investing in that property.

GenOn has been a great partner in this potential development and the impact of the loss of this company to the Northampton County community is greater than just the loss of the power plant. On behalf of the Northampton County Executive and Council, please consider the economic development opportunities that could occur with the Portland station as an anchor tenant and the very real impact that can have on the citizens of our community.

Commenter: Gene Barr, Vice President, Government and Public Affairs, Pennsylvania Chamber of Business and Industry
Comment:
The economic impact of the proposed rule could be devastating. We strongly believe that good, family sustaining job; will be at risk if this proposed rule is adopted. The Portland Station economic benefits include over 70 full-time jobs, an annual payroll of $7.7 million, annual local O & M spend $10 - $25 million, $393,000 property taxes paid, annual PA coal spend is $50 million, and is a significant multiplier of economic benefits across northeastern PA.

Commenter: John Stoffa, County Executive, Office of the County Executive, Northampton County Courthouse, County of Northampton, Easton Pennsylvania

Comment:
GenOn is a significant economic contributor to the local community, including Upper Mt. Bethel Township, Bangor Area School District and Northampton County. GenOn contributes nearly $30 million to the regional economy in direct spending. This includes employee payroll, supplies, taxes, contracts, and contractors, all from within the local community. What this figure does not include is the ancillary benefits that are recognized by the local businesses in the area - whether it is additional purchases at the grocery store by the contractor working at the facility or the new car purchased by the GenOn employee – all spending is critical during this time. As you can imagine, the loss of this kind of spending could be devastating to the local economy. GenOn currently pays significant property taxes to the local taxing jurisdictions and the loss of this revenue would most certainly result in an increase in taxes for the residents of the county. An out-of-work, shut down power plant will deter businesses from investing (in the area).

Commenter: R. E. Gerwig
Comment:
Abandonment of this generating station would be a severe blow to the financial stability of our township. The station is our second largest property tax payer. Without the Portland Station, we would have to replace those tax revenues with significant additional tax burdens on our local residents.

Unfortunately, for our local community, abandonment of this generating station would be a severe blow to the financial stability of our township. This station is our second largest property tax payer. It also employs over 70 people, most of which come from the immediate area. We are a rural community and we do not have very many industries that contribute to our tax base. Without the Portland Station, we would have to replace those tax revenues with significant additional tax burdens on our local residents, just to meet our annual budget. We also count on GenOn and other civic-minded companies to provide support for our township programs for the children and for the community.

Commenter: Richard Drey, International Brotherhood of Electrical Workers (IBEW) Local 777
Comment:
Represent operators of Portland Station – 60 workers.

Difficult to understand why this plant is singled out by this ruling. Nonetheless, I am sure we will do what we can to meet the standards set forth under this ruling.

Portland provides family-sustaining pay and benefits. Not easy to find in today's economy. If not operational not sure what my family would do.

On behalf of EBEW local 777 and our members, hope you will consider our viewpoints during your review and promote a fair balance between protecting jobs and protecting the environment.

Commenter: T. Anthony Iannelli, President and Chief Executive Officer (CEO), Greater Lehigh Valley Chamber of Commerce (GLVCC)
Comment:

The stations' owner, GenOn Energy, is a significant economic contributor to the local community, school district and Northampton County. GenOn contributes nearly $30 million to the regional economy in direct spending. This does not include additional purchases that are recognized by the local area businesses which are extremely important during this delicate time in our economy.

As you can imagine, the economic impact of losing this revenue stream could be devastating to the local economy. It could lead to significant tax increases for the residents of the region – at a time when many businesses and families simply cannot afford additional expenses. Let me be clear, our members are advocates for clean air and care greatly about the environment. In fact, we have a specific Energy and Environmental Policy Committee that, along with our public officials, works to develop, coordinate, and advance long term business-sensitive strategies for sustainable energy efficiency initiatives, environmental protection and infrastructure development. However, we also believe that strong environmental stewardship and building and maintaining a strong business base are not mutually exclusive goals.

Along with our private and public sector partners, we continue efforts to bring additional industrial and commercial development -as well as small businesses- to the area surrounding Portland Station. An empty power plant resulting in 70 individuals losing their jobs, would be an extreme detriment to our progress

On behalf of all of our members, please consider the community and economic impact while determining the timing and enforcements of EPA regulations affecting the Portland Generating Station.

Response:
The EPA thanks the commenters for the background information on GenOn and considered it in drafting the final rule. The EPA is required by the CAA to act on the section 126 petition submitted by NJDEP. The final rule does not require Portland to shut down; it permits the continued operation of Portland. While economic issues are not a criteria for the EPA's consideration under section 126, the EPA believes there are several reasonable options available for Portland to achieve these emission limits while continuing to operate. These are proper considerations for the Portland in developing a compliance plan to eliminate its significant contribution to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey. Portland will have the flexibility to adapt to a compliance strategy at the lowest possible costs and is not required to pursue any particular control technology as a result of this rule.

Commenter: Tanya Dentith
Comment:
I am a tax payer in Northampton County and I don't want my tax base to go up because this plant is closed. I certainly don' want to see these people loose their jobs or Mt. Bethel loose their taxable income. However this is not about that. This decision is about doing what you are suppose to do. What Richard Nixon created this agency to do, PROTECT THE ENVIRONMENT. That is your job.

Commenter: Donald C. Seigel, International Vice President, Third District of the International Brotherhood of Electrical Workers (IBEW)
Comment:
New Jersey's Section 126 petition threatens the livelihoods and welfare not only of the IBEW members working at the Portland plant, but all of the related service, maintenance and supply jobs associated with the plant. If the plant were prematurely retired as a result of EPA's decision in this matter, thousands of jobs in the surrounding community would be suddenly lost. The local tax base, and school, police, fire and other essential support services would be adversely impacted. Opportunities for alternative employment, at comparable wages and benefits, are few. Northampton and its surrounding Pennsylvania counties have among the highest unemployment rates in the Commonwealth, currently 8.0% or more according to the Pennsylvania Department of Labor and Industry.

Response:
The EPA is required and constrained by the CAA to act on the section 126 petition submitted by NJDEP. The final rule does not require Portland to retire; it permits the continued operation of Portland. While economic issues are not a criteria for the EPA's consideration under section 126, the EPA believes there are several reasonable options available for Portland to achieve these emission limits while continuing to operate.

Commenter: Rene Mathez, Knowlton Township Committee
Comment:
In addition to improving our health, construction of pollution control technology would, it seems to me, bring significant benefits to the local economy. Installation of pollution control technology will bring much needed jobs to the area.

Response:
In implementing the rule, the EPA believes that sulfur dioxide emission reductions will improve air quality. Additionally, the EPA agrees that the installation of control technology may bring about benefits to the local economy.

Commenter: Steve Davies, GenOn, Vice President of Asset Management
Comment:
GenOn Energy is one of the largest competitive generators of wholesale electricity in the United States. With power generation facilities located in key regions of the country and a generation portfolio of approximately 24,600 megawatts, GenOn is helping meet the nation's electricity needs. GenOn's portfolio of power generation facilities includes baseload, intermediate and peaking units using coal, natural gas and oil to generate electricity. In Pennsylvania, we own all or part of 9 major coal-fired generating stations, including the Portland station, and 9 gas-fired generating stations, totaling 5200 MW. The electricity generated at these stations is equivalent to approximately 15% of the total annual electric power consumption in the state of Pennsylvania or enough to power over 5 million homes. We have over 1200 employees in Pennsylvania, with an annual payroll of approximately $115 million. GenOn pays approximately $15 million each year in Pennsylvania property taxes, and spends over 5650 million each year for O&M expenses and fuel. Almost all of this expense is paid to con tractors and businesses in Pennsylvania.

Response:
The EPA thanks the commenter for the background information on GenOn and considered it in drafting the final rule.

VII. Emission Limits and Compliance Schedules

1. EPA should require Portland to shut down.

Commenter: Rev. Mary Tiebout, Minister, Unitarian Universalist Fellowship of Sussex County (UUFDC)
Comment:
We have grave concerns as to whether this Portland Power Plant can actually be "cleaned up" and reduce its sulfur dioxide emissions. In our opinion, the EPA should not just regulate this plant, but should insist on it being closed down once and for all.

Commenter: Anna Maria Caldara, Save the Park in Blairstown, NJ
Comment:
Humanity and the earth are at a crossroads. Our ecosystems are so compromised that life itself hangs in the balance. The current mass extinction of species reflects this. Let us err on the side of caution.

For long overdue reasons of health and safety, GenOn must no longer be regulated, but closed.

Commenter: Laura Dempsey, Save the Park Organizations
Comment:
In closing, we are urging the EPA to come to a quick and ethical decision to close down this coal plant so that the health and safety of the people of New Jersey and Pennsylvania are no longer threatened. In this period of our history where we are attempting to change to clean and renewable energy, companies like Gen-On should make every effort to stop polluting our environment. We have suffered the consequences of their actions far too long. Not only do we ask this, but we implore you to do this.

Response:
The EPA believes that compliance with the emission limits in the final rulemaking is technically feasible and has therefore exercised its statutory authority to permit continued operation at Portland beyond three months. *See* preamble discussion in section V.E. for the EPA's rationale.

2. EPA should require Portland to control emissions or shut down

Commemnter: UARG
Comment:
"Alternative compliance options should the Portland Plant decide to cease operation at the units subject to the emission limits" in the April 7, 2011 proposed rule (see id. at 19884/1, 19677/1): Because, for the reasons discussed above, EPA does not have authority under the CAA to set final or interim emission limits on the Portland Plant, the Agency also lacks authority to

direct the Portland Plant to shut down three years from now or any time within the next three years. If a case arises in which EPA is authorized to grant a section 126 petition, however, EPA should then seek comment on a wide range of factors before ordering a facility to shut down on any schedule. For example, EPA should take into account the direct and indirect job losses resulting from a shut-down order; the effects of such an order on the local tax base in communities where targeted sources are located; and, in the case of an electric generating facility, the effects of such an order on the cost, and the reliability of the supply, of electricity on a local and regional basis.

Response:
The EPA disagrees with the commenter's assertion that it does not have the authority to direct a source to shut down under section 126 if it is found by the Administrator to be in violation of section 110(a)(2)(D)(i). However, the EPA is not ordering Portland to shut down, and the EPA has not imposed a separate compliance schedule in the event that Portland does choose to shut down as a means of complying with the emission limits required by this rule. Accordingly, the EPA is not required to comment on what factors would be relevant to developing a separate compliance schedule for ordering a plant to shut down under section 126 as those factors are not relevant in this case.

Commenter: UARG
Comment:
EPA's authority to determine not to set emission limitations on Portland Plant Units 3, 4, and 5 (id. at 19676-19677): In those circumstances where EPA has authority to grant a section 126 petition (which it does not here), the Agency also has discretion to impose emission limits only on those units that are shown to have a significant impact on another state's ability to attain and maintain the NAAQS. Where (as here), EPA has determined that certain units' impacts on downwind air quality are "negligible" (id. at 19677/1), EPA has discretion under section 126 not to regulate emissions from those units.

Response:
The EPA agrees it has discretion to exclude units from regulation whose emissions are negligible. The EPA has not imposed emission limits on 3, 4, and 5.

Commenter: Erin Phalon and Joshua R. Stebbins, The Sierra Club
Comment:
For the same reason, if the Portland Plant elects to cease operations rather than comply with EPA's proposed emissions limitations, it should be required to do so immediately. Under EPA's proposed compliance schedule, the Portland Plant must notify EPA within three months of publication of the finding whether it will comply with the proposed emissions limits or cease operation. Response to Petition from New Jersey Regarding SO2 Emissions From the Portland Generating Station, 76 Fed. Reg. 67, 19678 (proposed April 7, 2011). The proposed compliance schedule does not set a schedule for closure of the facility should it elect not to comply, although it would require compliance as expeditiously as possible. Id. If the Portland Plant elects to close, it must be required to cease operation immediately, as there is no basis to allow the plant to continue to significantly contribute to nonattainment and interfere with maintenance of the 1-hour SO2 NAAQS in New Jersey.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
Summary of comment in cover letter
New Jersey urges the USEPA to adopt the final rule as quickly as possible to provide relief to the affected citizens of New Jersey from the harm caused by the Portland Plant. We also note that the demonstrated area of health standard exceedances extends into 3 counties in Pennsylvania. Per Section 126(c)(2) of the Clean Air Act, the USEPA should require the shutdown of the coal-fired units at the Portland Plant within 3 months of its final rule. Any delay in achieving reductions at this plant is another potential unhealthy day for the citizens of New Jersey and Pennsylvania. New Jersey continues to see exceedances of the 1-hour SO2 NAAQS at the Columbia Lake monitor 1.2 miles northeast of the Portland Plant.

Given the long term pollution track record of this plant, if significant reductions cannot be made expeditiously, New Jersey strongly supports the closure of the GenOn Portland plant. Over the longer term, a conversion to natural gas should be considered by GenOn. The burden to justify any operation beyond 90 days should be on GenOn. New Jersey urges the USEPA to ensure interim reductions are no less than 80% within 90 days, and 95% reductions are phased in as soon as possible.

Detailed discussion of comment in attachment:

> II. EPA Should Require Portland To Shut Down Within Three Months or Require Greater Emission Reductions in a Shorter Time Frame
>
> Based on EPA's proposed finding of Section 126 violations at Portland, EPA must require the coal units at this plant to shut down within three months of EPA's final rule in order to abate the adverse health and environmental effects from SO2 emissions and not allow the operation of the plant until it mitigates its unlawful impacts. See 42 U.S.C. § 7426(c)(2)(it is a violation of Section 126 of the Act for any major existing source to operate more than three months after a finding by EPA).
>
> EPA can only allow the continued operation beyond three months at Portland if Portland "complies with … emission limitations and compliance schedules (containing increments of progress) as may be provided by the Administrator to bring about compliance with the requirements in … this section as expeditiously as practicable, but in no case later than three years after the date of such finding." 42 U.S.C. § 7426(c)((2).
>
> Further, EPA should require GenOn to achieve additional emission reductions and to achieve them sooner than proposed in order to satisfy the Act's "as expeditiously as practicable" requirement and for the protection of public health. In order to allow Portland to continue to operate and come into compliance with Section 126 of the Clean Air Act as expeditiously as practicable, New Jersey outlines in these comments the measures that EPA should require [FN #]. EPA's proposed limits and time frames are not sufficient for the attainment of the 1-hour SO2 NAAQS or to remedy the Section 126 violations here. In contrast, the following time line and emission reductions will bring the

Portland plant into compliance with Section 126 and are based upon New Jersey's modeling and proven measures at other coal-fired power plants.

Specifically, within three months of EPA's final rule, EPA should require Portland to reduce its emissions by between 80%-95%. Only if a 95% reduction is shown to be infeasible by GenOn should a lesser interim reduction rate be approved, and such lesser rate should be no less than 80%. Within one year, EPA should require Portland to reduce its SO2 emissions by, at a minimum, 95% to ensure sufficient protection of the public's health. If 95% emission reductions are not achieved, Gen On must demonstrate they have taken all practicable measures to minimize SO2 emissions in this time frame. In addition, GenOn should be required to continue to implement measures to achieve 95% SO2 reduction as expeditiously as practicable.

The following comments detail how Portland can achieve at least 95% emission reductions in less than three years, as well as 80-95% emission reductions in the short term. See Sections III and IV. If the coal units at Portland do not meet these reduced emission rates within these time frames, EPA should require that these units cease operation until they do meet these emission rates, but Portland in no circumstance has longer than three years from EPA's final rule to come into compliance with Section 126 and continue to operate. 42 U.S.C. § 7426(c)((2).

[FN 3] Summary of Recommended Interim and Longer Term Emission Reduction Requirements:
(1) Within 90 days, 80% reduction in the maximum hourly SO2 emission rate or shut down the coal boilers.
(2) Within 90 days to one year, further minimize SO2 emissions and achieve 95% reductions if feasible. If such emission reductions are not achieved, GenOn must demonstrate it has taken all practicable measures to minimize SO2 emissions in this timeframe.
(3) Within one year to three years (if 95% SO2 reductions are not achieved in the first year), GenOn must continue to implement measures to achieve 95% SO2 reduction as soon as possible, but no longer than the maximum three year timeframe required by Section 126.
(4) Within three years, Portland must cease operation of the coal units if 95% SO2 reductions have not been achieved.

Commenter: Estella A. VanHorn
Comment:
I encourage you to enforce regulations, as strict as possible, concerning toxic pollutants being emitted from the Portland Pennsylvania Generating Station.

Commenter: J. and M. Kane
Comment:
We are fully in favor of having the plant meet your deadline for upgrading, or shutting down the plant.

Commenter: M. Cormican

Comment:
Your efforts to protect air and water quality will not achieve it's stated goal unless you shut the GenOn Portland Power Plant down or force them to re-fit their facility to accommodate the needs of the local communities.

Commenter: S. Harris
Comment:
The Portland plant in PA needs to stop polluting – convert (like other power plants) to a better filtering system or shut down.

Commenter: Katie Feeny, Clean Air Council
Comment:
While the Council stands firmly behind the EPA's section 126 finding, we acknowledge that this finding will only have a positive impact if Portland is held accountable under the terms of the finding. The Council urges the EPA to ensure that Portland meets the proposed emissions requirements as expeditiously as possible. Progress should be visible within Portland's 3 month post-finding period. If there is no progress in this period, the Council recommends the EPA consider closing the facility as allowed by statute and move to renewable sources of energy such as wind and solar. This section 126 finding will be meaningless unless the Portland Plant makes progress in reducing its emissions sooner rather than later. Further, this finding should evidence the need for states such as New Jersey and Pennsylvania to accelerate their production of renewable sources of energy so that air and natural resources can be protected from harms both in state and from across state lines.

Response:
The EPA has implemented emissions limits and a compliance schedule which will eliminate Portland's significant contribution to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey. Accordingly, the EPA has not required Portland to shut down so long as it complies with the emissions limits and compliance schedule. *See* preamble discussion in section V.E. for the EPA's rationale in support of the compliance schedule and options for compliance for the Portland facility, as well as the EPA's discussion of its statutory authority to set emissions limits in lieu of requiring Portland to shut down. *See* preamble discussion in section VII.A. regarding the EPA's decision not to develop an alternate compliance schedule if the source shuts down.

3. Compliance period for emission reductions

Commenter: Anonymous citizen 1
Comment:
I think the EPA is being very generous with the Plant by allowing them to continue operation and that their strategy to monitor and decrease future emissions is too lenient. I think it's that giving the company 3 years to meet the standards everyone else abides by, when they singlehandedly responsible for part of the increase in New Jersey's SO2 emissions is too long. I think the compliance schedules are a good idea because it would be impossible for the Plant to change their technology and emissions over night but I think the EPA should come up with a faster timetable. The EPA has also claimed to have identified a number of existing and proven control technologies and operational changes that the Plant can use to reduce their emissions.

This means the process shouldn't be too strenuous or require much research and therefore can take full effect in a shorter period of time.

Commenter: Erin Phalon and Joshua R. Stebbins, The Sierra Club
Comment:
To comply with the Clean Air Act and reduce exposure to SO2, EPA should furthermore require that the Portland Plant implement its emissions limitations more quickly than is currently proposed. Under CAA § 126(c)(2), compliance must be achieved as expeditiously as practicable, but in no case later than three years after the date of such finding. 42 U.S.C. § 7426(c)(2). EPA has proposed that the Portland facility "achieve and maintain these emissions limitations within three years after the effective date of the final rule." Response to Petition from New Jersey Regarding SO2 Emissions From the Portland Generating Station, 76 Fed. Reg. 67, 19664 (proposed April 7, 2011). In this case, three years is not as expeditious as practicable, and the Portland Generating Facility should thus be required to meet the required SO2 limitations more quickly.

Although Sierra Club understands that EPA will not determine which control technology should be installed at the Portland Plant (Response to Petition from New Jersey Regarding SO2 Emissions From the Portland Generating Station, 76 Fed. Reg. 67, 19672 (proposed April 7, 2011), available controls can be implemented in approximately two years. Federal Implementation Plan to Reduce Interstate Transport of Fine Particulate Matter and Ozone, 74 FR 147, 45273 (proposed August 2, 2010), citing Boilermaker Labor Analysis and Installation Timing, USEPA, March 2005. According to EPA, a flue gas desulfurization unit, or scrubber, which is the only reliable and effective long-term means to achieve the necessary emissions reductions, can be installed within 27 months. Id. Therefore, effective, reliable controls can be implemented in 25 percent less time than EPA has proposed. Even industry sources such as Exelon Company state that dry scrubbers can be installed in 24 months, or 66 percent of the time proposed by EPA. Charles River Associates for Exelon Company. A Reliability Assessment of EPA's Proposed Transport Rule and Forthcoming Utility MACT, December 16, 2010. The same report, by Charles River Associates for Exelon Company, estimates that Direct Sorbent Injection (DSI) can be implemented in only twelve months, or 30 percent of the time proposed by EPA. Id. However, DSI is less effective than scrubbers and should therefore only be used on an interim basis to achieve SO2 emissions reductions at the Portland Plant. As faster installation of pollution controls is feasible, EPA should require the Portland Plant to implement such controls within 27 months.

Given the public health impacts of exposure to SO2, three years is far too much time. As stated above, SO2 exposure can cause health impacts including narrowing of the airways, increased asthma symptoms and hospitalization for respiratory illnesses. Id. at 19666. In addition, SO2 emissions in the atmosphere form small particles that cause respiratory disease and aggravate heart disease. Id. SO2 exposure also contributes to low birth weight and increases infant death rates. NJ petition 3 (citing Clean Air Task Force, Dirty Air, Dirty Power Mortality and Health Damage Due to Pollution from Power Plants, at 10 (June 2004), available at http: www.catf.us/publications/reports/Dirty_Air_Dirty_Power.pdf. It is imperative to install available control technology, and thereby reduce the public's exposure to harmful SO2, as quickly as

possible. This is practicable in less than the three year period that EPA proposed, and the final rule should impose a shorter time period.

Commenter: Richard Lewis
Comment:
My name is Richard Lewis, I am a resident of warren county in New Jersey. The Portland Generating Station should be immediately mandated to cut sulfur dioxide emissions. You have residents of at least three separate counties that have been breathing Portlands harmful emissions for years. They want more time to consider, while they continue to pollute the air we breath. All in the name of 70 jobs and a large rateable. Enough, you have the health of thousands of children to consider.

Commenter: Christine and Christopher Roman
Comment:
PLEASE PLEASE PLEASE help us. We do not want to move out of Warren County, but we will - and so will countless others that we know are sick and need to get healthy. The economy in Warren County will suffer if something isn't done about the Portland Power Plant - and 3 years is just too long to wait - it needs to be STOPPED IMMEDIATELY - everyone is too sick to wait for 3 years - and we don't need another few hundred people to become ill before something is done about this. PLEASE HELP US NOW!!!

Commenter: Georgianna Carol Cook
Comment:
In 2001, while chairman of the Blairstown Environmental Commission, our commission sponsored a public meeting at our local library to which representatives of the PPL plant and the Reliant Energy plant (upper Mt. Bethel) were invited. During the course of the meeting the representatives were asked whether or not their companies would implement remediation to decrease emissions. The PPL representative stated his company was amenable to doing what could be done to reduce toxic emissions. The representative from Reliant Energy stated his company was not prepared to Instltu1e this process "at this time". In the ten years since that meeting areas downwind from these plants, and other plants further west, have been subjected to a tsunami of air tainted with sulfur dioxide and other toxic materials. WE SAY ENOUGH! To give this plant three years to effect cleanup Is a travesty to the health and wellbeing of the residents as well as the flora and fauna of the area. Cleanup should begin immediately.

Commenter: Jean Public, Pewtrust.org
Comment:
I don’t believe they should be given 3 years to make these changes. I believe 1 year is sufficient time.

Response:
The EPA believes that the three-year period permitted for compliance with the final emissions limits will achieve the required emission reductions as expeditiously as practicable. *See* preamble section V for the EPA’s discussion of the amount of time that is reasonably necessary in order for Portland to achieve the necessary emissions reductions.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Further, Section 112 requires that existing sources meet the MACT standards "as expeditiously as practicable, but in no event later than 3 years after the effective date of such standard." 42 U.S.C. § 7412(i)(3)(A). In the proposed EGU MACT, EPA proposes to grant sources the full three years to achieve compliance without requiring sources to demonstrate whether three years is as "expeditiously as practicable." EPA has discretion on how to define as "expeditiously as practicable," and there is no reason to define it differently here than it has proposed to do under Section 112.

Response:
While the EPA is permitting 3 years in this case, the commenter's interpretation is inconsistent with the language of section 126 because, by saying "in no case later than 3 years," the statute contemplates that compliance might be required sooner than 3 years. *See* section V.E.2 for further discussion.

4. Control technologies

Commenter: S. Dorrell
Comment:
I hope we are successful in forcing GenOn Energy to install scrubbers to end these emissions.

Commenter: Donald C. Seigel, International Vice President, Third District of the International Brotherhood of Electrical Workers (IBEW)
Comment:
As an alternative to shutting down the two coal units (Units #1 and #2) at Portland within 90 days of its finding, EPA is proposing a compliance plan including an interim 50% reduction of Portland's SO2 emissions from Units 1 and 2 within one year (by switching to low-sulfur coal, etc.), with an 81 % reduction from each unit within three years. 76 Fed. Reg. 19662, 19676-77. This reduction level effectively would require the retrofit of flue gas desulfurization ("FGD") technology on both units. This may be impossible to achieve in a 36-month timeframe due to the time required for design, engineering, permitting, constructing and testing such equipment.

Commenter: Gregory L. Gorman
Comment:
In 2005, Portland Power Plant and Keystone Generating Plant located in Shelocta, Pa. were among the top 10 SO2 polluters in the country. The operators of the Keystone plant (Reliant Energy) initiated a project in 2006 and completed it three years later to install state-of-the-art flue gas desulfurization systems, or scrubbers, at the facility. The primary benefit of the scrubbers is removal of approximately 98 percent of sulfur dioxide (SO2) from plant emissions. The limits the EPA is proposing for the Portland power plants units 1 and 2 would reduce SO2 emissions within three years by approximately 81 %. It appears the three year standard is appropriate. The proposed emissions reduction goal appears light.

[*Note: The commenter attached a copyrighted article entitled "State-Of-The-Art Environmental Controls to Be Installed at Keystone Generating Station." See docket for information regarding*

public access to the attachment at EPA-HQ-OAR-2011-0081-0055.]

Commenter: R. E. Gerwig
Comment:
Having worked on the engineering and installation of ten scrubbers and nine SCRs at five different power stations, I am quite familiar with the high costs of such facilities. On my last project before retiring in 2002, the total cost of the scrubbers was approximately $200 million, and the SCRs added nearly another $200 million; and that was ten years ago. At the same time, the operation of these added facilities drains at least 4% from the output efficiency of the plant. The practicality of such expenditures is highly questionable on units of the size and age of the Portland Station. As a past power consultant, I would not have recommended this alternative.

Response:
In establishing emissions limits, the EPA is not advocating nor mandating that a particular control technology be installed at Portland. *See* discussion in Preamble in section V.E. regarding available options for compliance.

5. Emission limits should be based on available technologies

Commenter: Commissioner Bob Martin, NJDEP
Comment:
Summary of Comment in Cover letter
The coal fired power plants in New Jersey are proof that controlling emissions from power plants is reasonable and possible. If New Jersey's 0.15 lbs SO2 per million BTU emission limit were applied to the Portland Plant, over 95% reduction in SO2 would result. New Jersey urges EPA to consider such limitations at the Portland Plant based on New Jersey's successful approaches to controlling these unhealthy emissions.

What we are asking is not unreasonable. Modern scrubbers achieve 95-98 percent reduction of sulfur dioxide, so compliance with the health standard is readily achievable and far from an extraordinary demand. GenOn should install the best available control technology.

Detailed discussion of comment in attachment:

V. Modern Control Technology Can Achieve Over 95% Reduction of SO2 Emissions

Based on New Jersey regulations and emission reductions at other facilities, over 95% emission reductions at both Units 1 and 2 within three years or less are feasible and reasonable. If Portland does not achieve the necessary emission reductions, EPA should require Portland to shut down within three months of EPA’s final finding in accordance with the Act. 42 U.S.C. § 7426(c)(2).

New Jersey regulations, N.J.A.C. 7:27-10.1 et seq., require its coal-fired power plants, after December 15, 2012, to achieve an emission rate of 0.150 pounds per million Btu based on a 30 day average. Assuming a 2% sulfur coal is combusted, this limit amounts to 95% control efficiency at Portland.

PSEG Fossill LLC’s Hudson Generating Station Unit 2 and Mercer Generating Station Units 1 and 2 are achieving an SO2 emission rate of less than 0.150 lb/mmBtu 30-day average. EPA is party to the Consent Decree that specifies this emission limit. New Jersey has also incorporated this limit into its rules so it applies to all New Jersey coalfired power plants.

Another method available to achieve over 95% sulfur dioxide reductions includes converting to natural gas. New Jersey’s RC Cape May LLC’s Deepwater facility switched to natural gas and achieved 99% emission reductions.

Commenter: Upendra Chivukula, Chair, NJ Assembly Telecom and Utilities Committee
Comment:
More than one billion participate in 42nd Earth Day less than a week ago, more than one billion people around the world participated in the 42nd Earth Day on April 22, 2011; Meanwhile, the Earth Day Network called on world citizens to pledge to a 'Billion Acts of Green' as it launched the single largest global civic campaign; Individual and global Green Consciousness is at an all time high; In New Jersey, we have made significant strides in protecting the environment including improving our water and air quality with progressive policies and initiatives; These include the Regional Greenhouse Gas Initiative which has significantly reduced carbon emissions into the environment; It is breakthrough measure of which I am proud to be a sponsor; As a result of progressive initiatives like RGGI, the Global Warming Response Act, the Energy Master Plan (EMP), New Jersey has one of the toughest global warming and clean energy mandates in the nation; We have one of the strongest wind and solar programs in the nation and the development of clean energy has helped reduce air pollution in our state; The Energy Master Plan and the Global Warming Response Act call for a reduction of CO2 emissions to 1990 levels by 2020 and 80% below the 2006 levels by 2050; Reduction in overall energy use by 20% by 2020; We have made a great deal of progress in protecting and preserving the environment; We are committed to continuing such progressive polices that move us forward towards a responsible energy future. We have the overwhelming mandate of the people of New Jersey to protect and preserve the environment; And that includes protection from cross border pollution; I call upon the EPA - as the custodians of the environment and public health to do the right thing by the people of New Jersey and by the environment; Please accept the DEP's petition for the coal-fired Portland Plant to reduce its sulfur dioxide emissions by 95 percent;

Pollution from power plants releases chemicals into the environment; High levels of such chemicals are a serious public health hazard and may result in respiratory diseases like Asthma while prolonged exposure can lead to Cancer; As lawmaker and in my capacity as Chair of the Telecom and Utilities Committee with oversight over utilities including power plants in New Jersey, it is my duty to condemn such a gross violation of federal laws that endanger public health and the environment in our state; Frankly I am surprised that lawmakers and environmental authorities in Pennsylvania have allowed such a violation of federal laws without protest or public comment; It took a law suit from New Jersey to call attention to this violation; As lawmakers and public officials, we serve as custodians of the public interest including public health and the environment. This includes preventing harm to residents of our own state and other states from such violations of the law; I commend the DEP for its initiative to protect public health and the environment from such a travesty from across the border; I call on the EPA to approve the DEP's petition of a 95 percent reduction in emissions of sulfur dioxide from the Portland Plant; Please put a stop to the export of pollution from Pennsylvania to New Jersey; It is

endangering the health and quality of life of New Jersey residents; It has gone on for too long and the people of New Jersey need your protection and strong action;

While I welcome the EPA's proposal requiring the plant to cut sulfur dioxide emissions by 80 percent over three years, I urge you to consider the DEP's petition to implement a 95 percent reduction; For many years the GenOn Energy coal-fired plant has been violating the law at the cost of New Jersey residents; Last year this plant emitted 30,000 tons of sulfur dioxide which is three times the amount of seven of New Jersey's coal-fired plants combined; This blatant violation of the Clean Air Act is untenable; Such emissions pose a serious health hazard to New Jersey's densely populated communities that are downwind from these harmful emissions; These include the residents of the counties of Warren, Sussex, Morris and Huntington;

Commenter: S. Smith
Comment:
As a citizen living in the potential plume (as indicated in the modeling conducted by the NJDEP), I support the proposal, with minor exception as outlined below, that the EPA published. The EPA would require that the Portland Plant reduce SO2 emissions for both units 1 and 2, no later than 3 years after the final rulemaking. My exception is: The EPA should require a further reduction than the proposed amount, as recommended by the NJDEP at the public hearing on April 27, 2011.

Response:
As discussed in the Preamble in section V.C., section 126 does not give the Administrator discretion to establish emission limitations beyond the emission reduction necessary to eliminate Portland's significant contribution to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS in the four New Jersey counties. This is in contrast to other requirements, such as New Source Review (NSR), under which the emissions limits are technology-based, representing best available control technology (BACT) or lowest achievable emissions rate (LAER).

6. EPA's accelerated compliance schedule could result in shut down

Commenter: Donald C. Seigel, International Vice President, Third District of the International Brotherhood of Electrical Workers (IBEW)
Comment:
Granting New Jersey's Section 126 petition effectively could accelerate the date for Portland's compliance with the one-hour standard by as much as six years. This drastically accelerated compliance date could result just three months after the petition is granted - if the plant owners elected to shut down the units associated with New Jersey and EPA's air dispersion modeling analyses, rather than comply with the alternative compliance options EPA proposes.

Response:
The EPA is obligated by section 126 to address NJDEP's petition at this time, despite the fact that Pennsylvania may not be required to demonstrate compliance with the NAAQS for several years. *See* preamble section III. for further discussion of the EPA's legal authority to address NJDEP's section 126 petition. If Portland chooses to shut down one or both units as a means of compliance, the EPA is not requiring shut down to occur within three months. *See* preamble in

sections V.E. and VI.B. for discussion of compliance schedules, including discussion of available, reasonable alternatives to achieve compliance with the emissions limits.

7. Compliance time is insufficient

Commenter: E. Wade
Comment:
The time constraints to bring the plant into compliance may be too stringent.

Commenter: R. E. Gerwig
Comment:
Permits for new power plants, with all of the attendant water and air studies, public meetings, and the required advance engineering, take many years to obtain. If GenOn would decide to upgrade the existing plant with new scrubbers and SCRs, it would require one and a half to three years of advance planning and engineering, and another two to three years to install and put the systems into operation. If GenOn were to decide on a new plant; the construction of a new 600Mw gas fired, combined cycle, power plant could take three to five years to obtain all the needed permits, another year to complete the design, and another two to three years to build and put into service. This adds up to six to nine years, certainly not the three years proposed by the EPA. Recent experience would place the total cost of such a plant at $500 to $600 million. Therefore, I am asking you to please allow GenOn enough time to conduct their feasibility studies and to come to a practical decision about how to move forward. Please do not simply shut them down without any consideration for the resulting impacts and hardships to the community, to the employees, and to the need for power in the northeast corridor.

On a personal note, my wife and I **chose** to live and retire in Upper Mount Bethel Township, right next door to the Portland Generating Station. We further reinforced that commitment just last year, when we purchased additional acreage which also borders the power station property. We have no problem with having GenOn and the Portland Generating Station as our next door neighbor. I sincerely hope that they are allowed to remain there, and to continue to operate; albeit under the proper regulations and under a **reasonable** time constraint.

I am asking you to please allow GenOn enough time to conduct their (technical) feasibility studies and to come to a practical decision about how to move forward. Do not simply shut them down without any consideration for the impacts to the community, to the employees, or to the need for power in the northeast corridor.

Commenter: Donald C. Seigel, International Vice President, Third District of the International Brotherhood of Electrical Workers (IBEW)
Comment:
Overall, five years is needed to complete a retrofit project, including processes for permitting and other regulatory approvals. The attainment deadline of 2017 for the new one-hour SO2 standard provides time for a more orderly SIP implementation process by the Commonwealth of Pennsylvania. For this reason, we urge EPA to deny New Jersey's petition.

Commenter: John Stoffa, County Executive, Office of the County Executive, Northampton County Courthouse, County of Northampton, Easton Pennsylvania
Comment:
Please allow GenOn the time they need to make the necessary improvements to keep the facility operational.

Response:
The EPA is constrained by the requirements of section 126(c) to permit a source no more than three years to eliminate its significant contribution to nonattainment and interference with maintenance. Moreover, the EPA has determined that Portland has reasonable options for complying with the emissions limits within those three years. Finally, the EPA's authority to grant NJDEP's section 126 petition is not tied to the progress of the section 110(a)(2)(D) SIP procedures. *See* preamble, section III for discussion of the EPA's legal authority to act on the section 126 petition, and section V.E. for the discussion on technical feasibility of meeting the emissions limits in the required time.

Commenter: UARG
Comment:
Limits on EPA's authority "to balance the statutory requirement of compliance as 'expeditiously as practicable' with the goal of ensuring that the regulation does not unnecessarily limit the options available to the source to achieve compliance within the statutorily mandated timeframe" (id. at 19676/2): In those circumstances where EPA has authority to grant a section 126 petition (which it does not here), EPA does have authority under the CAA to consider a range of factors in determining an appropriate emission limit and an appropriate schedule for feasibly and cost-effectively achieving any such limit.

Response:
The EPA strives for flexibility in this final rule within the confines of the statutory requirement that the emission limits be achieved "as expeditiously as possible."

8. Monitoring; startup, shutdown, and malfunction

Commenter: Erin Phalon and Joshua R. Stebbins, The Sierra Club
Comment:
EPA Must Require Implementation of Emissions Limits At All Times

To achieve meaningful reductions in SO2 emissions from the Portland Generating Station, the proposed emission limits must be implemented at all times. According to EPA, relevant NAAQS must always be protected, including during startup, shutdown and malfunction, and excess emissions during startup, shutdown and malfunction may constitute violations. Letter from Becky Weber, Director, EPA Air & Waste Management Division, to John Mitchell, Director, Kansas Department of Health and Environment, 2-3. (August 2010). In Michigan Department of Environmental Quality v. Browner, the Court affirmed the EPA's interpretation of § 110 of the Clean Air Act, which prohibited source non-compliance with emission limitations imposed by SIPS during start-up, shut-down and malfunction periods. Mich. DEQ v. Browner, 230 F.3d 181 at 185 (6th Cir. 2000). Here, the Portland Generating Station must limit its SO2 emissions at all times, including during startup, shutdown and malfunction.

Under CAA § 126(c)(2), EPA may permit the continued operation of a source after three months only if such source complies with such emission limitations and compliance schedules set by EPA as expeditiously as practicable. 42 U.S.C. § 7426(c) (2). As a result of this provision, emissions monitoring is critical to ensuring that the Portland Plant is complying with the proposed emissions limits. Continuous Emissions Monitoring System (CEMS) is an important tool to monitor and demonstrate compliance. The Portland Generating Station currently uses CEMS at units 1 and 2. To effectively monitor compliance with the proposed emissions limits, EPA must require that CEMS operate at all times, including during startup, shutdown, and malfunction of the units. Data gathered from a CEMS pursuant to the New Source Performance Standard or even the Acid Rain program regulations is not sufficient, as these provisions allow for obtaining data less than all the time. However, in order to ensure compliance with a health-based one-hour averaging time ambient standard, Portland's emissions must comply with the emission limit every hour that it operates, including during periods of startup, shutdown and malfunction. This is essential because the SO2 NAAQS is designed to protect the public against adverse health effects from short-term SO2 exposure, including exposures as short as five minutes. Continuous operation of CEMS may require the installation of a second, redundant CEMS.

Commenter: E. Wade
Comment:
After controls are put into place, continued monitoring is recommended; only one Section 126 finding has been promulgated in the past and the effectiveness of these rulings have yet to be evaluated. Ensuring compliance with their new emission limits may prevent the Portland Plant from relapsing. This responsibility may be delegated to NJDEP as their downwind location is of highest concern. The Pennsylvania version of a department of environmental protection could also be contacted and given the task of monitoring the Portland Plant's progress after the initial three year compliance deadline has passed.

Response:
The EPA acknowledges the importance of CEMS to ensure compliance with emissions limits. Indeed, EPA's regulations for monitoring SO_2 emissions from power plants with CEMS require the owner or operator to ensure that all continuous emissions and opacity monitoring systems are in operation and monitoring unit emissions at all times that the affected unit combusts any fuel. 40 C.F.R. § 75.10(d). These regulations allow limited exceptions during the periods of calibration, quality assurance, or preventative maintenance, but do not provide an exception for startup, shutdown, or malfunction of the combustion unit.

The interim and final emissions limits established in this final rule apply at all times once they become effective. Ensuring that the Portland facility complies with the requirements of the CAA including the provisions of this final rule is the responsibility of the EPA. It will ultimately become the joint responsibility of the EPA and of the Pennsylvania Department of Environmental Protection (PADEP), because PADEP has primary responsibility for implementing and enforcing the Pennsylvania SIP.

See preamble section V.F for further discussion.

9. Unit-by-unit vs. combined emissions limits

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Unit-Specific Limits Are Unnecessary for the Interim and Final Limits
EPA is taking comment on possible interim emission reductions such as proposing that the Portland Plant reduce its SO2 emissions to a level no greater than 2,910 lbs/hr for unit 1, and 4,450 lbs/hr for unit 2, one year after the effective date of the final rulemaking, and other compliance activities to demonstrate appropriate increments of progress toward compliance. 76 Fed. Reg. 19664. Notwithstanding its stated objections to establishing interim limits, if EPA determines that interim limits are necessary, GenOn requests that the interim limit allow GenOn greater flexibility than the single example modeled by EPA and subsequently proposed. Specifically, GenOn believes that the same environmental benefit can be achieved through the use of a combined mass emission rate for Units 1 and 2 (e.g., an SO2 emission rate of 7,360 lb/hr if EPA insists that Portland meet an interim limit that achieves a 50 percent reduction in the units' allowable emission rates).10 Indeed, this same flexibility should be provided in the final limits, as well. Since the objective is NAAQS-compliant modeled impact, there is no reason to impose unit-specific limits if a combined unit limit achieves the same result.

Id. at 19676. EPA admits and GenOn agrees that there are many possible combinations or forms of emissions standards that can assure compliance. We assert that a combined or alternate limit is possible and request that the final limit(s) be established in a form that is demonstrated to provide for attainment of the NAAQS based on procedures approved through the submittal and approval of a protocol. However, in the absence of EPA's implementation guidance for the use of dispersion modeling and/or monitoring for demonstrating attainment with the 1-hour SO2 NAAQS, this protocol must be deferred until the guidance is issued in final form by EPA later in 2011.

Response:
[See discussion below in section VIII of the Response to Comment document regarding combined interim limits.]

The EPA has determined that is not technically feasible to develop a combined final emission limit that would be both protective of the NAAQS and provide flexibility to the source to apply different compliance options. *See* preamble section VI.A.h discussion for rationale for EPA's decision to provide for a combined limit for the interim (1-year) limit, and the rationale for retention of unit-by-unit limits for the 3-year emissions limits; *see also* preamble section VII for a discussion of the EPA's consideration of alternative emissions limits.

The commenter asserts that, in the absence of EPA's implementation guidance for the use of dispersion modeling and/or monitoring for demonstrating attainment with the 1-hour SO_2 NAAQS, the submission of the modeling protocol must be deferred until the guidance is issued in final form by EPA later in 2011.

In response, the EPA notes that the agency issued the draft implementation guidance in September 2011, and expects to finalize the guidance in early 2012, which is well before the 6 month deadline for the required submission of the modeling protocol, and the 12 month deadline for the submission of the required modeling.

Furthermore, many of the application-specific elements of the guidance have already been addressed in relation to Portland through the EPA modeling that was used as the basis for developing the final remedy, such as the meteorological data inputs for AERMOD and the contribution from background concentrations. The other key inputs of emissions and stack parameters would not be affected by the implementation guidance.

Accordingly, EPA believes that GenOn has the information it needs to submit a modeling protocol for the remedy.

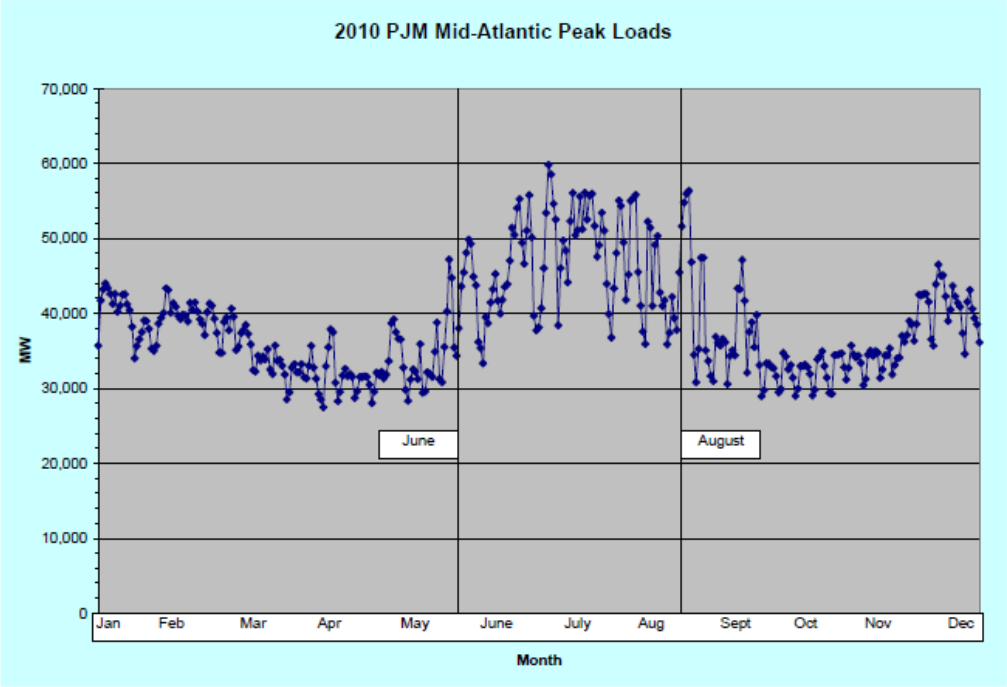
10. Electricity reliability

Commenter: Senator Pat Toomey, Senator Robert P. Casey and Congressman Charles Dent
Comment:
We are concerned that prematurely binding GenOn's decisions on how to comply with identified requirements will not result in the best solution and may come at a cost of lost jobs, reduced reliability and higher electric costs.

Commenter: R. E. Gerwig
Comment:
As the Northeast Corridor of this country continues to grow and to increase its demand for electrical power, the Portland Station is uniquely situated to supply power to the PJM power interconnection from a location close to the source of the demand. Power transmissions coming from the Midwest are hampered by long distance transmission line losses, and by transmission lines already approaching overload. Meanwhile, the population densities, irregular topography and wind currents of this area are **not conducive** to large wind or solar energy installations.

Commenter: Commissioner Bob Martin, NJDEP
Comment:
EPA asked specifically about how reliability and other similar factors should be considered with respect to the "as expeditiously as practicable" requirement. Reliability should not be an issue in this case because 400 MW is a relatively small amount of capacity compared to PJM's current total capacity of 163,500 MW. Also, perhaps more importantly, the timing of EPA's final decision in September is after the peak summer season for electric demand, and there will be eight months until June 2012, when peak summer demand conditions reoccur. (See 2010 PJM Peak Loads Chart below.) Hence, it is unlikely these small coal units would be needed to prevent

brownouts or blackouts in this timeframe.



In the unlikely event there is an electric demand situation during this time period where these units are needed to prevent blackouts or brownouts, EPA could include a condition that the units may only be run when called on by PJM to provide power during a Maximum Emergency Generation Event. In no case should the units be run for the economic gain of GenOn while widespread public health exceedances are continuing.

Response:
While electric reliability is not one of the explicit factors to consider under section 126, the EPA would nonetheless be concerned if there were serious electric reliability issues that would lead to local hardships. The EPA generally agrees with the commenter who concluded that electric reliability issues are not expected. *See* preamble sections V.E, V.F, and VI.A. for further discussion.

11. Miscellaneous

Commenter: D.M. Lohman
Comment:
On page 19664 of the Notice and subsequently the EPA has succeeded in anthropomorphizing the Portland Plant by "proposing to require that the Portland Plant reduce its SO2 emissions to a limit no greater than 1,105 lbs/hour for unit 1 and 1,691 lbs/hour for unit 2," then subsequently requiring the Portland Plant to make decisions or take actions. Being an inanimate object, the Portland Plant is not capable of making decisions or taking actions. The clear intent is to assign these obligations to the owner and operator of the Portland Plant and it should be stated as such.

Response:
The EPA thanks you for your comment. The EPA considered this comment in drafting the final rule.

VIII. Increments of Progress and Interim Emission Limits

1. The EPA should exercise discretion provided by the Act and not issue interim limits

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
EPA is not obligated to impose interim limits under Section 126(c) and it is not justified here. Section 126 clearly states that increments of progress are a discretionary measure.

Response:
See Section VI.A of the preamble for discussion of EPA's legal and technical rationale and support for interim emissions limits as part of the increments of progress.

2. Interim limits are inadequately stringent

Commenter: Commissioner Bob Martin, NJDEP
Comment:
Summary Comment from cover letter
The Clean Air Act does provide the possibility of up-to a three (3) year extension of the 3-month compliance deadline with interim measures. The USEPA proposed an interim 50% control level within a year, utilizing this provision of the Act. Neither an extension or a 50% reduction is acceptable to the state of New Jersey. New Jersey strongly believes that more reductions are possible and reasonable in a shorter timeframe. A power plant in New Jersey implemented short term measures (ultra-low sulfur coal), which provided over an 80% reduction in SO2 emissions, changing from less than 1% sulfur coal to less than 0.2% sulfur coal.

Detailed Comment from Attachment
IV. Interim Reductions Should Minimize SO2 Emissions As Soon As Possible

Within 90 days EPA should require Portland to achieve an 80% reduction in the maximum hourly SO2 emission rate or shut down the coal boilers. Within 90 days to one year - GenOn must further minimize SO2 emissions and achieve 95% reduction if feasible. If not achieved, GenOn must demonstrate they have taken all practicable measures to minimize SO2 emissions in this timeframe.

EPA proposes to require Portland to meet interim emission limits within one year. 76 Fed. Reg. 19,677. There are proven, short term emission reduction measures that can significantly reduce SO2 emissions at Portland in substantially less than one year. Given the extent of the exceedances of the NAAQS, emission reductions in the shortest possible timeframe are appropriate for the protection of public health. New Jersey agrees with EPA that dry reagent

injection (DRI) can be installed within less than a year and will likely achieve at a minimum 50% emission reductions at Portland. However, based on experience at New Jersey facilities, even greater shorter term emission reductions between 80-95% are possible. The EPA should require the combination of an immediate reduction of maximum coal burned per hour, use of the lowest sulfur coal available as soon as possible, and a dry reagent injection system as soon as possible.

A. Switching to Low Sulfur Coal Could Result In over 90% Reduction Within 90 Days

Switching to lower sulfur coal would dramatically cut SO2 emissions and could happen very quickly (e.g., within 90 days). At PSEG Fossil LLC's Hudson Generating Station (Hudson) in New Jersey, the facility was required to use ultra low sulfur coal. Hudson switched to an ultra low sulfur coal with a reported sulfur content of approximately 0.1% sulfur. Hudson was required to burn 100% ultra low sulfur coal with an SO2 limit of 0.216 lb/mmBtu until the installation and commencement of operation of a scrubber. EPA was party to the Consent Decree that resulted in this requirement. Because Portland uses approximately 2% sulfur coal, which is about 3 pounds SO2 per million Btu, coal switching alone could result in over 90% SO2 emission reductions. If this ultra low sulfur coal is not available for use at Portland, GenOn should obtain the next lowest sulfur coal available that can be burned at Portland. GenOn should be required to document to EPA and the public that it will use the lowest sulfur coal available.

According to the Energy Information Administration's Monthly Utility and Nonutility Fuel Receipts and Fuel Quality Data (EIA-923), http://www.eia.gov/cneaf/electricity/page/eia423.html, in 2008 Portland imported 919,715 tons of coal from four western Pennsylvania and West Virginia mines with a weighted average of 1.88% sulfur. Upon burning, this resulted in a release of 34,650 tons of SO2 at a rate of approximately 3.1 lb/mmBTU.

In 2010, Portland imported 638,865 tons of coal from a single western Pennsylvania mine with a weighted average of 1.79% sulfur. The 2010 rate as reported to EPA's CAMD database was 2.82 lb/mmBTU. EIA-923 data indicates that lower sulfur coal is also available in West Virginia. In 2010, seven West Virginia mines produced 3,233,503 tons of bituminous coal with sulfur contents ranging from 0.14% to 0.37%. Such coals burned at Portland could lower SO2 emissions by 92% to 77%, respectively. Considering Portland has obtained coal from West Virginia in the past, and West Virginia has the potential capacity to supply Portland's demand, this option is reasonable and feasible. We note this as an example of the availability of much lower sulfur coal but it is not the only possible source.

B. Dry Sorbent Injection In Combination With Low Sulfur Coal Could Achieve Even Greater Reductions

In addition to using lower sulfur coal, Portland could also install dry sorbent injection (DSI) within much less than a year and achieve even greater SO2 reductions. This is useful if ultra low sulfur coal, such as used by the PSEG Hudson unit, is demonstrated to not be available for use at Portland.

DSI temporary systems can be installed and operational in a matter of days. In addition, according to Jim Staudt of Andover Technology Partners, permanent systems can be installed and operational in a matter of months; much less than one year. GenOn should determine if DSI is feasible for SO2 reduction by installing a temporary system immediately and if determined effective at reducing SO2 emissions, it should operate either a temporary or permanent system as soon as possible. EPA should require that the DSI system be in place within 90 days, unless GenOn demonstrates this is infeasible and EPA grants a longer timeframe, but in no event no longer than one year. As part of the determination of DSI feasibility, GenOn should conduct particulate testing at different operating loads and ensure that the reductions in hourly heat inputs of coal for SO2 reduction is also sufficient to avoid any increases in maximum particulate emissions.

Following are examples of SO2 emission reductions achieved with DSI.
1. A technical report by the Northeast States for Coordinated Air Use Management (NESCAUM), "Control Technologies to Reduce Conventional and Hazardous Air Pollutants from Coal-Fired Power Plants" dated March 2011 indicates that DSI using Trona can achieve varying levels of controls - in the range of 30-60% SO2 emission reductions - when injected upstream of an Electrostatic Precipitator (ESP), which is the particulate matter control installed at Portland, or up to 90% reduction when injected upstream of a fabric filter.
2. The PHI Company Edge Moor Plant, Units 3 & 4, in Delaware utilizes DSI and achieves SO2 emission reductions from 1.2 lbs/mmBtu to 0.37 lbs/mmBtu, which is a 69% control efficiency.
3. Performance tests at the Dunkirk and Huntley stations in New York indicate that the installed controls can reduce: SO2 emission by 55% within 12 months; mercury emissions by more than 90%; and PM emissions to less than 0.010 lbs/mmBtu.

C. Reducing The Amount of Coal Burned Per Hour Should Be Required Immediately

Reduced maximum hourly heat input at Portland would significantly reduce emissions immediately. A 20% reduction in hourly coal use would reduce hourly SO2 emissions by 20%. This would also reduce the maximum flue gas flow rate by 20%, resulting in particulate emissions reductions by greater amounts, probably by over 50%. This may be necessary to avoid particulate emission increases with dry reagent injection. Portland should reduce its hourly amount of coal burned (the maximum hourly heat input) in each unit by at least 20% immediately. Additionally, shutdown of one of the units can be considered as part of a required 80% interim reduction of SO2.

Response:
After consideration of all comments, the EPA has set a combined interim emission limit that is based on the EPA's assessment that coal with sulfur content of 1.5 lb/mmBtu is readily available and its use at Portland is achievable within 1 year. *See* discussion of interim emissions limits in section VI.A of the preamble.

With respect to the comment that the EPA should require an immediate reduction in coal use, EPA notes that section 126(c) of the statute provides for setting compliance schedules. In the EPA's engineering judgment, it is feasible and practicable for the Portland facility to achieve emissions reductions via several options including fuel switches and/or control technologies.

These options can eliminate Portland's significant contribution to nonattainment in New Jersey without mandating reductions in hours of operations. Moreover, the final rule provides GenOn with flexibility to decide the most efficient way to eliminate their significant contribution. As noted above, the interim limits are designed to achieve interim progress towards the 3-year limit based on options we believe are readily achievable in one year.

3. Concerns with achievability of interim limits; Need for test burns

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
If EPA insists that a change in position from its previous determinations is necessary and finalizes the Proposal, EPA should eliminate interim emission requirements or, at a minimum, defer them until GenOn can undertake necessary coal testing to determine what interim emission levels are reliably achievable. Using information from testing will allow a more practical increment of progress and avoid imposition of arbitrary milestones. In addition, while GenOn agrees with EPA that any interim and final SO2 limits should only apply to the two coal-fired units at Portland, the interim limits must be set as a combined limit for both units to maximize operational flexibility of Units 1 and 2, while reducing emissions. The final SO2 limits applicable to Units 1 and 2 should be based on whatever operating scenarios provide for modeled compliance.

GenOn proposes that it would meet the following schedule upon completion of the Portland Plant Test Burn Trial Program:

☐ GenOn would submit a report on the test burn program to EPA no later than three months from the effective date of the Section 126 finding, including detailed recommendations on achievable interim emissions limits and a schedule for implementation.

☐ If EPA identified deficiencies in the test burn report, it would have 15 business days to submit a revision to GenOn to correct any deficiencies.

☐ No later than six months from the date of EPA's approval of the recommendations and compliance schedule in the test burn report, Portland would comply with the emissions limits identified in the report. The proposal to allow for the test burn as part of the milestone schedule is critical to establishing an interim limit and schedule that allows the plant to continue to operate

GenOn may be able to meet interim emission limitations, if a reasonable time table and level is set. Similarly, the final emission limitation may be achievable through a combination of controls, fuels, temporary shutdown, and/or other operational measures that cannot reasonably be predicted at this stage. At most, EPA should set interim and final emission limitations needed to address the NAAQS and allow GenOn to meet those limits in the most cost-effective and efficient manner possible

3. EPA should not set interim limits until GenOn has had the opportunity to test alternative coal supplies. If interim limits are required, GenOn's ability to achieve swift interim reductions must be verified by test burns of various, different coal supplies. Test burns are necessary to understand the impact that lower sulfur coals will have on operations, including fuel supply

logistics, material handling, loss of production, boiler parameters, emissions controls, whether the pulverizers have the ability to grind such coals, the effectiveness of the precipitator with changes in ash resistivity, as well as ash handling and composition. A preliminary schedule for test burns contemplates two and a half months from the beginning of the process until a decision on the practicable solution is evident. See Appendix B. EPA has encouraged GenOn to submit comments on the practicality of interim emissions limits and the schedule for such. This is not possible by the close of the public comment period. GenOn is testing coals expediently and will provide information to EPA by September 15, 2011. Alternatively, we request that EPA consider a milestone in the compliance schedule that requires submittal of a report detailing the results of the Portland Plant Trial Burn Program with recommendations for interim emissions limits and a compliance schedule.

Commenter: Senator Pat Toomey, Senator Robert P. Casey and Congressman Charles Dent
Comment:
We have been informed that the timeline will set the interim emission requirements prior to the completion of GenOn's alternative test burn analysis, which should demonstrate an appropriate interim level. We understand that evaluating methods and alternatives for reducing emissions for generation facilities, such as the Portland plant, are not simple processes and require significant engineering, testing and analysis in order to develop a specific plan to most efficiently meet compliance goals. In addition, GenOn will need to make investments and operational decisions with subsequent emission standards that EPA is currently developing…We also encourage EPA to defer finalization of interim emission limits to allow the completion of GenOn's tests later this year.

Response:
As discussed in section VI.A of the preamble, GenOn submitted a September 15, 2011 test burn report and it is included as part of the docket in this rulemaking. The EPA considered the test burn report in the final rulemaking and, as discussed in detail in section VI.A. The EPA continues to believe that significant reductions in SO_2 emissions can be achieved in one year.

The EPA has also reviewed the information from GenOn regarding possible equipment changes. The EPA's engineering judgment is that these changes can be accomplished in one year.

As discussed in section VI.A of the preamble, the EPA includes a combined interim limit of 6,253 lb/hr for the total SO_2 emissions from units 1 and 2 rather than a unit-by-unit proposed limit. The combined interim limit in the final rule is achievable within one year based on EPA's assessment that coal with a sulfur content of 1.5 lb/mmBtu is readily available. Because the limit is expressed as a combined limit, GenOn will have flexibility to pursue a number of approaches to the interim limit, which serves to reinforce the EPA's conclusion that this limit will be achievable within 1 year.

4. Interim limits may be viewed as arbitrary and capricious

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:

EPA's proposal for a 50 percent reduction from allowable emissions for an interim limit is arbitrary and capricious EPA proposes that Portland Units 1 and 2 meet hourly interim SO2 limits that represent a reduction of 50 percent of the units' allowable emissions. To support this reduction level, EPA performed a cursory review of emission reduction options and determined that several are available to reduce Portland's SO2 emissions, including "reagent injection, switching to lower sulfur coal and load shifting." 76 Fed. Reg. 19677. EPA further notes that lower sulfur coal may be available in Pennsylvania and, in EPA's experience, "reagent injection can achieve emission reductions at coal-fired electric generating units in excess of fifty percent and can be installed and operational on coal-fired electric generating units in less than 12 months." Id.

Commenter: Michael L. Krancer, Secretary, PADEP
Comment:
EPA is also proposing to require interim SO2 emission reductions by establishing emission limitations of 2910 lbs/hr for Unit 1 and 4450 lbs/hr for Unit 2-these limits represent a 50 percent reduction from allowable SO2 emissions within one year after the effective date of the finding. While Section 126 expressly provides for increments of progress, there is no provision in the CAA to suggest that a 50 percent reduction must be made within one year of a finding. Without fully explaining the rationale for EPA's proposed interim emission reductions and time lines, EPA's interim requirements could be viewed as arbitrary and capricious.

According to the proposed finding, the interim requirements could be achieved within one year either by the use of low sulfur coal (e.g., one percent sulfur bituminous coal) or by installing and operating sorbent injection technology on the coal-fired units. However, the use of sorbent injection technology could result in collateral increases in other pollutants that may require a new source review analysis or plan approval (construction permit). Therefore, the increments of progress should include reasonable milestones for complying with the interim limits. If the proposed 50 percent reduction in the maximum allowable SO2 emissions can only be achieved by the installation of sorbent injection technology, the one-year deadline for complying with the interim limit does not provide sufficient time for permitting, purchasing, and installing the technology. Therefore, EPA should work with NJDEP, GenOn, and DEP, as the permitting agency, to establish emission limits and compliance schedules containing increments of progress consistent with Section 126(c) of the CAA (42 U.S.C. 7426(C)).

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC (late supplemental comments)
Comment:
In its June 13, 2011 comments on the Proposal, GenOn opposed establishing interim SO_2 limits on Portland Units 1 and 2. GenOn continues to believe that interim limits are unnecessary and that the proposed 50 percent reduction requirement is arbitrary and capricious.

Response:
The EPA disagrees that the interim limits could be viewed as arbitrary and capricious. As discussed in more detail in the preamble in section VI.A:
-- The EPA agrees that reagent injection is likely not achievable within one year because Portland may need to upgrade its particulate matter collection equipment. Accordingly, we no

longer believe that reagent injection serves as a technical basis for the interim emissions reduction requirements in the final rule.
-- After considering and analyzing the comments regarding the feasibility of switching to cleaner coal, the availability of cleaner coal, the ability of Portland to accommodate combusting cleaner coal, and the necessary time frame for doing so, the EPA does believe that it has provided an appropriate technical basis for the interim limit.

5. Interim limits should be revised on test burns results

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC (late supplemental comments)
Comment:
The proposed 50 percent reduction is based on control options EPA reviewed that do not take into account site-specific factors applicable to Portland. In its comments, GenOn informed EPA that the only viable option for meeting interim SO2 emission limits at Units 1 and 2 might be through the use of lower sulfur coal and that it intended to conduct test burns of lower sulfur coal at Portland to determine what interim emission limits would be achievable. Attached is the Portland Station CAPP Coal Test Burn Report (September 15, 2011), which contains the results of the test burns conducted at Portland between June and August 2011 ("Report").

As stated in the Report, Portland procured low sulfur Central Appalachia ("CAPP") coal from the Millers Creek mine in West Virginia, which then was blended with Portland's current coal supply, Northern Appalachia ("NAPP") coal from the Bailey mine in southwestern Pennsylvania, to determine the effect that combustion of the CAPP coal would have on SO2 and particulate matter emissions and unit operations. The data reveal that Portland Units 1 and 2 cannot burn 100 percent CAPP coal without experiencing significant de-rates. Lesser de-rates were experienced at different blend rates. Equipment changes at Portland also would be required to safely and reliably blend coals at a higher rate on a long-term basis.

Based on the results of the test burn and, as discussed in GenOn's June 13, 2011 comments, GenOn continues to believe interim SO2 limits for Portland Units 1 and 2 are not warranted. Nonetheless, if EPA intends to finalize a rule for Portland that contains interim limits, EPA should consider the interim limits described below:

1. Within six months after the effective date of the final rule, Portland Units 1 and 2 would meet a combined SO2 emission rate of 11,040 lbs/hr (a 25 percent reduction from allowable limits).
2. Within 24 months after the effective date of the final rule, Portland Units 1 and 2 would meet a combined SO2 emission rate of 9,755 lbs/hr (a 35 percent reduction from allowable limits).

A more detailed discussion of these interim limits is presented below:

Initial Interim Limit – 11,040 lbs/hr
During the test burn process, GenOn observed that a 25 percent reduction in SO2 allowable emissions (corrected for maximum heat input and fuel sulfur specification) was possible with no unit de-rates. Sustaining this level of blending on a continuous basis would require procurement of additional coal yard equipment and adjustments to existing coal sizing, handling and

pulverizing equipment. However, GenOn believes this work could be completed within six months of the effective date of the final rule, and believes it would be possible to achieve these reductions in advance of the 12-month interim limit schedule that EPA identified in the Proposal.

Second Interim Limit – 9,755 lbs/hr
At higher low-sulfur fuel blend ratios, GenOn observed that a 35 percent reduction in allowable SO2 emissions (corrected for maximum heat input and fuel sulfur specification) was possible with an approximately 25 MW de-rate on Unit 2. Sustaining this level of blending would require extensive changes to station equipment. Specifically, engineering and installation time would be required for changes to the final hoppers to permit larger volumes of CAPP coal, changes to fugitive dust controls and changes to the ash handling system. It is also possible that New Source Review/New Source Performance Standard permitting would be required to perform some or all of this work. GenOn estimates that it would need 24 months from the date of the final rule to accomplish this work, assuming that NSR/NSPS permitting is not required.

If EPA finalizes this rule and determines that emissions limits are required, GenOn asserts that EPA should provide a combined SO2 emission rate limitation for Portland Units 1 and 2 for the interim limits and as well as for the final reduction requirement. As discussed in GenOn's June 13, 2011 comments, given the proximity of Unit 1 and 2's stacks, unit-specific limits are not necessary to achieve compliance with the 1-hour SO2 NAAQS. GenOn verified this fact through a modeling demonstration provided in its comments to the Proposal. *See* Appendix C of GenOn's June 13, 2011 comments. Permitting the units to meet a combined SO2 emission rate limitation rather than unit-specific limitations would provide important flexibility to Portland by allowing it to make the necessary SO2 reductions while continuing to meet its operational commitments.

Response:
As discussed in the response to comment above and in section VI.A the preamble to the final rule in further detail, the EPA has included a combined interim limit of 6,253 lb/hr for the total SO_2 emissions from units 1 and 2 rather than a unit-by-unit SO_2 emissions limit set forth in the proposed rule. The combined interim limit in the final rule is based on the EPA's assessment as discussed in the preamble in detail that coal with a sulfur content of 1.5 lb/mmBtu is readily available for Portland to acquire within one year and that Portland can accommodate combusting such cleaner coal with adjustments to its plant which Portland could accomplish within one year. For the 3-year limit, the EPA retained the lb/ hour limits for units 1 and 2 and also concluded that it was necessary to include lb/mmBtu limits on a 30 boiler operating day rolling average basis to ensure that the NAAQS were protected at all loads. *See* preamble section VI.A.3.

6. Interim limits may be achievable

Commenter: Donald C. Seigel, International Vice President, Third District of the International Brotherhood of Electrical Workers (IBEW)
Comment:
IBEW recognizes that the alternative control options that EPA is proposing, such as the 50% interim emission reduction within one year, may well be achievable, and we stand ready to work

with GenOn to support control options that will avoid job losses at the plant and in the surrounding community.

Response:
EPA appreciates your comment and considered it in drafting the final rule. *See* the discussion in section VI.A of the preamble of available and achievable control options.

7. Comments on the relationship to other EPA requirements

Commenter: Commissioner Bob Martin, NJDEP
Comment:
EPA … cannot rely on the timeframes of other regulations, such as the recently proposed National Emission Standards for Hazard Air Pollutants for coal-fired electric utility steam generating units, to delay Section 126 compliance beyond the maximum three year time frame. Nothing in the statute suggests that EPA has discretion to allow continued operation for any reason beyond the three months to three years timeframe from the date of EPA's finding.

Commenter: Michael L. Krancer, Secretary, PADEP
Comment:
Based on the EPA's AERMOD modeling analysis, the Section 126 finding is appropriate for addressing the downwind impacts of SO2 emissions from the Portland Generating Station. A legally defensible finding will result in SO2 emission reductions expeditiously. However, EPA should harmonize the effective dates of the final rules for the Section 126 finding and the Utility MACT Rule to allow GenOn's compliance with both Rules to be coordinated. While we recognize that the Section 126 finding is independent of the Section 112 requirements, harmonization and coordination of the three-year compliance deadlines under the Section 126 finding and the Utility MACT Rule would be logical and would at the same time achieve emission reductions greater than the 81 percent SO2 emission reduction proposed as the Section 126 remedy.

We look forward to working with EPA to satisfy DEP's obligation to submit a SIP revision, which addresses the transport of SO2 emissions from the Portland Plant by June 2013.

In fashioning a compliance schedule for GenOn, EPA should harmonize and coordinate the deadlines for complying with the Section 126 finding and the Utility MACT Rule. Harmonization and coordination of the statutory compliance schedules would allow the owners of the facility sufficient time to make a prudent business decision 'regarding the long-term viability of the coal-fired units. Moreover, such a harmonization and coordination approach is not unprecedented for Section 126 petition actions. See "Findings of Significant Contribution and Rulemaking on Section 126 Petitions for Purposes of Reducing Interstate Ozone Transport," 64 FR 28250, 28255, May 25,1999, (EPA developed the alternative approach to harmonize the Section 126 and NOx SIP call actions).

Control measures that reduce SO2 can generally be expected to reduce exposure to this air contaminant thereby reducing potential adverse health effects. The proposed 81 percent overall reduction in allowable SO2 emissions from Portland Plant units would reduce emissions.

Moreover, these SO2 emission reductions would assist Pennsylvania in making progress toward achieving and maintaining the NAAQS for SO2 and PM2.5.

Consequently, DEP is supportive of the overall reduction approach outlined in the proposal. However, and significantly, DEP believes, as more fully explained below, that it is important for EPA to harmonize the compliance dates for new regulatory requirements including the Utility MACT Rule expected in November 20

As you know, the final emission limits to achieve an overall reduction of 81 percent of maximum allowable SO2 emissions from the coal-fired units at the Portland Generating Station can only be achieved by retrofitting the units with flue gas desulfurization (FGD) systems. It has been DEP's experience that facility owners and operators that choose to install dry or wet scrubbing technology are generally able to install this technology within a three-year window. A three-year timeframe for the completion of the FGD installations is consistent with Section 126 of the CAA, and it parallels the initial three-year compliance deadline for complying with the Utility MACT Rule. Since EPA is under a court order to sign the final Utility MACT Rule by November 16, 2011, adoption of the same effective dates for both rules would ensure compliance by the statutorily prescribed three-year compliance deadlines in Sections 112 and 126 of the CAA. This harmonized and coordinated approach provides adequate time for GenOn to make a reasoned decision on the long-term viability of the plant.

Clearly, the residents of the Commonwealth of Pennsylvania would realize public health and environmental benefits from measures implemented to reduce maximum allowable SO2 emissions at the Portland Generating Station, which is located in Mount Bethel Township, Northampton County, Pennsylvania. However, DEP believes that the compliance schedule containing increments of progress for the Section 126 finding should be harmonized and coordinated with the compliance schedule for the final rule pertaining to "National Emission Standards for Hazardous Air Pollutants From Coal and Oil-Fired Electric Utility Steam Generating Units" (hereinafter Utility MACT Rule), which is expected by November 16, 2011. See also 76 FR 24976, May 3, 2011, for proposed Utility MACT Rule. It only makes sense to do so. The suggested harmonized approach would allow GenOn adequate time under the existing framework of the CAA to make a reasoned decision on the long-term viability of the Portland Plant.

Commenter: Steve Davies, GenOn, Vice President of Asset Management
Comment:
As a result of a Section 126 petition by the NJDEP, EPA is proposing a rule that will require significant reductions in SO2 emissions from our Portland station. GenOn believes any final rule should carefully consider the schedule for and the magnitude of SO2 reductions mandated by other air quality regulations that EPA is promulgating. In addition, the final rule should consider the process that needs to be followed in determining the existence of any SO2 non-attainment areas around the Portland station and the role of the PaDEP in developing an appropriate SO2 NAAQS compliance implementation plan for all Pa SO2 sources. Finally, the rule should provide for meaningful, interim reductions of SO2 emissions while allowing GenOn time to analyze and develop a comprehensive compliance strategy that addresses pending regulations and obtain permits for any changes in station operations or additions of control equipment. We

agree with comments made recently by the NJDEP that they don't want to shut the plant down, they just want us to improve what we do.

We're asking for an opportunity to make changes that will result in near-term reductions in SO2 emissions and for time to study all pending rules and make long-term plans for compliance with those rules once they have been finalized.

GenOn supports environmental rules and regulations that are based on sound science and that balance environmental benefits, electric reliability and economic impacts. Therefore it is critical that compliance with current and proposed environmental rules proceed in a manner that avoids material impacts to electric power supply reliability and avoids major consumer electric power price shocks.

As you know, there have been several environmental rules and regulations, specifically addressing air emissions, that have recently been made effective. In addition there are numerous pending environmental rules and regulations that will impact electric generating facilities, specifically coal-fired electric power generating station operations, across the US. These pending regulations include HAPS MAG, CATR, coal combustion by-product disposal, 316(b) and the SO2 1-hr NAAQS. As these regulations become effective, GenOn will make operational changes and/or capital expenditures to meet these new regulatory standards.

Commenter: Joe Dulovich, General Manager, GenOn Portland Station
Comment:
Environmental performance is a key business objective for all GenOn stations, and we are very proud of our environmental compliance record at Portland. We have several major environmental permits that we must comply with that govern air emissions, ash disposal and wastewater discharges from the station. We are currently in full compliance with all of these permits. With respect to air emissions, the station has electrostatic precipitators to remove particulate matter from the flue gas. We also have low-NOx burners in the boilers to control NOx emissions, and we bum low sulfur coal to control the amount of SO2 emissions from the station.

We know that this action by EPA will likely require us to make near-term operational changes at the station to further reduce SO2 emissions. We also know that there are several other pending environmental regulations that will impact station operations. We hope that EPA will recognize there are limits to what we can economically do over the next few years and give us time to evaluate what we need to do to comply with all pending environmental regulations. We are confident that we have the talent at the station do what it takes to continue to protect the environment while providing excellent employment opportunities for our employees and providing significant economic support to northeast Pennsylvania and western New Jersey.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
The Proposal Fails to Consider Other State and Federal Actions That Will Address Portland’s Emissions

1. Pending CAA rules will dramatically reduce SO2 emissions and interstate transport EPA is developing emissions standards for EGUs under Section 112 of the CAA to control HAPs through the EGU MACT. 76 Fed. Reg. 24976. These standards not only would regulate emissions of HAPs, but also would result in reductions in SO2 emissions because the technologies used to control acid gas HAPs "are also often effective at reducing significantly the emissions of other conventional pollutants such as SO2." Id. at 24978. See also id. at 24991-92, 25006 (discussing interaction of HAP and SO2 controls). Proposed emissions standards in the EGU MACT will require unit-specific or plant-specific compliance. Accordingly, to meet the HAP limits, Portland will need to install emissions controls on Units 1 and 2 that will result in significant SO2 emissions reductions or the units will be forced to shut down. There is no EGU MACT compliance scenario currently envisioned for Portland that would not also allow the units to comply with the 1-hour SO2 NAAQS.

Imposing emission reductions at this time, prior to promulgating the EGU MACT, as well as the planned Clean Air Transport Rule ("CATR"), imposes an unnecessary burden on Portland when emission reductions required by those rules likely will address the alleged impacts on New Jersey. As EPA has recognized, "forthcoming national and regional rules, such as the pending Industrial Boilers [MACT] standard under CAA section 112(d), are likely to result in significant SO2 emissions reductions in the next three to four years." 75 Fed. Reg. 35570 (emphasis added). In fact, by 2014, EPA expects CATR and other regulatory actions, such as the EGU MACT, to reduce overall SO2 emissions by 71% from 2005 levels. See supra Section III.C. Nonetheless, the Proposal completely ignores these pending regulations and would impose additional requirements on Portland before other sources are required to comply with these rules. Because final requirements for these rules are not yet known, the Proposal also may impose inconsistent obligations on Portland, or force GenOn to select a remedy that does not fully address the expected MACT standards and results in inefficient implementation of requirements imposed by the EGU MACT, Section 110, Section 126 and CATR.

F. EPA Should Defer Action on the Petition Until Other Pending Actions Are Complete. Collectively, multiple regulatory actions will determine requirements applicable to Portland and how GenOn elects to comply with any final rule promulgated in response to the Petition. In particular, the EGU MACT and EPA's response to the first, and still-pending, New Jersey Section 126 petition will have significant impacts on Portland. These impacts and requirements must be considered collectively in order to allow reasoned decision-making by GenOn with respect to compliance measures to be taken at Portland. It is simply unreasonable to ask GenOn to make major decisions about the future of Portland in the face of significant uncertainties about additional requirements imposed by these regulatory processes.

EPA has stated that it intends to finalize the Proposal (or a revised version thereof) by the end of September. But this is well before EPA will finalize the EGU MACT and GenOn remains uncertain as to EPA's timeline for a response to the first New Jersey petition. Accordingly, EPA should revise the timelines in the Proposal to align with the EGU MACT and any regulatory actions specifically directed at Portland. Not only will this timing allow the best and most informed decision-making, it is required under Executive Order 13563 and consistent with past EPA action on Section 126 petitions. See supra Sections IV.B, D.2.

Accordingly, EPA should defer a final finding in response to the Petition until the D.C. Circuit has acted and either affirmed the validity of the new 1-hour SO2 NAAQS or invalidated it and obviated the need for EPA to act on the Petition.

Further, EPA plans to issue proposed implementation guidance by the end of June 2011 for the use of either modeling or monitoring to show future compliance with the 1-hour SO2 NAAQS. This guidance was referenced in the final SO2 NAAQS rule (75 Fed. Reg. 35550), but has not yet been issued. EPA plans to take public comment on this proposal before finalizing the guidance. Until this guidance is finalized, which could allow the use of monitoring in lieu of modeling, EPA's Proposal is premature and should be deferred.

The Proposal would impose requirements that may be inconsistent with those imposed by the pending EGU MACT and the CATR. See supra Section IV.D.

Similarly, the Proposal's interim solution is not achievable within the timeframe set forth, as discussed below, and actions needed to meet the interim limits for each coal-fired unit at Portland may be inconsistent with actions needed to satisfy the Proposal's final limits. EPA should revise the Proposal to correct these defects.

Although GenOn understands that EPA does not view Section 126's three-year compliance timeline as a "grace period" during which a source can continue to operate without making any attempt to comply with the emissions limits imposed through the Section 126 process, EPA must understand that, in the circumstances present here, it is not imposing the Section 126 limits in a vacuum. The regulatory environment is very fluid and further changes are expected. GenOn will need to develop a compliance strategy over the next few years to address the various regulatory requirements being imposed on the electric generating industry. The compliance plan and status reports should not restrict GenOn's ability to revise its strategy for compliance with Section 126 as circumstances change. EPA's insistence that GenOn specify the measures it will use to meet interim and final emission standards is inappropriate and unnecessary.

Commenter: Gene Barr, Vice President, Government and Public Affairs, Pennsylvania Chamber of Business and Industry
Comment:
It is important to note that there are numerous other pending federal environmental rules and regulations that will in-pact electric generating facilities, specifically coal-fired electric power generating utilities, across the United States. These pending regulations will likely have the impact of driving additional reductions of SO2 emissions. It is critical that all final SO2 reduction requirements are known so that investment decisions can be made on a single set of criteria.

The PA Chamber believes that any final rule should carefully consider the schedule for and magnitude of SO2 reductions mandated by other air quality regulations that EPA is promulgating.

Portland Station can achieve meaningful interim reductions of SO2 emissions while allowing GenOn time to analyze and develop a comprehensive compliance strategy that addresses both the

requirements of a final ruling and pending regulations and allows for the time to complete required upgrades.

Response:
The EPA has considered these comments, and believes Portland has the information it needs to make an informed decision.

We understand that Portland's actions to address its significant contribution to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS are occurring in relatively close proximity to actions it may take to address the requirements under the recently-finalized Transport Rule, as well under the forthcoming MATS rule.

The EPA notes that the final requirements of the Transport Rule are now known. The EPA also notes that the initial requirements under the Transport Rule for 2012 precede the requirements for this section 126 rule, which requires the source to meet interim limits within 1 year (early 2013) with 3-year requirements taking in effect in early 2015.

At this time, the MATS rule is not final. The EPA has proposed the MATS rule and is under a consent decree deadline to complete that rule by December 16, 2011. While the date of this section 126 rule does not exactly coincide with the date for the final MATS, these two rules are expected to take effect within a short time of each other.

The EPA also notes that, in response to comments suggesting the plant needed more than 90 days to determine a method of compliance, the final rule gives Portland 12 months from the effective date to indicate how it intends to achieve full compliance.

See the discussion in section V.E. of the preamble on harmonizing this Rule with other requirements under the Clean Air Act, and section VI.B. on reporting milestones.

8. 90-day compliance plan is not needed

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Further, requiring that GenOn submit a compliance plan 90 days after the final rule is unnecessarily restrictive, particularly given that GenOn will not have fully evaluated its compliance options for the EGU MACT.

Response:
EPA has considered this comment and has adjusted the due date for Portland to submit its plan for achieving compliance with the final emissions limit within three years. In the final rule, the EPA requires Portland to submit this compliance plant within one year. *See* the discussion in section VI.B of the preamble concerning EPA's decision to extend the deadline for submittal of the compliance plan.

9. Six month status reports are not justified

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC

Comment:
Similarly, detailed status reports are not justified and will limit GenOn's flexibility to revise its compliance strategy in response to other state and federal regulations.

Response:
See the discussion in section VI.B of the preamble on the EPA's retention of the six-month status reports and the necessity for such reports for the EPA to monitor Portland's progress towards achieving compliance with the emissions limits.

10. Interim limits should be combined limits

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
EPA is taking comment on possible interim emission reductions such as proposing that the Portland Plant reduce its SO2 emissions to a level no greater than 2,910 lbs/hr for un it 1, and 4,450 lbs/hr for unit 2, one year after the effective date of the final rulemaking, and other compliance activities to demonstrate appropriate increments of progress toward compliance. 76 Fed. Reg. 19664. Notwithstanding its stated objections to establishing interim limits, if EPA determines that interim limits are necessary, GenOn requests that the interim limit allow GenOn greater flexibility than the single example modeled by EPA and subsequently proposed. Specifically, GenOn believes that the same environmental benefit can be achieved through the use of a combined mass emission rate for Units 1 and 2 (e.g., an SO2 emission rate of 7,360 lb/hr if EPA insists that Portland meet an interim limit that achieves a 50 percent reduction in the units' allowable emission rates).10 Indeed, this same flexibility should be provided in the final limits, as well. Since the objective is NAAQS-compliant modeled impact, there is no reason to impose unit-specific limits if a combined unit limit achieves the same result.

Response:
In the final rule, the EPA has provided for one combined SO_2 emissions limit which Portland must comply with no later than one year after the effective date of this Rule. For the reasons discussed in detail in section VI of the preamble, the EPA decided to use the one combined limit instead of the unit limits EPA previously proposed.

11. EPA should work with agencies to establish increments of progress post-promulgation

Commenter: Michael L. Krancer, Secretary, PADEP
Comment:
EPA should work with NJDEP, GenOn, and DEP, as the permitting agency, to establish emission limits and compliance schedules containing increments of progress consistent with Section 126(c) of the CAA (42 U.S.C. 7426(C)).

Response:
The EPA believes that the approach suggested by this comment would not be consistent with the statute. Under section 126, the Administrator is to set the emission limits and compliance schedules, and must accomplish these through a notice and comment rulemaking. While we have considered the comments of all the parties noted by the commenter, it would not be appropriate

for the EPA to defer the compliance schedules to a future negotiation with the source owner and states. Under section 126, the EPA cannot alter the statutory requirement that the source eliminate its significant contribution to nonattainment and interference with maintenance within 3 years of the section 126 finding.

12. Comments on interim reporting milestones

Commenter: Senator Pat Toomey, Senator Robert P. Casey and Congressman Charles Dent
Comment:
The proposal requires GenOn to submit a compliance plan 90 days after the final rule. We understand that GenOn is actively evaluating alternatives to arrive at the most effective control solutions… Accordingly, we encourage EPA to provide GenOn with flexibility in the timing of the submission of the compliance plan to meet required emission limits.

Commenter: E. Wade
Comment:
It is reasonable that the EPA expects the Portland Plant to have reduced their emissions within the three year compliance period. However, some of the compliance deadlines may be overly ambitious for the plant to complete based on lack of expertise. For instance, the plant may need at least 6 months to submit a modeling protocol; they are most likely extremely unfamiliar with the process, its limitations, and what kind of information they need to obtain.

They also may need additional time to evaluate the best type of changes for their system. This course of action will involve engineers evaluating their entire operation. At 53 years old, changes to their plant could be extensive and also difficult to model.

In the light of these challenges EPA could potentially act as a consultant to assist in modeling, receiving compensation and ensuring that the Portland Plant's efforts are adequate.

The plant may also need additional time to implement any engineering changes to improve their emissions.

Taking the plant offline may violate contractual obligations and affect the surrounding power grid. It may also dramatically decrease revenue and thus funds for enacting emissions changes.

Overall, costs of changes should also be taken into account; costs of repair may exceed the fiscal capabilities of the plant, forcing the entity to cease operation and leaving a large unmet demand for electricity in the area.

Response:
The EPA agrees with the commenter that it is reasonable for Portland to reduce its emissions within the three year time period provided in the rule. In the final rule, as discussed in more detail in section VI.B of the preamble, the EPA has amended the time period for submission of the modeling protocols and modeling analysis which will provide Portland time to analyze its compliance options given other regulatory requirements and plant-specific conditions. However, as discussed in sections V.E and VI.A of the preamble, the EPA believes there are reasonably

available compliance options for Portland to reduce its SO_2 emissions within the one year and three year timeframes. For the EPA's assessment of impacts of electricity reliability and probability of closure, *see* EPA's analysis in section VI.A of the preamble.

13. Meaning of "expeditiously as practicable" requirement in the event of a shutdown

Commenter: Commissioner Bob Martin, NJDEP
Comment:
In accordance with Section 126(c), it is a violation of a source for which EPA has made a finding under this section to operate more than three (3) months after EPA's finding. 42 U.S.C. § 7426(c)(2). EPA may allow the continued operation of a source after three months of an EPA finding only under certain conditions. Specifically, the source must comply with emissions limitations and compliance schedules (containing increments of progress) that EPA provides to bring about compliance "as expeditiously as practicable," but under no circumstances later than three years after EPA's finding. 42 U.S.C. § 7426(c). EPA has proposed to allow the continued operation of Portland as long as compliance with the established emission limits is satisfied within three years of EPA's final rule. 76 Fed. Reg. 19,677. EPA's three year compliance schedule is the maximum time frame allowed under Section 126(c), and a more expeditious schedule is necessary to address this serious public health issue. A more expedited time frame is warranted given that residents living in Pennsylvania and New Jersey close to the Portland plant are subjected to unhealthy air quality as a result of this plant. The significant health problems suffered by these citizens are also evident based on the testimony presented at EPA's April 27, 2011 hearing. EPA included such testimony in the rulemaking docket.

If Portland plans to cease operations of the coal burning units, rather than achieve 95% reduction in emissions, shutdown should occur within three months of EPA's final rule. Also, EPA must require the readily available interim emission reductions as explained above that will minimize emissions in the shortest possible timeframes (i.e., as "expeditiously as practicable").

The plain language of section 126 presumes a shutdown in 90 days once EPA makes a finding of a Section 126 violation. The provision for longer than 90 days should only be implemented if most emission reductions have been achieved within the 90 days, and more time is needed to achieve additional reductions that are infeasible within the 90 days. If little or no emissions reductions are done within the 90 day timeframe, then a shutdown is appropriate given the serious public health consequences of these emissions.

Response:
The EPA disagrees with the commenter's contention that section 126 requires a source to achieve substantial emissions reductions within 90 days or shut down. Section 126(c) of the CAA allows the EPA to permit continued operation of a source beyond 90 days if the source complies with emissions limitations and compliance schedules established by the Administrator. The statutory language requires that the necessary emissions reductions be achieved "as expeditiously as practicable, but in no case later than three years" after the date of the section 126 finding. This language does not, however, mandate that any portion of the necessary emission reductions occur within a particular, earlier time period, nor does the statute require the EPA to accelerate the compliance period based on health concerns.

For the final rule, the EPA determined that Portland could not reasonably achieve the aggressive emission reductions proposed by the commenter within such short time frames. Rather, the EPA concluded that it could reasonably require interim reductions within one year and that Portland could reasonably achieve the final emission reductions within 3 years. The EPA determined that shorter compliance periods were not justified by its analysis. See preamble sections V and VI for further discussion.

Moreover, the statutory language does not mandate that any decision to cease operation must occur in any particular time period when the source is otherwise complying with the required emission limits and compliance schedules. The EPA disagrees with commenter's suggestion that any decision to shutdown must occur immediately or within 90 days. *See* preamble section VII.A for further discussion.

14. Additional comments on criteria for implementing the "as expeditiously as practicable" requirement

Commenter: Commissioner Bob Martin, NJDEP
Comment:
EPA specifically asks for comments with respect to what criteria should be considered when implementing the "as expeditious as practicable" requirement of Section 126.

First, EPA should explicitly require that GenOn implement emission reduction measures "as expeditiously as practicable" and demonstrate that they are doing so. EPA's 90 day, one year, and three year deadlines should be maximum timeframes, and GenOn should also be required to implement measures sooner if possible and demonstrate to EPA that they are doing so. The following information demonstrates that greater emission reductions than proposed by EPA are possible in shorter time frames and thus, the following are emission reduction measures that should be required to meet the "expeditiously as practicable" requirement set forth in Section 126. Section III of these comments explains in detail how such emission reductions can be achieved as "expeditiously as practicable."

For example, reducing the hourly amount of coal burned can be done immediately. GenOn should be required to do so and to demonstrate that it is minimizing the amount of coal burned within the capacity of the units. Also, GenOn should be required to burn the lowest sulfur coal available as soon as possible.

Also, GenOn can implement DSI in much less than one year and should be required to do so. Use of DSI would correspond to EPA's 50% reduction proposal within one year. GenOn should be required to document what is the soonest timeframe they can implement DSI and be required to do so in that timeframe, provided it is less than one year.

To allow operation beyond 90 days, GenOn should have reduced the amount of coal burned and the sulfur content of that coal, and installed DSI within the 90 day period. If an 80% reduction is not achieved within 90 days, GenOn should shut down the coal units until at least 80% reduction can be achieved. For example, if it takes longer than 90 days to obtain the lowest sulfur coal available, GenOn should not operate the coal units until that coal is on site and used.

80% minimum reduction within 90 days is recommended to roughly correspond with the lowest modeling prediction. While this is not low enough to prevent all exceedances, it is reasonable for allowing more time to achieve at least the 95% reduction level as soon as possible, but no longer than three years. In short, EPA cannot delay compliance with Section 126 beyond the maximum time frame set forth in the Act for any reason and must act to ensure that the "expeditiously as practicable" language is given meaning.

Response:
The EPA has reviewed available options for controlling emissions and, as discussed in sections V and VI of the preamble, has included a compliance schedule for achieving the necessary reductions.

The statute does not permit the Administrator to mandate a particular compliance technology, and accordingly, the rule does not require GenOn to implement any particular compliance option, including those suggested by the commenter such as an immediate minimization of coal burned. Rather, the EPA established a compliance schedule for both the interim and final emissions limits that is consistent with the time that is reasonably necessary to apply the available compliance options and that provides GenOn with the flexibility to adopt the best approach.

The EPA disagrees with commenter's assessment that a DSI system can be installed in less than one year. The EPA shares other commenter's concerns about the need to include an assessment of the effect of the DSI system on current particulate controls. *See* preamble discussion on DSI in section V.E.

IX. Technical Feasibility of Controls

Commenter: Commissioner Bob Martin, NJDEP
Comment:
A. Switching to Low Sulfur Coal Could Result In over 90% Reduction Within 90 Days

Switching to lower sulfur coal would dramatically cut SO2 emissions and could happen very quickly (e.g., within 90 days). At PSEG Fossil LLC's Hudson Generating Station (Hudson) in New Jersey, the facility was required to use ultra low sulfur coal. Hudson switched to an ultra low sulfur coal with a reported sulfur content of approximately 0.1% sulfur. Hudson was required to burn 100% ultra low sulfur coal with an SO2 limit of 0.216 lb/mmBtu until the installation and commencement of operation of a scrubber. EPA was party to the Consent Decree that resulted in this requirement. Because Portland uses approximately 2% sulfur coal, which is about 3 pounds SO2 per million Btu, coal switching alone could result in over 90% SO2 emission reductions. If this ultra low sulfur coal is not available for use at Portland, GenOn should obtain the next lowest sulfur coal available that can be burned at Portland. GenOn should be required to document to EPA and the public that it will use the lowest sulfur coal available.

According to the Energy Information Administration's Monthly Utility and Nonutility Fuel Receipts and Fuel Quality Data (EIA-923), http://www.eia.gov/cneaf/electricity/page/eia423.html, in 2008 Portland imported 919,715 tons of coal from four western Pennsylvania and West Virginia mines with a weighted average of 1.88% sulfur. Upon burning, this resulted in a release of 34,650 tons of SO2 at a rate of approximately 3.1 lb/mmBTU.

In 2010, Portland imported 638,865 tons of coal from a single western Pennsylvania mine with a weighted average of 1.79% sulfur. The 2010 rate as reported to EPA's CAMD database was 2.82 lb/mmBTU. EIA-923 data indicates that lower sulfur coal is also available in West Virginia. In 2010, seven West Virginia mines produced 3,233,503 tons of bituminous coal with sulfur contents ranging from 0.14% to 0.37%. Such coals burned at Portland could lower SO2 emissions by 92% to 77%, respectively. Considering Portland has obtained coal from West Virginia in the past, and West Virginia has the potential capacity to supply Portland's demand, this option is reasonable and feasible. We note this as an example of the availability of much lower sulfur coal but it is not the only possible source.

The Portland Plant can reduce the amount of coal burned, change the coal to a much lower sulfur coal, and inject a reagent that will absorb some of the SO2, to achieve 80 to 95 % reduction. Reducing the amount of coal burned could be done immediately; changing from 2% sulfur coal to 0.2% sulfur coal would achieve 90% reduction at the Portland Plant; and dry sorbent injection could increase the emission reductions to over 95%.

Response:
The EPA has reviewed recent Central Appalachian thermal coal quality and production data from Wood Mackenzie, published in April 2011. The Wood Mackenzie data does not indicate availability of Central Appalachian thermal coal in 2010 as low as 0.2 percent sulfur. While western sub-bituminous (such as Powder River Basin) coal may be available at 0.2 percent sulfur to some degree, EPA concludes that far more time than 90 days would be required make necessary changes to burn this coal. *See* further discussion in preamble in section V.E.2.a; preamble section VI.A.2.b for the EPA's discussion of the technical feasibility of coal switching; and discussion above in sections VII and VIII related to interim and 3-year emissions limits.

Commenter: Derrick Loy, Energy Independence of America Corp. (EIAC)
Comment:
I would like to make the concerned public, NJ Department of Environmental Protection officials, and Portland Generating Station officials aware that there are good alternatives to closing this polluting facility. The Calderon Repowering Technology has been studied in-depth by Bechtel, where they found that the technology is a unique and applicable method of co-producing clean electric power and useful by-products. I have assisted EIAC with the development of the Calderon Clean Energy Technologies. One of which is a technology that if utilized would enable Portland Generating Station to repower via this economical and environmentally friendly process, ultimately extending the useful life of Portland's Units 1 & 2 ensuring the facility remains competitive. This closed- system technology will not only eliminate SO2 emissions, but

it will also eliminate NOx, particulate matter, mercury, ash disposal and convert flue gas CO2 into a useful product. This technology is just one of a few options for this facility.

Commenter: Samuel Burlum, Extreme Energy Solutions
Comment:
I'm the CEO and president of Extreme Energy Solutions out of Ogdensburg, New Jersey. I'm also a sworn-in fuel economy expert and emissions expert by U.S. Federal Court in the case of Dutchman versus FTC. One of the -- from all of our research that our company has compiled over the past three to four years, one of the factors that hasn't been looked at in the emissions arena is the fact of the actual fuel source.

In a report that you guys established in 1999, the main component or reason why you have dirty emissions is simply unburnt and unused fuel. One of the things that we would ask EPA to consider is actually looking at how to better refine the fuel source. This is related to diesel, gas, coal, natural gas, propane. We actually had the opportunity to prove the factual concepts of combustion efficiency. And during that discovery with the court, what was able to be found is if you just better refine the material you are burning, you no longer have dirty emission. So that science and those reports we'll be submitting to your office in a formal report before May 27th. Another issue that we have found dealing with other coal fire plants and other sources of dirty emissions, companies and municipalities that we are doing business with, is the fact that there is not enough bridging between the compliance sector and the options that are able to be used. For instance, we understand that EPA and DEP, both New Jersey, New York and Pennsylvania are more of an enforcement agency. One of the things that we found that would help mitigate these issues is if you supplied the companies with a format of what could be used as an option. So put 100 percent responsibility on their shoulders in order to get it done so you can properly enforce. And that's been one of the missing pieces to a lot of companies not taking any action, is that they understand that there are laws, but there is not enough affordable options for them to be able to mitigate these issues.

In regards to a supplement product that our company has researched and developed, University of Pennsylvania has worked with that product and researched it, tested the product. It's basically a product we call Extreme Clean that can be used to mitigate dirty emissions as a wet scrubber system similar to a limestone slurry. But, however, we can mitigate above 80 percent of the dirty emissions and totally sequester all of your volatile compounds above the limestone slurry. It's a fully recyclable product, 100 percent, to make plastics. We ask that the EPA use that as an option to help mitigate this issue. That will be in the report that we'll submit to your office.

Response:
While EPA has not evaluated the technologies identified by these two commenters in particular, we note that the rule is structured in a way that provides GenOn with the flexibility to choose the most cost-effective way of meeting emissions limitations, and we do not prescribe any particular technology.

Commenter: Erin Phalon and Joshua R. Stebbins, The Sierra Club
Comment:

DSI is less effective than scrubbers and should therefore only be used on an interim basis to achieve SO2 emissions reductions at the Portland Plant.

Response:
The EPA has implemented emissions limits and a compliance schedule which will eliminate Portland's significant contribution to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey. The final rule does not mandate nor prohibit the use of any specific technology.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Reagent injection is not feasible to achieve an interim limit EPA specifically references the experience with Trona injection at one of GenOn's affiliate's plants, the Potomac River Station. However, EPA fails in the Proposal to evaluate what effect its suggested interim control strategies would have on Portland or even whether such controls could be utilized in the timeframe proposed. Reagent injection is not feasible at Portland without significant capital investment and equipment installation. Project engineering, permitting, procurement, installation and commissioning would be required to implement the controls with an estimated timeline as provided in Appendix A. All of these steps could not be accomplished within one year. Importantly, to GenOn's knowledge, all dry sorbent injection system installations in the United States providing at least 50 percent SO2 removal have been installed in conjunction with a fabric filter baghouse or hot-side Electrostatic Precipitators ("ESPs"). All of these have been installed at plants burning lower sulfur coal (less than 2.0 lb SO2/MMBtu).

Response:
See preamble discussion in section VI.A.2.e for why reagent injection no longer serves as a basis for the interim limits.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Portland hosted a Trona Injection Demonstration Program in 2006. The results of the testing illustrated that unacceptable increases of particulate matter occurred when sorbent was injected at quantities necessary to produce the SO2 reductions proposed by EPA. The cold-side ESPs' performance deteriorated due to fly ash characteristic changes cause by Trona and the emissions controls could not adequately collect the additional particulate produced by the injection. Emissions reductions never achieved 50 percent SO2 removal during the test program due to low sorbent residence time and particulate collection problems. Additionally, sorbent injection during the test program caused the flyash produced by the units to be unacceptable for disposal in the plant's permitted ash landfill. Alternative disposal options will exacerbate the costs and problems encountered in designing a dry sorbent application at Portland

Response:
Each of the described operational characteristics would normally be expected with trona DSI at a high SO_2 removal rate. To accommodate these characteristics, a comprehensive approach would likely include the addition of a fabric filter (FF) downstream of the existing ESP, with the ESP remaining in service to capture fly ash upstream of the trona injection point.

The EPA also notes that the cited 2006 demonstration program has been supplemented with the additional information submitted by GenOn in its September 2011 test burn report.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Load shifting is not applicable to merchant plants
GenOn does not believe load shifting is a viable option to meet an interim limit. The term "load shifting" is a misnomer in a centrally dispatched Independent System Operator ("ISO") market like the PJM market in which Portland operates. In the context of a traditional franchise utility with a discrete control area, "load shifting" refers to the ability of a utility to continue to serve its customer load obligations by reducing utilization or "load" from a selected generator and increasing the output at other facilities owned by the same utility: the load is "shifted" to other generators that the company operates.

In contrast to the traditionally franchise utility model, GenOn's Portland plant is a merchant plant that operates in a competitive, centrally cleared and dispatched, ISO market. Each day, Portland competitively bids to sell its energy output into the PJM ISO market and any reduction in the output of Portland will not simply be "shifted" to another lower emitting GenOn facility. Reductions in the output at Portland will be replaced by more costly energy and that replacement energy will almost certainly come from one of GenOn's competitors. Further, because the energy produced by the facility that replaces Portland's output will be more expensive than Portland's energy, it is possible that Portland's production will be "shifted" to a less efficient unit that may have higher emissions rates than Portland Units 1 and 2. The proposed "load shift" does not guarantee any reduction in SO2 emissions and it may actually result in greater overall emissions.

Additionally, because Portland participates in PJM's reliability planning construct, it is a PJM capacity resource. As a capacity resource owner, GenOn is required under the PJM tariff to bid the Portland units into the PJM energy market every day and make the units available to generate unless specific circumstances, such as a unit outage, arise that precludes operation of the plant.

Response:
See preamble section VI.A.d for a discussion of the load shifting issue.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
Further evaluation of lower sulfur coal is necessary GenOn's initial evaluation of lower sulfur coal at Portland indicates that limited options exist for potentially suitable coal supplies. EPA provided a chart to illustrate the availability of lower sulfur coal (Appalachian Basin Bituminous Coal: Weight Percent Sulfur of Produced Coal by County, As Received at the Power Plant). EPA's cursory review ignores the following facts: (1) that the chart is very old (average from 1983 to 1995); (2) no other information is provided DC01:613186.14 - 27 (such as HHV, grind or ash content) that would qualify the fuel as usable; and (3) there is no real information that the fuels are truly available (mined and on the market). Importantly, based on initial evaluations of the coals economically available, the use of lower sulfur coal is projected to cause significant production derates at Portland Units 1 and 2. Nonetheless, the use of lower sulfur coal appears to

be the only viable option to meet interim limits at Portland. GenOn does not yet have sufficient data to determine what interim limit, if any, may be consistently achievable.

Response:
See preamble discussion in section VI.A.b regarding EPA's conclusion that lower sulfur coals supplies are readily available, including information sources for this conclusion.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC (late supplemental comments)
Comment:
Results (of test burns)
In general, the individual unit electrical output capabilities, the SO2 emission reduction and other important parameters such as opacity were affected by the various blends. The information presented below represents the average results observed for the parameters measured during the test period. (Note: the duration of data collection period was adjusted to minimize the spread between the highest and lowest readings while providing statistically accurate and relevant information.)

Objective 1 - *Quantify the reduction in SO2 emissions and determine the maximum blend of CAPP coal at which each unit was able to maintain its respective rated generator output.*
Unit 1 - Unit 1 has a rated capacity of 171 gross MW. The unit was able to maintain output at rated capacity with CAPP coal blends as high as 40% and simultaneously deliver a significant reduction in SO2 lbs/MMBtu and SO2 lbs/hr. With a 40% blend, Unit 1 emitted 1.98 SO2 lbs/MMBtu, or 3188 SO2 lbs/hr.

Unit 2 - Unit 2 has a rated capacity of 251 gross MW. The unit's ability to reach rated capacity was almost immediately affected by the blending of CAPP coal. At a blend of 20% CAPP coal, Unit 2 was only able to maintain output of 242 gross MW. With a 20% blend, Unit 2 emitted 2.4 SO2 lbs/MMBtu, or 5325 SO2 lbs/hr.

Based on equipment performance observations during this test, GenOn believes that blending at the above levels can be maintained for a sustained period of time with a moderate investment in equipment modifications and a relatively modest implementation schedule. (See Lead Times section, Part A below.)

Objective 2 - *Quantify the reduction in SO2 emissions and determine the generator output of each unit when burning 100% CAPP coal.*

Unit 1 - With 100% CAPP coal as its fuel, Unit 1 was able to maintain output at 162 gross MW. SO2 emissions decreased to 1.17 SO2 lbs/MMBtu, or 1737 SO2 lbs/hr.
Unit 2 - With 100% CAPP coal as its fuel, Unit 2 was able to maintain output at 193 gross MW. (Note: due to anomalous conditions that were encountered during the testing of Unit 2 with 100% CAPP coal, GenOn believes that under normal conditions gross output will be 202 MW.) SO2 emissions decreased to 1.22 SO2 lbs/MMBtu, or 2257 SO2 lbs/hr.

Based on equipment performance observations during this test, GenOn believes that the use of 100% CAPP coal can only be maintained for a sustained period of time with much more significant investment in equipment modifications and a longer implementation schedule. (See Lead Times section, Part B below.)

Objective 3 - *Identify preliminary impacts on production equipment or systems and any ancillary constraints to burning lower sulfur CAPP coal or blends.*

The following coal handling or unit sub-system performance issues were observed:
1. Mill performance and throughput limit unit loading capabilities were adversely impacted. Specifically, the following areas of mill performance appear to be affecting overall throughput:
a. Mill motor amps are at or near their fully loaded limit for extended operation.
Because CAPP coal has a lower Btu content, more coal throughput is required on each mill.
b. The CAPP coal is harder and is therefore more difficult to grind to the required level of fineness for proper combustion. This exacerbates the motor amp limitation discussed above.
c. During the testing, coal fineness was observed to be sub-optimal for the sampled blend ratio with 40% CAPP coal. This indicates mill amperage would have more margin with fineness closer to optimum.
d. Unit 2 coal mill reject rate increased, which indicates increased wear rates on grinding components, which will, in turn, require more frequent maintenance and unit load de-rates.
2. Fly ash accumulation through the electrostatic precipitator (ESP) was significantly greater per pound of coal burned. The increase in ash volume has the following impacts:
a. Fly ash removal components require additional maintenance activities to ensure operation at design condition.
b. The increased volume of flyash will have an adverse impact on the wear of equipment.
c. The additional ash created must be hauled out, which requires additional ash transport equipment.
In addition, an initial analysis of fly ash chemical properties indicates certain constituent levels are high enough to prevent disposal of the ash in the existing GenOn permitted landfill. Additional testing is being conducted, but an alternative disposal plan may need to be developed.
3. Current coal handling, feeder and hopper systems are not designed for coal blending to be a routine part of day to day operations. In addition, these systems do not allow for different blends to be prepared and sent to respective units; consequently, the same blend must be delivered to both units at all times. Significant investments in equipment required for management of the coal pile and the coal feed system from the coal pile to the coal belts will be necessary to allow the station to safely and reliably be able to routinely blend coals. This will require the following equipment to be procured, upgraded or returned to service:
a. Additional heavier duty coal moving equipment will be required to ensure the proper configuration of the coal piles, particularly during periods of heavy rain or snow.
b. All reclaim feeders and hoppers must be over-hauled to support day to day blending volumes.
c. Several areas on the conveyor belt line will require additional maintenance work to support the coal transfer point (transfer from one belt line to the next) throughput.
d. Increasing coal blending accuracy beyond current capability will be necessary, which will require equipment changes, including changes to reclaim control systems and the addition of a real time coal analyzer.

e. Repairing the Bradford breaker and placing it in service is required in order to reduce wear and tear on the crusher and ultimately improve mill performance.
4. Induced draft (ID) fan capacity is inadequate on Unit 1. This is limiting the ability of the unit to achieve rated load when ambient temperatures are elevated.

Lead Times and Other Limitations to Implement SO2 Reductions by Fuel Blending
Based on the results of the above CAPP/NAPP blending tests and observations of the operational impacts CAPP coal has on Portland Station's operations, GenOn has made an initial evaluation of the upgrades and equipment changes necessary to begin switching to CAPP coal on a long-term basis.

In addition to making an initial evaluation of equipment upgrades and system changes and additions necessary to burn CAPP coal, GenOn has also developed an estimate of the time required to obtain, install and, in some cases, obtain permits for these equipment upgrades and system changes. It is important to note that GenOn's evaluation concludes that both the number of upgrades and system changes, and the time necessary to implement these changes increases as the proportion of CAPP coal increases and NAPP coal decreases in Portland Station's fuel mix. To assess the specific impacts of CAPP/NAPP coal blending on station operations and to make an initial determination of the feasibility and time required to transition to sustained blending operations, GenOn evaluated the changes required to support CAPP blending that yields two different levels of SO2 reductions:
☐ A 25% reduction in allowable SO2 emissions
☐ A 35% reduction in allowable SO2 emissions
A. To achieve a 25% reduction in SO2 emissions on a sustained basis, the primary operational impact observed is in the management of the coal pile and the coal feed system from the coal pile to the coal belts. In order to achieve sustained operations at this level, the following investments are required.
☐ Acquire additional bull dozers.
☐ Improvements to the reclaim hopper feeders and the associated controllers will be required.
☐ Maintenance work to several areas on the belt line to improve the coal transfer point (from one belt line to the next) performance.
☐ Evaluate/upgrade amperage carrying capability of all 8 mill motors.
☐ Repair/restoration/upgrades to mill wear areas, the Bradford breaker, crusher wear areas, soot blowing system, ash handling system.
☐ Upgrades to the crusher assembly to provide finer particle output.
☐ Develop an alternative ash disposal plan.
It is expected this work can be completed within 6 months
B. To achieve a 35% reduction in SO2 emissions on a sustained basis, the following additional investments are necessary.
☐ Restore the function of the final hoppers to allow for a larger population of CAPP coal hoppers.
☐ Evaluate and engineer improved dust controls at belt transfer points.
☐ Evaluate and enhance ash handling system capacity to support the larger fly ash volume and greater wear that is expected. This includes improvements to the equipment condition in the currently installed system through improved higher wear materials as well as more effective and required higher capacity mixing equipment for the dry ash system.

These investments will require 8 to 12 months to engineer and install following collection of operating data at 25% reduction blending operations. The timeline is approximately 18 to 24 months to realize operations at 35% reduction, not including the time required to complete any air permitting which may be necessary.

Response:
The EPA concludes that there are greater interim reductions available than a 25 or 35 percent reduction in allowable emissions proposed by the commenter. *See* preamble discussion in section VI.A.c regarding the EPA's response to the recent test burn, and for the EPA's review of the suggested interim limits of 25 percent and 35 percent in light of recent emissions at the Portland facility.

Commenter: Paul Miller, NESCAUM
Comment:
As EPA is seeking comment on whether the schedule is sufficient to achieve compliance as expeditiously as practicable, we would like to submit to the record our recently released report, entitled Control Technologies to Reduce Conventional and Hazardous Air Pollutants from Coal-Fired Power Plants. This report provides an overview of well-established, commercially available emission control technologies for coal-fired power plants, such as the Portland Generating Station.

NESCAUM recognizes that EPA's authority under section 126 cannot require the use of a specific technology, but we do want to emphasize that there is available technology, such as dry sorbent injection (DSI), that can achieve moderate reductions in sulfur dioxide (SO2) emissions in a relatively short period of time. DSI reagents can typically reduce SO2 emissions by 30-60 percent but can be extended up to 90 percent in combination with other controls. The DSI equipment is relatively inexpensive and can be installed within 12 months. Further details on DSI technology, including its co-benefits, and other well-established control technologies are provided in the attached report.

Response:
See preamble section V.E.2.a for a discussion of reagent injection systems. The EPA considered this report and other sources of information on this topic. For purposes of our conclusions that more than 1 year is need to install and operate a DSI system, we took into account both the installation of the DSI system and the need for likely upgrades to existing particulate controls.

Commenter: UARG
Comment:
Limits on EPA's authority to set final or interim emission limits (see, e.g., 76 Fed. Reg. 19664/1)

In those circumstances where EPA has authority to grant a section 126 petition (which it does not here), the Agency should take into account a wide range of factors before setting interim or final emission limits. In particular, EPA must consider the time available for achievement of emission reductions under CAA section 126 (i.e., three years) and the feasibility of achieving such emission reductions within that timeframe. If it is not feasible for a source to install a particular technology within three years (as is virtually always the case with the retrofit of FGD

technology, for example), then EPA should not, in response to a section 126 petition, establish emission limits that would require installation of that technology.

[*Note: in support of its assertion that more than three years are needed to comply with the proposed emissions limits, UARG attaches as Exhibit I a report by J. Edward Cichanowicz entitled Implementation Schedules for Selective Catalytic Reduction (SCR) and Flue Gas Desulfurization (FGD) Process Equipment (Oct. 1, 2010).*]

Response:
The EPA is required to establish emissions limits under section 126 which will eliminate Portland's significant contribution to nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS in New Jersey. The EPA concluded that there are technically feasible options for meeting the emissions limits within 3 years. *See* discussion in the preamble section V.E.2.a of optional approaches to achieve the required emissions limits, including FGD, and the EPA's assessment of the time needed to implement these approaches.

With respect to the time necessary for installing FGD, the EPA has addressed this issue in other rulemakings and has prepared Technical Support Documents (TSDs) that discuss our findings in detail. We have placed two TSDs in the docket for this rule: (1) An Assessment of the Feasibility of Retrofits for the Toxics Rule, and (2) Transport Rule Engineering Feasibility Response to Comments. In addition, EPA discusses these issues in the Federal Register notice for the proposed MATS rule (76 FR 25054 to 25058, May 3, 2011) and in the Federal Register notice for the final CSAPR (76 FR 48279 to 48284, April 8, 2011).

Commenter: R. E. Gerwig
Comment:
On my last project before retiring in 2002, the total cost of the scrubbers was nearly $200 million, and the SCRs added another $200 million; and that was ten years ago. At the same time, the operation of these additions will drain at least 4% from the efficiency of the plant. The practicality of such expenditures is highly questionable on units of the size and age of the Portland Station. The total cost of a new plant would be about $600 million and take up to 9 years to build.

Response:
Because this rule does not regulate NO_X it would neither mandate nor result in the installation of SCR. *See* discussion in preamble section V.E.2.a for a detailed response on issues related to FGD scrubbing. While the EPA notes that FGD scrubbing likely provides for greater reductions than needed to comply with the limits in the final rule, we have provided GenOn with the flexibility to seek the most appropriate and cost-effective option for compliance.

Commenter: Amy Vanderheart
Comment:
So I really do feel that scrubbers should be fixed to the smoke stacks. It would really just help make everything cleaner. The air would be fresher to breathe because you wouldn't have all of that pollution, and less trouble with acid rain. I don't know how much we have now, but we would still have that.

Commenter: S. Dorrell
Comment:
I hope we are successful in forcing GenOn Energy to install scrubbers to end these emissions.

Commenter: Donald C. Seigel, International Vice President, Third District of the International Brotherhood of Electrical Workers (IBEW)
Comment:
As an alternative to shutting down the two coal units (Units #1 and #2) at Portland within 90 days of its finding, EPA is proposing a compliance plan including an interim 50% reduction of Portland's SO2 emissions from Units 1 and 2 within one year (by switching to low-sulfur coal, etc.), with an 81 % reduction from each unit within three years. 76 Fed. Reg. 19662, 19676-77. This reduction level effectively would require the retrofit of flue gas desulfurization ("FGD") technology on both units. This may be impossible to achieve in a 36-month timeframe due to the time required for design, engineering, permitting, constructing and testing such equipment.

Commenter: William Vanderheart
Comment:
When I first heard about it, I was like wow, I can't even believe it. The reason not to implement this technology sooner would have to be profits. That's the one thing I can think of, whether it's for meeting shareholder demands or whatever. But to make the profits at the expense of human health and environmental impact, it just seems like the wrong thing to do.

The right choice is to require scrubbing technology. It seems like an easy choice. My concern is that the company might threaten to close the plant and jobs could be lost and those sorts of things. And I don't think that those potential threats should enter the equation, even in today's economy. The profits exist. I mean the plant is running now. They've been turning the crank and milking the cow for a long time. And there are power plants in the area. For example, the girls and I, we recently visited the Merrill Creek Plant. Although that is a peak generated plant, they switched their coal technology to oil and natural gas. So, you know, the scrubbing technology isn't the only thing. It's possible to switch fuels as well. We really shouldn't have to -- I don't think we should even need to have this hearing. I agree with my own children, it seems like it should have been done on their own. I think they should be doing the right thing on their own.

Response:
In establishing emissions limits, the EPA is not advocating nor mandating that a particular control technology be installed at Portland. *See* discussion in preamble in section V.E.2.a.

Commenter: UARG
Comment:
EPA's granting New Jersey's September 2010 section 126 petition would also prevent the plant owner from having a reasonable period of time in which to develop and implement the optimum emission reduction control strategy. Specifically, this is a case in which EPA believes that Portland Plant Units 1 and 2 should reduce their SO2 emissions by 81%.[FN33] If this level of reduction is to be achieved by the installation of currently-available pollution control technology – rather than by forcing a shutdown of the units[FN34] – then the owners of the Portland Plant

would likely have to retrofit flue gas desulfurization (”FGD”) technology on both units. The attached report by J. Edward Cichanowicz, “Implementation Schedules for Selective Catalytic Reduction (SCR) and Flue Gas Desulfurization (FGD) Process Equipment,” was submitted to EPA in October 2010, as part of UARG’s comments on EPA’s Proposed Transport Rule (75 Fed. Reg. 45210 (Aug. 2, 2010)) (“Cichanowicz Report,” attached as Exhibit 1). It is a comprehensive review of the time that it has recently taken power plant owners to design, permit, and install FGD systems at their existing units and a full explanation of why it takes that amount of time. The data demonstrate that it would be virtually impossible, within the section 126 three-year timeframe, to retrofit FGD systems on units like Portland Units 1 and 2. Indeed, that retrofit process typically takes four or more years. Cichanowicz Report at 6-1. That is but one more reason why Congress did not intend to have the section 126 process short-circuit the authority of affected states and source owners to follow the CAA section 107-110 NAAQS implementation deadlines, which would give sufficient time for the owners of Portland Plant Units 1 and 2 to install FGD systems to reduce those units’ SO2 emissions by the amount deemed necessary.

[FN33] See 76 Fed. Reg. 19675/1.

[FN34] EPA does not propose to shut down Portland Plant Units 1 and 2 if they cannot reduce their emissions by 81% within three months, but the Agency seeks comments on a variety of issues related to whether and in what circumstances it should go so far as to order such a shutdown.

Response:
The EPA has determined that he likely means of achieveing the required reductions in this rule can reasonably be achieved within 3 years. *See* section V.E.2 in the preamble for further discussion.

X. Health Effects From Sulfur Dioxide

Commenter: Dr. Joseph Testa, Sierra Club of NJ
Comment:
The sulfur dioxide being emitted from the Portland Generating Station in Pennsylvania is jeopardizing the health of the residents of New Jersey. By reducing the sulfur dioxide emissions from the Portland Plant this will help to protect our environment and the health of the people in Northwest New Jersey.

The Portland Generating Station is the largest cause of pollution in Northwest New Jersey. Exposure to sulfur dioxide threatens individual's health especially those with asthma, children, and the elderly. We teach our children "if you make a mess, clean it up". This utility is making money by polluting someone else's (i.e. New Jersey's) air. We have enough troubles without Pennsylvania's help!

I urge you to support the petition by the NJDEP to reduce the sulfur dioxide emissions from the Portland Generating Station. This reduction will help to protect the health and lungs of the people of New Jersey!

Commenter: Katie Feeny, Clean Air Council
Comment:
The emissions from Portland are clearly a problem for both New Jersey and Pennsylvania. Portland emits up to triple the amount of SO2 that all seven coal-combined in New Jersey emit. According to a 2009 EIP study, Portland ranks fifth in the country for SO2 emissions, measured in lbs/MWh. The -advocacy group Clean Air Task Force says pollution from coal-burning power plants will cause over 500 deaths in New Jersey this year alone.

The proposed reductions in sulfur dioxide from the Portland Plant will benefit the environment and benefit public health. Fossil fuel combustion at power plants just like Portland is responsible for the majority of SO2 emissions. SO2 is a major precursor of acid rain and fine particulate soot. SO2 emissions and their mixture with other pollutants to form fine particulates cause adverse respiratory health effects, including worsening emphysema, bronchitis, and asthma. High concentrations of sulfur dioxide can result in breathing problems with asthmatic children and adults who are active outdoors. Short-term exposure has been linked to wheezing, chest tightness and shortness of breath.

Commenter: Mary O'Malley
Comment:
The sulfur dioxide being emitted from the Portland Generating Station in Pennsylvania is jeopardizing the health of the residents of New Jersey. By reducing the sulfur dioxide emissions from the Portland Plant this will help to protect our environment and the health of the people in Northwest New Jersey.

The Portland Generating Station is the largest cause of pollution in Northwest New Jersey. Exposure to sulfur dioxide threatens individual's health especially those with asthma, children, and the elderly. People of New Jersey should not have to be burdened with breathing polluted air at the expense of dirty coal plants in Pennsylvania.

Please protect the health of my family, our community and the workers of Portland Generating Station! I urge you to demand Portland Generating Station upgrade their facility to EPA standards or close their plant to protect the health of all involved.

I urge you to support the petition by the NJDEP to reduce the sulfur dioxide emissions from the Portland Generating Station. This reduction will help to protect the health and lungs of the people of New Jersey!

Commenter: N. Chambellan
Comment:
Degraded air quality has dealt me the hand of a severe and chronic lung disability. This type of lung damage has been established as permanent and irreversible with elevated or prolonged exposure to toxic air pollution. Ironically, it also is a lung condition that has been deemed to be preventable simply by having clean air to breathe. In other words, although my medical and subsequent economic demise now has been set in stone, other people do not have to sustain such lung damage if effective steps are taken by industry and government in consideration of public health.

Commenter: Paul Tarlowe
Comment:
The sulfur dioxide being emitted from the Portland Generating Station in Pennsylvania is jeopardizing the health of the residents of New Jersey. By reducing the sulfur dioxide emissions from the Portland Plant this will help to protect our environment and the health of the people in Northwest New Jersey.

The time is long overdue to put a halt to the excessive harmful emissions from the Portland Generating Station. The plant is the largest cause of pollution in Northwest New Jersey where I live with my wife and two children.

It is time for the EPA to enforce the Clean Air Act and bring about the 81% reduction in sulfur dioxide emissions over three years at the Portland plant.

I urge you to support the petition by the NJDEP to reduce the sulfur dioxide emissions from the Portland Generating Station. This reduction will help to protect the health and lungs of the people of New Jersey!

Commenter: Jerilyn Doherty, Unitarian Universalist Fellow of Sussex County's, green Sanctuary Committee
Comment:
We believe every human being has the right to breathe clean air, drink clean water and to know that future generations will be protected from any threats against our environment. The byproducts of Gen-On's coal plant are in direct contradiction to our goals for a cleaner and healthier environment. As you know, coal is one of the most polluting and most environmentally damaging energy sources that we use today. It destroys our land, and pollutes our water and air. The effects of such dangerous elements on our health and environment are in many cases irreversible. The Portland plant is the fifth highest emitter of sulfur dioxide per megawatt of power generated in the entire United States. Sulfur dioxide in the air causes asthma and other respiratory difficulties. It falls to the earth as acid rain. This is not acceptable to us. It is time for a change in the way we produce our energy.

Commenter: R. G. Herrmann
Comment:
The Portland generating station has contributed over the years to poor health to the children of warren county. So many children suffer from asthma. It's about time this situation was corrected.

Commenter: S. Harris
Comment:
The pollution from this power plant is causing residents to have health issues and severe breathing problems. I am one of those residents.

Commenter: V. Allen
Comment:

I am greatly concerned with reports that SO2 emissions from the Port land coal fired plant have been measured up to ten times higher than acceptable federal levels, and the severe impact that pollution is having on the health and well being of the residents of Warren County.

Commenter: Dr. Stanley Weiss, New Jersey Medical School (public hearing presentation)
Comment:
I'm Stanley H. Weiss. I'm a professor at the New Jersey Medical School and at the School of Public Health, University Medicine and Dentistry in New Jersey. I'm going to rapidly summarize some information from the decades of work here in Warren County and New Jersey considering a disease in particular, asthma. Next slide. Many of these studies have been done jointly with my co-PI of the studies, Dr. Cliff Wyzell (ph), who is also at UMDNJ. Some of our information presented represent a fourth -- inaudible -- in particular responded by is the DSM, formally ROCHE, Community Advisory Panel. I'll be putting into your docket a copy of the power point and additional data. This is just to give you a rough overview of the sequence studies. Next slide. The journey began with the community in 2001 with health problems -- inaudible -- UMDNJ to study. Among the issues they looked at were asthma. They recorded a high rate of asthma. They later on shared with me the detailed data assessment. Go to the next slide. I can show you the results of that show that the reports of asthma were not in the asthma period, but ranging, as you can see, into older ages as well. So they seem to have a broad issue of health. Next slide. Citizens also, in the City of Belvidere, did a similar study of, again, the conditions. They found a slightly higher rate of asthma, emphazima, and chronic bronchitis which made them very concerned. Next slide. As you can see, also, there is a ranges of involved. When they suggested that it was hard to put things in perspective because he didn't know what -- inaudible -- but by going through tour knowing people and being introduced and proposed a series of studies. Next slide. Next slide after that -- was to try to examine what was giving to so -- is one systematic study. The Isaac question used internationally for decades. We got approval to the school districts in Belvidere, White Township -- in Harmony, the school board, some principals, the administration and school nurses very highly responded to the surveys and analyzed that data. Next slide. This was done in grades K through 12. Next slide. A total of 1,749 students were enrolled in those public schools. Next slide. To summarize, briefly, the fair amount of work, 59 percent that were diagnosed with asthma -- reported current symptoms where a whopping 41 percent were diagnosed with asthma. That 41 percent consisted of 13 percent physician diagnosis, 19 percent asymptomatic they've never been diagnosed with asthma. Nine percent had physician-diagnosed asthma or other past history of asthma but had not reported current symptoms. Next slide. To put some of that in perspective, here are some that were in the Isaac study, Jersey Gardens Study. On the very bottom is the data from Warren County -- inaudible -- you can see a spike in older groups. As you can see these rates, higher rates, compared to worldwide. For instance, increases in the last 12 months reported in that school by 23 percent in the 13 to 14 year olds and 23 percent in the six to seven year olds. That surprised us. We actually did not expect the citizens of the study to have issues concerning upper respiratory disease. That in particular we thought it was important. Next slide. So we decided to look okay at grades 5 through 12, only to children who had a diagnosed -- disease and to do a -- follow-up study under the guidelines monitoring stations we continued to measures SO2. That study being conducted on a daily basis. Next slide. And we found in that analysis that sulfur dioxide -- inaudible --and not only found that the sulfur dioxide flow rate -- and another analyses we found is that the SO2 was associated with an increased number of asthma

symptoms and decrease with the functions in these children with SO2. In other studies that have been done subsequently statewide, I'm seeing a primary of emergency room visits for asthma and also hospital visits for asthma. And so, in summary, what we found is evidence of health effects and direct association with relatively low levels of SO2, which indicates that EPA's concern with SO2 is well founded, and that Warren County in particular is heavily affected by it that the citizens are concerned. [Presentation available in the docket]

Commenter: Peter Summers, Health Officer and Director, Warren County Health Department, Oxford New Jersey
Comment:
On behalf of the residents of Warren County, I would like to thank the EPA for its proposed ruling and for the efforts it is making to protect the health of the citizens of Warren County. I would also like to thank the NJ Department of Environmental Protection for its efforts in bringing this issue to your attention. I fully support the DEPs efforts and its recommendations that the Portland Generating Station meet the same high standards that protect residents living near New Jersey based power plants.

Despite being a rural community Warren County's asthma rates rival those of more urban areas. The NJ Department of Health's 2010-11 "Asthma in New Jersey" report estimates the number of Warren County adults with current asthma at 9.4%. This is significantly higher than the estimated New Jersey rate of 7.7%. The Centers for Disease Control estimated US rate for asthma in adults is also at 7.7%.

Both the CDC and EPA have linked Sulfur dioxide and other air pollutants with increased asthma symptoms. Studies have also shown a connection between short-term exposure to SO2 and increased visits to emergency departments and hospital admissions for respiratory illnesses. A 2003 study by the University of Medicine and Dentistry of New Jersey found that children with physician diagnosed asthma in two Warren County communities suffered reduced peak expiratory flow rates as sulfur dioxide concentrations in the community increased. The peak expiratory flow rate is a person's maximum speed of expiration (breathing out), as measured with a peak flow meter, a small, hand-held device used to monitor a person's ability to breathe out air. (It measures the airflow through the bronchi and thus the degree of obstruction in the airways.) It is essential to the health of Warren County residents that the Portland Generating Station upgrade its pollution controls to meet the same high standards as New Jersey's plants. I would ask the EPA to consider the NJ Department of Environmental Protections recommendations and require this plant to reduce its emissions to levels that will protect our community. [*comment attaches copy of asthma study*]

Commenter: John A. Rutkowski, Director of Cardio-pulmonary Services, Bergen Regional Medical Center, American Lung Association
Comment:
But perhaps the most important part of my role here today is to reflect for you my experience as a Registered Respiratory Therapist. I have been on the front lines dealing with lung disease and its aftermath in individuals who need to receive evaluation, counseling, and treatment. I have seen first-hand the adverse effects of lung disease and its causes, and that is why I am passionate

about reminding this panel of the toll exacted by air pollution on the most vulnerable in our society.

I emphasize that when the EPA is confronted with claims that complying with the Proposed Rule will cost too much, the Agency must always remember that we are already paying- in lost work and productivity- in disease, disability, and death- and that the Rule at issue is necessary finally to come to grips with the pollution responsible for those outcomes and those costs.

And should the EPA need even more support for standing up to forces that would weaken the rule, let me call attention to the myriads of often invisible potential allies- people who stand to benefit from implementation of the rule. We recognize that in the area of Hunterdon, Morris, Sussex, and Warren Counties in New Jersey, the EPA has confirmed the finding of the New Jersey Department of Environmental Protection that sulfur dioxide emissions from the Portland facility contribute significantly to nonattainment and interfere with maintenance of the sulfur dioxide standard.

In those four counties, the populations potentially at risk from exposure to sulfur dioxide include: 209,000 infants, children and teens under 18; 114,000 persons aged 65 and above; 19,000 children with asthma; 52,000 adults with asthma; 30,000 persons with chronic bronchitis; 15,000 persons with emphysema; 258,000 persons with cardiovascular disease, and 39,000 persons living in poverty.

Far from being a small minority, persons falling into one or more of these high risk groups together comprise on the order of half the population. And even more important to remember: Every one of these millions is a real person, not a nameless statistic. Every one of these people is a human being worthy of our attention, a neighbor, a coworker, a friend, a family member, maybe even oneself.

Therefore, the American Lung Association of the Mid-Atlantic and the American Lung Association in New Jersey and indeed, many more are here today to testify strongly in favor of the proposed rule to underscore the need for this rule, to confirm the benefits to be gained from its implementation, and to call for a reasonable plan that protects the health of the public with the urgency they deserve. Thank you for your attention.

Commenter: Mr. Eric White, Sierra Club of NJ
Comment:
The sulfur dioxide being emitted from the Portland Generating Station in Pennsylvania is jeopardizing the health of the residents of New Jersey. By reducing the sulfur dioxide emissions from the Portland Plant this will help to protect our environment and the health of the people in Northwest New Jersey.

It's important to note that the Portland Generating Station is the largest cause of pollution in Northwest New Jersey. Exposure to sulfur dioxide threatens individual's health especially those with asthma, children, and the elderly. People of New Jersey should not have to be burdened with breathing polluted air at the expense of dirty coal plants in Pennsylvania.

Therefore, the EPA's proposal would require an 81% reduction in SO2 emissions from the Portland plant, located on Pennsylvania, with direct benefits to people living and working in New Jersey (especially in Warren, Sussex, Morris, and Hunterdon counties).

Please understand that coal-fired power plants in Pennsylvania have been making people in New Jersey sick for far too long, and bringing Pennsylvania's dirty plants under control is long overdue. Simply put, we do not need to sacrifice our health for Pennsylvania's profits or for electricity.

I urge you to support the petition by the NJDEP to reduce the sulfur dioxide emissions from the Portland Generating Station. This reduction will help to protect the health and lungs of the people of New Jersey!

Response:
These comments offer general support to the rule, providing examples of air quality benefits directly and indirectly related to the sulfur dioxide emission reductions required by the proposed rule. The EPA recognizes there are potential health effects from breathing sulfur dioxide particularly for people who have respiratory illnesses, heart, or lung disease, older adults and children. The EPA agrees with these statements of general support and agrees that the rule has significant health benefits.

Commenter: Jeanie Taylor
Comment:
My name is Jeanie Taylor. I've been a resident of Knowlton Township for 32 years. Prior to moving up here, I've never had any type of medical problems, never had to see a doctor. From the very beginning, I noticed waking up with headaches, not being able to breath properly. My husband, being a resident born and raised here, just informed me that it was because we were up on the mountain at the same level as the smoke stacks. And when they blow the stacks and the wind comes out of the south, we can tell it's out of the south before we open our eyes in the morning because of the headaches and because of the dizziness. Over the years, I have developed asthma. I have been told I have COPD. I have had surgery because my oxygen levels were going too low. So I've had to have all of my soft pallet, uvula and tonsils removed. Last year, I woke up coughing, which I always have. I have a chronic cough I have chronic sinusitis now, But I was coughing blood. That led me to lung surgery this past summer, because I have lesions on my lungs. They don't know where they come from, I don't know, but they're there. Can I prove that it's the power plant, no, but it seems that this discussion has been going on for years. I respect the gentleman's, prior to me, comment that it will take a long time, but they've known that this has been coming for years. So what are three years or seven years when you are talking about the health and welfare of all of the community. So I don't have the little statistics that everyone has. I don't know how much sulfur dioxide is in the air and what it does, I just know for me and my family, we're severely affected. And I believe a lot of it is because of the air quality up here. I thought I was moving to an area in New Jersey that was clean. I was better off in Mercer County. I just think that you know already what the effects are. You know what the statistics are with knowledge comes responsibility, and I think it's time to step up to the plate.

Response:
The EPA thanks the commenter for the comment.

XI. Other Pollutants not Addressed by the Rule

Commenter: Carolyn Auwaeter, Greenpeace
Comment:
Greenpeace was invited by members of Bangor Pennsylvania to come and hear their stories and learn more about the Portland coal plant. It's been a concern of theirs for quite a while. A few years ago, community members successfully organized to prevent the plant from expanding, but that did not address any of their other concerns. I've talked with residents over the past few days and what they discussed with me goes beyond just sulfur dioxide, which is the subject of this hearing.

EPA's recommendation does not address any of the other pollutants that are coming out of the smoke stacks, nor does it address the coal ash that is produced from burning the coal. I stood on people's porches as they pointed at the coal ash pond on the horizon where they've seen the wind swirl the ash into the air. I heard people worry over how the quarry was not lined when the coal ash first started being dumped there, and how many people in town fish in the creeks right near there. This plant has been operating since 1958, and it's one of the oldest and dirtiest in the nation. It's passed through many companies' hands and now in 2011, it's owned by GenOn. No doubt the Portland plant has large profit margins, because virtually no changes have been made in its operation. This plant has only been a good investment to the company so long as GenOn has not been required to actually invest money in the plant. With the projected 300 to $500 million cost to install pollution control, that will likely be bore by rate payers. GenOn should instead look to the future and shut the plant down. Such an old plant with so many associated toxins being emitted from it doesn't justify any other solution. And the surrounding community's health doesn't justify any other solution. I would especially encourage GenOn to look to one of its new neighbors for inspiration and how it creates energy. Votex, a manufacture of materials that enhance the performance of solar cells is in the midst of constructing a new facility in Portland industrial part in Upper Mount Bethel Township. This will be completed later this year, and that's the kind of future that we need to look to. I just want to close with a short anecdote. Yesterday, Greenpeace, we took our solar truck to the Bangor Middle School and spoke to more than 500 students there. Their curiosity was very clear. We received a barrage of questions about the solar panels, everything from what happens when it's rains, and we have batteries that store the energy when the sun has been shinning, to whether the panels are hot to touch, which they aren't. It's really that generation that needs to be thought of when the EPA makes a decision on this rule. And it's that generation that needs to be thought of by GenOn. Not only are they here right now feeling its effects, but they will be here much, much longer after you all are. The Portland coal plant should be shutdown.

Commenter: Catherine Frackenberg, Michael Kelly, William H. Reesman, and Kathy Lawson
Comment:
I am concerned about toxic pollution coming from GenOn coal ash dump in the town of Bangor. Unsafe levels of cadmium, boron, and hexavalent chromium are appearing in our water. The

health effects of this chemical runoff are disastrous I support the efforts to limit SO2 emissions from this power plant, but that does not go far enough. I urge you to shut down the GenOn plant in Portland until EPA establishes stronger regulations for air pollution and the disposal of toxic fly ash.

Commenter: E. Wade
Comment:
This plant is also being considered for a Section 126 finding under PM2.5 NAAQS. It is unclear whether the controls for SO2 will address this issue. It may be beneficial for both the EPA and the Portland Plant to combine these issues with regards towards emission limits and compliance schedules.

Commenter: Leona and George Fluck
Comment:
I am here to support the Clean Air Act section 126 petition submitted by the New Jersey DEP. I am in support of the EPA's proposal to grant NJ's petition that will require the GenOn Portland Plant to reduce the plant's toxic emissions.

Operating for over 50 years, the Portland coal plant produces millions of tons of air pollution each year that cause illnesses in NJ and PA residents. I am very much concerned about the toxic coal ash dumped into a pit in Bangor, PA. With compliance to meet Clean Air Act standards this will increase the toxins that are dumped into the quarry site. Brushy Creek is a tributary of the Delaware River Watershed and the risks will increase the already existing pollution of ground and surface waters from the plant ash. The Delaware River has Special Waters Protection - it is a drinking source for over 15 million people in 4 states. In addition to the Clean Air Act standards I am requesting the EPA consider increased standards and enforcement related to the coal ash pit toxins and plant compliance.

Commenter: Lorraine Gold
Comment:
Other toxic pollutants are also being emitted from this plant. The health and welfare of the people and the ecosystem are damaged by the reckless behavior of this company. As you are aware, sulfur dioxide is a major cause of acid rain, which, among other impacts, has a devastating affect in agricultural areas.

It is also know to contribute to asthma and other respiratory diseases. The biggest increase in asthma is in children five to 15 years of age. Given the results of an asthma study I am greatly concerned with the impact the Portland facility is having on the health and well-being of the residents of Warren County. We know that those in close proximity to coal-fired power plants fare the worst. In addition to sulfur dioxide, this plant releases mercury and other dangerous particulates. Citizens, agricultural crops, animals, soils and waterways near the plant are suffering. Our senior citizens, those with chronic ailments, and pregnant women are especially at risk.

Commenter: M. Cormican
Comment:

Water quality data has shown that the coal ash generated by this facility has contaminated ground and surface water in and around Bangor, Pennsylvania through disposal in a quarry and spread on roads as a winter-time, de-icing material. Those contaminants end up in the Delaware River, to the Delaware Bay and into the Atlantic Ocean.

EPA's proposed regulations only address the reduction of sulfur dioxide in the stack emissions by requiring scrubbers and other air quality technology. The result will be a greater concentration of sulfur dioxide and other contaminants in the coal ash which will continue to be disposed of in a proven irresponsible and ecologically-damaging manner.

Commenter: Tanya Dentith
Comment:
Also the Nitrogen Oxide that is being emitted is extremely toxic. Not to even get into all the mercury, heavy metals and acid gases being emitted. My question to you is why hasn't something been done to make this company drastically reduct these emissions? There is definitely a double standard here.

Commenter: Ken Metcalf, Knowlton Township Environmental Commission
Comment:
The Knowlton Township Environmental Commission impresses upon the Christie Administration to re-consider the recent decision to withdraw New Jersey from the landmark regional pollution pact that is aimed at reducing pollution from coal-fired power plants that are polluting the air in Knowlton Township.

Back in 2009, the NJDEP had determined that the level of the air pollutant know as PM2.5 exceeded the USEPA standard of 35 micrograms per cubic meter and the NJDEP had determined that effluent coming from the Portland Generating Station causes Knowlton Township to be in non-compliance with the standard for PM2.5 and; whereas, PM2.5 levels that exceed the standard can cause serious illness to our residents and; whereas, the Knowlton Township elementary School is located in an area of Knowlton most seriously affected by the effluent from the Portland Generating Station and; whereas, Knowlton Township believes it is the duty of the USEPA to protect the health and well-being of the our citizens from environmental hazards, therefore, let it be resolved that: The Township Committee of the Township of Knowlton, Warren County New Jersey, supports the decision of the NJDEP to designate Knowlton as a non-attainment area and supports the NJDEP's effort to work with USEPA and the State of Pennsylvania to control and treat the air pollution that emanates the Portland Generating Station.

Response:
The EPA thanks the commenters for the comments. The EPA is granting a section 126 petition from NJDEP that requested a finding that emissions from Portland are significantly contributing to nonattainment of and interference with the 1-hour SO_2 NAAQS. This action will ultimately lead to further air quality improvements in the area. To the extent the commenters request that the EPA regulate emissions of other pollutants from Portland, the comments are beyond the scope of NJDEP's section 126 petition and this rulemaking.

XII. Executive Orders

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
E. Compliance with Executive Orders Is Required
1. EPA must undertake analyses of the Proposal pursuant to Executive Orders 12866, 13563 and 13211 EPA claims that the Proposal is not a "significant regulatory action" so that review under Executive Orders 12866, 13563 and 13211 is not required. 76 Fed. Reg. 19678, 19679. GenOn disagrees that this is not a "significant regulatory action" as defined in Executive Order 12866 and EPA must conduct analyses under all three Executive Orders.

In 2008, Portland's fuel costs were $100 million and Portland spends as much as $50 million per year on operating and maintenance costs and outage work. GenOn's forecast for Portland over the next several years shows future values that are similar to these numbers. If Portland shuts down as a result of the final Section 126 finding, Pennsylvania will lose $150 million in economic activity. In addition, Portland typically generates between 1.8 and 2.5 billion kWh per year, so shutting the plant down clearly would exceed the 1 billion kWh per year impact threshold in Executive Order 13211. Accordingly, this is a significant regulatory action under Executive Orders 12866, 13563 and 13211 and EPA is obligated to meet the requirements of these Executive Orders prior to finalizing the Proposal.

Response:
"Significant regulatory actions" under EO 12866 must not only exceed the $100 million impact, but also qualify as actions pursuant to a "regulation." Which is defined as follows:

> "Regulation" means an agency statement of general applicability and future effect, which the agency intends to have the force and effect of law, that is designed to implement, interpret, or prescribe law or policy or to describe the procedure or practice requirements of an agency.

The EPA's action on NJDEP's section126 petition is not "of general applicability" since it applies only to the Portland facility. Therefore it does not meet the criteria for "significant regulatory action." The definition also applies to Executive Orders 13563 and 13211.

Commenter: Keith Schmidt, Director, Environmental Policy, GenOn REMA LLC
Comment:
2. Imposing multiple, conflicting obligations on Portland is inconsistent with Executive Order 13563

In Executive Order 13563, President Obama affirmed the need to improve the regulatory process. 76 Fed. Reg. 3821 (Jan. 21, 2011). Among other things, Executive Order 13563 mandates improved integration and coordination of rulemaking processes, requiring that: Some sectors and industries face a significant number of regulatory requirements, some of which may be redundant, inconsistent, or overlapping. Greater coordination across agencies could reduce these requirements, thus reducing costs and simplifying and harmonizing rules. In developing regulatory actions and identifying appropriate approaches, each agency shall attempt to promote

such coordination, simplification, and harmonization. Id. at § 3; 76 Fed. Reg. 3822 (emphasis added). As described above, the electric generating industry in general, and Portland in particular, are or will be subject to a wide array of regulations in the immediate future, all of which address the exact same issue: SO2 emissions. These regulations include the new 1-hour SO2 NAAQS (and related SIP requirements, once promulgated), the EGU MACT and CATR. In addition, Portland faces additional regulation of SO2 emissions through any EPA response to the first New Jersey petition. See supra Section IV.D.2. With at least five distinct rulemaking processes addressing the same pollutant, the potential for redundant, inconsistent, and overlapping requirements is very real - the exact problem Executive Order 13563 seeks to avoid. The Proposal ignores this problem by incorrectly claiming it is not a significant regulatory action. Instead, the Proposal further complicates the situation by seeking to impose yet another set of potentially redundant, inconsistent, and overlapping requirements on Portland. All of the regulations affecting Portland and other power plants will affect the investment decisions for Portland and, in particular, whether the plant can support major pollution control investments. GenOn cannot make a rational investment decision until these regulations are more fully developed and the company has a better idea of how they will affect Portland and its competitors.

To comply with the mandate of Executive Order 13563, EPA must consider ways to improve "coordination, simplification, and harmonization" across these various regulatory actions and revise the Proposal accordingly. At the very least, EPA should align the requirements and timing of any Section 126 determination and related compliance schedules with the requirements of these other regulatory actions

Response:
The EPA is well aware of the multiple regulations affecting EGUs, and is developing them with a view to having consistent requirements for facility owners.

The EPA has considered compliance harmonization to the greatest extent possible under the constraints of the statue. The action on the petition may require the installation of scrubbers on a faster timeline than other regulations will, but this is appropriate since NJDEP has demonstrated the disproportionate impact of the Portland plant's emission on New Jersey residents.

XIII. Miscellaneous Comments

Commenter: B.M. College
Comment:
As a native New Yorker, and a student in Pennsylvania, this issue is of great concern to me, and my colleagues. I am very interested in the sections of this proposed rule concerning the consequences to health as a result of sulfur dioxide pollution of the air. One thing that I would also consider, is the effects of sulfur mining in certain parts of the world. While this rule does not pertain to the laws applicable to mining, the sulfur is procured in an unregulated manner, allowing sulfur dioxide and other harmful gases into the atmosphere. In addition the miners experience similar symptoms as those described in the rule, and that carries over to the residents of surrounding villages. The EPA in this rule is attempting to create a situation for optimal compliance to a respectable standard for health. However, in the Model V. A-1 on actual vs.

allowable emissions, at present the actual emissions are far out of range of what has been perceived as allowable. If such regulations have been so easily ignored in the past, how does the EPA suppose to insure that the new statutes proposed by this rule is enforced?

Response:
Ensuring that the Portland facility complies with the requirements of the CAA including the provisions of this final rule is the responsibility of the EPA. It will ultimately become the joint responsibility of the EPA and of PADEP, because PADEP has primary responsibility for implementing and enforcing the Pennsylvania SIP. The EPA notes that CAA section 110(a)(2)(D)(ii) requires Pennsylvania's SIP to "ensure compliance with the applicable requirements of section 7426 * * * of this title" (i.e., section 126 of the CAA). Because these requirements must become part of the SIP for Pennsylvania, they will be subject to enforcement in the same manner as any other requirement of a SIP. This includes the ability of third parties to raise challenges under the citizen suit provisions of section 304 of the CAA.

Commenter: S. Dorrell
Comment:
In 2007 and 2008 I contacted the New Jersey DEP with documented complaints about a strong chemical odor in the air. This still happens regularly but does depend on wind currents and their direction. Strangely, the strong chemical odor occurs between 5:10 and 5:30 PM regardless of the weather. I strongly suspect the Upper Mt. Bethel GenOn Energy plant. Other township residents have complained of this problem. There is also a mill that sits in the Delaware Water Gap along route 80. Although it is a much smaller mill, it could also be a contributor to the pollution problem and should be investigated. I do not know the name of that company or what they produce.

Response:
The EPA thanks the commenter for the comment. The EPA is granting a section 126 petition from NJDEP which addresses SO_2 emissions from Portland.

Commenter: Tanya Dentith
Comment:
I live in Harmony Township. I was formerly the chair of the Warren County Commission before it was dissolved by the Freeholders. And before that, I was chair of the Harmony Township Environmental Commission. My testimony is in the form of a letter to Edward R. Muller, chairman and CEO GenOn Corporate Headquarters 1000 Main Street, Houston, Texas. Dear Ed, in an effort to acquaint ourselves with your company, we checked your website and found good news in your code of ethics and business conduct. In a chapter called protecting the environment, you say, "We strive to meet or exceed applicable environmental laws and implement business practices that go beyond applicable law when necessary to protect health and the environment, and act honorably and ethically and as good corporate citizens. Compliance with applicable laws is the cornerstone of our environmental philosophy, we're delighted you raised the issue of ethics because coal pollution causes thousands of deaths, heart attacks and asthma attacks every year. Children and the elderly are especially vulnerable. The medical costs exceed $100 billion a year. An ethical dilemma to be sure. But there are complications, "Further environmental investments will need two things, number one, clarity of rules and number two, economic justification.

Regarding clarity of rules, if your lobbyists stop their decades long effort to delay and block clean air regulations, we can all get on with the business of healing our badly damaged planet. And regarding economic justification, Americans spend a billion dollars a day on electricity 7 days a week, 365 days a year. In the eight hours it takes for today's hearing revenue will be more than $322 million. There is plenty of money out there, we know, we sent it and you have it. So here is our ethical dilemma, we don't want our money to pay for air pollution that will sicken our children and elders. The solution, put your talented people to work dismantling those grimy obsolete coal burners in Portland. Expand your workforce and cover your 1,094-acre site with solar panels. This will generate more than 200 megawatts of electricity. We know you're currently producing 600 megawatts, but electric demand is down. There is plenty of excess generating capacity and we can easily make up the shortfall in energy conservation.

Response:
The EPA thanks the commenter for the comment.

Commenter: Joanne Pannone, Sierra Club
Comment:
I'm a Sierra Club member, also, and I'm here and testify about my feelings to the EPA on the coal-fire Portland Generation Plant and talk particularly about it's effect on the oceans. I can remember going to the lakes and rivers and streams and seeing an abundance of wildlife and fish. Now, I'm a wildlife conservation volunteer for the New Jersey Department of Environmental Protection. The effects of burning fossil fuels goes farther than the surrounding community when it leaves the smoke stack. It causes acid rains, which ends up in the ocean. The oceans occupy two thirds of the earth and we have managed to pollute most of it and destroy the plankton and other marine life. More than 90 percent of the ocean sea life lives near the surface. We have now caused a zone of anoxic water, that is depleted oxygen in the water from the heavy metals and the acid rain, so that these sea creatures cannot breathe. It is important that we address these issues and fight the pollution of the coal industry by using renewable energy. Launched off too often in the pollution debate is the depreciation of the delicate balance between physical and -- of the atmosphere and the ocean. The ocean land system and the revolving biosphere, which controls the survival of many species includes us humans. I'm sure Edison and Tesla never thought about the release of sulfur dioxide and sulfur gases into the atmosphere while generating electricity, which will eventually cause so many health problems. To quote Dr. Silvia -- "The ocean is the lungs of the earth; with every wave brings a breathe."

We need to stop -- the solution and get on to renewable energy. We also need to address the health of the miners, that is M-I-N-E-R-S, as well as the minors, M-I-N-O-R-S. We need to remember how -- that the coal plants in the nation not only dumb air emissions by the truckloads of toxic ash, too, we need to remember that the EPA has the science now and it has to assert its power and push for renewable energy so an ocean can heal and my grandchildren can have wonderful memories of a full and happy life with a lot of wildlife and not a world full of pollution.

Commenter: Jennifer A. DiLorenzo, Director of Environmental Management, Ecologic Resources Group, LLC
Comment:

Ecologic Resources Group is pleased to submit the following comments on the *Proposed Action on the September 2010 Section* 126 *Petition from New Jersey Regarding SO2 Emissions from the Portland Generating Station:*
1. The Portland Generating Station has significantly contributed pollutants (SO2) to New Jersey's environment for many years. As stated by New Jersey Department of Environmental Protection Commissioner Bob Martin in his April 27, 2011 testimony at the Section 126 Petition hearing, "Air quality computer modeling by the DEP indicates that the Portland power plant is causing exceedances of the health standards for sulfur dioxide in at least four New Jersey counties, including Warren, Morris, Sussex, and Hunterdon, and in three Pennsylvania counties." While the EPA's proposal aims to minimize future pollution in New Jersey, it does not take into account compensation for past damages caused by emission generation by the Portland Station.

1. EPA's proposal should require Portland Generating station to pay for environmental damages under NRDA due to SO2 and acid rain deposition in New Jersey's forests, wetlands, and waterways.

2. EPA should require damages to be compensated for by purchasing wetland mitigation credits from the pending Oxford Wetland Mitigation Bank. This bank will restore a wetland and ecological functions in Watershed Management Area 1 in New Jersey, which has received much of the SO2 contamination from the Portland Generating Station.

Response:
The EPA thanks the commenters for the comments. The EPA is granting a section 126 petition from NJDEP regarding excessive SO_2 emissions from the Portland plant. This action will ultimately lead to further air quality improvements in the area. To the extent the commenters are making statements broader than this section 126 action the comments are beyond the scope of this rulemaking and the EPA is not responding here to such comments.

Commenter: Tanya Dentith
Comment:
I am appalled as to the quantity of sulfur dioxide being pumped into the atmosphere by just two units, over 30,400 tons. And upon further reading and some simple addition realized these two units are spewing more sulfur dioxide into the air than all the other units and cement plants in the area combined.

You are allowing one company with two power producing units to greatly impact the health of thousands of people in New Jersey.

And it is obvious in reading your proposal that the Clean Air Act is being violated. The people in New Jersey deserve clean air. The breathing problems these people are being subjected to is just unacceptable. If the shoe were on the other foot and the wind was blowing in the opposite direction the citizens of Mt. Bethel and the surrounding area would look at this a lot differently. There is absolutely nothing to be said in favor of continuing this sinful poisoning of our neighbors.

At the rate we are destroying our environment our future generations will have a tough time surviving on this earth, and its not like they will be able to move.

Response:
The EPA thanks the commenter for the comment.