Appendix 1

COUNTY OF MERCER, NEW JERSEY *RESOLUTION NO. 2014-* 591

Approved as to Form and Legality

Deputy County Counsel

Date

November 13, 2014

MERCER COUNTY EXECUTIVE BRIAN M. HUGHES AND THE MERCER COUNTY BOARD OF CHOSEN FREEHOLDERS OPPOSE THE ROUTING OF THE PENNEAST PIPELINE PROJECT THROUGH MERCER COUNTY PRESERVED FARMLAND AND PARKLAND, REQUEST THE FEDERAL ENERGY REGULATORY COMMISSION ("FERC") TO CONDUCT A FORMAL SCOPING MEETING IN LIEU OF AN OPEN HOUSE FORMAT, URGE PENNEAST TO USE CO-LOCATION WITH EXISTING RIGHT-OF-WAY AND ENCOURAGE CONTINUED TRANSPARENCY AND PUBLIC ENGAGEMENT THROUGHTOUT THE PROCESS

WHEREAS, PennEast Pipeline Company, LLC plans to construct a 108 mile, 36 inch diameter pipeline from Wilkes-Barre, Pennsylvania to Hopewell Township, Mercer County, New Jersey, much of it through taxpayer paid open space, preserved farmland and pristine woodlands; and,

WHEREAS, the pipeline is planned to transport approximately one (1) billion cubic feet of natural gas per day; and

WHEREAS, the natural gas pipeline is presently the only proposed pipeline route in the State of New Jersey that is not in compliance with New Jersey policy of co-location in an existing right-of-way; and

Clerk to the Board

RECORD OF VOTE

FREEHOLDER	Aye	Nay	N.V.	Abs.	Res.	Sec.	FREEHOLDER	Aye	Nay	N.V.	Abs.	Res.	Sec.
annon	X					✓	Frisby	X					
arabelli	X						Walter	X				✓	
imino	X						Koontz	X					
olavita	X												

X—Indicates Vote Abs.—Absent N.V.—Not Voting
Res.—Resolution Moved Sec.—Resolution Seconded

COUNTY OF MERCER, NEW JERSEY — *RESOLUTION NO. 2014-* 591

Approved as to Form and Legality

Deputy County Counsel

Date

November 13, 2014

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Clerk to the Board

RECORD OF VOTE

FREEHOLDER	Aye	Nay	N.V.	Abs.	Res.	Sec.	FREEHOLDER	Aye	Nay	N.V.	Abs.	Res.	Sec.
annon	X					✓	Frisby	X					
rabelli	X						Walter	X				✓	
mino	X						Koontz	X					
davita	X												

X—Indicates Vote Abs.—Absent N.V.—Not Voting
Res.—Resolution Moved Sec.—Resolution Seconded

WHEREAS, Scoping is the process of defining and refining the scope of an environmental impact statement ("EIS") and the alternatives to be investigated pursuant to the FERC rules; and

WHEREAS, in order to assure timely and relevant information is provide to FERC by PennEast Pipeline Company, LLC, a reasonable and sufficient number of Scoping meetings should be held with at least two weeks advance written notice provide to all stakeholders and to the public within the communities that are or may be impacted by this proposed pipeline; and

WHEREAS, the proposed route is expected to change a number of times between this date and when PennEast may decide to file a formal application with FERC; and

WHEREAS, all route changes may impact and irreparably harm Mercer County lands and facilities such as Mercer Meadows, Rosedale Lake, Howell Living History Farm, Baldpate Mountain, the Equestrian Center, the Wildlife Center and the Historic Hunt House, and Scoping meetings may not have addressed the environmental impacts to lands on newly proposed routes; and

WHEREAS, the Pipeline Project will cause irreparable harm to these properties; and

WHEREAS, the County Executive and the Mercer County Board of Chosen Freeholders are concerned that this pipeline will be used to export natural gas from terminals in South Jersey, Delaware, Maryland and Virginia overseas for profit that does not have any benefit to the residents of Mercer County; and

NOW, THEREFORE, BE IT RESOLVED by the Mercer County Executive and Mercer County Board of Chosen Freeholders that the County oppose the routing of the PennEast pipeline through preserved public parkland, farmland and open space; and

BE IT FURTHER RESOLVED the Mercer County Executive and Mercer County Board of Chosen Freeholders hereby urge FERC to give due and careful consideration to the overall cumulative impact of building a completely new pipeline through the County's significant environmental resources and to the State policy of co-location in existing right-of-ways due to the significant environmental resources located in the region that will be irreparably harmed if the PennEast pipeline is constructed as proposed, including Category 1 surface waters, environmental sensitive lands, preserved open space, preserved farmlands, organic farmlands, public parklands, and lands protected with conservation easement; and

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Clerk to the Board

BE IT FURTHER RESOLVED that the County hereby take steps necessary to ensure that a sufficient and reasonable number of Scoping meetings shall occur with at least two weeks written notice to all stakeholders and the public in all impacted communities regarding any and all proposed routes and route changes, with the goal of ensuring that a complete EIS be conducted in accordance with the National Environmental Policy Act, that will include accurate, detailed, and complete documentation and analysis of all environmental resources along all proposed routes including the "final" route at least two weeks in advance of PennEast Pipeline Company, LLC filing any formal application with FERC; and

BE IT FURTHER RESOLVED that the Clerk to the Board shall forward a copy of this Resolution to Governor Chris Christie, U.S. Senator Robert Menendez, U.S. Senator Cory Booker, Congressman Rush Hold, Congressman Leonard Lance, Senator Shirley K. Turner, Assemblywoman Bonnie Watson Coleman, Assemblyman Reed Gusciora, Senator Christopher Bateman, Assemblyman Jack M. Ciattarelli, Assemblywoman Donna Simon, Senator Michael J. Doherty, Assemblyman Erik C. Peterson, Assemblyman John DiMaio, Hunterdon County Board of Chosen Freeholders, affected municipalities in Hunterdon and Mercer Counties, New Jersey, affected municipalities in Luzerne, Carbon, Northampton and Bucks Counties in Pennsylvania, Hopewell Township and the New Jersey League of Municipalities.

Joanne N. Worthy

.....

Clerk to the Board

WHEREAS, the construction of the proposed PennEast Pipeline will therefore, certainly cause irreparable harm to the environment and the resources of Mercer County by being routed through county taxpayer paid for open space and pristine forest and farmland; and,

WHEREAS, the Pipeline Project is planned to for areas in Mercer County that are environmentally sensitive, lands that are preserved by the expenditure of public funds for the exclusive use of agriculture; and lands that are preserved by the expenditure of public funds for the use, enjoyment and permanent protection of open space including Mercer Meadows, Rosedale Lake, Howell Living History Farm, Baldpate Mountain, the Equestrian Center, the Wildlife Center and the Historic Hunt House; and

WHEREAS, due to PennEast Pipeline company, LLC not co-locating the proposed pipeline route, it is absolutely necessary to take steps to assure alternatives, including co-location will be fully evaluated and then ordered as is prescribed by the United States National Environmental Policy Act ("NEPA"); and,

WHEREAS, the express Congressional purpose of NEPA is: "To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation;" (National Environmental Policy Act, 42 *U.S.C.* §4321); and

WHEREAS, PennEast Pipeline Company, LLC had planned to make a presentation to the Mercer County Board of Chosen Freeholders at their open public meeting on October 7, 2014, but abruptly canceled the presentation and to date has not rescheduled; and

WHEREAS, to date PennEast Pipeline Company, LLC scheduled only one (1) Open House meeting for a two (2) hour period for all stakeholders and the public in New Jersey, and as the Open House meetings do not offer a reasonable opportunity for stakeholders and the public to provide specific information to PennEast Pipeline Company, LLC for use in preparing the required environmental resource review materials for submission to FERC; and

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Clerk to the Board

Appendix 2

LEONARD LANCE
SEVENTH DISTRICT, NEW JERSEY

COMMITTEE:
ENERGY AND COMMERCE

SUBCOMMITTEES:
VICE CHAIR
COMMERCE, MANUFACTURING AND TRADE

COMMUNICATIONS AND TECHNOLOGY

HEALTH

Congress of the United States
House of Representatives

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FAX: 202-225-9460

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361 ROUTE 31, UNIT 1400
FLEMINGTON, N.J. 08822
PHONE: 908-788-6900
FAX: 908-788-2869

September 18, 2015

The Honorable Norman C. Bay
FERC Chairman
888 First Street NE
Washington, D.C. 20426

Dear Chairman Bay:

I am writing regarding the PennEast natural gas pipeline application (Docket No. PF15-1-000) currently pending before FERC. Many of my constituents, municipalities within my district and environmental and other civic-minded organizations have expressed deep concern, and in many cases, outright opposition to the project.

I have significant concerns about PennEast's project path and expected use of lands under farmland preservation protection and within the Delaware River watershed. These are environmentally sensitive open space areas that I have fought to protect and preserve while a member of the New Jersey Legislature and I believe it would be fiscally and environmentally irresponsible to allow taxpayer protected open space to be used in this manner. As such I request that FERC consider the impact on preserved land and preservation programs with great care.

I also express my strong reservations about the potential use of eminent domain in this situation. I have heard from many Hunterdon County, New Jersey landowners personally who fear the federal government will eventually invoke the right of eminent domain to compel the sale of easements and right-of-ways along the proposed pipeline route. I respectfully request that FERC use eminent domain authority only in the most limited and extreme cases that benefit public use and not private corporate entities.

Federal agencies must consider cumulative impacts and a range of options to major federal actions as required by the National Environmental Policy Act. To do this effectively in the case of the proposed PennEast pipeline requires consideration of existing pipelines and other pipeline proposals within the same region and market when assessing impacts and other routes. Thus, rather than a more limited, individual environmental impact statement, I urge FERC instead to conduct a Programmatic Environmental Impact Statement (PEIS) for the PennEast line that will more accurately and comprehensively establish the need for and impacts of the proposal.

In conclusion I urge FERC in the strongest terms to scrutinize the PennEast application very closely to ascertain the business case for the pipeline as well as any potential adverse impacts to the environment on public or private lands and residents' quality of life and property rights along the proposed route, and ask that you keep me and my staff apprised of the status and scope of your process going forward. Thank you very much for your attention to this matter.

Sincerely,

Leonard Lance

Leonard Lance
Member of Congress
Seventh District, New Jersey

Appendix 3

BONNIE WATSON COLEMAN
12TH DISTRICT, NEW JERSEY

126 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-5801

Congress of the United States
House of Representatives
Washington, DC 20515–3012

June 19, 2015

The Honorable Norman C. Bay
Chairman
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Subject: FERC Docket No. PF15-1-000
PennEast Pipeline Proposal
Hunterdon and Mercer Counties, New Jersey

Dear Chairman Bay:

I am writing to express our opposition to the pipeline proposed by the PennEast Pipeline Company, LLC for central New Jersey. If built, this pipeline would adversely and permanently affect critical forest and water resources that provide essential habitat and other natural resource services to our constituents and to the economy and environment of the entire state of New Jersey. Additionally, the Federal Energy Regulatory Commission (FERC) process outlined for this one gas transmission pipeline underscores broader flaws in FERC's current management of the application process for dozens of current and anticipated proposals for such pipelines resulting from major gas finds in the Marcellus and Utica shales.

As you know, the National Environmental Policy Act (NEPA) requires that federal agencies consider cumulative impacts and a range of alternatives to any major federal action.[1] However, one of the critical shortcomings of PennEast and other pipeline projects in the region has been FERC's failure to comprehensively consider the need for natural gas transmission infrastructure in a rational planning and evaluation process. Instead, FERC evaluates the need for, and prepares environmental impact statements (EIS) on, each pipeline in isolation. In this instance, FERC has disregarded other pending pipeline applications in the same watershed and natural gas market, and ignored numerous pipelines known to FERC in the same watershed and the same natural gas market that are already approved or in the pre-application process. The result of this approach is that cumulative impacts are unable to be taken into account, and the alternatives considered are too limited.

The consequences of this flawed process are especially troubling in the case of the PennEast application. As currently proposed, the project will disrupt, fragment, or otherwise impair forests, farmland, wetlands, streams, and other valuable resources on private and public lands along its 110-mile path. Many of these lands were acquired or protected at taxpayer expense with the legal requirement that they be permanently protected. Indeed, the proposed pipeline appears routed to maximize the use of these sensitive public trust resources to reduce the cost and opposition inherent in routing through privately held or already

[1] 42 U.S.C. §§ 4331 *et seq.*

developed areas. These areas include lands preserved using federal funds from the U.S. Department of Agriculture's Farm and Ranch Land Protection Program as well as areas preserved through state funds and programs.

We recognize that improvements to gas transmission infrastructure may be needed if the United States is to encourage the development of new gas plays in the Marcellus Shale and elsewhere. But the approval of such pipelines (whose costs will ultimately be borne by ratepayers) should be done on the basis of a considered regional plan, rather than simply a rush of individual companies proposing pipelines that may in the end be duplicative, poorly sited, or built with excessive or inadequate capacity. The sizing, routing, impacts, and alternatives of any single pipeline cannot be reviewed in a rational, non-arbitrary way if done piecemeal. The current approval process precludes FERC from pursuing potential commonsense solutions to improve efficiency and minimize risk and negative impacts. For example, only a considered regional plan could determine whether one larger pipeline could suffice where two are proposed; or if shared rights-of-way could provide alternatives that would avoid or minimize damage to natural resources. Unfortunately FERC's current isolated review process is ill-equipped to consider those type of options. The current process is analogous to a transportation agency expecting an efficient road system to emerge from having competing applicants proposing multiple individual roads, and then basing approvals by considering each road in isolation.

The Natural Gas Act grants the power of eminent domain to the holder of a certificate of public convenience and necessity.[2] A private company is effectively given the authority, subject to the constitutional requirement of just compensation, to forcibly take all or part of an individual's property for its private project. Such power should only be exercised where FERC engages in thorough planning and scrutiny and develops a record supporting the conclusion that the project is indeed in the public interest. The current FERC process simply does not meet this standard, because it is likely to result in duplicative, poorly sited, or excessive infrastructure, a result that is not in the public interest.

I further believe that FERC's current approach is not merely unsound from a policy and planning perspective, and fundamentally unfair to property owners, it may also be unlawful. As the opponents of the Leidy Southeast Expansion Project recently suggested, FERC has long disregarded its legal obligation to conduct a programmatic EIS to consider the cumulative impacts on the environment from the more than one dozen natural gas pipelines proposed or approved in the Marcellus and Utica shale gas regions, rather than segmenting its review or considering individual projects as if these others did not exist.[3] This obligation has been reinforced by the ruling of the United States Court of Appeals for the District of Columbia Circuit in *Delaware Riverkeeper v. FERC*.[4] A regional plan based upon a programmatic EIS will insure that FERC's findings of public necessity and convenience, and any consequent imposition on private property rights, are lawful and well-supported by the administrative record.

I thank you for considering our views, and would appreciate the inclusion of these comments in any docket established for the PennEast Pipeline.

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[2] 15 U.S.C § 717f(h)

[3] FERC Docket No. CP13-551

[4] *Delaware Riverkeeper v. FERC*, 753 F.3d 1304 (D.C. Cir. 2014) (enforcing the National Environment Policy Act (NEPA), 42 U.S.C. §§ 4331 *et seq.* (*cited in* Comments of the Princeton Ridge Coalition, FERC Docket No. CP13-551 (Sept. 10, 2014)).

Sincerely,

Bonnie Watson Coleman

Bonnie Watson Coleman
U.S. Representative

cc. The Honorable Ernest Moniz, Secretary of Energy
The Honorable Tom Vilsack, Secretary of Agriculture
The Honorable Gina McCarthy, Administrator of the Environmental Protection Agency
Christy Goldfuss, Managing Director, White House Counsel on Environmental Quality
Horst Greczmiel, Associate Director, White House Council on Environmental Quality
Anthony Cox, PennEast Pipeline Company, LLC

Appendix 4

TIM KAINE
VIRGINIA

COMMITTEE ON
ARMED SERVICES

COMMITTEE ON
FOREIGN RELATIONS

COMMITTEE ON
THE BUDGET

SPECIAL COMMITTEE
ON AGING

WASHINGTON OFFICE:

WASHINGTON, DC 20510-4607
(202) 224-4024

United States Senate

WASHINGTON, DC 20510-4607

August 24, 2015

The Honorable Norman C. Bay and Commissioners
Federal Energy Regulatory Commission
888 1st Street NE
Washington, D.C. 20426

Dear Chairman Bay and Commissioners Clark, Honorable, Moeller, and LaFleur:

This letter is a compilation of observations regarding Docket #PF15-6-000 – the Atlantic Coast Pipeline (ACP), proposed by Dominion, Duke Energy, Piedmont Natural Gas, and AGL Resources.

I take no position on the underlying question of whether this project should be approved, as that is a choice that requires consideration of a number of technical issues that are best addressed by FERC, not by Congress. However, I have listened carefully to many Virginians along the proposed ACP corridor who have shared concerns with me about this project. These concerns pertain not just to the substance of the project but also to the quality and thoroughness of the public input process by FERC and the applicant companies. In response to what I have heard, I highlight several of the issues that I believe are important for FERC to consider. It is also my hope that the applicants will consider these points as they prepare to file their formal application.

No one disputes that energy infrastructure is necessary for the economy and daily life. However, such infrastructure must be built in as minimally disruptive a way as possible. Since all infrastructure has some degree of impact, federal law charges your agency with managing a complex process 1) to require project builders to make the utmost effort to minimize project impacts, and 2) to empower the public to verify these efforts by ensuring that all relevant information is made available and that there is ample opportunity for public input and comment. Citizens rightly expect that process to be followed to the letter.

In my travels throughout the Shenandoah Valley and elsewhere along the ACP's footprint, I have heard the views of affected property owners, local elected officials, businesses, farmers, organizations dedicated to preserving our natural resources, and numerous other concerned citizens. I have also heard from the applicants and constituents, local governments, and business groups that support the project. The comments below reflect some of the key issues raised multiple times by stakeholders that I believe are particularly important to underscore as you analyze this project.

Process concerns

Several municipalities and citizens groups pressed for extensions of public comment periods and additional scoping meetings, due to a perception that this process is being fast-tracked without appropriate time for input by affected stakeholders.

I believe these calls have arisen because the FERC process has a built-in imbalance. A company wishing to build a pipeline has personnel with deep experience in this complex regulatory process and for whom this is a full-time job. By contrast, citizens with questions about this project are not experts in the energy industry but rather are learning about this project on their nights and weekends. Many live in rural areas and commute great distances to public meetings after a full day's work. Some do not have high-speed internet access. Some are older citizens for whom the FERC eComment online portal is not straightforward to navigate.

It is crucial that no effort be spared to disseminate project information as widely as possible, to make sure that citizen questions are answered quickly and substantively, and to allow ample opportunity for comment – in particular, sufficient time to analyze new information such as new alternative proposed routes.

When these steps are not taken, it contributes to a local perception that the project is a done deal and that FERC and the applicants view the public comment process as a pro-forma, box-checking exercise. I would like to share with you several specific incidents that may be contributing to this impression:

- Constituents brought to my attention a list of errors in the transcripts of the FERC scoping meetings. These were not stray typos but rather hundreds of erroneous words that made large portions of testimony read as nonsensical (for instance, "karst" was transcribed as "cars.") To the citizens who took time out of an evening to offer public comment – in many cases after waiting a long time to speak – the discovery of these errors suggested that FERC was not taking public testimony seriously.

- As I have outlined in previous correspondence with FERC, scoping meetings in Nelson and Augusta Counties did not provide fair opportunity for people of different views to testify. According to press and eyewitness reports, a number of organized ACP supporters arrived several hours early and occupied the bulk of the speaking slots, leaving those who showed up at the advertised start time to wait for hours. While public meetings cannot be of unlimited duration, it is unfair to allow advocates of any position to "pack" meetings. There are effective protocols that can be used to alternate between factions to ensure a balance of views in a limited amount of time.

- Members of the Augusta County Board of Supervisors and Augusta County Service Authority met with the applicants and provided the company with a list of questions, which these members say have not been answered to date.

- *The Recorder*, the local newspaper of Bath and Highland Counties, submitted questions to the applicants on August 5, 2014, and indicates that it has yet to receive a response.

- The Buckingham County advocacy group Friends of Buckingham alleges FERC informed them there would be a presentation by the applicants on the size and impacts of the proposed Buckingham compressor station before the scoping meeting, and that no such presentation was held.

- In some cases, companies, contractors, or subcontractors seeking to gain survey access to private property have not been following proper notification requirements before suing to gain access to land.

Project concerns

Environmental impacts: This area of Virginia is a mountainous, forested, and largely rural area in which agriculture and outdoor tourism are predominant economic sectors. The ACP's corridor crosses karst geologic formations and water resources, which many Virginians in this region find to be of deep concern.

- Questions have arisen as to whether technology to build safely on karst topography has been demonstrated (and if so, where and how).

- Some believe there are insufficient measures in place to minimize the risk of local well contamination and impacts to drinking water.

- In mountainous areas of the route, citizens are asking about erosion mitigation and evacuation routes near schools. One citizen pointed out that the Commonwealth's hazardous materials evacuation plan recommends avoiding karst areas.

- Citizens are asking how the ACP will be built to safely cross rivers.

Any impacts on natural resources are also impacts on the regional economy, including on property values and tourism revenue. For instance, I have received concerns from Wintergreen Resort – the largest employer in Nelson County, with some 1,000 seasonal employees and up to 400,000 annual visitors – about how the ACP will affect visitation numbers, property value, and planned future developments. Through the potential impacts on both businesses and individuals, many residents feel that this region is bearing all the environmental risks and potential economic impacts from carving a new right-of-way through unspoiled rural green-field area, while the applicants and the recipients of this gas demand elsewhere are receiving all the benefits. Accordingly, questions have been raised as to the following:

- Whether FERC requires or encourages reroutes of the pipeline to avoid land tracts under conservation easement, which property owners understood would be protected in perpetuity, and for "century" farms, which have been in family ownership for more than 100 years.

- The degree of information-sharing and consultation that has taken place among FERC, the interested companies, and the National Park Service, given that the route would have to cross the Appalachian Trail.

- Whether protections are in place for endangered species, such as the cow knob salamander, and for caves, which could be impacted during construction blasting.

Community benefits: Municipalities along the proposed ACP route wish to better understand the potential benefits of the project in terms of opportunities to tap into this new gas supply. The publicly cited data indicate that the volume demand for tapping into the ACP is on a scale of magnitude large enough that only an entity the size of a city – not a business or neighborhood – could potentially benefit from this resource.

For that reason, some communities feel that their ability to tap into the pipeline for local use has been overstated. They would like to know what level of gas demand is needed to justify building a distribution branch of the ACP, what steps would need to be taken to make this happen, and approximately how much it would cost to build the transfer station.

In addition, there is confusion about whether or what portion of the gas traveling through the pipeline is likely to be exported. Citizens have reported conflicting information being given from industry and FERC representatives during public meetings. To be clear, I believe LNG export can make sense on a strategic, case-by-case basis to reduce the world's dependence on hostile energy states like Iran and Russia. But whatever views one has on this issue, the people in this area of Virginia bear the potential risks of this infrastructure and deserve to have accurate information on this point.

Cumulative impacts: The Atlantic Coast Pipeline is one of four natural gas pipeline projects proposed in roughly the same region of Virginia. While all are at different phases of the regulatory process, two – the Mountain Valley Pipeline (NextEra/EQT Energy) and the Appalachian Connector (Williams Co.) – appear to travel along a nearly identical route. A third – the WB Xpress (Columbia) – is an expansion of a current line, located not far from the ACP route and some 90 miles north of the other projects.

One of the most frequent concerns Virginians have shared with me is the degree to which FERC analyzes individual projects within the larger regional context – in other words, if the new capacity brought online by the ACP necessitates a certain level of impact, whether four new projects necessitates four times the impact. It is important that the ACP be measured side-by-side with the impact of multiple new pipeline rights-of-way in this rural, largely agricultural and forested region.

I have encouraged the applicants for the ACP and for other pipeline projects to explore co-location of right-of-way to the greatest extent possible. In analyzing other pipelines approved in recent years across the country, it appears at this stage that the ACP's degree of co-location with existing rights-of-way – in the range of 5-10% of its mileage– is substantially lower than for other similar pipelines. Understanding that co-location is driven by geography and development patterns that vary by region, it is important that FERC analyze whether the applicants have taken

every reasonable measure to minimize the need for heavy construction on previously undeveloped land.

To better assess whether such efforts have been adequately taken, citizens are asking whether a programmatic environmental impact statement (EIS) for all four projects would better capture the environmental impacts throughout the region than four separate ones. While I understand that FERC has rarely done this in the past, I would be interested in whether the agency does or does not believe it would be worthwhile in this case, and why.

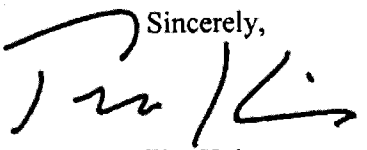
Conclusion

I recognize FERC's challenging responsibility of ensuring that America's energy system has the transmission capacity to run reliably, while permitting that infrastructure in accordance with the safety of natural resources and the rights of Americans not to have their property taken without overwhelming public interest. These are complex considerations in which there is not always a clear line. For that reason, as stated before, I do not have a position on this project, as I strongly believe that infrastructure decisions should be determined through expert analysis of all the relevant technical and economic factors, and not on a political or partisan basis.

What I do strongly encourage is that FERC painstakingly follow the system we have in place for evaluating infrastructure. Permitting a pipeline should involve an exhaustive process of eliminating all but the least disruptive construction options. The people whose livelihoods may be affected by a project should have ample opportunity to gather information, get their questions answered, and analyze alternatives – on a timeline conducive to participation by people for whom energy pipeline permitting is not a professional occupation. In short, simply having a public comment process is insufficient if that process is not easily accessible to the public.

Thank you for your attention to the issues raised in this letter. I appreciate your attention to this matter.

Sincerely,



Tim Kaine

Appendix 5

PF15-1

NEW JERSEY STATE LEGISLATURE
16TH LEGISLATIVE DISTRICT

OCT 14 2015

ASSEMBLYMAN
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October 6, 2015

Cheryl LaFleur
Chairman
Federal Energy Regulatory Commission
888 First St. NE
Washington, DC 20426

Dear Chairman LaFleur,

As you are aware, PennEast Pipeline Company recently took the significant step of filing its formal application for this project with the Federal Energy Regulatory Commission (FERC). The PennEast pipeline is of considerable concern to the citizens of Delaware Township and the Borough of Stockton, whom we represent in the 16th Legislative District.

In light of the formal application filling, we want to reiterate our deep concern about the environmental, public safety and financial impact the proposed pipeline will have on Delaware Township, Borough of Stockton and all of the affected municipalities. Each of these municipalities have considerable amounts of preserved open space and farmland. We owe a duty to taxpayers to ensure that development does not harm the integrity of these environmentally sensitive and previously preserved areas – areas taxpayers have invested in to protect. It is our hope that FERC will consider with the utmost sensitivity the pipeline's impact on these preserved farmlands, open space and the Delaware River watershed.

We respectfully request that FERC do a Programmatic Environmental Impact Statement (PEIS) pursuant to the National Environmental Policy Act. Reason being, it is crucial for any project of this magnitude to be thoroughly examined in light of its cumulative impacts. Your examination should require consideration of other pipelines and pipeline proposals in the surrounding region. We strongly believe that without a PEIS, FERC will not be able to fully and accurately understand the pipeline's impact.

Additionally, the potential use of eminent domain to gain access to the properties of landowners opposed to the pipeline greatly concerns us. It is our understanding that if PennEast receives its Certificate of Authority, it would be able to use eminent domain to seize both private property and preserved space for the purposes of gaining easements for pipeline construction. We urge FERC to act to ensure that PennEast Pipeline Company exhausts all other efforts in good faith before resorting to eminent domain.

Sustainable energy independence is certainly a key element of our national security. And so, as elected representatives and policy makers, we welcome and celebrate this country's current and unprecedented era of natural resource exploration, made possible by numerous technological advances specific to oil and natural gas discovery and extraction.

If we welcome and celebrate the myriad benefits of this unprecedented era, it is incumbent upon us, as duly elected representatives and policy makers, to also welcome the corresponding challenges specific to the transport and delivery of oil and natural gas. In simpler terms, we must be vigilant in ensuring that human health and safety and environmental impacts are unequivocally first and foremost in considering any pipeline proposal. In addition, when it comes to balancing business interests with that of affected communities, we must also be vigilant in ensuring any pipeline proposal is unequivocally equitable in each and every respect, and that any and all alternative pipeline options have been similarly considered.

Regarding the proposed pipeline's impacts and interests, we offer the following:

- The proposed pipeline crosses at least 18 New Jersey C-1 streams:
  - Wickecheoke Creek and nine of its tributaries
  - Alexauken Creek and five of its tributaries
  - Lockatong Creek and its one tributary and headwater area

- The proposed pipeline crosses properties previously purchased and protected by:
  - New Jersey Department of Environmental Protection Green Acres
  - New Jersey Department of Agriculture
  - Hunterdon County
  - Delaware Township
  - Federal Farm and Ranch Protection, and
  - New Jersey Water Supply Authority

- The proposed pipeline crosses or affects properties purchased by non-profit land conservation and protection organizations, including:
  - New Jersey Conservation Foundation
  - D&R Greenway
  - Hunterdon Land Trust

- The taxpayers of New Jersey, Hunterdon County, and Delaware Township, as well as foundations, individual donors, and farmers/landowners, have invested approximately $7.4 million to permanently preserve properties along the pipeline's proposed route

- The proposed pipeline crosses more than 2,000 acres, 169 buildings, and historically significant view sheds, land use patterns, watersheds and landscapes of the Rosemont Ridge Agricultural District, which received New Jersey and Federal Historic Designation in 2010

To the very best of our knowledge, no pipeline has ever been developed in a more bucolic, previously preserved, and historically significant and designated area. In fact, the vast, vast majority of residents in this area are not natural gas customers – they happily accept the inconveniences of alternative and often more expensive unregulated energy (e.g., propane and home heating oil) as the price paid for the most desirable of pastoral settings.

Also to be seriously considered is land values in this area are hypersensitive to development in any and all forms. In purely financial terms, citizens will, all things considered, experience significant and permanent lost land value as a result of any pipeline transpiercing the area, where, by the way, no other utility easements exists, other than electric/telephone. **Let us be clear, currently, there are no existing utility corridors in this area, nor has any such corridor previously been remotely contemplated or considered.** Said another way, no easement-related monetary reward or payment will ever truly compensate landowners for that which will forever altered by a pipeline.

As for the proposed route, it is quite curious that the pipeline seems to almost exclusively intersect previously preserved farmland. Let us suggest that developing a pipeline along this route is driven purely by company self-interest and akin, for example, to building solar arrays on previously preserved farmland, which has been overwhelmingly rejected by the populace and banned by New Jersey's State Agriculture Development Board.

The PennEast Pipeline will permanently scar an exceptionally pristine, rich agricultural heritage that truly defines and sustains residents of the area. Simply put, this untouched area is, in and of itself, a way of life for local residents, most of whom relocated there purposely to avoid development of any kind.

To address the substantive concerns detailed herein and effectively represent our mutual constituents, we ask that you leverage your authority to advocate for alternative options for the transport and delivery of natural gas to New Jersey and, in so doing, coordinate a plan-of-action that stops development of the PennEast Pipeline.

Thank you once more for taking the time to carefully consider the contents of this letter and for your continued engagement with the community and us on this issue. We look forward to following-up with your office.

Sincerely yours,

Senator Christopher 'Kip' Bateman

Assemblyman Jack M. Ciattarelli

Assemblywoman Donna Simon

cc: NJ Congressional Delegation
Senator Robert "Bob" Menendez
Senator Corey Booker
Congressman Donald Norcross
Congressman Frank LoBiondo
Congressman Tom MacArthur
Congressman Christopher "Chris" Smith
Congressman Scott Garrett
Congressman Frank Pallone Jr.
Congressman Leonard Lance
Congressman Albio Sires
Congressman Bill Pascrell Jr.
Congressman Donald Payne Jr.
Congressman Rodney Frelinghuysen
Congresswoman Bonnie Watson Coleman

Document Content(s)

Appendix 6

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RICHARD P CUSHING
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SOMERSET COUNTY OFFICE
BY APPOINTMENT

WILLIAM C GEBHARDT
1884-1929
W READING GEBHARDT
1919-1980
PHILIP R GEBHARDT
1924-1986
E HERBERT KIEFER
1933-1988

■ ALSO MEMBER OF PA BAR

▼ ALSO MEMBER OF NY BAR

♦ CERTIFIED BY THE SUPREME COURT OF NJ AS A MATRIMONIAL LAW ATTORNEY

RICHARD P. CUSHING
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October 27, 2014

Honorable Cheryl A. LaFleur, Chairman
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: PennEast Pipeline Proposal
Hunterdon County, New Jersey
Pre-Filing Docket No. PF-15-1-000

Dear Ms. LaFleur:

This firm represents the Township of Holland, Hunterdon County, New Jersey ("Holland"). PennEast Pipeline Company, LLC, ("PennEast") has initiated a pre-filing application under the above docket seeking to construct a 108 mile pipeline through Eastern Pennsylvania and Western New Jersey. Approximately eight miles of the pipeline are scheduled to go through Holland. Holland believes that the pre-filing process made pursuant to the National Environmental Policy Act ("NEPA") is premature; that PennEast has not done adequate pre-filing preparation and has not sufficiently addressed the concerns of the public. Accordingly, Holland opposes the Pre-Filing process as premature and not justified

Specifically, the Township of Holland has significant concerns as it has detailed in the attached Resolution regarding the disruptions to the environment from this pipeline and the fact that it will cause the unnecessary exercise of eminent domain. Further, the Township believes that PennEast should be required to explore the use of existing utility rights-of-way or highway rights-of-way so as to transport its gas to eastern markets. The Township believes that PennEast should be required to do a complete evaluation of all existing pipelines transporting natural gas across Eastern Pennsylvania and New Jersey; a survey of all existing rights-of-way held by utility companies or government; a thorough analysis of all proposed plans for the additional pipelines crossing Eastern Pennsylvania and New Jersey; and then a complete analysis of development of a mechanism to consolidate pipelines into utility corridors so as to minimize the number of separate, discreet pipelines and to consolidate all proposed pipelines into utility corridors.

The Township of Holland opposes the pre-filing process because PennEast has not engaged in good faith efforts to inform the stakeholder and the relevant public entities of the details of the pipeline path or its potential environmental impacts. Representatives of PennEast made their case at a Holland Township public meeting at which time more questions were raised than were answered. Shortly thereafter they announced there would be no more meetings with stakeholders or public entities, apparently because of the belief that the strong public opposition to the project make it counterproductive to engage in additional meetings. In light of the fact that PennEast seeks a certificate of public convenience and necessity to condemn the property of numerous homeowners, this refusal to consult and inform is unfair and inappropriate. Moreover, in its Pre-filing request to FERC, it suggests a paltry number of public meetings, each of a two hour duration, even though over 500 people appeared in Hopewell Township; over 300 people in Delaware Township; and over 300 in Holland Township to express concerns about the pipeline. PennEast obviously seeks to avoid informing the public and is attempting to muzzle those stakeholders and public agencies that have numerous concerns about the process.

The Township of Holland requests that the Federal Energy Regulatory Commission members give careful attention to the environmental and other concerns raised in the Resolution.

The Resolution has authorized the Township to intervene in the process which the Township is in the process of doing. The Township requests that the Commission accept this letter with the attached Resolution as if the Township had already filed for and been granted intervention status.

Respectfully submitted,

/s/ Richard P. Cushing

RICHARD P. CUSHING

RPC:cb
Enclosure
CC: Anthony C. Cox, PennEast Pipeline Co, LLC
Holland Township, Mayor and Committee

TOWNSHIP OF HOLLAND
HUNTERDON COUNTY, NEW JERSEY

RESOLUTION NO. 2014-
A RESOLUTION OF THE TOWNSHIP OF HOLLAND

WHEREAS, PennEast Pipeline Company, LLC, a joint project of AGL Resources, NJR Pipeline Company, a subsidiary of New Jersey Resources, South Jersey Industries, PSEG Power and UGI Energy Services, a subsidiary of UGI Corporation, proposed the construction of a new pipeline for the transfer and delivery of natural gas generated by deep well "fracking" in areas of Marcellus Shale in Pennsylvania; and

WHEREAS, the proposed pipeline is approximately one hundred (100) miles long of thirty-six inch (36") buried pipe crossing parts of Luzerne, Carbon, Northampton and Bucks Counties in Pennsylvania and Hunterdon and Mercer Counties in New Jersey, with approximately 8 miles of pipeline being located in Holland Township; and

WHEREAS, the New Jersey Highlands Water Protection and Planning Act (*N.J.S.A.* 13:20-1, et. seq.) ("Act") was passed in 2004 to protect the sources of water for half the population of New Jersey, and Holland Township was included as one of the 88 municipalities in the Highlands Region of the state; and

WHEREAS, the Act created the Highlands Council and charged them with developing a Regional Master Plan (RMP) to which the 88 municipalities could conform their municipal Master Plans, their Land Use Code and other documents; and

WHEREAS, The Act placed Holland Township entirely within the Highlands Region, with 13% of the Township's land included in the Preservation Zone, where conformance to the RMP is mandatory. Additionally, Holland Township has voluntarily conformed to the RMP in the Planning Area, where the proposed PennEast pipeline route is located; and

WHEREAS, as one of the steps toward full conformance to the RMP, the Highlands Council developed a Highlands Environmental Resources Inventory (ERI) for Holland Township, using the latest scientific data. This Highlands ERI was adopted by Holland in November 2013 and made an element of the Township's Master Plan; and

WHEREAS, Holland Township can, therefore, accurately gauge the impacts of the proposed PennEast pipeline on its natural resources because a state agency has compiled and authenticated an inventory of those resources using the latest and most up-to-date data, and that information provides the basis of the following points:

1. The proposed pipeline will cross at least 20 creeks and their tributaries in three of the five subwatersheds in Holland, the Hakihokake Creek (HUC-14 code 02040105170020), the Hakihokake Creek (02040105170030), and the Hakihokake to Musconetcong subwatershed (02040105170010). Not only will the pipeline disturb these streams but it will also intrude on the mandatory 300-foot buffer on each side of the streams. These buffers

contain vegetation that shadows the stream and keeps the water cool, and the vegetation slows run-off into the stream, mitigating flooding. The majority of these waterways are classified Category-One (C-1) by the New Jersey Department of Environmental Protection (NJ DEP), indicating that trout can reproduce because the water in those waterways is the cleanest in the state. Because trout lay their eggs on the bed of these streams, any silt introduced during construction can precipitate to the bottom and smother the eggs. Damage to these streams and buffers will affect water users in Holland and the millions of users to the east who depend on the Highlands for municipal water.

2. The eastern and western ends of the pipeline will intrude upon Prime Groundwater Recharge Areas in Holland as identified by the Highlands Council. Compaction of the earth by heavy equipment will impair the ability of these areas to recharge water. This is significant because the Highlands Council has determined that all of Holland Township has a water deficit, so we cannot afford to have recharge areas impaired.

3. The Highlands ERI also identifies Carbonate Rock Areas in Holland Township. Underlying materials such as limestone and dolomite can be dissolved by surface or ground water causing sinkholes, sinking streams and caves. The Highlands ERI explicitly warns, "Sinkholes present a geologic hazard as they may undermine such infrastructure as stormwater basins, roads, sewer lines, septic systems, and natural gas lines." The proposed route of the PennEast pipeline will cross a carbonate rock area immediately after the Delaware River crossing and another when it crosses Church Road.

4. The vast majority of the pipeline route intrudes upon Critical Habitat mapped in the Highlands ERI. The Highlands Council utilized NJDEP's Endangered and Nongame Species Program Landscape Project data to delineate suitable critical wildlife habitat for species of concern, employing the latest Version 3 of the Landscape Project. Among the threatened and endangered species occupying Critical Habitats in Holland Township are Great Blue Herons, Bobolink, Cooper's Hawk, Osprey, Wood Turtles, Bobcats, Northern Harriers and Vesper Sparrows.

5. The Highlands Council determined that Holland Township contains 4,483 acres of Severely Constrained Slopes (20% or greater slope), and the proposed PennEast pipeline crosses many areas of these Severely Constrained Slopes. On the western end, the pipeline encounters the steep slopes of Musconetcong Mountain; in the middle of the route it crosses Gravel Hill; and on the eastern end it encounters slopes above 20% along the stream routes. The Highlands ERI cautions that "Disturbance of areas containing steep slopes can trigger erosion and sedimentation, resulting in the loss of topsoil. Silting of wetlands, lakes, ponds and streams damages and degrades wetland and aquatic habitats, especially trout streams that are found throughout the Highlands and receive the State's highest water

quality protections. Steep slope disturbance can also result in the loss of habitat quality, degradation of surface water quality, silting of wetlands, and alteration of drainage patterns."

6. The pipeline also intrudes upon the Forest Resource Area identified by the Highlands Council. Most of this disturbance is in the Gravel Hill area, which is classified as High Integrity Forest Area, defined as "Predominantly forested, including a high proportion of forest cover consisting of high core area, large patch size, and a low distance to nearest patch."

7. Finally, Holland Township has spent many years and hundreds of thousands of state taxpayer dollars to achieve full conformance with the Highlands RMP. The Township is on the cusp of adopting the Highlands Land Use Ordinance, which will drastically update the Townships code. Developers and citizens will have to obey much stricter laws, including increased lot sizes, with the objective of protecting our rural environment. It is a travesty that the good intentions and resources of the state of New Jersey and the Township of Holland can simply be tossed aside by private corporations and a Federal agency to transport natural gas that will likely benefit no one in our community.

WHEREAS, the proposed route crosses properties that were purchased with New Jersey Department of Environmental Protection Green Acres Funds, New Jersey Department of Agriculture Funds, Hunterdon County Open Space Funds, Holland Township Open Space Funds, Federal Farm and Ranch Protection Program Funds, New Jersey Water Supply Authority Funds, as well as other properties that are subject to conservation easements and/or deed restricted against development; and

WHEREAS, the proposed route crosses or affects properties that were purchased by non-profit land conservation and protection organizations including the New Jersey Conservation Foundation and the Hunterdon Land Trust; and

WHEREAS, the route crosses over 10 farms, totaling 1,031 acres, which the taxpayers of the State of New Jersey, Hunterdon County, Holland Township, as well as foundations and individual donors and farmers and landowners, have invested $4,865,469 to permanently preserve in perpetuity. In addition, the route crosses 7 lots of preserved open space on Gravel Hill and Milford bluffs, all owned by NJDEP costing about $2,180,780 to preserve; and

WHEREAS, the proposed route crosses the Pursley's Ferry and Bunn Valley historic districts, in addition to 12 historic sites, all but one of which are listed in the 1979 County Survey Sites of Historic Interest. The rural agriculture landscape and its built environment are unique and irreplaceable cultural resources; and

WHEREAS, the proposed route will impact Township owned open space, privately held open space, and scenic vistas; and

WHEREAS, the proposed route and the construction of pump stations along the

way will impact ground water that Holland Township residents depend on for domestic consumption, wetlands, springs, and C-1 designated streams, all of which are highly valued by residents and visitors, are necessary for Holland Township's way of life, and are irreplaceable; and

WHEREAS, the proposed route of the pipeline passes directly through property that Holland Township has worked diligently for years to have developed for affordable housing. With the consent of the property owner, the site has been designated by the New Jersey Council on Affordable Housing as a site for affordable housing. After several years of inaction, the property owner within the last year has begun active efforts to construct market and affordable housing units on this site. Permitting the pipeline to pass through this property will prevent the development of that housing, thereby depriving low and moderate income people of the opportunity to have affordable housing in Holland Township. Even though Holland Township has substantial open space and undeveloped land, most of it is located in an area that does not have sanitary sewer capacity, is environmentally fragile or the property owner is not interested in seeing affordable housing built on it. Permitting the pipeline to pass through this property will set back the efforts of Holland Township to satisfy this very important Constitutional obligation; and

WHEREAS, the proposed pipeline also cause damage to Holland Township residents by potentially lowering property values, raising health concerns, raising safety concerns, impacting farms and residences, and generally degrading their quality of life and the historic, environmental and cultural resources they have dedicated themselves to protecting.

NOW, THEREFORE, BE IT RESOLVED by the Township Committee of the Township of Holland, Hunterdon County, New Jersey as follows:

1. The Holland Township Committee does hereby object to the design and construction of a thirty-six (36) inch pipeline passing through and under Holland Township, Hunterdon County. The construction and operation of the pipeline will significantly damage C-1 protected streams, wildlife habitat, existing farm operations, and the quality of life in Holland Township.

2. The Holland Township Committee calls for a moratorium on any and all planning for the PennEast Pipeline and requests that any such project, if approved, be removed from the pristine reaches of Hunterdon and Mercer Counties in New Jersey and Luzerne, Carbon, Northampton and Bucks Counties in Pennsylvania.

3. The Holland Township Committee seeks the cooperation of other similarly located and affected municipalities, asking that all nearby affected municipalities adopt a similar resolution.

4. The Holland Township Committee adopts, and calls upon similarly situated municipalities to adopt a resolution authorizing each municipality to join together to enter their appearance in any proceeding before the Federal

Energy Regulatory Commission, the Delaware River Basin Commission, the New Jersey Public Utility Commission, and any other regulatory authority, so that by the strength of numbers they may successfully oppose the PennEast Pipeline project and have the ability to cause the relocation or termination of the project so as to prevent environmental degradation and to protect the environment envisioned by the State of New Jersey.

5. The Holland Township Committee will act as an Intervener and/or Objector to the proposed PennEast Pipeline.

6. The Holland Township Committee will appoint a Holland Township subcommittee to help the governing body in its efforts as an intervenor in the FERC process and provide guidance in submitting written objections to FERC in opposition to the pipeline.

7. Working with its non-profit partners, local groups, and other municipalities, the Holland Township Committee will exercise careful fiscal oversight in this opposition process.

8. The Holland Township Committee recognizes that the pipeline could be beneficial to society through potentially lower natural gas prices in the national economy, though Holland Township will not currently benefit from any of the natural gas being transported through this pipeline. The Holland Township Committee determines that the damage to the Township outweighs any benefit the Township will gain based on the information known to date.

9. The Holland Township Committee genuinely hopes PennEast and its partners respond to the public outcry over the proposed route of the pipeline and re-route all or parts of the proposed pipeline in response to the numerous concerns raised in this Resolution and other similar ones.

10. The Holland Township Committee encourages PennEast and its partners to develop creative ways to avoid or greatly minimize the damage the pipeline will cause to the environment, preserved properties, the aquifer and, most importantly, the homes and lives of the citizens of Holland Township.

Appendix 7

TOWNSHIP OF KINGWOOD
COUNTY OF HUNTERDON
STATE OF NEW JERSEY

RESOLUTION NO. 2014 – 98

RESOLUTION CONCERNING PENNEAST PIPELINE

WHEREAS, PennEast Pipeline Company, LLC, a joint project of AGL Resources, NJR Pipeline Company, a subsidiary of New Jersey Resources, South Jersey Industries, PSEG Power and UGI Energy Services, a subsidiary of UGI Corporation, proposed the construction of a new pipeline for the transfer and delivery of natural gas generated by deep well "fracking" in areas of Marcellus Shale in Pennsylvania; and

WHEREAS, the proposed pipeline is approximately one hundred (108) miles long of buried pipe crossing parts of Luzerne, Carbon, Northampton and Bucks Counties in Pennsylvania and Hunterdon and Mercer Counties in New Jersey, with approximately 8 miles of pipeline being located in Kingwood Township; and

WHEREAS, there are at least seven pending proposals to build pipelines in the Delaware River Basin, and eleven such proposals have been approved since 2011, threatening the Delaware River and other critical water resources; and

WHEREAS, the proposed route crosses properties that were purchased with New Jersey Department of Environmental Protection Green Acres Funds, New Jersey Department of Agriculture Funds, Hunterdon County Open Space Funds, Kingwood Township Open Space Funds, Federal Farm and Ranch Protection Program Funds, New Jersey Water Supply Authority Funds, as well as other properties that are subject to conservation easements and/or deed restricted against development; and

WHEREAS, the proposed route crosses or affects properties that were purchased by non-profit land conservation and protection organizations including the New Jersey Conservation Foundation and the Hunterdon Land Trust; and

WHEREAS, the proposed PennEast pipeline poses a potential safety threat to our neighboring communities, in that the Pipeline and Hazardous Materials Safety Administration of the United States Department of Transportation reports that incidents related to gas transmission lines have caused 41 deaths, 195 injuries, and $1.6 billion in property damage over the past 20 years; and

WHEREAS, the proposed pipeline passes through the Crossroads of the American Revolution National Heritage Area, including the sites of two documented Revolutionary War encampments; and

WHEREAS, the Township is predominantly a rural municipality, relying almost solely on individual water supply wells and on-site septic systems; and

WHEREAS, most soils in Kingwood have limitations from at least one of the following factors: poor drainage, high water table, shallow bedrock or steep slopes, "Ground water is limited and barely adequate for residential wells"; and

WHEREAS, depth to bedrock is an important factor when determining the suitability of land for building roads, foundations and septic systems. Kingwood Township has very shallow depths to bedrock, ranging from zero (bedrock is exposed at the surface, with no soil above it) to 60 inches; and

WHEREAS, the majority of Kingwood Township has shallow depths to seasonal high water table which impact the effectiveness of septic systems, and the freeze/thaw cycles cause frost heaving, which damages structures and roads; and

WHEREAS, the majority of Kingwood Township is rated "potentially highly erodible", while some areas are "highly erodible", and erosion is often accelerated as a result of human activities; and

WHEREAS, Kingwood Township relies exclusively on ground water and Kingwood, like most of the Piedmont Physiographic Province, is underlain by dense, almost impermeable bedrock that yields water mostly from secondary porosity and permeability provided by fractures, and The Lockatong Formation is one of the poorest sources of ground water in New Jersey; and

WHEREAS, ground water is stored and transmitted in fractures. A contaminant could travel quickly through fractures, with little soil contact to allow for filtration or degradation of pollutants. Thus, a well located on a large fracture might have a very good yield, but may be highly susceptible to contamination; and

WHEREAS, Kingwood Township is designated as part of the stream-flow source zone for the Coastal Plain SSA. As defined by the U.S. Environmental Protection Agency (EPA), sole-source aquifers (SSA) are those aquifers that contribute more than 50% of the drinking water to a specific area, and the water would be impossible to replace if the aquifer were contaminated; and

WHEREAS, the proposed pipeline will intersect the C1 Lockatong Stream that flows directly into the Delaware and Raritan Canal, a drinking water source for more than 1 million central New Jersey residents; and

WHEREAS, the proposed pipeline will also cross the Nishisakawick, Little Nishisakawick, Copper, Lockatong and Wickecheoke Creeks, all of which empty into the Delaware River, the water source for five percent of the nation's population – over 15 million people; and

WHEREAS, State threatened long-tailed salamander have been reported in the Little Nishisakawick Creek. This creek, along with Nishisakawick Creek and Wickecheoke Creek, contain the second largest concentration of this amphibian in the State, next to the limestone regions of Warren and Sussex counties. The Nishisakawick Creek has reported State threatened wood turtle sightings, primarily in the upper portions of the drainage and the Wickecheoke Creek has also reported State threatened wood turtles; and

WHEREAS, areas along the Nishisakawick, Little Nishisakawick, Copper, Lockatong, and Wickecheoke Creeks experience frequent flooding; and

WHEREAS, the proposed pipeline will also cause damage to Kingwood Township residents by lowering property values, raising health concerns, raising safety concerns, impacting farms and residences, and generally degrading their quality of life and the historic, environmental and cultural resources they have dedicated themselves to protecting.

WHEREAS, the Township Committee's responsibility is to provide a safe environment for its residents, and this pipeline raises serious safety concerns as described above;

NOW THEREFORE, BE IT RESOLVED by the Township Committee of the Township of Kingwood, in the County of Hunterdon, in the State of New Jersey that:

1. Kingwood Township opposes the proposed PennEast pipeline; and

2. If the PennEast proposal is submitted to the Federal Energy Regulatory Commission ("FERC") as contemplated, FERC must consider it, Williams/TRANSCO'S Leidy Southeast Expansion and other pipelines proposed or being constructed in the Delaware Basin as part of one network requiring a full environmental impact statement, and not in segmented fashion.

3. The Delaware River Basin Commission is urged to exercise its authority and obligations under Section 3.8 of the Delaware River Basin Compact and the current Rules of Practice and Procedure.

NOW, THEREFORE, BE IT FURTHER RESOLVED by the Township Committee of the Township of Kingwood, Hunterdon County, New Jersey as follows:

1. The Kingwood Township Committee does hereby object to the design and construction of a pipeline passing through and under Kingwood Township, Hunterdon County. The construction and operation of the pipeline will significantly damage C-1 protected streams, wildlife habitat, existing farm operations and the quality of life in Kingwood Township.

2. The Kingwood Township Committee calls for a moratorium on any and all planning for the PennEast Pipeline and requests that any such project, if approved, be removed from the pristine reaches of Hunterdon and Mercer Counties in New Jersey and Luzerne, Carbon, Northampton and Bucks Counties in Pennsylvania.

3. The Kingwood Township Committee calls upon the Delaware River Basin Commission to utilize its jurisdiction over the proposed PennEast Pipeline Project.

4. The Kingwood Township Committee seeks the cooperation of other similarly located and affected municipalities, asking that all nearby affected municipalities adopt a similar resolution.

5. The Kingwood Township Committee adopts, and calls upon similarly situated municipalities to adopt, a resolution authorizing each municipality to join together to enter their appearance in any proceeding before the Federal Energy Regulatory Commission, the Delaware River Basin Commission, the New Jersey Public Utility Commission, and any other regulatory authority, so that by the strength of numbers they may successfully oppose the PennEast Pipeline project and have the ability to cause the relocation or termination of the project so as to prevent environmental degradation and to protect the environment envisioned by the State of New Jersey.

6. The Kingwood Township Committee will act as an Intervener and/or Objector to the proposed PennEast Pipeline.

7. This resolution shall also be distributed to:
Senator Cory Booker
Senator Robert Menendez
Congressman Leonard Lance;
Senator Michael Doherty;
Assemblyman John DeMaio;
Assemblyman Eric J. Peterson;
The Hunterdon County Board of Chosen Freeholders
Delaware River Basin Commission
Hunterdon County Municipalities

TOWNSHIP COMMITTEE OF
TOWNSHIP OF KINGWOOD

_____
Phillip Lubitz, Mayor

Attest: October 29, 2014

Mary E. MacConnell, RMC
Township Clerk

Appendix 8

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

In the matter of		
Dominion Transmission, Inc.	)	Docket Nos. PF15-5-000
Atlantic Coast Pipeline, LLC	)	PF15-6-000

COMMENTS OF THE NATURAL RESOURCES DEFENSE COUNCIL IN RESPONSE TO THE COMMISSION'S NOTICE OF INTENT TO PREPARE AN ENVIRONMENTAL IMPACT STATEMENT FOR THE PLANNED SUPPLY HEADER PROJECT AND ATLANTIC COAST PIPELINE PROJECT

April 28, 2015

The Natural Resources Defense Council ("NRDC") submits the following comments on the Federal Energy Regulatory Commission's (the "Commission" or "FERC") decision to prepare a combined Environmental Impact Statement ("EIS") to discuss the environmental impacts of the Atlantic Coast Pipeline ("ACP") Project and the Supply Header Project ("SHP") in fulfillment of its Natural Gas Act ("NGA") and National Environmental Policy Act ("NEPA") obligations. The ACP would involve the construction and operation of 554 miles of a new natural gas pipeline up to 42 inches in diameter and three new compressor stations totaling 108,275 horsepower of compression. The SHP would involve the construction and operation of approximately 39 miles of pipeline up to 36 inches in diameter, adjacent to existing pipelines, and expansion of four existing compressor stations to provide for a combined increase of 75,700 horsepower of compression. The ACP project is proposed to cut through two national forests and transport over 1.5 billion cubic feet of natural gas per day. Taken together, the two projects (the "Projects") will present significant impacts to the human environment and ecologically sensitive areas.

Natural gas production and related proposals for new transmission infrastructure[1] have both increased dramatically over the past ten years, with total dry natural gas production increasing by 35% from 2005 to 2013.[2] FERC's review and approval process for transmission proposals, however, has not kept pace. A new approach is needed to review the growing list of uncoordinated and costly pipeline infrastructure proposals, of which the Projects are among the largest. As explained in detail below, we strongly urge the Commission to: (a) adopt a new program that uses comprehensive data and planning tools to determine if new transmission capacity is needed, and to minimize negative impacts of any new natural gas transmission proposals; (b) undertake a regional Programmatic Environmental Impact Statement ("PEIS"); (c) consider all cumulative impacts and indirect effects of the Projects, including increased natural

[1] FERC, Major Pipeline Projects Pending (Onshore), Data as of March 31, 2015, available at https://www.ferc.gov/industries/gas/indus-act/pipelines/pending-projects.asp.
[2] U.S. Energy Information Administration, Annual Energy Outlook 2015 20 (April 2015), available at http://www.eia.gov/forecasts/AEO/pdf/0383 (2015).pdf.

gas development; and (d) develop a fully transparent analysis of the costs borne by the public in the form of greenhouse gas ("GHG") emissions and climate change.

I. FERC should adopt a new natural gas transmission approval program that uses comprehensive data and planning tools to determine if new transmission capacity is needed, and to minimize negative impacts when any new capacity is deemed necessary.

FERC should adopt a new process to adequately determine if construction and operation of new natural gas transmission infrastructure "is or will be required by the present or future public convenience and necessity,"[3] as needed to grant a certificate of public convenience and necessity. Before it considers any new proposals for construction of natural gas pipelines, FERC should adopt a program to analyze natural gas transmission proposals through a comprehensive regional planning process. Such a process would help to minimize duplicative or inefficient infrastructure in a region. Where new infrastructure is determined to be needed, it should be designed to minimize impacts on environmental and cultural resources to the extent practicable and determine the most beneficial way to get energy from its source to energy consumption locations. FERC should consider new transmission proposals where needed—but only where the need is clearly established. Therefore, FERC should ensure a planning process that involves:

- siting transmission from areas with high value energy resources;
- using existing transmission corridors and infrastructure to the maximum extent possible;
- using already developed areas for any other new routes that are needed; and
- avoiding conflicts with important landscape values (such as wildlife habitat, water resources, farms, recreational areas, and historic sites).

In addition, FERC must ensure a modernized system that is as efficient as possible to avoid proposals for unnecessary new infrastructure.

The June, 2013 Presidential Memorandum on "Transforming our Nation's Electric Grid Through Improved Siting, Permitting, and Review"[4] set forth "Principles for Establishing Energy Corridors" including, among other things: a focus on facilitating renewable energy resources; avoiding resource conflicts to the extent practicable; minimizing the proliferation of dispersed and duplicative rights-of-way crossing Federal lands; designing energy corridors to minimize impacts on environmental and cultural resources to the extent practicable, including impacts that may occur outside the boundaries of Federal lands; and developing energy corridors at the landscape or watershed scale with interagency collaboration, based on conservation and resource management plans and regional environmental and cultural resource analyses. While this memorandum is focused on the electric grid, the same principles should clearly apply to natural

[3] 15 U.S.C. § 717f(e).

[4] Presidential Memorandum – Transforming our Nation's Electric Grid Through Improved Siting, Permitting, and Review (June 7, 2013), available at: https://www.whitehouse.gov/the-press-office/2013/06/07/presidential-memorandum-transforming-our-nations-electric-grid-through-i.

gas transmission. There is the same need to: "....improve the efficiency and effectiveness of transmission siting, permitting, and review...."

A successful example of this approach in the transmission context is the regional planning process used by the Western Electricity Coordinating Council ("WECC"). WECC's transmission planning process considers reliability analysis, electric demand, generation resource availability, transmission infrastructure costs, energy policies, technology costs, environmental and cultural resources, and emissions to develop long-term transmission plans that minimize controversy and negative impact while maximizing benefits. WECC states: "WECC explores ways to transform land, wildlife, cultural, historical, archaeological and water resource data into a form useable in Transmission Expansion Planning. The ability to visualize land data and analyze that data to reveal relationships, patterns and trends is important in determining where to place new transmission. Geographic Information Systems (GIS) data is an input to WECC's Long-Term Planning Tool (LTPT). Environmental, cultural, risk and terrain data are captured in GIS data as inputs to the LTPT. Transmission paths are geospatially optimized within the LTPT. The goal is to minimize the cost and impacts (e.g., environmental, financial) of building new transmission paths."[5]

A comprehensive, transparent planning process can also help maximize the extent to which all stakeholder concerns are addressed in transmission planning. This would reduce potentially adverse impacts, deliver a wider range of benefits while enabling timely and thoughtful regulatory approval; and expedite the transition to a cleaner energy future by reducing controversy and promoting consensus. Furthermore, it would assist the Commission in addressing the uncertainty that hinders it from analyzing the effects of natural gas development that the pipelines are constructed to facilitate.

As mentioned above, as part of this comprehensive planning process, FERC should consider whether new natural gas transmission is necessary to meet present or future public convenience and necessity. A recent study conducted for the U.S. Department of Energy found that even under scenarios in which natural gas demand from the electric power sector increases, the incremental increase in interstate natural gas pipeline capacity is "modest," in particular given that there have already been substantial capacity additions over the past 15 years. This study also found that "increasing utilization of capacity that is not fully utilized in existing interstate natural gas pipelines, re-routing natural gas flows, and expanding existing pipeline capacity are potentially lower-cost alternatives to building new infrastructure and can accommodate a significant increase in natural gas flows."[6] For example, the EPA's proposed carbon pollution standards are designed to cut carbon pollution from power plants, maintain an affordable and reliable energy system, and protect health and the environment,[7] and an NRDC

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[5] https://www.wecc.biz/TransmissionExpansionPlanning/Pages/Environmental-and-Cultural-Considerations.aspx

[6] U.S. Department of Energy, Natural Gas Infrastructure Implications of Increased Demand from the Electric Power Sector (Feb. 2015), available at http://energy.gov/sites/prod/files/2015/02/f19/DOE%20Report%20Natural%20Gas%20Infrastructure%20V_02-02.pdf.

[7] Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34830 (June 18, 2014).

analysis expects substantially lower natural gas consumption under the standards than EPA has projected— about 10 percent less gas consumed in 2020, and 17 percent less in 2030.[8]

It is important that FERC also consider if:

- new pipeline transmission is obviated by expanded renewable energy generation, energy efficiency improvements, reduction of methane leaks, and full utilization of existing pipeline capacity;
- more natural gas consumption in the future will create barriers for efficiency and renewable energy; or
- underutilization of capacity or scheduling conflicts artificially indicate that more natural gas transmission is needed than is actually the case.

This approach is very similar to the FERC requirement to consider non-transmission alternatives on a comparable basis with transmission in the planning process. As FERC explained in Order 1000, "just as there may be opportunities for regional transmission solutions to better meet the needs of the region, the same could be true for regional non-transmission alternatives."[9] This kind of analysis helps to reduce duplicative or inefficient new electricity transmission and can do the same for natural gas transmission. In addition, the 2015 Quadrennial Energy Review ("QER") recommends that agencies improve data and analysis on the environmental characteristics and impacts of energy transmission, storage, and distribution infrastructures.[10] Among other things, the QER found that improvements in pipeline safety and other modernization will reduce methane emissions from pipelines.[11]

In light of all the recent advancements in renewable energy, energy efficiency, GIS data, pipeline capacity, and more, FERC should adopt a new natural gas transmission approval program that uses comprehensive data and planning tools to carefully consider if new transmission capacity is needed to meet the public interest, and to minimize negative impacts when any new capacity is needed.

II. FERC should conduct a regional Programmatic EIS

In order to consider a new program for determining the need for new natural gas transmission infrastructure, FERC should conduct a PEIS that considers a natural gas transmission approval program that uses comprehensive data and planning tools to determine if new transmission capacity is needed in a region, and to minimize negative impacts when any new capacity is deemed necessary. The Commission should not consider any proposals for construction of new natural gas pipelines until it develops a regional PEIS for new natural gas

[8] Doniger, David, "NRDC's Public Comments on the Clean Power Plan: How EPA Can Make Its Good Plan Even Better," Switchboard (Dec. 2, 2014), available at http://switchboard.nrdc.org/blogs/ddoniger/nrdcs_public_comments_on_the_c.html.
[9] Order No. 1000, 136 FERC ¶ 61,051, at P 154 (2011).
[10] Quadrennial Energy Review: Energy Transmission, Storage, and Distribution Infrastructure ("QER") S-27 (April 2015), available at http://energy.gov/sites/prod/files/2015/04/f22/QER-ALL%20FINAL_0.pdf.
[11] *Id.* at 7-11

infrastructure development.[12] The White House Council on Environmental Quality (CEQ) guidance for Federal departments and agencies on effective use of programmatic National Environmental Policy Act (NEPA) reviews states that: "programmatic NEPA reviews may serve to influence the nature of subsequent decisions, thereby providing for an integrated and sustainable policy, planning framework, or program." The guidance also states that a Programmatic EIS may be appropriate to adopt "an agency plan for a group of related projects" or to evaluate "Proposals to substantially redesign existing programs."[13]

Natural gas transmission covers broad geographic areas, crosses political boundaries, impacts numerous ecosystems, and locks in projects for generations. In the case of the Projects, other new pipeline proposals currently in process in the same region include the Mountain Valley Pipeline project and the Appalachian Connector Pipeline project. The Commission therefore needs appropriate policies for addressing these proposed projects in a thoughtful manner that takes into consideration how they relate to each other and existing transmission infrastructure, the location and amount of energy sources, and energy needs. In other words, FERC needs to step back and take a hard look at the big picture. A PEIS is a valuable tool to evaluate cumulative effects and formulate its alternatives analysis and mitigation efforts comprehensively.

Therefore, FERC should adopt a new program to consider new natural gas transmission infrastructure proposals originating in the natural gas producing region defined by the geographical extent of the Appalachian Basin region, including the Marcellus, Utica and Upper Devonian shale formations, and serving east coast markets. In this scoping process, FERC is considering transmission proposals in this region. There are other similar projects proposed in the same region and reasonably foreseeable actions in the same region.

A programmatic regional review is necessary to comply with NEPA because analyses of individual pipeline infrastructure projects cannot adequately address the cumulative impacts that arise from the web of pipelines being approved by FERC to transport gas from natural gas fields in the Marcellus/Utica/Upper Devonian shale regions to east coast markets. Taken together, these projects may facilitate the drilling and fracking of thousands of new natural gas wells, the construction of massive gas processing facilities and compressor stations, and a web of natural gas gathering lines to transport the gas from wells to transmission facilities. Such development, in turn, creates a wide range of environmental and health impacts, from air and water pollution, to landscape level impacts on habitat and forests, to a huge increase in truck traffic to service these facilities. FERC's decision to address projects individually has resulted in a failure to take a hard look at these cumulative impacts.

Importantly, a programmatic EIS allows consideration of reasonable alternatives and mitigation measures which are not easily susceptible to consideration in individual project-level analyses. The obligation to consider reasonable alternatives to an action "is at the heart of the NEPA process."[14] And as the Supreme Court has noted, "[i]mplicit in NEPA's demand that an

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[12] 40 CFR §§ 1500–1508.

[13] Memorandum on "Effective Use of Programmatic NEPA Reviews," from Michael Boots to Heads of Federal Departments and Agencies (Dec. 18, 2014), available at: https://www.whitehouse.gov/sites/default/files/docs/effective_use_of_programmatic_nepa_reviews_18dec2014.pdf.

[14] *Dine Citizens Against Ruining our Env't v. Klein*, 747 F. Supp. 2d 1234, 1256 (D. Colo. 2010).

agency prepare a detailed statement on 'any adverse environmental effects which cannot be avoided should the proposal be implemented,' is an understanding that the EIS will discuss the extent to which adverse effects can be avoided."[15] FERC's insistence on considering pipeline infrastructure on a project-by-project basis, however, limits its ability to consider a full range of alternatives for meeting regional energy market needs, including alternatives which would involve increased energy efficiency, the use of renewable energy sources to meet these needs, and the efficient use of existing infrastructure to address market needs. Regional mitigation measures such as the targeted construction of fewer lines using existing right-of-way corridors are also not considered by project-level analyses. FERC should conduct a PEIS that considers a full range of alternatives and mitigation measures in order to fulfil its legal mandates under NEPA.

A relevant energy infrastructure example of a PEIS for these purposes is the PEIS developed to evaluate potential actions of the Bureau of Land Management ("BLM") and U.S. Department of Energy ("DOE") to facilitate utility-scale solar energy development in six states ("Solar PEIS"). The agencies stated that: "The BLM and the DOE identified a need to respond in a more efficient and effective manner to the high interest in utility-scale solar energy development (in particular development to be sited on public lands), and to ensure consistent application of measures to avoid, minimize, or mitigate the adverse impacts of such development."[16] These same considerations are implicated by the high interest in developing new natural gas transmission infrastructure, including pipelines and compressor stations, on lands including public lands.

The Solar PEIS was intended, among other things, to identify and prioritize specific locations "best suited" for energy development while, among other things, minimizing negative impacts, and to "Optimize existing transmission infrastructure and corridors..."[17] This is the same type of program that should be developed by FERC to optimize transmission for natural gas.

Another example is the PEIS conducted "to evaluate options for improving agency actions"[18] to reduce the adverse environmental impacts of mountaintop mining in four states. This PEIS (the "Mountaintop Mining PEIS") was "designed to inform more environmentally sound decision-making for future permitting" of mountaintop removal coal mining region-wide and included "a substantial amount of environmental and economic data."

The Mountaintop Mining PEIS was conducted by the Army Corps of Engineers, U.S. Environmental Protection Agency, the Department of the Interior's Office of Surface Mining, U.S. Fish & Wildlife Service, and West Virginia Department of Environmental Protection. The agencies identified a preferred alternative that "enhances environmental protection and improves efficiency, collaboration, division of labor, benefits to the public and applicants." This is the

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[15] *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351-52 (1989) (citing 42 U.S.C. § 4332(C)(ii)).
[16] Final Programmatic Environmental Impact Statement (PEIS) for Solar Energy Development in Six Southwestern States ES-2 (July 2012), available at: http://solareis.anl.gov/documents/fpeis/index.cfm.
[17] *Id.*
[18] Mountaintop Mining/Valley Fills in Appalachia Final Programmatic Environmental Impact Statement, EPA 9-03-R-05002, at 1 (Oct. 2005).

same type of programmatic revision that should be undertaken by FERC for natural gas transmission siting.

The Commission's Order 1000's requirement for all utilities to engage in regional transmission planning processes also supports our recommendation. As FERC explained, the regional planning requirement, combined with other reforms, work together to ensure that public utility transmission providers in every transmission planning region, in consultation with stakeholders, evaluate proposed alternative solutions at the regional level that may resolve the region's needs more efficiently or cost-effectively than solutions identified in the local transmission plans of individual public utility transmission providers. This, in turn, will provide assurance that rates for transmission services on these systems will reflect more efficient or cost-effective solutions for the region.[19]

The Commission should follow these examples and likewise develop a PEIS to ensure there is a comprehensive, thoughtful plan for regional transmission and infrastructure development. To date, the Commission has taken a more narrow focus, often approving projects individually with inadequate consideration of whether they are needed as part of a large interconnected system. The Commission should determine where natural gas is truly needed, where it can be sourced, and the best route to minimize negative impacts and maximize efficiency. A PEIS is the right way to accomplish this when considering multiple projects in a large region, and the need for a new programmatic approach. The narrow focus of the approach currently being used by the Commission keeps it from accomplishing its mission to ensure public necessity because it is not considering all the information needed to determine if new transmission infrastructure is duplicative or inefficient, creates contentious projects, and delays the transition to a cleaner electric sector. It is akin to operating with blinders on.

In addition, when approving new natural gas transmission infrastructure, FERC may effectively be deciding where new natural gas production will occur. The impacts of agency decisions that will influence natural gas production siting must be considered in the FERC environmental review process and a PEIS will allow a comprehensive consideration of where natural gas resources are located, the amounts in different locations, and the impacts of development in these locations.

Programmatic NEPA reviews can also support policy- and planning-level decisions when there are limitations in available information and uncertainty regarding the timing, location, and environmental impacts of subsequent implementing action(s). For example, in the absence of certainty regarding the environmental consequences of future proposed actions, agencies may be able to make broad program decisions and establish parameters for subsequent analyses based on a programmatic review that adequately examines the reasonably foreseeable consequences of a proposed program, policy, plan, or suite of projects. In addition, a PEIS is the right process to allow FERC to consider subsequent site-specific proposals within the broader context. That not only ensures a comprehensive, cumulative review, but has the potential to streamline later reviews.

[19] Order 1000, 136 FERC ¶ 61,051, at P 68 (2011).

Altogether, a PEIS can help to reduce potentially adverse impacts, deliver a wider range of benefits while enabling timely and thoughtful regulatory approval; and expedite the transition to a cleaner energy future by reducing controversy and promoting consensus.

III. FERC must consider the cumulative impacts of other pending projects, contemplated projects, and projects currently under construction that are located in the same geographical area.

The 2015 Quadrennial Energy Review ("QER") found that "Energy infrastructure can have direct, indirect, and cumulative land-use and ecological impacts."[20]

a. The Commission should analyze the cumulative impacts of projects that are related to the Projects and are located within the same geographical area.

With few exceptions, the Commission's infrastructure planning today is narrowly focused on single infrastructure projects, rarely taking into account the surrounding infrastructure landscape when analyzing pending project proposals. Instead, the Commission must consider the cumulative impacts of other pending projects and projects currently under construction that are related and connected to the Projects within the EIS, in light of FERC's mandate under NEPA to consider cumulative and connected actions,[21] as explained in the recent decision in *Delaware Riverkeeper Network v. FERC*.[22]

Delaware Riverkeeper involved four expansion projects of the Eastern Leg of the 300 Line, which carries natural gas from wells in western Pennsylvania to points of delivery east of Mahwah, New Jersey. The D.C. Circuit held that the Commission had impermissibly segmented its review of the Northeast Project from the other three related projects, failing to provide a meaningful analysis of the cumulative impacts of the four projects taken together. The Court found that the Commission was well aware of the Northeast Project's close financial relationship to the other projects.[23] The Court criticized FERC for combining the projects for ratemaking purposes but separating their analyses when issuing a Certificate of Public Convenience and Necessity (CPCN) and conducting environmental review.[24]

NRDC supports the Commission's decision to prepare a combined EIS for the ACP project and the SHP project. However, the Commission's analysis must not stop there. The Commission's economic analysis must inform the scope of its environmental review and include:

- The cumulative impacts of all projects, including non-jurisdictional projects, that the Commission may consider in the CPCN economic analysis to justify the Projects; and

[20] QER, *supra* note 10, at S-25.
[21] *See* 40 C.F.R. § 1508.25.
[22] 753 F.3d 1304 (D.C. Cir. 2014).
[23] *Id.* at 1316-18.
[24] *Id.* at 1317.

- The cumulative impacts of all projects that are interrelated with the Projects.

For example, the proposed ACP project, Mountain Valley Pipeline project,[25] and Appalachian Connector Pipeline project[26] all propose to deliver large quantities of natural gas from the Marcellus shale region to the southeastern United States. All three projects would deliver natural gas to the Transco interstate pipeline. In addition, all three proposals would impact the central Appalachian Mountains of Virginia and West Virginia during the same time period, and all three would cross the Jefferson, George Washington, or Monongahela National Forests, and the Appalachian National Scenic Trail. There is no doubt that these three large pipeline proposals will have cumulative impacts for the region.

b. The Commission should analyze the cumulative impacts of all jurisdictional projects that fall within the "region of influence" of the Projects.

The Commission should conduct a comprehensive review of the cumulative impacts of all contemplated projects, pending projects, and projects currently under construction that fall within the "region of influence" of the Project. A project's region of influence varies depending on the resource being discussed.[27] The Commission has demonstrated that it is capable of such an analysis when it decided the CPCN for the Algonquin Gas Transmission project. The final EIS discussed the potential for cumulative impacts from the contemplated Atlantic Bridge Project and Access Northeast Project. Even though the Commission claimed these two projects were not related to the Algonquin Project, in light of *Delaware Riverkeeper* the EIS still considered these contemplated projects due to their proximity to the pending proposal.

An example of impacts that extend far beyond the pipeline right-of-way is the air emissions generated by compressor stations. Compressor stations release nitrogen oxides and volatile organic compounds (VOCs), among other air pollutants. Nitrogen oxides and VOCs react in the presence of sunlight to form ozone ("smog"). Exposure to ozone is associated with a variety of respiratory and cardiovascular effects, including shortness of breath, reduced lung function, aggravated asthma and chronic respiratory disease symptoms, inflammatory processes, and premature death.[28] These same pollutants are emitted at wellsites and gas processing facilities, contributing to greater ozone levels. Ozone is formed in the atmosphere and can move with the wind—causing health problems for entire regions—not just for people living close to compressor stations.

A growing number of studies have attributed emissions of ozone precursors from rapidly growing oil and gas development to significantly elevated ozone concentrations in numerous

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[25] http://mountainvalleypipeline.info.

[26] http://co.williams.com/expansionprojects/appalachian-connector.

[27] 150 FERC ¶ 61,163 at ¶ 115 (March 3, 2015) (explain that the region of influence is equivalent to the project area as described by CEQ Guidance, Considering Cumulative Effects under the National Environmental Policy Act (Jan. 1997)).

[28] NRDC, Fracking Fumes: Air Pollution from Hydraulic Fracturing Threatens Public Health and Communities 5 (Dec. 2014), available at: http://www.nrdc.org/health/files/fracking-air-pollution-IB.pdf.

states.[29] Natural gas compressor stations are the leading source of ozone precursor emissions among energy transmission, storage, and distribution infrastructures.[30] In addition, due to "extensive recent scientific evidence about the harmful effects of ground-level ozone, or smog, EPA is proposing to strengthen air quality standards to within a range of 65 to 70 parts per billion (ppb) to better protect Americans' health and the environment, while taking comment on a level as low as 60 ppb."[31] FERC must take into account the latest science regarding the effects of ozone and the contribution of compressor stations and related natural gas operations, including production sites, to ozone and other pollution in regional airsheds when considering the cumulative impacts of pipeline proposals.

The Commission should be forward looking and transparent and identify other pipeline projects, even if not currently pending before the Commission, within the region of influence, and analyze the combined cumulative impacts of those projects, including the proposed Mountain Valley Pipeline and Appalachian Connector Pipeline projects.

IV. The Commission must take a hard look at the indirect effects of increased natural gas development in its cumulative impacts analysis.

a. FERC must take a hard look at natural gas development that may be induced by the Project.

In preparing the EIS, FERC must consider natural gas development that may be stimulated by the construction of the pipeline. In *Thomas v. Peterson*, the Ninth Circuit noted that federal regulations implementing NEPA require that "connected" and "cumulative" actions must be analyzed.[32] The *Peterson* court went on to hold that the Forest Service was required to analyze the impacts of timber sales in connection with the construction of a timber road, noting that the road did not have "independent utility" without the sales and that it would be "irrational to build the road and then not sell the timber to which the road was built to provide access."[33] Similarly, here, the pipeline has no independent utility without natural gas extraction activities that will utilize its capacity and it would be irrational to build the pipeline and then not transport the natural gas it was designed to carry. For these reasons, natural gas extraction activities must be analyzed, along with the construction of the ACP, as connected and cumulative actions.

> As the D.C. Circuit made clear in *Coalition on Sensible Transportation, Inc. v. Dole*,[34] and reiterated in *Delaware Riverkeeper*, "an agency's consideration of the proper scope of its NEPA analysis should be guided by the governing regulations."[35] NEPA regulations define "indirect effects" to include those effects

[29] Press Release, U.S. EPA, EPA Proposes Smog Standards to Safeguard Americans from Air Pollution (Nov. 26, 2014), available at http://yosemite.epa.gov/opa/admpress.nsf/0/6CE92BE958C8149285257D9C0049562E.
[30] QER, *supra* note 10, at 7-13 fig. 7-3.
[31] 79 FR 75233.
[32] 753 F.2d 754, 758-59 (9th Cir. 1985).
[33] *Id.* at 759.
[34] 826 F.2d 60 (D.C. Cir. 1987).
[35] *Delaware Riverkeeper*, 753 F.3d at 1315 (citing *Coalition on Sensible Transportation*, 826 F.2d at 68).

> that are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.[36]

FERC should consider whether the Projects will transmit natural gas being produced from existing wells that would currently be destined for other markets, or whether the Projects will induce new natural gas development and more wells being drilled in the region. Because the pipeline may lead to new natural gas development, such development is a reasonably foreseeable indirect effect of the FERC's approval of the Projects that should be analyzed in any EIS.

b. FERC must take a hard look at the indirect and cumulative effects of natural gas development along the path of the Projects, in general.

As discussed above, in approving new natural gas transmission infrastructure, FERC may effectively be deciding where new natural gas production will occur. As such, the impacts of agency decision making that will influence natural gas production siting must be considered in the FERC environmental review process. Although *Thomas* involved connected actions which were all jurisdictional, i.e., within FERC's zone of authority, the Commission is also compelled to analyze the cumulative impacts of actions not within its direct regulatory jurisdiction, including natural gas development along the length of the Project.

The regulations are clear: an agency must consider the "cumulative impacts" of "other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."[37] Those actions may include indirect effects, which are those actions that are "induced" by the project. With few exceptions, infrastructure planning has done little to inform the public of how each new project contributes to the indirect environmental impacts in productive, natural gas rich areas. The Commission has consistently relied on *Coalition for Responsible Growth and Resource Conservation*[38] for the idea that "the impacts of [Marcellus Shale] development are not sufficiently causally-related to . . . project[s] to warrant a more in-depth analysis."[39] Nevertheless, even if the Commission does not know the precise location and timing of future gas drilling, "when the nature of the effect is reasonably foreseeable but its extent is not, [an] agency may not simply ignore the effect."[40]

FERC has stated that it analyzes a "region of influence" and all existing projects and those that are "reasonably foreseeable" within it. The Commission has demonstrated a practice of considering non-jurisdictional activities within a project's "region of influence." For example, when defining the region of influence for the Algonquin Gas Transmission, LLC Project,[41]

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[36] 40 C.F.R. § 1508.8(b).
[37] 40 C.F.R. part 1508.7
[38] 485 Fed. Appx. 472 (2d Cir. June 12, 2012).
[39] *See id.* at 474.
[40] *Mid States Coalition for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 549 (8th Cir. 2003); *accord Habitat Educ. Ctr. v. U.S. Forest Serv.*, 609 F.3d 897, 902 (7th Cir. 2010).
[41] 150 FERC ¶ 61,163 (March 3, 2015).

FERC defined a region of influence of 0.25 miles from construction work areas for impacts on geology and soils, land use, residential areas, visual resources, cultural resources, and traffic.[42] The types of projects evaluated in this region included residential development, small commercial development, and small transportation projects—all non-jurisdictional projects which FERC deemed as "reasonably foreseeable" even though not pending before it.[43]

The Commission's conclusion that "activities associated with Marcellus shale development [will] occur outside of the Project area's region of influence"[44] is arbitrary and capricious because the Commission provides no basis for this conclusion besides the conclusory assumption that impacts will be localized in nature.[45] As the court made clear in *Coalition on Sensible Transportation*, and reiterated in *Delaware Riverkeeper*, "an agency's consideration of the proper scope of its NEPA analysis should be guided by the governing regulations."[46] Therefore, in keeping with CEQ regulations, the cumulative impacts that must be included in the "region of influence" must be defined by the direct impacts, indirect impacts, and connected actions associated with a proposed project.[47]

In *Sylvester v. U.S. Army Corps of Engineers*, the Ninth Circuit explained that an agency must consider something as an indirect effect if the agency action and the effect are "two links of a single chain."[48] In another case, a district court rejected the Corps' "tunnel vision approach" to considering indirect and cumulative effects, stating that:

> The Corps should have analyzed the indirect effects of the bank stabilization on both "on site" and "off site" locations, i.e., the growth-inducing effects related to the changes in the pattern of land use and population growth. It would appear that the Corps failed to consider the cumulative impact associated with the bank stabilization project when it may have been reasonably foreseeable that the placement of ripraps was just a stepping stone to major development in the area.[49]

Likewise, a pipeline project is "just a stepping stone to major development" of natural gas resources because it makes accessible what wasn't before. The Commission itself considers interstate natural gas infrastructure linked to natural gas production. FERC's Strategic Plan for FY2014-2018 states that the "development of interstate natural gas infrastructure – pipelines, storage, and LNG facilities – is a critical link in ensuring that natural gas supply can reach market areas."[50] There is no question that this pipeline will spur natural gas development "off

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[42] *Id.* at ¶¶ 114–116.
[43] *Id.*
[44] Algonquin Incremental Market Project Final Environmental Impact Statement, FERC/EIS-0254F, at ES-9 (Jan. 23, 2015), available at https://www.ferc.gov/industries/gas/enviro/eis/2015/01-23-15-eis.asp.
[45] *See id.*
[46] *Delaware Riverkeeper*, 753 F.3d at 1315 (citing *Coalition on Sensible Transportation*, 826 F.2d at 68).
[47] 40 C.F.R. part 1508.25(c). *See also* 40 C.F.R. part 1508.7-1508.8, 1508.25(a).
[48] 884 F.2d 394, 400 (9th Cir. 1989).
[49] Colo. River Indian Tribes v. Marsh, 605 F. Supp. 1425, 1433 (C.D. Cal. 1985).
[50] FERC, Strategic Plan FY2014-2018 17 (Mar. 2014), available at http://www.ferc.gov/about/strat-docs/FY-2014-FY-2018-strat-plan.pdf.

site" in the Marcellus and Utica Shale play regions. The purpose of this project is to create access to other natural gas supplies:

> There is a need for additional natural gas infrastructure to better serve existing and growing customer demand, improve service reliability and allow for customer growth and economic development. The ACP Project would also improve gas supply for Mid-Atlantic markets, thereby promoting price stability and enhancing economic opportunity. For example, this project will provide a new supply of natural gas for Duke Energy's electric generation and will serve the growing customer needs for Piedmont Natural Gas and Virginia Natural Gas – a division of AGL Resources.[51]

Refusal to consider the effects of upstream gas drilling is reminiscent of similar arguments rejected by the Eighth Circuit in *Mid States Coalition for Progress v. Surface Transportation Board*:

> [T]he proposition that the demand for coal will be unaffected by an increase in availability and a decrease in price, which is the stated goal of the [railroad] project, is illogical at best. The increased availability of inexpensive coal will at the very least make coal a more attractive option to future entrants into the utilities market when compared with other potential fuel sources, such as nuclear power, solar power, or natural gas.[52]

It would be implausible for FERC to conclude that increased natural gas development would not be casually related, or that it is not reasonably foreseeable that development would be "induced" by the creation of a new transportation route. According to the Commission's own policy, an applicant that is able to proceed without subsidies demonstrates that it has acquired the shippers to utilize the increased capacity.[53] The nature of natural gas pipeline infrastructure projects makes it eminently feasible to estimate these impacts. Natural gas infrastructure involves meticulous project finance mechanisms, supplier rate negotiations, and supplier contracts—all of which are ample indication of where supplies are originating from and whether increasing development is expected from capacity utilization and availability.

Even if FERC does not know the precise location and timing of future gas drilling, "when the nature of the effect is reasonably foreseeable but its extent is not, [an] agency may not simply ignore the effect."[54] In the future, new development might very well be attracted to areas accessible to the new transmission infrastructure. It would be appropriate to consider both present and future development in scaling the capacity of the system. Therefore, the Commission

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[51] Atlantic Coast Pipeline: Frequently Asked Questions, available at https://www.dom.com/library/domcom/pdfs/gas-transmission/atlantic-coast-pipeline/acp-faq-general.pdf.
[52] *Mid States*, 345 F.3d at 549.
[53] 88 FERC ¶ 61,227, ¶ 61,750 (Sept. 15, 1999)..
[54] *Mid States*, 345 F.3d at 549; *see also Habitat Educ. Ctr.*, 609 F.3d at 902.

must expand its "region of influence" to consider the cumulative impacts of the following indirect effects:

- The natural gas reserves that the pipeline route—and its alternative routes—make accessible for natural gas development;
- The pipeline's proximity to current wells, pending leases, and undeveloped private and federal lands with natural gas resources;
- Markets for current wells and whether those are expected to decrease substantially in the future;
- Contemplated wells and current wells that are in the proximity of the pipeline route—even if the wells have not yet been drilled;
- Gathering pipelines that will be constructed to collect the gas; and
- Natural gas processing plants, compressor stations, and other associated infrastructure that will be constructed in order to bring the gas flowing through the pipeline to market.

c. FERC must consider the indirect effects of climate change and the GHG emissions from upstream and downstream production and combustion.

Past FERC environmental reviews of transmission projects have limited greenhouse gas emissions analysis to projecting emissions from construction and the operation of import/export facilities. FERC should expand its GHG emissions analysis to account for:

1. Emissions from upstream production that is a foreseeable result of the pipeline (leakage and venting),
2. Emissions from downstream consumption of additional natural gas because of the construction of the pipeline; and
3. The potential impacts on climate change from the cumulative, direct and indirect impacts.
4. The potential impacts on the region from increase climate change.

High Country Conservation Advocates v. United States[55] offers some guidance. In *High Country*, the court found that three agencies' treatment of the costs associated with GHG emissions from on-the-ground mining exploration activities in the Sunset Roadless Area in North Fork Valley was arbitrary and capricious. The court noted that, "[t]he agencies apparently [did] not dispute that they are required to analyze the indirect effects of GHG emissions," however their "general discussion of the effects of global climate change" was insufficient under NEPA due to the use of an arbitrary cost-benefit analysis.[56] While NEPA does not require an explicit cost-benefit analysis to be included in an EIS,[57] when it is included, it cannot be misleading. "In effect the agency prepared half of a cost-benefit analysis, incorrectly claimed that it was

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[55] -- F. Supp. 3d --, Civ. No. 13-1723, 2014 WL 2922751, (D. Colo. June 27, 2014).

[56] *Id.* at *8-10.

[57] 40 C.F.R. § 1502.23 ("[T]he weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost benefit analysis and should not be when there are important qualitative considerations.").

impossible to quantify the costs, and then relied on the anticipated benefits to approve the project."[58]

When determining whether to issue a CPCN, FERC conducts a similar cost-benefit analysis. As described in the Commission's CPCN policy statement, the Commission will ultimately determine whether a project is in the public convenience and necessity by balancing the public benefits against the adverse effects of the project.[59] The public benefits could include, "meeting unserved demand, eliminating bottlenecks, access to new supplies, lower costs to consumers, providing new interconnects that improve the interstate grid, providing competitive alternatives, increasing electric reliability, or advancing clean air objectives."[60] This balancing test is essentially an economic test,[61] which triggers the Commission's responsibility to conduct a comprehensive cost-benefit analysis. Therefore, if environmental factors, like clean air benefits are quantified in the economic analysis, the Commission is obligated to quantify the associated atmospheric costs of the emissions in the EIS.

Indeed, FERC considered clean air objectives and the associated costs before when approving a pipeline project. In *South Coast Air Quality Management District v. FERC*,[62] FERC authorized the expansion and modification of the North Baja pipeline system which would allow for transmission of natural gas to the Los Angeles area. FERC ultimately required that the pipeline only deliver gas that met the strictest gas quality standards imposed by California's regulatory agencies on downstream end-users and pipelines. The court analyzed the requirements of the Commission's CPCN policy statement, and found that FERC had fulfilled its mandate by analyzing the end-use burning concerns after calculating the emissions rate[63] and conditioning approval upon compliance with the gas quality standards.[64]

In keeping with this practice, the Commission is required to analyze all of the costs associated with the Projects, including the social costs of emissions from additional downstream consumption of natural gas due to the pipeline's construction, as required by *High Country*. Analysis has shown that GHG emissions from natural gas wells can be substantial.[65] As noted in *High Country*, in determining the costs of a project's GHG emissions, "a tool is and was available: the social cost of carbon protocol."[66] The court in that case noted that by failing to

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[58] *High Country Conservation Advocates*, 2014 WL 2922751 at *10.
[59] 88 FERC ¶ 61,227, ¶ 61,750 (Sept. 15, 1999).
[60] *Id.* ¶ 61748.
[61] *Id.* ¶¶ 61,749-50.
[62] *See S. Coast Air Quality Mgmt. Dist. v. FERC*, 621 F.3d 1085 (9th Cir. 2010).
[63] FERC found that compliance with these standards "should not result in a material increase in air pollutant emissions and, therefore, should not result in material changes in air quality in the Basin." *Id.* at 1090.
[64] *Id.* at 1098–99.
[65] Robert B. Jackson et al., "The Environmental Costs and Benefits of Fracking," 39 *Ann. Rev. Envt. & Res.* 327–62 (Aug. 2014), available at http://www.annualreviews.org/doi/pdf/10.1146/annurev-environ-031113-144051; David T. Allen et al., "Methane Emissions from Process Equipment at Natural Gas Production Sites in the United States: Pneumatic Controllers," 49 *Envtl. Sci. & Tech.* 633-40 (2015), available at: http://pubs.acs.org/doi/abs/10.1021/es5040156; Kleinfelder, "Air Emissions Inventory Estimates for a Representative Oil and Gas Well in the Western United States," (March 2013), available at: https://climatewest.files.wordpress.com/2015/03/blm_oandg_rpt_final_032613_21.pdf.
[66] 2014 WL 2922751 at *9.

quantify the costs at all, the agency had effectively assigned a cost of zero to these emissions, which is unsupportable.[67]

In late 2014, CEQ issued revised draft guidance that provides federal agencies with direction on when and how to consider the effects of GHG emissions and climate change in their evaluation of all proposed federal actions in accordance with NEPA and CEQ's implementing regulations. While this guidance is not yet final, (and while it should be clarified and strengthened), the White House made clear that all federal agencies must use analytical methods to consider the climate change impacts of various alternatives being considered in the NEPA process:

> This guidance explains that agencies should consider both the potential effects of a proposed action on climate change, as indicated by its estimated greenhouse gas emissions, and the implications of climate change for the environmental effects of a proposed action. The guidance also emphasizes that agency analyses should be commensurate with projected greenhouse gas emissions and climate impacts, and should employ appropriate quantitative or qualitative analytical methods to ensure useful information is available to inform the public and the decision-making process in distinguishing between alternatives and mitigations.[68]

Research has found the Appalachian Mountains, including parts of West Virginia and Virginia, to be "especially important for helping nature survive climate impacts." A recent study found that this area is among those that are "critical to all life as the threats of climate change continue to grow."[69]

V. Conclusion

In conclusion, FERC should adopt a new program that uses comprehensive data and planning tools to determine if new transmission capacity is needed, and to minimize negative impacts of any new natural gas transmission proposals. FERC should also conduct a regional PEIS that considers all cumulative impacts and indirect effects, including induced natural gas development and associated processing operations, and develop a fully transparent analysis of the costs borne by the public in the form of GHG emissions and climate change.

The regional PEIS should review the environmental impacts of new natural gas transmission infrastructure proposals that are transporting natural gas from the Appalachian Basin region, including the Marcellus, Utica and Upper Devonian shale formations to eastern markets.

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[67] *Id* at *11.

[68] Council on Environmental Quality, Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change, Impacts, https://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance.

[69] The Nature Conservancy, "Scientists Locate Natural "Strongholds" that Could Protect Nature in the Face of Climate Change" (June 4, 2012) http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/westvirginia/newsroom/scientists-locate-natural-strongholds-that-could-protect-nature-in-the-face.xml.

Such an approach would be consistent with the principles set forth in the 2013 Presidential Memorandum on "Transforming our Nation's Electric Grid Through Improved Siting, Permitting, and Review," FERC Order 1000, CEQ guidance for effective use of programmatic NEPA reviews, the QER, draft CEQ guidance for considering the effects of GHG emissions and climate change in accordance with NEPA and CEQ's implementing regulations, and relevant court decisions.

Appendix 9

There are 12 Federal T & E species that BREED/REPRODUCE in NJ, 2 migratory species, and 1 candidate plant species. Of these 15 species, only 1 species, the Red Knot, can be detected via Aerial Surveys, generally because migratory flocks are large and have distinctive behavior in open beach and tidal mudflat habitats. 1 species, the Roseate Tern might be visible when resting on beaches, but is not distinguishable from other species from the air. NONE of the other 13 species can be detected at all from an Aerial Survey. In total, Aerial Surveys are inappropriate for 14 of the 15 species. --Comment by Emile DeVito, Ph.D.

FEDERALLY LISTED, PROPOSED, AND CANDID SPECIES IN NEW JERSEY

	COMMON NAME	SCIENTIFIC NAME	STATUS
REPTILES	Bog turtle	*Clemmys muhlenbergii*	T
BIRDS	Piping plover	*Charadrius melodus*	T
	Red knot* *migratory*	*Calidris canutus rufa*	T
	Roseate tern* migratory	*Sterna dougallii dougallii*	E
MAMMALS	Indiana bat	*Myotis sodalis*	E
	Northern long-eared bat	*Myotis septentrionalis*	T
INVERTEBRATES	Dwarf wedgemussel	*Alasmidonta heterodon*	E
	Northeastern beach tiger beetle	*Cicindela dorsalis dorsalis*	T
PLANTS	Small whorled pogonia	*Isotria medeoloides*	T
	Swamp pink	*Helonias bullata*	T
	Knieskern's beaked-rush	*Rhynchospora knieskernii*	T
	Hirst Brothers' panic grass	*Dichanthelium hirstii*	C
	American chaffseed	*Schwalbea americana*	E
	Sensitive joint-vetch	*Aeschynomene virginica*	T
	Seabeach amaranth	*Amaranthus pumilus*	T

*Transient occurrence only during migration.

For more information about federally listed species in New Jersey, please visit our website at:
http://www.fws.gov/northeast/njfieldoffice/endangered/

or contact:

U.S. Fish and Wildlife Service New Jersey Field Office 927 N. Main Street, Building D Pleasantville, New Jersey 08232 Phone: (609) 646-9310

Note: For a complete listing of Endangered and Threatened Wildlife and Plants, refer to 50 CFR 17.11 and 17.12. For a more information visit http://www.fws.gov/endangered/

Revised 7/14/2015

FEDERALLY LISTED SPECIES PRESUMED EXTIRPATED FROM NEW JERSEY		
Red-cockaded woodpecker	*Picoides borealis*	E
Eastern cougar	*Puma concolor couguar*	E [PD]
Gray wolf	*Canis lupus*	E
Delmarva fox squirrel	*Sciurus niger cinereus*	E [PD]
Karner blue butterfly	*Lycaeides melissa samuelis*	E
Mitchell's satyr butterfly	*Neonympha m. mitchellii*	E
American burying beetle	*Nicrophorus americanus*	E

NATIONAL MARINE FISHERIES SERVICE

Other federally listed species occur in and offshore of New Jersey for which principal responsibility is vested with the National Marine Fisheries Service (also called NOAA Fisheries). For more information, contact:

Endangered Species Coordinator
NOAA Fisheries Service, Protected Resources Division
Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276
(978) 281-9328
http://www.greateratlantic.fisheries.noaa.gov/protected/section7/listing/

STATUS		
E	Endangered Species	Any species that is in danger of extinction throughout all or a significant portion of its range.
T	Threatened Species	Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
C	Candidate Species	Species that appear to warrant listing, but listing is currently precluded by higher priority actions. Although these species receive no substantive or procedural protection under the Endangered Species Act, Federal agencies and other planners are encouraged to consider these species in environmental planning.
P	Proposed Species	A species for which a proposed rule to list as endangered or threatened has been published in the *Federal Register.*
[PD]	Proposed for Delisting	A species for which a proposed rule to remove from the list of threaten and endangered species has been published in the *Federal Register.*

Appendix 10

Of 814 rare species of NJ plants, only 1 can reliably be detected by erial Survey, and only under optimal conditions from Nov-March.

List of Endangered Plant Species and Plant Species of Concern

September 2013

comments in RED by Emile DeVito, Ph.D. - The 1 species that can reliably be detected from November through March in an Aerial Survey is Dwarf Mistletoe, since it lives as a parasite high in tree branches. It is underlined in red below.

Scientific Name	Common Name	G Rank	S Rank	Federal Status	State Status	Other Status
Abies balsamea	Balsam Fir	G5	S1		E	LP, HL
Acorus americanus	American Sweetflag	G5	S1?			HL
Actaea rubra var. rubra	Red Baneberry	G5T5	S2			HL
Adlumia fungosa	Climbing Fumitory	G4	S2			HL
Aeschynomene virginica	Sensitive Joint-vetch	G2	S1	LT	E	LP, HL
Agalinis auriculata	Ear-leaf False Foxglove	G3	SX			HL
Agalinis fasciculata	Pine Barren Foxglove	G5	S3			HL
Agalinis paupercula var. paupercula	Small-flower False Foxglove	G5T5	S2			HL
Agastache nepetoides	Yellow Giant-hyssop	G5	S2			HL
Agastache scrophulariifolia	Purple Giant-hyssop	G4	S2			HL
Agrimonia microcarpa	Small-fruit Grooveburr	G5	S2			HL
Agrostis geminata	Ticklegrass	G5	S1?			HL
Alisma triviale	Large Water-plantain	G5	S1		E	LP, HL
Alopecurus aequalis var. aequalis	Short-awn Meadow-foxtail	G5T5?	S2			HL
Alopecurus carolinianus	Tufted Meadow-foxtail	G5	S2			HL
Amaranthus pumilus	Seabeach Amaranth	G2	S1	LT	E	LP, HL
Amelanchier humilis	Low Service-berry	G5	S1S2			HL
Amelanchier sanguinea var. sanguinea	Round-leaf Service-berry	G5T5	S1.1		E	LP, HL
Amelanchier stolonifera	Running Service-berry	G5	S3			HL
Amianthium muscitoxicum	Fly Poison	G4G5	S2			HL
Ammannia latifolia	Koehn's Toothcup	G5	S1		E	LP, HL
Andromeda polifolia var. glaucophylla	Bog Rosemary	G5T5	S1		E	LP, HL
Andropogon glomeratus var. hirsutior	Hairy Beardgrass	G5T5	SH.1			HL
Andropogon gyrans	Elliott's Beardgrass	G5	S2			HL
Andropogon ternarius var. ternarius	Silvery Beardgrass	G5T5?	S2			HL
Anemone canadensis	Canada Anemone	G5	SX			HL
Anemone cylindrica	Long-head Anemone	G5	S1		E	LP, HL
Anemone virginiana var. alba	Riverbank Anemone	G5T4T5	S2			HL
Angelica venenosa	Hairy Angelica	G5	S1S2			HL
Antennaria howellii ssp. canadensis	Canada Pussytoes	G5T5?	S1		E	LP, HL
Aplectrum hyemale	Puttyroot	G5	S1		E	LP, HL
Arabis drummondii	Drummond's Rockcress	G5	S1.1		E	LP, HL
Arabis hirsuta var. pycnocarpa	Western Hairy Rockcress	G5T5	S1			HL
Arabis missouriensis	Missouri Rock-cress	G5	S1.1		E	LP, HL
Aralia hispida	Bristly Sarsaparilla	G5	S3			HL
Arceuthobium pusillum	Dwarf Mistletoe	G5	S1		E	LP, HL
Arethusa bulbosa	Dragon Mouth	G4	S2			HL
Arisaema triphyllum ssp. stewardsonii	Northern Jack-in-the-pulpit	G5T4T5	S2			HL
Aristida dichotoma var. curtissii	Curtiss' Three-awn Grass	G5T5	S3			HL
Aristida lanosa	Woolly Three-awn Grass	G5	S1		E	LP, HL
Aristida virgata	Wand-like Three-awn Grass	G5T4T5	S2			HL
Aristolochia serpentaria	Virginia Snakeroot	G4	S3			HL
Arnica acaulis	Leopardbane	G4	SX.1			HL
Arnoglossum atriplicifolium	Pale Indian Plantain	G4G5	S1		E	LP, HL
Arnoglossum muehlenbergii	Great Indian Plantain	G4	SX.1			HL
Artemisia campestris ssp. caudata	Beach Wormwood	G5T5	S2			HL
Asclepias lanceolata	Smooth Orange Milkweed	G5	S2			HL
Asclepias quadrifolia	Four-leaf Milkweed	G5	S3			HL
Asclepias rubra	Red Milkweed	G4G5	S2			LP, HL
Asclepias variegata	White Milkweed	G5	S1			HL
Asclepias verticillata	Whorled Milkweed	G5	S2			HL
Asimina triloba	Pawpaw	G5	S1		E	LP, HL
Asplenium bradleyi	Bradley's Spleenwort	G4	S1		E	LP, HL
Asplenium montanum	Mountain Spleenwort	G5	S2			HL
Asplenium pinnatifidum	Lobed Spleenwort	G4	S1		E	LP, HL
Asplenium ruta-muraria var. cryptolepis	Wall-rue	G5T5	S2			HL
Aster borealis	Rush Aster	G5	S1		E	LP, HL
Aster concolor	Eastern Silvery Aster	G5	S2			LP, HL
Aster ericoides var. ericoides	White Heath Aster	G5T5	S1S2			HL
Aster ericoides var. prostratus	Prostrate White Heath Aster	G5T4T5Q	S3			HL

List of Endangered Plant Species and Plant Species of Concern
September 2013

Scientific Name	Common Name	G Rank	S Rank	Federal Status	State Status	Other Status
Aster novi-belgii var. elodes	Marsh New York Aster	G5TNR	S3			HL
Aster praealtus var. praealtus	Willow-leaf Aster	G5T5?	S1		E	LP, HL
Aster prenanthoides	Crooked-stem Aster	G4G5	S2			HL
Aster puniceus var. firmus	Shining Aster	G5T5	SX.1			HL
Aster radula	Low Rough Aster	G5	S1		E	LP, HL
Aster tradescantii	Tradescant's Aster	G4Q	S2			HL
Aster urophyllus	Arrow-leaf Aster	G4G5	S2			HL
Astragalus canadensis var. canadensis	Canadian Milk-vetch	G5T5	SX.1			HL
Atriplex subspicata	Saline Orache	G5	S1		E	LP, HL
Azolla caroliniana	Eastern Mosquito-fern	G5	S2			HL
Betula papyrifera var. papyrifera	Paper Birch	G5T5	S2			HL
Betula pumila var. pumila	Swamp Birch	G5T5?	S2			HL
Bidens bidentoides	Estuary Burr-marigold	G3G4	S2			HL
Bidens eatonii	Eaton's Beggar-ticks	G2G3	S1.1		E	LP, HL
Bidens mitis	Small-fruit Beggars-ticks	G4?	S1		E	LP, HL
Blephilia ciliata	Downy Woodmint	G5	SH.1		E	LP, HL
Boltonia asteroides var. glastifolia	Southern Boltonia	G5TNR	S1		E	LP, HL
Boltonia montana	Appalachian Mountain Boltonia	G1G2	S2		E	LP, HL
Botrychium lanceolatum var. angustisegmentum	Lance-leaf Moonwort	G5TNR	S2			HL
Botrychium multifidum	Leathery Grape Fern	G5	S1		E	LP, HL
Botrychium oneidense	Blunt-lobe Grape Fern	G4	S2			HL
Botrychium simplex var. laxifolium	Upland Least Moonwort	G5TNR	SH			HL
Botrychium simplex var. simplex	Least Moonwort	G5T5	SH.1			HL
Botrychium simplex var. tenebrosum	Slender Least Moonwort	G5T4?Q	S2			HL
Bouteloua curtipendula var. curtipendula	Side-oats Grama Grass	G5T5	S1		E	LP, HL
Brickellia eupatorioides var. eupatorioides	False Boneset	G5T5	S1		E	LP, HL
Bromus ciliatus var. ciliatus	Fringed Brome	G5T5	S2S3			HL
Bromus kalmii	Kalm's Brome	G5	S2			HL
Bromus latiglumis	Early Brome	G5	S2S3			HL
Buchnera americana	Bluehearts	G5?	SX			HL
Calamagrostis pickeringii	Pickering's Reed Grass	G4	S1		E	LP, HL
Calla palustris	Wild Calla	G5	S3			HL
Callitriche palustris	Marsh Water-starwort	G5	S2			HL
Callitriche terrestris	Austin's Terrestrial Water-starwort	G5	S3			HL
Calystegia sepium ssp. appalachiana	Appalachian Bindweed	G5T4?	SU			HL
Calystegia sepium ssp. erratica	Occluded Bindweed	G5TNR	SH.1		E	LP, HL
Calystegia spithamaea ssp. spithamaea	Erect Bindweed	G4G5T4T5	S1		E	LP, HL
Cardamine angustata	Slender Toothwort	G5	S3			HL
Cardamine diphylla	Two-leaf Toothwort	G5	S3			HL
Cardamine douglassii	Purple Bittercress	G5	S2			HL
Cardamine longii	Long's Bittercress	G3?	SH		E	LP, HL
Cardamine maxima	Large Toothwort	G5	S1.1		E	LP, HL
Cardamine pratensis var. palustris	Meadow Cuckoo-flower	G5T5	S3			HL
Cardamine rotundifolia	Round-leaf Bittercress	G4	S1		E	LP, HL
Carex aggregata	Glomerate Sedge	G5	S1S2			HL
Carex albursina	White Bear Lake Sedge	G5	S2			HL
Carex alopecoidea	Foxtail Sedge	G5	S1		E	LP, HL
Carex aquatilis	Water Sedge	G5	S1		E	LP, HL
Carex arctata	Drooping Wood Sedge	G5	S1		E	LP, HL
Carex backii	Back's Sedge	G4	SH.1		E	LP, HL
Carex bebbii	Bebb's Sedge	G5	S2			HL
Carex bicknellii var. bicknellii	Bicknell's Sedge	G5T5	S2			HL
Carex brunnescens var. sphaerostachya	Round-spike Brownish Sedge	G5T5	S1		E	LP, HL
Carex bushii	Bush's Sedge	G4	S1		E	LP, HL
Carex buxbaumii	Brown Sedge	G5	S3			HL
Carex canescens var. canescens	Silvery Sedge	G5T5	SU			HL
Carex caroliniana	Carolina Sedge	G5	S3			HL
Carex cephaloidea	Thin-leaf Sedge	G5	S2			HL
Carex conjuncta	Soft Fox Sedge	G4G5	S3			HL

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Scientific Name	Common Name	G Rank	S Rank	Federal Status	State Status	Other Status
Carex conoidea	Field Sedge	G5	S2			HL
Carex crawei	Crawe's Sedge	G5	S1		E	LP, HL
Carex crawfordii	Crawford's Sedge	G5	S2			HL
Carex cryptolepis	Small Yellow Sedge	G4	S2			HL
Carex cumulata	Clustered Sedge	G4?	SH		E	LP, HL
Carex deweyana var. deweyana	Dewey's Sedge	G5T5	S1		E	LP, HL
Carex diandra	Lesser Panicled Sedge	G5	S1			HL
Carex disperma	Soft-leaf Sedge	G5	S1S2			HL
Carex eburnea	Ebony Sedge	G5	S2			HL
Carex formosa	Handsome Sedge	G4	S1.1		E	LP, HL
Carex haydenii	Cloud Sedge	G5	S1		E	LP, HL
Carex hitchcockiana	Hitchcock's Sedge	G5	S2			HL
Carex hyalinolepis	Shore-line Sedge	G4G5	SX.1			HL
Carex jamesii	James' Sedge	G5	S1		E	LP, HL
Carex joorii	Cypress-swamp Sedge	G4G5	S1.1		E	LP, HL
Carex lasiocarpa var. americana	American Slender Sedge	G5T5	S2			HL
Carex laxiculmis var. copulata	Coupled Sedge	G5T3T5	S1		E	LP, HL
Carex leavenworthii	Leavenworth's Sedge	G5	SU			HL
Carex leptalea var. harperi	Harper's Sedge	G5T4T5	S3			HL
Carex leptonervia	Fine-nerve Sedge	G4	S1		E	LP, HL
Carex limosa	Mud Sedge	G5	S1		E	LP, HL
Carex lonchocarpa	Southern Long Sedge	G5	SX.1			HL
Carex louisianica	Louisiana Sedge	G5	S1		E	LP, HL
Carex lupuliformis	Hop-like Sedge	G4	S1		E	LP, HL
Carex meadii	Mead's Sedge	G4G5	S1		E	LP, HL
Carex mesochorea	Midland Sedge	G4G5	S2			HL
Carex mitchelliana	Mitchell's Sedge	G4	S2			HL
Carex oligocarpa	Few-fruit Sedge	G4	S1		E	LP, HL
Carex pallescens	Pale Sedge	G5	S2			HL
Carex peckii	Peck's White-tinged Sedge	G5	S1		E	LP, HL
Carex planispicata	Narrow-leaf Sedge	G4Q	S1		E	LP, HL
Carex plantaginea	Plantain-leaf Sedge	G5	S1.1		E	LP, HL
Carex polymorpha	Variable Sedge	G3	S1		E	LP, HL
Carex prairea	Prairie Sedge	G5	S2			HL
Carex pseudocyperus	Cyperus-like Sedge	G5	S1		E	LP, HL
Carex retrorsa	Retrorse Sedge	G5	S2			HL
Carex siccata	Hillside Sedge	G5	S1		E	LP, HL
Carex silicea	Seabeach Sedge	G5	S3			HL
Carex sterilis	Dioecious Sedge	G4	S2			HL
Carex stipata var. maxima	Large Awl-fruit Sedge	G5T5?	S1		E	LP, HL
Carex tenera	Quill Sedge	G5	S2			HL
Carex tuckermanii	Tuckerman's Sedge	G4	S1		E	LP, HL
Carex typhina	Cat-tail Sedge	G5	S3			HL
Carex utriculata	Bottle-shaped Sedge	G5	S2			HL
Carex viridula ssp. viridula	Green Sedge	G5T5	S2			HL
Carex willdenowii var. willdenowii	Willdenow's Sedge	G5T5	S2			HL
Carex woodii	Wood's Sedge	G4	S1.1		E	LP, HL
Castanea pumila	Chinquapin	G5	S1		E	LP, HL
Castilleja coccinea	Scarlet Indian-paintbrush	G5	S2			HL
Celtis tenuifolia	Dwarf Hackberry	G5	S2			HL
Centella erecta	Erect Coinleaf	G5	SX.1			HL
Centrosema virginianum	Spurred Butterfly-pea	G5	SH		E	LP, HL
Cerastium arvense var. villosissimum	Octoraro Creek Chickweed	G5T1	S1			HL
Ceratophyllum echinatum	Spiny Coontail	G4?	S1S2		E	LP, HL
Cercis canadensis var. canadensis	Redbud	G5T5	S1		E	LP, HL
Chaerophyllum procumbens var. procumbens	Spreading Chervil	G5T5	S3			HL
Chamaelirium luteum	Devil's-bit	G5	S3			HL
Chasmanthium latifolium	Indian Wood-oats	G5	S1			HL
Cheilanthes lanosa	Hairy Lipfern	G5	S2			HL

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Chenopodium berlandieri var. macrocalycium	Large-calyx Goosefoot	G5T4	S2			HL
Chenopodium pratericola	Narrow-leaf Goosefoot	G5	S2			HL
Chenopodium rubrum	Red Goosefoot	G5	S1		E	LP, HL
Chenopodium simplex	Maple-leaf Goosefoot	G5	S2			HL
Chenopodium standleyanum	Stanley's Goosefoot	G5	S2			HL
Chionanthus virginicus	Fringetree	G5	S3			HL
Cinna latifolia	Slender Wood-reed	G5	S1		E	LP, HL
Cirsium altissimum	Tall Thistle	G5	SX.1			HL
Cirsium virginianum	Virginia Thistle	G3	S1		E	LP, HL
Claytonia virginica var. hammondiae	Hammond's Yellow Spring Beauty	G5T1	S1.1		E	LP, HL
Cleistes divaricata	Spreading Pogonia	G4	S1		E	LP, HL
Clematis occidentalis var. occidentalis	Purple Clematis	G5T5	S2			HL
Clintonia borealis	Yellow Clintonia	G5	S3			HL
Clitoria mariana	Butterfly-pea	G5	S1		E	LP, HL
Coeloglossum viride var. virescens	Long-bract Green Orchid	G5T5	S2			HL
Coelorachis rugosa	Wrinkled Jointgrass	G5	S1		E	LP, HL
Comarum palustre	Marsh Cinquefoil	G5	SH		E	LP, HL
Commelina erecta var. erecta	Slender Dayflower	G5T5	SH		E	LP, HL
Conioselinum chinense	Hemlock-parsley	G5	S1		E	LP, HL
Corallorhiza trifida	Early Coralroot	G5	S2			HL
Corallorhiza wisteriana	Spring Coralroot	G5	SX			HL
Corema conradii	Broom Crowberry	G4	S1		E	LP, HL
Coreopsis rosea	Rose-color Coreopsis	G3	S2			LP, HL
Cornus amomum var. schuetzeana	Pale Dogwood	G5T5	S1		E	LP, HL
Cornus canadensis	Bunchberry	G5	S1S2			HL
Cornus foemina	Stiff Dogwood	G5	S2			HL
Crataegus calpodendron	Pear Hawthorn	G5	S1		E	LP, HL
Crataegus chrysocarpa var. chrysocarpa	Fireberry Hawthorn	G5T5	S2			HL
Crataegus dodgei	Dodge's Hawthorn	G4	S2			HL
Crataegus holmesiana	Holmes' Hawthorne	G5	S1		E	LP, HL
Crataegus pedicellata	Scarlet Hawthorn	G5	S1S2			HL
Crataegus pennsylvanica	Pennsylvania Hawthorn	G3Q	S1.1			HL
Crataegus punctata	Dotted Hawthorn	G5	S2			HL
Crataegus succulenta	Fleshy Hawthorn	G5	S1		E	LP, HL
Croton willdenowii	Elliptical Rushfoil	G5	S2			LP, HL
Cryptogramma stelleri	Slender Rockbrake	G5	SH.1		E	LP, HL
Cuphea viscosissima	Blue Waxweed	G5?	S3			HL
Cuscuta cephalanthi	Buttonbush Dodder	G5	S1		E	LP, HL
Cuscuta coryli	Hazel Dodder	G5?	S2			HL
Cuscuta indecora var. indecora	Collared Dodder	G5T2T4	S1.1		E	LP, HL
Cuscuta polygonorum	Smartweed Dodder	G5	S2			HL
Cynoglossum virginianum var. boreale	Northern Wild Comfrey	G5T4T5	SH.1		E	LP, HL
Cynoglossum virginianum var. virginianum	Wild Comfrey	G5T5	S2			HL
Cyperus engelmannii	Engelmann's Flat Sedge	G4Q	S2			HL
Cyperus hystricinus	Bristly Flat Sedge	G4	SH		E	LP, HL
Cyperus lancastriensis	Lancaster Flat Sedge	G5	S1		E	LP, HL
Cyperus plukenetii	Plukenet's Flat Sedge	G5	SH		E	LP, HL
Cyperus polystachyos var. texensis	Coast Flat Sedge	G5T5	S1		E	LP, HL
Cyperus pseudovegetus	Marsh Flat Sedge	G5	S1		E	LP, HL
Cyperus refractus	Reflexed Flat Sedge	G5	SH		E	LP, HL
Cyperus retrofractus	Rough Flatsedge	G5	SH		E	LP, HL
Cyperus schweinitzii	Schweinitz's Flat Sedge	G5	S1		E	LP, HL
Cypripedium candidum	Small White Lady's-slipper	G4	S1		E	LP, HL
Cypripedium parviflorum var. makasin	Fen Small Yellow Lady's-slipper	G5T4T5	S2			HL
Cypripedium reginae	Showy Lady's-slipper	G4	S1		E	LP, HL
Cystopteris protrusa	Lowland Fragile Fern	G5	S2			HL
Dalibarda repens	Robin-run-away	G5	SH.1		E	LP, HL
Deschampsia caespitosa	Tufted Hair Grass	G5	S3			HL

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Desmodium cuspidatum var. cuspidatum	Toothed Tick-trefoil	G5T5?	S2			HL
Desmodium humifusum	Trailing Tick-trefoil	G1G2Q	S1		E	LP, HL
Desmodium laevigatum	Smooth Tick-trefoil	G5	S3			HL
Desmodium nuttallii	Nuttall's Tick Trefoil	G5	S2			HL
Desmodium ochroleucum	Cream-flower Tick-trefoil	G1G2	SX.1			HL
Desmodium pauciflorum	Few-flower Tick-trefoil	G5	SH		E	LP, HL
Desmodium sessilifolium	Sessile-leaf Tick-trefoil	G5	S1		E	LP, HL
Desmodium strictum	Pineland Tick-trefoil	G4	S2			LP, HL
Desmodium viridiflorum	Velvety Tick-trefoil	G5?	S2			HL
Dicentra canadensis	Squirrel-corn	G5	S1		E	LP, HL
Dicentra eximia	Wild Bleeding-heart	G4	SH.1		E	LP, HL
Diodia virginiana var. virginiana	Larger Buttonweed	G5T5	S1		E	LP, HL
Diplazium pycnocarpon	Glade Fern	G5	S1		E	LP, HL
Dirca palustris	Leatherwood	G4	S2			HL
Doellingeria infirma	Cornel-leaf Aster	G5	S2			HL
Draba reptans	Carolina Whitlow-grass	G5	SH		E	LP, HL
Dryopteris celsa	Log Fern	G4	S1		E	LP, HL
Dryopteris clintoniana	Clinton's Woodfern	G5	S3			HL
Dryopteris goldiana	Goldie's Wood Fern	G4	S3			HL
Echinochloa muricata var. microstachya	Small-spike Rough Barnyard Grass	G5T5	S1S2			HL
Echinodorus parvulus	Dwarf Burrhead	G3Q	SH.1			HL
Elatine americana	American Waterwort	G4	S2			HL
Elatine minima	Small Waterwort	G5	S3			HL
Eleocharis brittonii	Britton's Spike-rush	G4G5	S1		E	LP, HL
Eleocharis compressa	Flat-stem Spike-rush	G4	S1		E	LP, HL
Eleocharis elliptica	Elliptic Spike-rush	G5	S2			HL
Eleocharis equisetoides	Knotted Spike-rush	G4	S1		E	LP, HL
Eleocharis erythropoda	Bald Spike-rush	G5	S3			HL
Eleocharis halophila	Salt-marsh Spike-rush	G4	S2			HL
Eleocharis intermedia	Matted Spike-rush	G5	S2			HL
Eleocharis melanocarpa	Black-fruit Spike-rush	G4	S1		E	LP, HL
Eleocharis minima	Small Spike-rush	G4G5	SX.1			HL
Eleocharis olivacea var. reductiseta	Pine Barren Spike-rush	G5T1T2	S1S2		E	LP, HL
Eleocharis quadrangulata	Angled Spike-rush	G4	S3			HL
Eleocharis quinqueflora	Few-flower Spike-rush	G5	S1		E	LP, HL
Eleocharis tenuis var. verrucosa	Warty Spike-rush	G5T3T5	S1.1		E	LP, HL
Eleocharis tortilis	Twisted Spike-rush	G5	S1		E	LP, HL
Elephantopus carolinianus	Carolina Elephant-foot	G5	SH		E	LP, HL
Ellisia nyctelea	Aunt Lucy	G5	S1		E	LP, HL
Elymus trachycaulus	Slender Wheatgrass	G5	S1		E	LP, HL
Elymus trachycaulus ssp. subsecundus	One-sided Wheatgrass	G5T5	SU			HL
Epilobium angustifolium ssp. circumvagum	Narrow-leaf Fireweed	G5T5	S1S2			HL
Epilobium leptophyllum	Bog Willowherb	G5	S2			HL
Epilobium strictum	Downy Willowherb	G5?	S2			HL
Equisetum pratense	Meadow Horsetail	G5	S1		E	LP, HL
Equisetum sylvaticum	Woodland Horsetail	G5	S3			HL
Equisetum variegatum var. variegatum	Variegated Horsetail	G5T5	S1		E	LP, HL
Eragrostis frankii	Frank's Love Grass	G5	S2			HL
Eragrostis hirsuta	Stout Love Grass	G5	S1.1		E	LP, HL
Erechtites hieraciifolia var. megalocarpa	Large-fruit Fireweed	G5T3	S1S2			HL
Eriocaulon parkeri	Parker's Pipewort	G3	S2			HL
Eriophorum gracile var. gracile	Slender Cotton-grass	G5T4T5	SH		E	LP, HL
Eriophorum tenellum	Rough Cotton-grass	G5	S1		E	LP, HL
Eriophorum vaginatum var. spissum	Sheathed Cotton-grass	G5T5	SH		E	LP, HL
Eriophorum viridicarinatum	Thin-leaf Cotton-grass	G5	S3			HL
Eryngium aquaticum var. aquaticum	Marsh Rattlesnake-master	G4T4	S3			HL
Eryngium yuccifolium var. yuccifolium	Tall Rattlesnake-master	G5T5	SX			HL
Euonymus atropurpurea var. atropurpurea	Wahoo	G5T5	S1?			HL
Eupatorium album var. vaseyi	Vasey's Boneset	G5T3T5	S2			HL

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Eupatorium altissimum	Tall Boneset	G5	S2			HL
Eupatorium aromaticum var. aromaticum	Smaller White Snakeroot	G5T5	S1			HL
Eupatorium capillifolium	Dog-fennel Thoroughwort	G5	S1S2		E	LP, HL
Eupatorium coelestinum	Mist-flower	G5	S3			HL
Eupatorium resinosum	Pine Barren Boneset	G3	S2		E	LP, HL
Eupatorium sessilifolium var. brittonianum	Britton's Upland Boneset	G5T3T5	SU			HL
Euphorbia corollata	Flowering Spurge	G5	S1			HL
Euphorbia purpurea	Darlington's Glade Spurge	G3	S1		E	LP, HL
Filipendula rubra	Queen-of-the-prairie	G4G5	SX			HL
Fimbristylis caroliniana	Carolina Fimbry	G4	S2			HL
Fimbristylis castanea	Marsh Fimbry	G5	S3			HL
Fimbristylis puberula var. puberula	Hairy Fimbry	G5T5	S2			HL
Fraxinus profunda	Pumpkin Ash	G4	S1		E	LP, HL
Fuirena squarrosa	Hairy Umbrella-sedge	G4G5	S3			HL
Galactia volubilis	Downy Milk-pea	G5	SH		E	LP, HL
Galium boreale	Northern Bedstraw	G5	S3			HL
Galium concinnum	Shining Bedstraw	G5	SX.1			HL
Galium hispidulum	Coast Bedstraw	G5	S1		E	LP, HL
Galium labradoricum	Labrador Marsh Bedstraw	G5	S1		E	LP, HL
Galium palustre	Marsh Bedstraw	G5	S3			HL
Galium trifidum var. trifidum	Small Bedstraw	G5T5	S2			HL
Gaultheria hispidula	Creeping-snowberry	G5	S1		E	LP, HL
Gaura biennis	Biennial Beeblosom	G5	S3			HL
Gentiana andrewsii var. andrewsii	Fringed Bottle Gentian	G5?T5?	S2			HL
Gentiana autumnalis	Pine Barren Gentian	G3	S3			LP, HL
Gentiana catesbaei	Catesby's Gentian	G5	SX.1			HL
Gentiana linearis	Narrow-leaf Gentian	G4G5	SH		E	LP, HL
Gentiana saponaria var. saponaria	Soapwort Gentian	G5T5	S3			HL
Gentiana villosa	Striped Gentian	G4	SX.1			HL
Gentianella quinquefolia var. quinquefolia	Stiff Gentian	G5T4T5	S2			HL
Glaux maritima	Sea-milkwort	G5	SX.1			HL
Glyceria borealis	Small Floating Manna Grass	G5	SH.1		E	LP, HL
Glyceria grandis var. grandis	American Manna Grass	G5T5	S1		E	LP, HL
Glyceria laxa	Northern Manna Grass	G5	S1			HL
Gnaphalium helleri var. micradenium	Small Everlasting	G4G5T3?	SH		E	LP, HL
Gnaphalium macounii	Winged Cudweed	G5	SH		E	LP, HL
Goodyera tesselata	Checkered Rattlesnake-plantain	G5	SX.1			HL
Gratiola pilosa	Hairy Hedge Hyssop	G5?	S2			HL
Gratiola virginiana	Round-fruit Hedge-hyssop	G5	S2			HL
Gymnocarpium dryopteris	Oak Fern	G5	S1S2			HL
Gymnopogon ambiguus	Bearded Skeleton Grass	G4	S3			HL
Gymnopogon brevifolius	Short-leaf Skeleton Grass	G5	SH		E	LP, HL
Hasteola suaveolens	Sweet-scent Indian-plantain	G4	SX.1			HL
Helianthemum bicknellii	Hoary Frostweed	G5	S3			HL
Heliopsis helianthoides var. scabra	Rough Ox-eye	G5T5	SU			HL
Helonias bullata	Swamp-pink	G3	S3	LT	E	LP, HL
Hieracium kalmii var. fasciculatum	Canada Hawkweed	G5T3T5	S1		E	LP, HL
Hieracium marianum	Maryland Hawkweed	G5?	SU			HL
Honckenya peploides var. robusta	Seabeach Sandwort	G5T4	S1		E	LP, HL
Hottonia inflata	Featherfoil	G4	S1		E	LP, HL
Houstonia longifolia	Long-leaf Summer Bluet	G4G5	SX			HL
Hybanthus concolor	Green Violet	G5	S1		E	LP, HL
Hydrastis canadensis	Golden Seal	G4	S1		E	LP, HL
Hydrocotyle prolifera	Canby's Marsh-pennywort	G5T5?	S1S2			HL
Hydrocotyle ranunculoides	Floating Marsh-pennywort	G5	S1		E	LP, HL
Hydrocotyle verticillata var. verticillata	Whorled Marsh-pennywort	G5T5	S3			HL
Hydrophyllum canadense	Broad-leaf Waterleaf	G5	S1		E	LP, HL
Hypericum adpressum	Barton's St. John's-wort	G3	S2		E	LP, HL
Hypericum ellipticum	Pale St. John's-wort	G5	S2			HL
Hypericum gymnanthum	Clasping-leaf St. John's-wort	G4	S1		E	LP, HL

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Hypericum majus	Larger Canadian St. John's Wort	G5	S1		E	LP, HL
Hypericum prolificum	Shrubby St. John's-wort	G5	S1		E	LP, HL
Hypericum pyramidatum	Great St. John's-wort	G4	S3			HL
Ilex montana	Large-leaf Holly	G5	S1		E	LP, HL
Isanthus brachiatus	False Pennyroyal	G5	S1		E	LP, HL
Isoetes lacustris	Lake Quillwort	G5	S1.1		E	LP, HL
Isoetes melanopoda	Black-base Quillwort	G5	SH		E	LP, HL
Isoetes riparia var. riparia	Shore Quillwort	G5?T5?Q	S3			HL
Isoetes tuckermanii	Tuckerman's Quillwort	G4?	SH.1		E	LP, HL
Isotria medeoloides	Small Whorled Pogonia	G2	S1	LT	E	LP, HL
Jeffersonia diphylla	Twinleaf	G5	S1		E	LP, HL
Juglans cinerea	Butternut	G4	S3			HL
Juncus articulatus	Jointed Rush	G5	S2			HL
Juncus brachycarpus	Short-fruit Rush	G4G5	S1		E	LP, HL
Juncus brachycephalus	Fen Rush	G5	S3			HL
Juncus brevicaudatus	Narrow-panicle Rush	G5	S2			HL
Juncus caesariensis	New Jersey Rush	G2G3	S2		E	LP, HL
Juncus coriaceus	Awl-leaf Rush	G5	S1		E	LP, HL
Juncus diffusissimus	Slim-pod Rush	G5	S1.1		E	LP, HL
Juncus dudleyi	Dudley's Rush	G5	S3			HL
Juncus elliottii	Elliott's Rush	G4G5	SX.1			HL
Juncus greenei	Greene's Rush	G5	S2			HL
Juncus nodosus var. nodosus	Knotted Rush	G5T5?	S3			HL
Juncus torreyi	Torrey's Rush	G5	S1		E	LP, HL
Juniperus communis var. depressa	Dwarf Juniper	G5T5	S2			HL
Kalmia polifolia	Pale-laurel	G5	S1		E	LP, HL
Krigia dandelion	Potato Dwarf-dandelion	G5	SH.1		E	LP, HL
Kyllinga pumila	Low Spike Sedge	G5	SH		E	LP, HL
Lactuca graminifolia	Grass-leaf Lettuce	G5?	SU			HL
Lactuca hirsuta var. sanguinea	Red-stem Hairy Lettuce	G5?T5?	S2			HL
Lathyrus ochroleucus	Cream Vetchling	G4G5	SH		E	LP, HL
Lathyrus venosus	Veiny Vetchling	G5	SX			HL
Lechea intermedia var. intermedia	Large-pod Pinweed	G5T4T5	S2			HL
Lechea tenuifolia	Narrow-leaf Pinweed	G5	S1		E	LP, HL
Ledum groenlandicum	Labrador Tea	G5	S1		E	LP, HL
Lemna perpusilla	Minute Duckweed	G5	S1		E	LP, HL
Lemna trisulca	Star Duckweed	G5	S2			HL
Lemna valdiviana	Pale Duckweed	G5	S1		E	LP, HL
Leptochloa fascicularis var. maritima	Long-awn Sprangletop	G5T3T4Q	S2			HL
Lespedeza stuevei	Stueve's Downy Bush-clover	G4?	S2			HL
Liatris scariosa var. novae-angliae	Northern Blazing-star	G5?T3	SH		E	LP, HL
Liatris spicata var. spicata	Blazing-star	G5T5?	S3			HL
Lilium philadelphicum var. philadelphicum	Wood Lily	G5T4T5	S2			HL
Limnobium spongia	American Frog's-bit	G4	S1.1		E	LP, HL
Limosella australis	Awl-leaf Mudwort	G4G5	S1		E	LP, HL
Linnaea borealis var. americana	Twinflower	G5T5	SH		E	LP, HL
Linum intercursum	Sandplain Flax	G4	S1		E	LP, HL
Linum sulcatum var. sulcatum	Grooved Yellow Flax	G5T5	S1		E	LP, HL
Linum virginianum	Woodland Flax	G4G5	S3			HL
Lipocarpha micrantha	Small-flower Halfchaff Sedge	G5	S1		E	LP, HL
Listera australis	Southern Twayblade	G4	S3			LP, HL
Listera cordata var. cordata	Heartleaf Twayblade	G5T5	S1		E	LP, HL
Listera smallii	Appalachian Twayblade	G4	S1.1		E	LP, HL
Lithospermum canescens	Hoary Puccoon	G5	SX			HL
Lobelia boykinii	Boykin's Lobelia	G2G3	S1		E	LP, HL
Lobelia canbyi	Canby's Lobelia	G4	S3			LP, HL
Lobelia dortmanna	Water Lobelia	G4G5	SH		E	LP, HL
Lonicera canadensis	American Fly-honeysuckle	G5	S1		E	LP, HL
Ludwigia brevipes	Tucker's Island Primrose-willow	G2G3	SX.1			HL
Ludwigia hirtella	Hairy Primrose-willow	G5	S2			LP, HL

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Ludwigia linearis	Narrow-leaf Primrose-willow	G5	S2			LP, HL
Lupinus perennis var. occidentalis	Hairy Sundial Lupine	G5T3T5	S2			HL
Lupinus perennis var. perennis	Sundial Lupine	G5T5?	S3			HL
Luzula acuminata var. acuminata	Hairy Wood-rush	G5T5	S1		E	LP, HL
Lycopodiella caroliniana var. caroliniana	Carolina Club-moss	G5T4	S3			HL
Lycopodiella inundata	Northern Bog Club-moss	G5	S1S2			HL
Lycopodium annotinum	Stiff Club-moss	G5	S1		E	LP, HL
Lycopodium hickeyi	Hickey's Ground-pine	G5	S2S3			HL
Lycopus americanus var. longii	Long's Bugleweed	G5TNRQ	S2S3			HL
Lycopus rubellus	Stalked Water-hoarhound	G5	S2			HL
Lygodium palmatum	Climbing Fern	G4	S2			LP, HL
Lysimachia hybrida	Lowland Loosestrife	G5	S3			HL
Lysimachia lanceolata	Lance-leaf Loosestrife	G5	S1		E	LP, HL
Lysimachia thyrsiflora	Tufted Loosestrife	G5	S3			HL
Lythrum alatum var. alatum	Winged Loosestrife	G5T5	S2			HL
Lythrum lineare	Narrow-leaf Loosestrife	G5	S3			HL
Maianthemum canadense var. interius	Western False Lily-of-the-valley	G5T4	S1.1		E	LP, HL
Maianthemum trifolium	Three-leaf False Solomon's-seal	G5	S1		E	LP, HL
Malaxis bayardii	Bayard Long's Adder's-mouth	G1G2	SH		E	LP, HL
Malaxis brachypoda	White Adder's-mouth	G4Q	SH		E	LP, HL
Malaxis unifolia	Green Adder's-mouth	G5	SH		E	LP, HL
Malus angustifolia var. puberula	Spiny Wild Crabapple	G5?T2T4	S2			HL
Megalodonta beckii	Water-marigold	G4G5	S1		E	LP, HL
Melanthium virginicum	Virginia Bunchflower	G5	S1		E	LP, HL
Menyanthes trifoliata	Buck-bean	G5	S2			HL
Mertensia virginica	Virginia Bluebells	G5	S3			HL
Micranthemum micranthemoides	Nuttall's Mudwort	GH	SH		E	LP, HL
Milium effusum	Tall Millet Grass	G5	SH.1		E	LP, HL
Mimulus moschatus var. moschatus	Muskflower	G5T5	S2			HL
Minuartia michauxii var. michauxii	Rock Sandwort	G5T5	SH		E	LP, HL
Monarda clinopodia	Basil Beebalm	G5	SH		E	LP, HL
Monarda didyma	Oswego-tea	G5	S2			HL
Monarda media	Purple Bergamot	G4?	SH			HL
Muhlenbergia capillaris var. capillaris	Long-awn Smoke Grass	G5T5?	S1		E	LP, HL
Muhlenbergia glomerata	Eastern Smoke Grass	G5	S2			HL
Muhlenbergia sylvatica var. robusta	Large Woodland Dropseed	G5TNR	S2			HL
Muhlenbergia sylvatica var. sylvatica	Woodland Dropseed	G5T3T5	S3			HL
Muhlenbergia torreyana	Pine Barren Smoke Grass	G3	S3			LP, HL
Myosotis verna	Spring Forget-me-not	G5	S3			HL
Myrica gale	Sweetgale	G5	S3			HL
Myriophyllum heterophyllum	Variable-leaf Water-milfoil	G5	S2			HL
Myriophyllum pinnatum	Cutleaf Water-milfoil	G5	S1		E	LP, HL
Myriophyllum sibiricum	Common Water-milfoil	G5	S1		E	LP, HL
Myriophyllum tenellum	Slender Water-milfoil	G5	S1		E	LP, HL
Myriophyllum verticillatum	Whorled Water-milfoil	G5	SH		E	LP, HL
Najas gracillima	Thread-nymph	G5?	S2			HL
Najas guadalupensis var. guadalupensis	Southern Water-nymph	G5T5	S3			HL
Narthecium americanum	Bog Asphodel	G2	S2		E	LP, HL
Nelumbo lutea	American Lotus	G4	S1		E	LP, HL
Neobeckia aquatica	Lake Water-cress	G4?	SH		E	LP, HL
Nuphar microphyllum	Small Yellow Pond-lily	G5T4T5	SH		E	LP, HL
Nymphaea odorata ssp. tuberosa	Tuberous White Water-lily	G5T5	S2			HL
Nymphoides cordata	Floatingheart	G5	S3			LP, HL
Obolaria virginica	Virginia Pennywort	G5	S2			HL
Oenothera humifusa	Sea-beach Evening-primrose	G5	S2			HL
Oenothera oakesiana	Oakes' Evening-primrose	G4G5Q	S2			HL
Oenothera villosa ssp. villosa	Hairy Evening-primrose	G5T5?	SU			HL
Onosmodium virginianum	Virginia False-gromwell	G4	S1		E	LP, HL
Ophioglossum pusillum	Northern Adder's-tongue	G5	S3			HL
Ophioglossum vulgatum	Southern Adder's-tongue	G5	S1		E	LP, HL

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Orthilia secunda	Sidebells	G5	S2			HL
Oryzopsis asperifolia	White-grained Mountain-rice Grass	G5	S1		E	LP, HL
Oryzopsis pungens	Slender Mountain-rice Grass	G5	SH.1		E	LP, HL
Osmunda cinnamomea var. glandulosa	Glandular Cinnamon Fern	G5TNR	S2			HL
Panax quinquefolius	American Ginseng	G3G4	S2			HL
Panicum aciculare	Bristling Panic Grass	G5	SH		E	LP, HL
Panicum acuminatum var. acuminatum	Walter Benner's Panic Grass	G5T5	SX			HL
Panicum amarum var. amarulum	Southern Seabeach Grass	G5T3T5	S3			HL
Panicum boreale	Northern Panic Grass	G5	S1		E	LP, HL
Panicum dichotomum var. roanokense	Bluish Panic Grass	G5T4?	SH			HL
Panicum dichotomum var. yadkinense	Spotted-sheath Panic Grass	G5T4Q	SH		E	LP, HL
Panicum flexile	Wiry Panic Grass	G5	S1		E	LP, HL
Panicum gattingeri	Gattinger's Witch Grass	G4	S1S2			HL
Panicum hemitomon	Maiden-cane	G5?	S2			LP, HL
Panicum hirstii	Hirst Brothers' Panic Grass	G1	S1	C	E	LP, HL
Panicum leucothrix	Rough Panic Grass	G4?Q	S1S2			HL
Panicum longiligulatum	Coastal-plain Panic Grass	G4G5Q	SH.1		E	LP, HL
Panicum oligosanthes var. oligosanthes	Few-flower Panic Grass	G5T5?	S1S2			HL
Panicum oligosanthes var. scribnerianum	Scribner's Panic Grass	G5T5	S2			HL
Panicum rigidulum var. condensum	Dense Panic Grass	G5T5?	SU			HL
Panicum scabriusculum	Sheathed Panic Grass	G4	S3			HL
Panicum tenue	White-edge Panic Grass	G5T4T5	SH			HL
Panicum wrightianum	Wright's Panic Grass	G4	S2			HL
Panicum xanthophysum	Slender Panic Grass	G5	SH.1		E	LP, HL
Paronychia montana	Mountain Nailwort	G4	SH			HL
Paspalum dissectum	Mudbank Crown Grass	G4?	S2			HL
Paspalum floridanum	Florida Crown Grass	G5	S3			HL
Paspalum setaceum var. ciliatifolium	Ciliate-leaf Crown Grass	G5T5	S2			HL
Paspalum setaceum var. psammophilum	Prostrate Crown Grass	G5T4?	S2			HL
Pedicularis lanceolata	Swamp Lousewort	G5	S3			HL
Pellaea glabella var. glabella	Smooth Cliffbrake	G5T5	S2			HL
Penstemon laevigatus	Smooth Beardtongue	G5	S1		E	LP, HL
Phacelia bipinnatifida	Fern-leaf Scorpion-flower	G5	S1.1		E	LP, HL
Phaseolus polystachios var. polystachios	Wild Kidney Bean	G5T5?	S2			HL
Phegopteris connectilis	Northern Beech Fern	G5	S2			HL
Phlox divaricata var. divaricata	Wild Blue Phlox	G5T3T5	S1		E	LP, HL
Phlox maculata var. maculata	Spotted Phlox	G5T4T5	S2			HL
Phlox pilosa var. pilosa	Downy Phlox	G5T5	SH		E	LP, HL
Phyla lanceolata	Fogfruit	G5	SH		E	LP, HL
Physalis grisea	Strawberry-tomato	G5?	SH			HL
Physalis pubescens var. integrifolia	Husk-tomato	G5T5?Q	SH			HL
Picea rubens	Red Spruce	G5	S1		E	LP, HL
Pinus pungens	Table Mountain Pine	G4	S1.1		E	LP, HL
Pinus resinosa	Red Pine	G5	S1.1		E	LP, HL
Pinus serotina	Pond Pine	G5	S2			HL
Pinus taeda	Loblolly Pine	G5	S2			HL
Pityopsis falcata	Sickle-leaf Golden-aster	G3G4	S3			LP, HL
Plantago maritima var. juncoides	Seaside Plantain	G5T5	S2			HL
Plantago pusilla	Dwarf Plantain	G5	SH		E	LP, HL
Platanthera ciliaris	Yellow Fringed Orchid	G5	S2			LP, HL
Platanthera cristata	Crested Yellow Orchid	G5	S3			LP, HL
Platanthera flava var. flava	Southern Rein Orchid	G4?T4?Q	S1		E	LP, HL
Platanthera flava var. herbiola	Tubercled Rein Orchid	G4?T4Q	S2			HL
Platanthera grandiflora	Large Purple Fringed Orchid	G5	S2			HL
Platanthera hookeri	Hooker's Orchid	G4	SH		E	LP, HL
Platanthera hyperborea var. huronensis	Leafy Northern Green Orchid	G5T5?	SX			HL
Platanthera integra	Yellow Fringeless Orchid	G3G4	S1		E	LP, HL
Platanthera nivea	Snowy Orchid	G5	S1		E	LP, HL
Platanthera orbiculata	Round-leaf Orchid	G5	S1		E	LP, HL

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Platanthera peramoena	Purple Fringeless Orchid	G5	S1		E	LP, HL
Platanthera psycodes	Purple Fringed Orchid	G5	S2			HL
Pluchea camphorata	Camphorweed	G5	SX.1			HL
Pluchea foetida var. foetida	Stinking Fleabane	G5T5	SH		E	LP, HL
Poa autumnalis	Flexuous Spear Grass	G5	SH.1		E	LP, HL
Poa languida	Drooping Spear Grass	G3G4Q	S2			HL
Poa saltuensis	Old-pasture Spear Grass	G5	SH		E	LP, HL
Poa sylvestris	Woodland Spear Grass	G5	SH		E	LP, HL
Podostemum ceratophyllum	Threadfoot	G5	S2			HL
Polanisia dodecandra ssp. dodecandra	Clammy-weed	G5T5?	SX			HL
Polemonium reptans	Greek-valerian	G5	S1		E	LP, HL
Polemonium vanbruntiae	Jacob's Ladder	G3G4	SX.1			HL
Polygala ambigua	Loose-spike Milkwort	G5?	S2			HL
Polygala curtissii	Curtiss' milkwort	G5	S1.1		E	LP, HL
Polygala incarnata	Pink Milkwort	G5	SH		E	LP, HL
Polygala mariana	Maryland Milkwort	G5	S2			LP, HL
Polygala polygama	Racemed Milkwort	G5	S2			HL
Polygala ramosa	Low Pine Barren Milkwort	G5	SX.1			HL
Polygala senega	Seneca Snakeroot	G4G5	S1.1		E	LP, HL
Polygonum buxiforme	Small's Knotweed	G5	S2			HL
Polygonum cilinode	Fringed Black-bindweed	G5	S2			HL
Polygonum densiflorum	Dense-flower Knotweed	G5	S1		E	LP, HL
Polygonum erectum	Erect Knotweed	G5	S3			HL
Polygonum glaucum	Sea-beach Knotweed	G3	S1		E	LP, HL
Polygonum hydropiperoides var. opelousanum	Opelousas Water-pepper	G5TNRQ	S2			HL
Polygonum setaceum var. setaceum	Bristly Smartweed	G5T3T5	S2			HL
Polypremum procumbens	Juniper-leaf	G5	S1		E	LP, HL
Populus heterophylla	Swamp Cottonwood	G5	S2			HL
Porteranthus trifoliatus	Indian Physic	G4G5	S2			HL
Potamogeton confervoides	Algae-like Pondweed	G4	S2			HL
Potamogeton illinoensis	Illinois Pondweed	G5	S1		E	LP, HL
Potamogeton oakesianus	Oakes' Pondweed	G4	S2			HL
Potamogeton obtusifolius	Blunt-leaf Pondweed	G5	S1		E	LP, HL
Potamogeton praelongus	White-stem Pondweed	G5	S1		E	LP, HL
Potamogeton robbinsii	Robbin's Pondweed	G5	S2			HL
Potamogeton zosteriformis	Eel-grass Pondweed	G5	S1		E	LP, HL
Potentilla arguta var. arguta	Tall Cinquefoil	G5T5?	S2			HL
Prenanthes autumnalis	Pine Barren Rattlesnake-root	G4G5	S2			LP, HL
Prenanthes racemosa var. racemosa	Smooth Rattlesnake-root	G5T4	SH		E	LP, HL
Proserpinaca intermedia	Mackenzie's Mermaidweed	G4?Q	S3			HL
Prunus alleghaniensis var. alleghaniensis	Allegheny Plum	G4T4	SX			HL
Prunus angustifolia var. angustifolia	Chickasaw Plum	G5T4T5	S2			HL
Prunus pumila var. depressa	Low Sand Cherry	G5T5	S1		E	LP, HL
Prunus pumila var. susquehanae	Appalachian Cherry	G5T4	S3			HL
Ptelea trifoliata var. trifoliata	Wafer-ash	G5T5	S1		E	LP, HL
Puccinellia fasciculata	Saltmarsh Alkali Grass	G3G5	S1S2			HL
Pycnanthemum clinopodioides	Basil Mountain-mint	G1G2	S1		E	LP, HL
Pycnanthemum setosum	Awned Mountain-mint	G4	S3			HL
Pycnanthemum torrei	Torrey's Mountain-mint	G2	S1		E	LP, HL
Pyrola chlorantha	Greenish-flower Wintergreen	G5	S1		E	LP, HL
Pyrrhopappus carolinianus	Carolina desert-chicory	G5	S1		E	LP, HL
Quercus imbricaria	Shingle Oak	G5	S1.1		E	LP, HL
Quercus lyrata	Overcup Oak	G5	S1		E	LP, HL
Quercus macrocarpa var. macrocarpa	Mossy-cup Oak	G5T5	S1.1		E	LP, HL
Quercus michauxii	Basket Oak	G5	S3			HL
Quercus muehlenbergii	Yellow Oak	G5	S3			HL
Quercus nigra	Water Oak	G5	S1		E	LP, HL
Ranunculus allegheniensis	Allegheny Mountain Buttercup	G4G5	S1.1		E	LP, HL
Ranunculus ambigens	Water-plantain Spearwort	G4	S2			HL

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Ranunculus cymbalaria	Seaside Buttercup	G5	SH		E	LP, HL
Ranunculus fascicularis	Early Buttercup	G5	S1		E	LP, HL
Ranunculus flabellaris	Yellow Water Buttercup	G5	S3			HL
Ranunculus flammula var. filiformis	Creeping Spearwort	G5T5	SH		E	LP, HL
Ranunculus longirostris	Long-beak Water Buttercup	G5	S2			HL
Ranunculus micranthus	Rock Buttercup	G5	S2			HL
Ranunculus pensylvanicus	Bristly Buttercup	G5	S2			HL
Ranunculus pusillus var. pusillus	Low Spearwort	G5T4?	S2			HL
Ranunculus trichophyllus var. trichophyllus	Thread-leaf Water Buttercup	G5T5	S2			HL
Rhexia aristosa	Awned Meadow-beauty	G3	S1		E	LP, HL
Rhexia mariana var. ventricosa	Showy Meadow-beauty	G5T4T5	S1		E	LP, HL
Rhododendron atlanticum	Dwarf Azalea	G4G5	S2			HL
Rhododendron canadense	Rhodora	G5	S1		E	LP, HL
Rhododendron prinophyllum	Mountain Azalea	G5	S3			HL
Rhynchospora capillacea	Capillary Beaked-rush	G4	S1		E	LP, HL
Rhynchospora cephalantha	Large-head Beaked-rush	G5	S3			LP, HL
Rhynchospora filifolia	Thread-leaf Beaked-rush	G5	S1		E	LP, HL
Rhynchospora glomerata	Clustered Beaked-rush	G5T5?	SH		E	LP, HL
Rhynchospora grayi	Gray's Beaked-rush	G4	SH.1		E	LP, HL
Rhynchospora inundata	Slender Horned-rush	G4?	S2			LP, HL
Rhynchospora knieskernii	Knieskern's Beaked-rush	G2	S2	LT	E	LP, HL
Rhynchospora microcephala	Small-head Beaked-rush	G5T5	S1		E	LP, HL
Rhynchospora nitens	Short-beaked Bald-rush	G4?	S2			HL
Rhynchospora oligantha	Few-flower Beaked-rush	G4	S2			HL
Rhynchospora pallida	Pale Beaked-rush	G3	S3			HL
Rhynchospora rariflora	Rare-flower Beaked-rush	G5	S1		E	LP, HL
Rhynchospora recognita	Coarse Grass-like Beaked-rush	G5?	S1		E	LP, HL
Rhynchospora scirpoides	Long-beak Bald-rush	G4	S2			HL
Ribes glandulosum	Skunk Currant	G5	S1.1		E	LP, HL
Ribes missouriense	Missouri Gooseberry	G5	S1		E	LP, HL
Ribes triste	Swamp Red Currant	G5	SU			HL
Rosa blanda var. blanda	Smooth Rose	G5T5	SU			HL
Rotala ramosior	Toothcup	G5	S3			HL
Rubus ascendens	Clausen's Dewberry	GNR	S1			HL
Rubus canadensis	Smooth Blackberry	G5	S1		E	LP, HL
Rubus gnarus	Pollock's Mill Blackberry	G3?	SH.1			HL
Rubus longii	Long's Blackberry	G4?Q	S1			HL
Rubus novocaesarius	New Jersey Dewberry	G1	S1.1		E	LP, HL
Rubus originalis	Cold Spring Blackberry	G3?	S2			HL
Rubus ostryifolius	Highbush Blackberry	G3?Q	SH.1			HL
Rubus pervarius	Davis' Dewberry	G4?	SH.1			HL
Rubus recurvicaulis	Blanchard's Dewberry	G4?	S1.1			HL
Rubus setosus	Bristly Blackberry	G5	SH.1			HL
Rudbeckia fulgida var. fulgida	Orange Coneflower	G5T4?	S1		E	LP, HL
Rudbeckia fulgida var. speciosa	Showy Coneflower	G5T4?	SX.1			HL
Ruellia caroliniensis	Carolina Petunia	G5	SH		E	LP, HL
Ruellia strepens	Limestone Petunia	G4G5	SX.1			HL
Rumex hastatulus	Engelmann's Sorrel	G5	SH		E	LP, HL
Sabatia campanulata	Slender Marsh-pink	G5	S3			HL
Sabatia dodecandra var. dodecandra	Large Marsh-pink	G5?T4T5	S2			HL
Saccharum alopecuroidum	Silver Plume Grass	G5	SH		E	LP, HL
Sacciolepis striata	American Cupscale	G5	SH		E	LP, HL
Sagittaria australis	Southern Arrowhead	G5	S1		E	LP, HL
Sagittaria calycina var. calycina	Mississippi Arrowhead	G5T5?	S2			HL
Sagittaria calycina var. spongiosa	Tidal Arrowhead	G5T4	S3			HL
Sagittaria cuneata	Arum-leaf Arrowhead	G5	S1		E	LP, HL
Sagittaria filiformis	Narrow-leaf Arrowhead	G4G5	SH		E	LP, HL
Sagittaria subulata	Awl-leaf Arrowhead	G4	S2			HL
Sagittaria teres	Slender Arrowhead	G3	S1		E	LP, HL

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Salix candida	Hoary Willow	G5	S2			HL
Salix lucida ssp. lucida	Shining Willow	G5T5	S1?			HL
Salix pedicellaris	Bog Willow	G5	S1		E	LP, HL
Salix serissima	Autumn Willow	G4	S2			HL
Sanicula trifoliata	Large-fruit Black-snakeroot	G4	S1		E	LP, HL
Scheuchzeria palustris var. americana	Arrow-grass	G5T5	SH		E	LP, HL
Schizachne purpurascens	Purple Oat	G5	S1.1		E	LP, HL
Schizaea pusilla	Curly Grass Fern	G3G4	S3			LP, HL
Schoenoplectus acutus var. acutus	Hard-stem Bulrush	G5T5	S3			HL
Schoenoplectus maritimus	Saltmarsh Bulrush	G5	S1		E	LP, HL
Schoenoplectus novae-angliae	New England Bulrush	G5	S2			HL
Schoenoplectus smithii	Smith's Club-rush	G5?	S2			HL
Schoenoplectus torreyi	Torrey's Bulrush	G5?	S1		E	LP, HL
Schwalbea americana	Chaffseed	G2G3	S1	LE	E	LP, HL
Scirpus atrocinctus	Black-girdle Woolgrass	G5	S2			HL
Scirpus longii	Long's Woolgrass	G2G3	S2		E	LP, HL
Scirpus microcarpus	Barberpole Bulrush	G5	S1		E	LP, HL
Scirpus pedicellatus	Stalked Woolgrass	G4	SH		E	LP, HL
Scirpus pendulus	Reddish Bulrush	G5	S3			HL
Scleria pauciflora var. caroliniana	Carolina Nut-rush	G5T4T5	S2			HL
Scleria pauciflora var. pauciflora	Papillose Nut-rush	G5T5?	S1?			HL
Scleria verticillata	Whorled Nut-rush	G5	S1		E	LP, HL
Sclerolepis uniflora	Bog Buttons	G4	S2			LP, HL
Scutellaria leonardii	Small Skullcap	G4T4	S1		E	LP, HL
Scutellaria nervosa	Veined Skullcap	G5	S2			HL
Sedum telephioides	Allegheny Stonecrop	G4	SU.1			HL
Selaginella rupestris	Rock Spike-moss	G5	S2			HL
Senecio anonymus	Small's Groundsel	G5	SU			HL
Senecio pauperculus	Balsam Ragwort	G5	S3			HL
Senecio tomentosus	Woolly Ragwort	G4G5	S2			HL
Sesuvium maritimum	Seabeach Purslane	G5	S2			HL
Setaria magna	Giant Fox-tail	G4G5	S2			HL
Sibbaldiopsis tridentata	Three-toothed Cinquefoil	G5	S1.1		E	LP, HL
Silene caroliniana var. pensylvanica	Wild-pink	G5T4T5	S3			HL
Silene nivea	Snowy Catchfly	G4?	S1		E	LP, HL
Sisyrinchium fuscatum	Sand-plain Blue-eyed Grass	G5?	S2			HL
Sisyrinchium montanum var. crebrum	Strict Blue-eyed Grass	G5T4T5	S2			HL
Smallanthus uvedalius	Bear's-foot	G4G5	S1		E	LP, HL
Smilax laurifolia	Laurel-leaf Greenbrier	G5	S3			HL
Smilax pseudochina	Bamboo Vine	G4G5	S3			HL
Smilax pulverulenta	Downy Carrion-flower	G4G5	S3			HL
Smilax tamnoides	Bristly Greenbrier	G5	S3			HL
Solidago elliottii	Elliott's Goldenrod	G5	S3			HL
Solidago hispida var. hispida	Hairy Goldenrod	G5T5	SU			HL
Solidago rigida var. rigida	Prairie Goldenrod	G5T5	S1		E	LP, HL
Solidago rugosa ssp. rugosa var. sphagnophila	Summer Goldenrod	G5T3T5	S3			HL
Solidago speciosa var. speciosa	Showy Goldenrod	G5T5?	S2			HL
Solidago squarrosa	Stout Ragged Goldenrod	G4?	S2			HL
Solidago stricta	Wand-like Goldenrod	G5	S3			LP, HL
Solidago tarda	Late Goldenrod	G4?Q	S3			HL
Solidago uliginosa var. linoides	Flax-leaf Bog Goldenrod	G4G5T4T5	S3			HL
Solidago uliginosa var. uliginosa	Bog Goldenrod	G4G5T4T5	S3			HL
Sorbus americana	American Mountain-ash	G5	S2			HL
Sparganium angustifolium	Narrow-leaf Burr-reed	G5	SH		E	LP, HL
Sparganium chlorocarpum	Green-fruited Bur-reed	G5	S3			HL
Sparganium natans	Small Burr-reed	G5	S1		E	LP, HL
Sphagnum angustifolium	Sphagnum	G5	S1		E	LP, HL
Sphagnum austinii	Sphagnum	G4	SX			HL
Sphagnum capillifolium	Sphagnum	G5	S2			HL

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Sphagnum carolinianum	Sphagnum	G3	S2			HL
Sphagnum centrale	Sphagnum	G5	S1		E	LP, HL
Sphagnum contortum	Sphagnum	G5	S1		E	LP, HL
Sphagnum cribrosum	Sphagnum	G3	S1		E	LP, HL
Sphagnum cyclophyllum	Sphagnum	G3	S2			HL
Sphagnum fuscum	Sphagnum	G5	S2			HL
Sphagnum macrophyllum	Sphagnum	G3G5	S2			HL
Sphagnum majus ssp. norvegicum	Sphagnum	G5?TNR	S1.1		E	LP, HL
Sphagnum perichaetiale	Sphagnum	G5	S2			HL
Sphagnum platyphyllum	Sphagnum	G5	SX.1			HL
Sphagnum portoricense	Sphagnum	G5	S2			HL
Sphagnum quinquefarium	Sphagnum	G5	S1.1		E	LP, HL
Sphagnum riparium	Sphagnum	G5	S1		E	LP, HL
Sphagnum squarrosum	Sphagnum	G5	S2			HL
Sphagnum strictum	Sphagnum	G5	S1		E	LP, HL
Sphagnum subfulvum	Sphagnum	GNR	S1.1		E	LP, HL
Sphagnum subsecundum	Sphagnum	G5	S1		E	LP, HL
Sphagnum subtile	Sphagnum	G5?Q	S2			HL
Sphagnum tenellum	Sphagnum	G5	S2			HL
Sphagnum teres	Sphagnum	G5	S2			HL
Sphagnum warnstorfii	Sphagnum	G5	S2			HL
Sphenopholis pensylvanica	Swamp Oats	G4	S2			HL
Spiraea alba var. alba	Narrow-leaf Meadow-sweet	G5T5	S1S2			HL
Spiranthes laciniata	Lace-lip Ladies'-tresses	G4G5	S1		E	LP, HL
Spiranthes lucida	Shining Ladies'-tresses	G5	S2			HL
Spiranthes ochroleuca	Yellowish Nodding Ladies'-tresses	G4	S3			HL
Spiranthes odorata	Fragrant Ladies'-tresses	G5	S2			HL
Spiranthes tuberosa	Little Ladies'-tresses	G5	S3			LP, HL
Sporobolus clandestinus	Rough Rush-grass	G5	S3			HL
Sporobolus compositus var. compositus	Long-leaf Rush-grass	G5T5	S2			HL
Sporobolus neglectus	Small Rush-grass	G5	S1		E	LP, HL
Stachys hyssopifolia	Hyssop Hedge-nettle	G4G5	S2			HL
Stachys pilosa var. pilosa	Hairy Hedge-nettle	G5T5?	SH		E	LP, HL
Stachys tenuifolia	Smooth Hedge-nettle	G5	S3			HL
Stellaria borealis var. borealis	Boreal Starwort	G5T5	S1		E	LP, HL
Stellaria pubera	Star Chickweed	G5	SH		E	LP, HL
Streptopus amplexifolius var. amplexifolius	White Twisted-stalk	G5T5	S1		E	LP, HL
Streptopus lanceolatus	Rosy Twisted-stalk	G5T5	S1		E	LP, HL
Stylisma pickeringii var. pickeringii	Pickering's Morning-glory	G4T3	S1		E	LP, HL
Stylosanthes biflora	Pencil-flower	G5	S3			HL
Suaeda calceoliformis	American Seablite	G5	S3			HL
Suaeda rolandii	Roland's Seablite	G1G2	S1?		E	LP, HL
Taenidia integerrima	Yellow-pimpernel	G5	S3			HL
Taxus canadensis	American Yew	G5	S2			HL
Teucrium canadense var. occidentale	Hairy Germander	G5T5?	SU			HL
Thaspium barbinode	Hairy-joint Meadow-parsnip	G5	SX			HL
Thaspium trifoliatum var. trifoliatum	Purple Meadow-parsnip	G5T5	S3			HL
Thuja occidentalis	Arborvitae	G5	S1		E	LP, HL
Tiarella cordifolia var. cordifolia	Foamflower	G5T5	S1		E	LP, HL
Tofieldia racemosa	False Asphodel	G5	S1		E	LP, HL
Torreyochloa pallida var. fernaldii	Fernald's False Manna Grass	G5T4Q	S1S2			HL
Toxicodendron pubescens	Poison-oak	G5	S3			HL
Tradescantia ohiensis	Ohio Spiderwort	G5	S2			HL
Triadenum fraseri	Fraser's St. John's-wort	G5	S3			HL
Triadenum walteri	Walter's St. John's-wort	G5	S1		E	LP, HL
Trichomanes intricatum	Weft Fern	G4G5	S1.1		E	LP, HL
Trichostema setaceum	Narrow-leaf Bluecurls	G5	S2			HL
Tridens flavus var. chapmanii	Chapman's Redtop	G5T3	SH		E	LP, HL
Triglochin maritima	Seaside Arrow-grass	G5	S1		E	LP, HL

List of Endangered Plant Species and Plant Species of Concern
September 2013

Scientific Name	Common Name	G Rank	S Rank	Federal Status	State Status	Other Status
Trillium grandiflorum	Large-flower Trillium	G5	S1.1		E	LP, HL
Trillium undulatum	Painted Trillium	G5	S2			HL
Triosteum angustifolium	Narrow-leaf Horse-gentian	G5	SH		E	LP, HL
Triphora trianthophora	Three Birds Orchid	G3G4	S1		E	LP, HL
Trollius laxus ssp. laxus	Spreading Globe Flower	G5T3	S1		E	LP, HL
Ulmus thomasii	Rock Elm	G5	SX			HL
Utricularia biflora	Two-flower Bladderwort	G5	S1		E	LP, HL
Utricularia gibba	Humped Bladderwort	G5	S3			LP, HL
Utricularia inflata	Large Swollen Bladderwort	G5	S3			HL
Utricularia intermedia	Flat-leaf Bladderwort	G5	S3			HL
Utricularia minor	Lesser Bladderwort	G5	S1		E	LP, HL
Utricularia olivacea	Dwarf White Bladderwort	G4	S1.1		E	LP, HL
Utricularia purpurea	Purple Bladderwort	G5	S3			LP, HL
Utricularia radiata	Small Swollen Bladderwort	G4	S3			HL
Utricularia resupinata	Reversed Bladderwort	G4	S1		E	LP, HL
Uvularia puberula var. nitida	Pine Barren Bellwort	G5T2T3	S2		E	LP, HL
Vaccinium oxycoccos	Small Cranberry	G5	S2			HL
Valerianella chenopodiifolia	Goose-foot Cornsalad	G5	SH.1		E	LP, HL
Valerianella radiata	Beaked Cornsalad	G5	S1		E	LP, HL
Valerianella umbilicata	Navel Cornsalad	G3G5	SH		E	LP, HL
Verbena simplex	Narrow-leaf Vervain	G5	S1		E	LP, HL
Vernonia glauca	Broad-leaf Ironweed	G5	S1		E	LP, HL
Veronica catenata	Sessile Water-speedwell	G5	S1		E	LP, HL
Viburnum dentatum var. venosum	Veiny-leaf Arrow-wood	G5T4T5	S2			HL
Viburnum lantanoides	Witch-hobble	G5	S1		E	LP, HL
Viburnum opulus var. americanum	Highbush-cranberry	G5T5	S3			HL
Vicia americana var. americana	American Purple Vetch	G5T5	S1		E	LP, HL
Vicia caroliniana	Carolina Wood Vetch	G5	S1		E	LP, HL
Viola blanda var. palustriformis	Large-leaf White Violet	G4G5T4T5	S3			HL
Viola brittoniana var. brittoniana	Britton's Coast Violet	G4G5T4T5	S3			HL
Viola brittoniana var. pectinata	Cut-leaf Coast Violet	G4G5T3?Q	SH			HL
Viola canadensis var. canadensis	Canadian Violet	G5T5	S1		E	LP, HL
Viola hirsutula	Southern Wood Violet	G4	S2			HL
Viola rostrata	Long-spur Violet	G5	S3			HL
Viola septentrionalis	Northern Blue Violet	G5	S1		E	LP, HL
Vulpia elliotea	Squirrel-tail Six-weeks Grass	G5	S1		E	LP, HL
Vulpia octoflora var. glauca	Slender Six-weeks Grass	G5T5	SU			HL
Waldsteinia fragarioides var. fragarioides	Barren-strawberry	G5T5	S2			HL
Wolffiella gladiata	Sword Bogmat	G5	S1		E	LP, HL
Xyris caroliniana	Sand Yellow-eyed-grass	G4G5	S1		E	LP, HL
Xyris fimbriata	Fringed Yellow-eyed-grass	G5	S1		E	LP, HL
Xyris jupicai	Richard's Yellow-eyed-grass	G5	S3			HL
Xyris montana	Northern Yellow-eyed-grass	G4	S1.1		E	LP, HL
Zigadenus leimanthoides	Death-camus	G4Q	S1		E	LP, HL

814 Records Selected

Appendix 11

(USF&WS) GUIDELINES FOR BOG TURTLE SURVEYS[1]

(revised April 2006)

Yellow highlights are important language , Red type = Comments by Emile DeVito, Ph.D.

RATIONALE

A bog turtle survey (when conducted according to these guidelines) is an attempt to determine presence or probable absence of the species; it does not provide sufficient data to determine population size or structure. Following these guidelines will standardize survey procedures. It will help maximize the potential for detection of bog turtles at previously undocumented sites at a minimum acceptable level of effort. Although the detection of bog turtles confirms their presence, failure to detect them does not absolutely confirm their absence (likewise, bog turtles do not occur in all appropriate habitats and many seemingly suitable sites are devoid of the species). Surveys as extensive as outlined below are usually sufficient to detect bog turtles; however, there have been instances in which additional effort was necessary to detect bog turtles, especially when habitat was less than optimum, survey conditions were less than ideal, or turtle densities were low.

PRIOR TO CONDUCTING ANY SURVEYS

If a project is proposed to occur in a county of known bog turtle occurrence (see attachment 1), contact the U.S. Fish and Wildlife Service (Service) and/or the appropriate State wildlife agency (see attachment 2). They will determine whether or not any known bog turtle sites occur in or near the project area, and will determine the need for surveys.

< If a wetland in or near the project area is *known* to support bog turtles, measures must be taken to avoid impacts to the species. The Service and State wildlife agency will work with federal, state and local regulatory agencies, permit applicants, and project proponents to ensure that adverse effects to bog turtles are avoided or minimized.

< If wetlands in or adjacent to the project area are *not* known bog turtle habitat, conduct a bog turtle habitat survey (Phase 1 survey) if: Allowing AERIAL surveys for Phase 1 surveys would be the same as SKIPPING the Phase 1 Surveys and proceeding to a costly Phase 2 survey on every site, because NO conclusions are possible.

1. The wetland(s) have an emergent and/or scrub-shrub wetland component, or are forested with suitable soils and hydrology (see below), *and* **In the Phase 1 process, wetlands that may be appropriate habitat (as visible on map products) must be surveyed to determine the existence of "potential" turtle habitat. A low altitude aerial survey would have extremely limited utility compared to a ground survey. An aerial survey cannot possibly replace the requirement for ground surveys required by the Phase 1 process, since an aerial survey cannot distinguish the parameters regarding soil type, hydrology, and vegetation discussed in sections 1-3 on the next page. No potential bog turtle habitat could be ruled out from the air; the evidence needed to rule out potential habitat can only be detected by soil probes and close examination of hydrologic conditions and vegetation. Since potential bog turtle habitats cannot be ruled out from the air, reliance on aerial surveys during a Phase 1 survey would automatically trigger the need for Phase 2 surveys of all selected sites. Ae**
2. Direct and indirect adverse effects to the wetland(s) cannot be avoided.

   See *Bog Turtle Conservation Zones*[2] for guidance regarding activities that may affect bog turtles and their habitat. In addition, consult with the Fish and Wildlife Service and/or appropriate State wildlife agency to definitively determine whether or not a Phase 1 survey will be necessary.

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[1] These guidelines are a modification of those found in the final "Bog Turtle (*Clemmys muhlenbergii*), Northern Population, Recovery Plan" (dated May 15, 2001). Several minor revisions were made to facilitate survey efforts and increase searcher effectiveness. As additional information becomes available regarding survey techniques and effectiveness, these survey guidelines may be updated and revised. Contact the Fish and Wildlife Service or one of the state agencies listed in Attachment 1 for the most recent version of these guidelines.

[2] See Appendix A of the "Bog Turtle (*Clemmys muhlenbergii*), Northern Population, Recovery Plan" (dated May 15, 2001).

BOG TURTLE HABITAT SURVEY (= Phase 1 survey)

The purpose of this survey is to determine whether or not the wetland(s) are *potential* bog turtle habitat. These surveys are performed by a recognized, qualified bog turtle surveyor (contact the Service or the appropriate State wildlife agency to receive a list of recognized, qualified bog turtle surveyors). The following conditions and information apply to habitat surveys.

< Surveys can be performed any month of the year (except when significant snow and/or ice cover is present). This flexibility in conducting Phase 1 surveys allows efforts during the Phase 2 survey window to be spent on wetlands most likely to support bog turtles (*i.e.*, those that meet the criteria below).

< Potential bog turtle habitat is recognized by three criteria *(not all of which may occur in the same portion of a particular wetland)*: **NONE OF THE 3 CRITERIA BELOW CAN BE EVALUATED FROM THE AIR.**

1. **Suitable hydrology**. Bog turtle wetlands are typically spring-fed with shallow surface water or saturated soils present year-round, although in summer the wet area(s) may be restricted to near spring head(s). Typically these wetlands are interspersed with dry and wet pockets. There is often subsurface flow. In addition, shallow rivulets (less than 4 inches deep) or pseudo-rivulets are often present. **IMPOSSIBLE TO MAKE THESE DETERMINATIONS FROM THE AIR.**

2. **Suitable soils**. Usually a bottom substrate of permanently saturated organic or mineral soils. These are often soft, mucky-like soils (this does not refer to a technical soil type); you will usually sink to your ankles (3-5 inches) or deeper in muck, although in degraded wetlands or summers of dry years this may be limited to areas near spring heads or drainage ditches. In some portions of the species' range, the soft substrate consists of scattered pockets of peat instead of muck. **IMPOSSIBLE TO MAKE THESE DETERMINATIONS FROM THE AIR.**

3. **Suitable vegetation**. Dominant vegetation of low grasses and sedges (in emergent wetlands), often with a scrub-shrub wetland component. Common emergent vegetation includes, but is not limited to: tussock sedge (*Carex stricta*), soft rush (*Juncus effusus*), rice cut grass (*Leersia oryzoides*), sensitive fern (*Onoclea sensibilis*), tearthumbs (*Polygonum* spp.), jewelweeds (*Impatiens* spp.), arrowheads (*Saggitaria* spp.), skunk cabbage (*Symplocarpus foetidus*), panic grasses (*Panicum* spp.), other sedges (*Carex* spp.), spike rushes (*Eleocharis* spp.), grass-of-Parnassus (*Parnassia glauca*), shrubby cinquefoil (*Dasiphora fruticosa*), sweet-flag (*Acorus calamus*), and in disturbed sites, reed canary grass (*Phalaris arundinacea*) or purple loosestrife (*Lythrum salicaria*). Common scrub-shrub species include alder (*Alnus spp.*), red maple (*Acer rubrum*), willow (*Salix spp.*), tamarack (*Larix laricina*), and in disturbed sites, multiflora rose (*Rosa multiflora*). Some forested wetland habitats are suitable given hydrology, soils and/or historic land use. These forested wetlands include red maple, tamarack, and cedar swamps. **EXTREMELY DIFFICULT FROM THE AIR.**

Suitable hydrology and soils are the critical criteria (*i.e.*, the primary determinants of potentially suitable habitat). AS STATED ABOVE, IT IS IMPOSSIBLE TO EVALUTATE THESE 2 PRIMARY DETERMINANTS FROM THE AIR.

< Suitable hydrology, soils and vegetation are necessary to provide the critical wintering sites (soft muck, peat, burrows, root systems of woody vegetation) and nesting habitats (open

areas with tussocky or hummocky vegetation) for this species. It is very important to note, however, that one or more of these criteria may be absent from portions of a wetland or wetland complex supporting bog turtles. Absence of one or more criteria does not preclude bog turtle use of these areas to meet important life functions, including foraging, shelter and dispersal.

< If these criteria (suitable soils, vegetation and hydrology) are present in the *wetland*, then the *wetland* is considered to be potential bog turtle habitat, regardless of whether or not that portion of the wetland occurring within the project boundaries contains all three criteria. **NONE OF THE 3 CRITERIA CAN BE RULED OUT BY AN AERIAL SURVEY, THEREFORE ANY WETLAND DEEMED WORTHY OF AERIAL SURVEY MUST BE DETERMINED TO BE POTENTIAL BOG TURTLE HABITAT, AND [redacted] SURVEY IS TRIGGERED AND MUST BE CONDUCTED OR AVOIDED ALTOGETHER.**. If the *wetland* is determined to be potential habitat and the project will directly or indirectly impact *any portion* of the wetland (see *Bog Turtle Conservation Zones*), then either:

  < Completely avoid all direct and indirect effects to the wetland, in consultation with the Service and appropriate State wildlife agency, OR

  < Conduct a [redacted] survey to determine the presence of bog turtles.

< The Service and appropriate State wildlife agency (see list) should be sent a copy of survey results for review and comment including: a USGS topographic map indicating location of site; project design map, including location of wetlands and stream and delineation of wetland type (PEM, PSS, PFO, POW) and "designated survey areas"[3]; color photographs of the site; surveyor's name; date of visit; opinion on potential/not potential habitat; a description of the hydrology, soils, and vegetation. A phase 1 report template and field form are available from the States and Service.

BOG TURTLE COUNTIES OF OCCURRENCE OR LIKELY OCCURRENCE[1]

(April 2006)

STATE	COUNTY	
New Jersey: 12 of 21 counties, including Hunterdon for PennEast proposal	Burlington	Ocean
	Gloucester	Salem
	[redacted]	Somerset
	Middlesex	Sussex
	Monmouth	Union
	Morris	Warren
Pennsylvania	Adams Berks	Lancaster
	Bucks	Lebanon
	Chester	Lehigh
	Cumberland	Monroe
	Delaware	Montgomery
	Franklin	Northampton
		Schuylkill
		York

For testimony, it is sufficient to explain that AERIAL surveys would be USELESS in providing information toward meeting USFWS Phase 1 requirements.

[redacted]

Phase 2 surveys are so intensive and ground specific that no comparison can be made regarding aerial survey usefulness in a Phase 2 scenario. Details of Phase 2 survey follow on next 3 pages, but I have provided no notes, since aerial surveys are irrelevant here.

[3] "Designated survey areas" are those areas of the wetland that meet the soils, hydrology and vegetation criteria for potential bog turtle habitat. These areas may occur within the emergent, scrub-shrub or forested parts of the wetland.

BOG TURTLE SURVEY (= Phase 2 survey) (continued)

If the wetland(s) are identified as potential bog turtle habitat (see Phase 1 survey), and direct and indirect adverse effects cannot be avoided, conduct a bog turtle survey in accordance with the specifications below. Note that this is *not* a survey to estimate population size or structure; a long-term mark/recapture study would be required for that.

Prior to conducting the survey, contact the appropriate State agency (see attached list) to determine whether or not a scientific collector's permit valid for the location and period of the survey will be required.

The Phase 2 survey will focus on the areas of the wetland that meet the soils, hydrology and vegetation criteria, as defined under the Phase 1 survey guidelines. Those areas that meet the criteria are referred to as "designated survey areas" for Phase 2 and Phase 3 survey purposes.

1. Surveys should only be performed during the period from April 15-June 15. For the Lake Plain Recovery Unit (see Recovery Plan), surveys should only be performed during the period from May 1 to June 30. This coincides with the period of greatest annual turtle activity (spring emergence and breeding) and before vegetation gets too dense to accurately survey. While turtles may be found outside of these dates, a result of no turtles would be considered inconclusive. Surveys beyond June also have a higher likelihood of disruption or destruction of nests or newly hatched young.

2. Ambient air temperature at the surface in the shade should be $\geq 55°$ F.

3. Surveys should be done during the day, at least one hour after sunrise and no later than one hour before sunset.

4. Surveys may be done when it is sunny or cloudy. In addition, surveys may be conducted during and after light rain, provided air temperatures are $\geq 65°$ F.

5. At least one surveyor must be a recognized qualified bog turtle surveyor[4], and the others should have some previous experience successfully conducting bog turtle surveys or herpetological surveys in wetlands. To maintain survey effort consistency and increase the probability of encountering turtles, the same surveyors should be used for each wetland.

6. A minimum of four (4) surveys per wetland site are needed to adequately assess the site for presence of bog turtles. <u>At least two of these surveys must be performed in May</u>. From April 15 to April 30, surveys should be separated by six or more days. From May 1 to June 15, surveys should be separated by three or more days. The shorter period between surveys during May and June is needed to ensure that surveys are carried out during the optimum window of time (*i.e.*, before wetland vegetation becomes too thick).

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[4] Searching for bog turtles and recognizing their habitat is a skill that can take many months or years of field work to develop. This level of expertise is necessary when conducting searches in order to ensure that surveys are effective and turtles are not harmed during the survey (*e.g.*, by stepping on nests). Many individuals that have been recognized as qualified to conduct bog turtle surveys obtained their experience through graduate degree research or employment by a state wildlife agency. Others have spent many years actively surveying for bog turtles as amateur herpetologists or consultants.

Note that bog turtles are more likely to be encountered by spreading the surveys out over a longer period. For example, erroneous survey results could be obtained if surveys were conducted on four successive days in late April due to possible late spring emergence, or during periods of extreme weather because turtles may be buried in mud and difficult to find.

Because this is solely a presence/absence survey, survey efforts at a particular wetland may cease once a bog turtle has been found.

7. Survey time should be at least four (4) to six (6) person-hours per acre of designated survey area per visit. Additional survey time may be warranted in wetlands that are difficult to survey or that have high quality potential habitat. The designated survey area includes all areas of the wetland where soft, mucky-like soils are present, regardless of vegetative cover type. This includes emergent, scrub-shrub, and forested areas of the wetland.

   If the cover is too thick to effectively survey using Phase 2 survey techniques alone (*e.g.*, dominated by multiflora rose, reed canary grass, *Phragmites*), contact the Service and State wildlife agency for guidance on Phase 3 survey techniques (trapping) to supplement the Phase 2 effort. In addition, Phase 3 (trapping) surveys may also be warranted if the site is in
   the Lake Plain-Prairie Peninsula Recovery Unit. Check with the Service or State wildlife agency for further guidance.

8. Walk quietly through the wetland. Bog turtles will bask on herbaceous vegetation and bare ground, or be half-buried in shallow water or rivulets. Walking noisily through the wetland will often cause the turtles to submerge before they can be observed. Be sure to search areas where turtles may not be visible, including under mats of dead vegetation, shallow pools, underground springs, open mud areas, vole runways and under tussocks. Do not step on the tops of tussocks or hummocks because turtle nests, eggs and nesting microhabitat may be destroyed. Both random opportunistic searching and transect surveys should be used at each wetland.

   The following survey sequence is recommended to optimize detection of bog turtles:

   - Semi-rapid walk through the designated survey area using visual encounter techniques.

   - If no bog turtles are found during visual survey, while walking through site identify highest quality habitat patches. Within these highest quality patches, begin looking under live and dead vegetation using muddling and probing techniques.

   - If still no bog turtles are found, the rest of the designated survey area should be surveyed using visual encounter surveys, muddling and probing techniques.

9. Photo-documentation of each bog turtle located will be required; a macro lens is highly recommended. The photos should be in color and of sufficient detail and clarity to identify

the bog turtle to species and individual. Therefore, photographs of the carapace, plastron, and face/neck markings should be taken of each individual turtle. Do not harass the turtle in an attempt to get photos of the face/neck markings; if gently placed on the ground, most turtles will slowly extend their necks if not harassed. If shell notching is conducted, do the photo-documentation after the notching is done.

10. The following information should be collected for each bog turtle: sex, carapace length-straight line and maximum length, carapace width, weight, and details about scars/injuries. Maximum plastron length information should also be collected to differentiate juveniles from adults as well as to obtain additional information on recruitment, growth, and demography.

11. Each bog turtle should be marked (*e.g.*, notched, PIT tagged) in a manner consistent with the requirements of the appropriate State agency and/or Service. Contact the appropriate State wildlife agency prior to conducting the survey to determine what type of marking system, if any, should be used.

12. All bog turtles must be returned to the point of capture as soon as possible on the same day as capture. They should only be held long enough to identify, measure, weigh, and photograph them, during which time their exposure to high temperatures must be avoided. No bog turtles may be removed from the wetland without permission from the Service and appropriate State agency.

13. The Fish and Wildlife Service and appropriate State agency should be sent a copy of survey results for review and concurrence, including the following: dates of site visits; time spent per designated survey area per wetland per visit; names of surveyors; a site map including wetlands and delineations of designated survey areas; a table indicating the size of each wetland, the designated survey area within each wetland, and the survey effort per visit; a description of the wetlands within the project area (*e.g.*, acreage, vegetation, soils, hydrology); an explanation of which wetlands or portions of wetlands were or were not surveyed, and why; survey methodology; weather per visit at beginning and end of survey (air temperature, wind, and precipitation); presence or absence of bog turtles, including number of turtles found and date, and information and measurements specified in item 10 above; and other reptile and amphibian species found and date.

ADDITIONAL SURVEYS / STUDIES

Proper implementation of the Phase 2 survey protocol is usually adequate to determine species presence or probable absence, especially in small wetlands lacking invasive plant species. Additional surveys, however, may be necessary to determine whether or not bog turtles are using a particular wetland, especially if the Phase 2 survey results are negative but the quality and quantity of habitat are good and in a watershed of known occurrence. In this case, additional surveys (Phase 2 and/or Phase 3 (trapping) surveys), possibly extending into the following field season, may be recommended by the Service or appropriate State agency.

If bog turtles are documented to occur at a site, additional surveys/studies may be necessary to characterize the population (*e.g.*, number, density, population structure, recruitment), identify nesting and hibernating areas, and/or identify and assess adverse impacts to the species and its habitat, particularly if project activities are proposed to occur in, or within 300 feet of, wetlands occupied by the species.

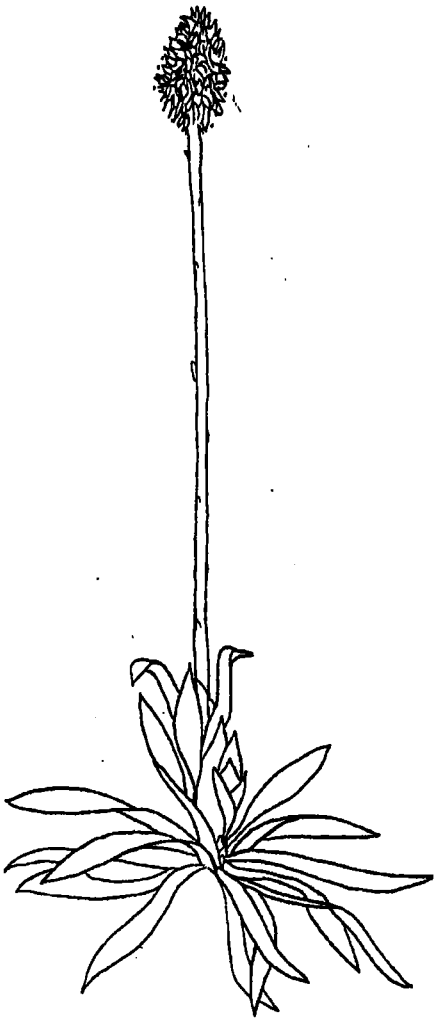
Appendix 12

USF&WS GUIDELINES - SWAMP PINK (Helonias bullata) SURVEYS
Yellow highlights are important language , Red type = Comments by Emile DeVito, Ph.D.

Swamp Pink

Swamp pink *(Helonias bullata)* was federally listed as a threatened plant species on September 9, 1988, pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.)*. New Jersey contains the majority of the remaining populations of the species; however, not all of the potential swamp pink habitats in New Jersey have been surveyed. The U.S. Fish and Wildlife Service (Service) requests that a qualified biologist conduct a comprehensive search for swamp pink in any potentially .suitable wetland habitat, as described below, that may be impacted by project activities. The following information is provided to assist in identifying the species and its habitat and to describe recommended survey techniques.

IDENTIFICATION: Swamp pink is characterized by a bright pink flower cluster that blooms in early spring. The stocky, hollow flower stem grows from one to three feet tall and has sparse modified leaves along its length. In April or early May, the stem is topped by a cluster (approximately one to three inches long) of pink flowers dotted with pale blue anthers. However, only 10 to 15 percent of the plants in a population typically flower in any one season. **Especially because of the last 30 years of excessive deer browse, many of the once large populations with robust, flowering individuals are now composed of non-flowering individuals with fewer and smaller leaves and even fewer than 10 to 15 percent flowers. Many populations have so few plants that one cannot expect to see flowers in every year. This has made detection of species presence even more time consuming for ground-based observers, because of the paucity of large, showy flowers.** When the plant is not flowering, swamp pink can be identified by its smooth, evergreen, lance- shaped leaves (approximately 3 to 10 inches long), which lie almost flat on the ground in a basal rosette. The leaves are shiny green when young and often attain a purplish tint in mature plants. In New Jersey, the plant is easiest to identify when in bloom or in the winter months when few other herbaceous plants are still green. Population sizes may vary from a few to several thousand plants.



HABITAT: Considered an obligate wetland species, swamp pink occurs in a variety of palustrine forested and scrub/shrub wetlands in New Jersey including: forested wetlands bordering meandering streamlets, headwater , wetlands, sphagnous Atlantic white cedar swamps, and spring seepage areas. Specific hydrologic requirements of swamp pink limit its occurrence to wetlands that are perennially saturated, but not inundated by floodwater. The water table must be at or near the surface, fluctuating only slightly during spring and summer months.

Swamp pink is a shade-tolerant plant that occurs in wetlands with varying canopy closure. Plant species associated with swamp pink include: Atlantic white cedar *(Chamaecyparis thyoides),* red maple *(Acer rubrum),* pitch pine *(Pinus rigida),* American larch *(Larix lariciana),* black spruce *(Picea mariana),* red spruce *(Picea rube11;s),* sweet pepperbush *(Clethra alnifolia),* sweetbay magnolia *(Magnolia virginiana),* sphagnum mosses *(Sphagnum* spp.), cinnamon fern *(Osmunda cinnamomea),* skunk cabbage *(Symplocarpus foetidus),* and laurels *(Kalmia* spp.). Swamp pink often grows on hummocks formed by trees, shrubs, and sphagnum mosses, which indicates that these micro-topographic conditions may be an important component of swamp pink habitat.

RANG E: Once found inhabiting wetland areas from New York to Georgia, swamp pink now occurs only along the coastal plain from New Jersey to Virginia and in small isolated bog areas in the Southern Appalachian Mountains. Containing more than 70 percent of the known sites, New Jersey represents the global stronghold for swamp pink. Plant colonies are found in Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Middlesex, Monmouth, Morris, Ocean, and Salem Counties.

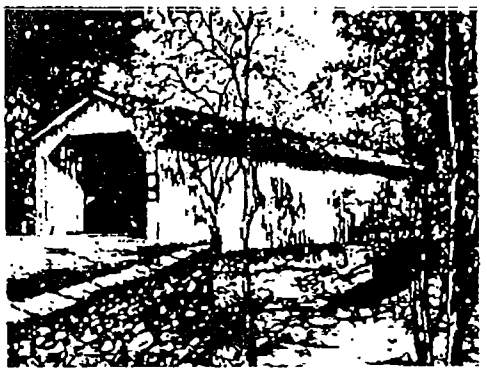
TH REATS: Threats to swamp pink include: loss or degradation of habitat due to illegal filling of wetlands; sedimentation from off-site construction activities; introduction of excess nutrients or toxic chemicals (e.g., herbicides) into the water; and, changes in groundwater and surface water hydrology due to excavation, water withdrawal, and increased runoff from upstream development (causing flooding and erosion). Additionally, direct discharge from stormwater outfalls can increase the frequency, duration, and
. volume of flooding in swamp pink wetlands and adversely affect the species.

SU RVEY REQUIREMENTS: Although surveys can be conducted year round, the Service recommends conducting surveys from late fall to early spring when the foliage of other plant species is reduced, making the evergreen foliage of swamp pink easier to detect. Random transect surveys are inappropriate since the species may be present in small wet pockets, which may be overlooked during the random transect method. **THE USF&WS HAS DETERMINED THAT RANDON GROUND TRANSECTS ARE INAPPROPRIATE, SINCE THE PLANTS ARE EASILY OVERLOOKED EVEN IF THE OBSERVER IS ON THE GROUND, QUITE NEARBY TO THE PLANTS IN THE HABITAT. THE USF&WS CONCLUDES NEXT THAT .....** All available suitable habitat within the project impact area should be surveyed, concentrating on forested wetland areas as previously described, with suitable hydrology. **An aerial survey is nothing more than a random transect that is FAR INFERIOR to a random ground transect in its ability to detect Swamp Pink. In order to locate Swamp Pink plants, one MUST BE BENEATH THE CANOPY of the appropriate forest habitat. Thus, aerial surveys cannot possibly be considered adequate to meet the USF&WS search protocol for Swamp Pink.** The surveyor should census not only the wetlands on the subject property, but also upstream and downstream wetlands. Please **do not** collect specimens or send plants or parts of plants to the Service for identification. Report the survey method used, the qualifications of the surveyor, and the results of the survey (including size of area surveyed, hours searched, aerial and/or ground photographs with index map, and wetland delineations) to:

U.S. Fish and Wildlife Service,
New Jersey Field Office
927 North Main Street, Building D-1
Pleasantville, New Jersey 08232
Telephone: (609) 646-9310
Facsimile: (609) 646-0352

CONSERVATION AND PROTECTION: The Service's Swamp Pink Recovery Plan identifies permanent protection of at least 80 large populations. If you own property containing swamp pink or know of other landowners who would be interested in permanently protecting this species, please notify the Service for additional information and on and assistance.

Appendix 13



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Delaware Township

Hunterdon County, New Jersey
www.DelawareTwpNJ.org

Judith A. Allen, RMC
OFFICE OF TOWNSHIP CLERK

PO BOX 500
TOWNSHIP HALL
SERGEANTSVILLE, NJ 08557
(609) 397-3240, Ext. 205
Direct FAX Number (609) 397-4893

November 28, 2015

Anthony C. Cox
PennEast Pipeline Company, LLC
One Meridian Boulevard, Suite 2C01
Wyomissing, Pennsylvania 19610

Re: Proposed PennEast Pipeline in Delaware Township, New Jersey

Dear Mr. Cox:

At the November 23, 2015 meeting of the Delaware Township Committee, members approved Resolution #2015-70 (enclosed) indicating that the Committee does not approve of PennEast surveying activities in the public right-of-way. Resolution #2015-70 cites other Resolutions previously approved by the Delaware Township Committee, and I am enclosing Resolution #2014-59 and #2015-58 – both opposing the pipeline -- and Resolution #2015-57 prohibiting PennEast from survey access on Township-owned land for your reference.

In addition, Committee members agreed that PennEast should not contact any Delaware Township Department, Township Professional, or Township Agency directly. Instead, please contact the Township Committee with any question. All contact with Delaware Township should be done through the Township Committee.

Finally, the Delaware Township Committee requests that PennEast provide advance notice of all overhead flights it authorizes in the Township well in advance of the flights. This is a rural, farming community. Overhead planes and helicopters alarm residents. They terrify the livestock, especially horses. The Township will post notice of the flights so that residents and animal owners can prepare for them. That notice should be provided to Police Chief Chris Cane (609-397-8189) and Township Clerk Judith Allen 609-397-3240, Ext. 205. jallen@DelawareTwpNJ.org.

Very truly yours,

Judith A. Allen, RMC
Township Clerk

Enclosures: Resolution #2015-70
Resolution #2014-59
Resolution #2015-58
Resolution #2015-57

cc: Peter J. Fontaine, Esq. Cozen O'Connor P.O. Box 5459 Cherry Hill, NJ 08002
The Honorable Norman C. Bay, Federal Energy Regulatory Commission Chairman
Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission w/ enclosure
Ruth Foster at NJDEP
Congressman Leonard Lance
Senator Cory Booker
Senator Robert Menendez
Assemblyman Jack M. Ciattarelli
Assemblywoman Donna Simon
Senator Christopher "Kip" Bateman
Assemblyman-Elect Andrew Zwicker
Kingwood Township Committee
Holland Township Committee
Hopewell Township Committee

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(609) 397-3240, Ext. 205
Direct FAX Number (609) 397-4893

DELAWARE TOWNSHIP
RESOLUTION #2015-70
RESOLUTION CONCERNING PENNEAST
SURVEYING IN THE PUBLIC RIGHT-OF-WAY

WHEREAS, PennEast Pipeline Company LLC (PennEast) proposes to construct a natural gas pipeline through Delaware Township and across Township-owned land, environmentally fragile areas, preserved open space, preserved farmland and private property; and

WHEREAS, on September 29, 2014 and on August 10, 2015, the Delaware Township Committee adopted Resolutions #2014-59 and #2015-58 opposing the pipeline; and

WHEREAS, on August 10, 2015, the Delaware Township Committee adopted Resolution #2015-57 prohibiting PennEast from survey access on Township-owned lands and informed PennEast that Delaware Township does not consent to PennEast surveying Township-owned properties; and

WHEREAS, on September 24, 2015, PennEast filed a formal application with the Federal Energy Regulatory Commission (FERC) to construct the pipeline; and

WHEREAS, on October 28, 2015, Delaware Township filed a Motion to Intervene in the FERC proceeding to oppose the construction of the pipeline; and

WHEREAS, on October 9, 2015, counsel to PennEast sent a letter "To Whom it May Concern" stating his opinion that New Jersey Statute 46:11-1, entitled "Right of Entry to Make Surveys in Certain Proceedings," gave PennEast surveyors the right to utilize the public right-of-way to perform surveys on behalf of the pipeline company; and

WHEREAS, FERC has not granted PennEast a Certificate of Public Convenience and Necessity and unless or until it does there is no finding that the proposed pipeline is an authorized "public improvement".

NOW, THEREFORE, BE IT RESOLVED by the Township Committee of the Township of Delaware that it does not approve of PennEast surveying activities in the public right-of-way.

ATTEST:
Judith A. Allen, RMC
Township Clerk
November 23, 2015

Joseph Vocke, Deputy Mayor

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Delaware Township

Hunterdon County, New Jersey
www.DelawareTwpNJ.org

Judith A. Allen, RMC
OFFICE OF TOWNSHIP CLERK

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Direct FAX Number (609) 397-4893

DELAWARE TOWNSHIP
RESOLUTION #2014-59

WHEREAS, PennEast Pipeline Company, LLC, a joint project of AGL Resources, NJR Pipeline Company, a subsidiary of New Jersey Resources, South Jersey Industries, and UGI Energy Services, a subsidiary of UGI Corporation, proposed the construction of a new pipeline for the transfer and deliver of natural gas generated by deep well "fracking" in areas of Marcellus Shale in Pennsylvania; and

WHEREAS, the proposed pipeline is approximately one hundred (100) miles long of thirty inch (30") buried pipe crossing parts of Luzerne, Carbon, Northampton and Bucks Counties in Pennsylvania and Hunterdon and Mercer Counties in New Jersey; and

WHEREAS, as currently proposed, the pipeline cuts through Delaware Township, Hunterdon County, causing or contributing to the following:

1. The proposed route of the buried pipeline route crosses at least seventeen C-1 streams, namely, the Wickecheoke Creek and nine of its tributaries, the Alexauken Creek and five of its tributaries, and one tributary and headwater area of the Lockatong Creek; and

2. The proposed route impacts pristine woods and forests causing damage to wildlife and plant life; and

3. Said removal of trees and vegetation along creeks, streams and waterways will result in the loss of sediment filtration, thereby causing sediment buildup in these waterways and the waterways that flow into the Delaware and Raritan Canal, a source of drinking water for millions of New Jersey residents; and

4. The proposed route crosses properties that were purchased with New Jersey Department of Environmental Protection Green Acres Funds, New Jersey Department of Agriculture Funds, Hunterdon County Open Space Funds, Delaware Township Open Space Funds, Federal Farm and Ranch Protection Program Funds, New Jersey Water Supply Authority Funds, as well as other properties that are subject to conservation easements and/or deed restricted against development; and

5. The proposed route crosses or affects properties that were purchased by non-profit land conservation and protection organizations including the New Jersey Conservation Foundation, the D&R Greenway, and the Hunterdon Land Trust; and

6. The taxpayers of the State of New Jersey; Hunterdon County, Delaware Township as well as foundations and individual donors and farmers and landowners have invested $7,375,601 to permanently preserve these properties in perpetuity; and

7. The proposed route crosses the Rosemont Ridge Agricultural District that received New Jersey and Federal Historic Designation in 2010, said district covering 20,360 acres, 169 buildings, and historic viewsheds as well as historic agricultural land use patterns and landscapes; and

8. The proposed route will impact Township owned open space, privately held open space, and scenic vistas; and

9. The proposed route and the construction of pump stations along the way will impact ground water that Delaware Township residents depend on for domestic consumption, wetlands, springs, vernal ponds, and C-1 designated streams, all of which are highly valued by residents and visitors, are necessary for Delaware Township's way of life, and are irreplaceable; and

10. The proposed route of the pipeline may invade habitats of species protected by the Endangered Species Act, such as eagles, the wood turtle, the long tailed salamander, and various plants and other animals protected by federal and state law; and

11. WHEREAS, the proposed pipeline causes damage to Delaware Township residents by lowering property values, raising health concerns, raising safety concerns, impacting farms and residences, and generally degrading their quality of life and the historic, environmental and cultural resources they have dedicated themselves to protecting.

NOW, THEREFORE, BE IT RESOLVED by the Township Committee of the Township of Delaware, Hunterdon County, New Jersey as follows:

1. The Delaware Township Committee does hereby object to the design and construction of a 30 inch pipeline passing through and under Delaware Township, Hunterdon County. The construction and operation of the pipeline will significantly damage C-1 protected streams, wildlife habitat, existing farm operations, and the quality of life in Delaware Township.

2. The Delaware Township Committee calls for a moratorium on any and all planning for the PennEast Pipeline and requests that any such project, if approved, be removed from

the pristine reaches of Hunterdon and Mercer Counties in New Jersey and Luzerne, Carbon, Northampton and Bucks Counties in Pennsylvania

3. The Delaware Township Committee seeks the cooperation of other similarly located and affected municipalities, asking that all nearby affected municipalities adopt a similar resolution.

4. The Delaware Township Committee adopts, and calls upon similarly situated municipalities to adopt a resolution authorizing each municipality to join together to enter their appearance in any proceeding before the Federal Energy Regulatory Commission the Delaware River Basin Commission, the New Jersey Public Utility Commission, and any other regulatory authority, so that by the strength of numbers they may successfully oppose the PennEast Pipeline project and have the ability to cause the relocation or termination of the project so as to prevent environmental degradation and to project the environment envisioned by the State of New Jersey.

5. The Delaware Township Committee will appoint a Delaware Township subcommittee to help the governing body in its efforts as an intervener in the FERC process and provide guidance in submitting written objections to FERC in opposition to the pipeline.

6. The Delaware Township Committee will act as an Intervener and/or Objector to the proposed PennEast Pipeline.

7. Working with its non-profit partners, local groups, and other municipalities, the Delaware Township Committee will exercise careful fiscal oversight in this opposition process.

8. The Delaware Township Committee recognizes that the pipeline could be beneficial to society through potentially lower natural gas prices in the national economy, though Delaware Township will not currently benefit from any of the natural gas being transported through this pipeline. The Delaware Township Committee determines that the damage to the Township outweighs any benefit the Township will gain.

ATTEST:

Judith A. Allen, RMC
Township Clerk
September 29, 2014

Kenneth J. Novak, Mayor

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Delaware Township

Hunterdon County, New Jersey
www.DelawareTwpNJ.org

Judith A. Allen, RMC
OFFICE OF TOWNSHIP CLERK

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(609) 397-3240, Ext. 205
Direct FAX Number (609) 397-4893

DELAWARE TOWNSHIP
RESOLUTION #2015-58

WHEREAS, PennEast Pipeline Company, LLC, a joint project of AGL Resources, NJR Pipeline Company, a subsidiary of New Jersey Resources, South Jersey Industries, and UGI Energy Services, a subsidiary of UGI Corporation, proposed the construction of a new pipeline for the transfer and deliver of natural gas generated by deep well "fracking" in areas of Marcellus Shale in Pennsylvania; and

WHEREAS, the proposed pipeline is approximately one hundred (100) miles long of thirty inch (30") buried pipe crossing parts of Luzerne, Carbon, Northampton and Bucks Counties in Pennsylvania and Hunterdon and Mercer Counties in New Jersey; and

WHEREAS, as currently proposed, the pipeline cuts through Delaware Township, Hunterdon County, causing or contributing to the following:

1. The proposed route of the buried pipeline route crosses at least seventeen C-1 streams, namely, the Wickecheoke Creek and nine of its tributaries, the Alexauken Creek and five of its tributaries, and one tributary and headwater area of the Lockatong Creek; and

2. The proposed route impacts pristine woods and forests causing damage to wildlife and plant life; and

3. Said removal of trees and vegetation along creeks, streams and waterways will result in the loss of sediment filtration, thereby causing sediment buildup in these waterways and the waterways that flow into the Delaware and Raritan Canal, a source of drinking water for millions of New Jersey residents; and

4. The proposed route crosses properties that were purchased with New Jersey Department of Environmental Protection Green Acres Funds, New Jersey Department of Agriculture Funds, Hunterdon County Open Space Funds, Delaware Township Open Space Funds, Federal Farm and Ranch Protection Program Funds, New Jersey Water Supply Authority Funds, as well as other properties that are subject to conservation easements and/or deed restricted against development; and

5. The proposed route crosses or affects properties that were purchased by non-profit land conservation and protection organizations including the New Jersey Conservation Foundation, the D&R Greenway, and the Hunterdon Land Trust; and

6. The taxpayers of the State of New Jersey, Hunterdon County, Delaware Township as well as foundations and individual donors and farmers and landowners have invested $7,375,601 to permanently preserve these properties in perpetuity; and

7. The proposed route crosses the Rosemont Ridge Agricultural District that received New Jersey and Federal Historic Designation in 2010, said district covering 20,360 acres, 169 buildings, and historic viewsheds as well as historic agricultural land use patterns and landscapes; and

8. The proposed route will impact Township owned open space, privately held open space, and scenic vistas; and

9. The proposed route and the construction of pump stations along the way will impact ground water that Delaware Township residents depend on for domestic consumption, wetlands, springs, vernal ponds, and C-1 designated streams, all of which are highly valued by residents and visitors, are necessary for Delaware Township's way of life, and are irreplaceable; and

10. The proposed route of the pipeline may invade habitats of species protected by the Endangered Species Act, such as eagles, the wood turtle, the long tailed salamander, and various plants and other animals protected by federal and state law; and

11. WHEREAS, the proposed pipeline causes damage to Delaware Township residents by lowering property values, raising health concerns, raising safety concerns, impacting farms and residences, and generally degrading their quality of life and the historic, environmental and cultural resources they have dedicated themselves to protecting.

NOW, THEREFORE, BE IT RESOLVED by the Township Committee of the Township of Delaware, Hunterdon County, New Jersey as follows:

1. The Delaware Township Committee does hereby object to the design and construction of a 30 inch pipeline passing through and under Delaware Township, Hunterdon County. The construction and operation of the pipeline will significantly damage C-1 protected streams, wildlife habitat, existing farm operations, and the quality of life in Delaware Township.

2. The Delaware Township Committee calls for a moratorium on any and all planning for the PennEast Pipeline and requests that any such project, if approved, be removed from

the pristine reaches of Hunterdon and Mercer Counties in New Jersey and Luzerne, Carbon, Northampton and Bucks Counties in Pennsylvania

3. The Delaware Township Committee seeks the cooperation of other similarly located and affected municipalities, asking that all nearby affected municipalities adopt a similar resolution.

4. The Delaware Township Committee adopts, and calls upon similarly situated municipalities to adopt a resolution authorizing each municipality to join together to enter their appearance in any proceeding before the Federal Energy Regulatory Commission the Delaware River Basin Commission, the New Jersey Public Utility Commission, and any other regulatory authority, so that by the strength of numbers they may successfully oppose the PennEast Pipeline project and have the ability to cause the relocation or termination of the project so as to prevent environmental degradation and to project the environment envisioned by the State of New Jersey.

5. The Delaware Township Committee will appoint a Delaware Township subcommittee to help the governing body in its efforts as an intervener in the FERC process and provide guidance in submitting written objections to FERC in opposition to the pipeline.

6. The Delaware Township Committee will act as an Intervener and/or Objector to the proposed PennEast Pipeline.

7. Working with its non-profit partners, local groups, and other municipalities, the Delaware Township Committee will exercise careful fiscal oversight in this opposition process.

8. The Delaware Township Committee recognizes that the pipeline could be beneficial to society through potentially lower natural gas prices in the national economy, though Delaware Township will not currently benefit from any of the natural gas being transported through this pipeline. The Delaware Township Committee determines that the damage to the Township outweighs any benefit the Township will gain.

ATTEST:

Judith A. Allen, RMC
Township Clerk
August 10, 2015

Joseph Vocke, Deputy Mayor

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Delaware Township

Hunterdon County, New Jersey

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OFFICE OF TOWNSHIP COMMITTEE

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SERGEANTSVILLE, NJ 08557
(609) 397-3240
Direct FAX Number (609) 397-4893

DELAWARE TOWNSHIP
RESOLUTION #2015-57

RESOLUTION PROHIBITING SURVEY ACCESS BY PENNEAST PIPELINE COMPANY LLC

WHEREAS, the PennEast Pipeline Company, L.L.C. ("Company") proposed to construct a 36" diameter natural gas pipeline within Delaware Township ("Township" or "Delaware Township") and the Township has officially opposed the pipeline construction by Resolution #2014-59; and

WHEREAS, the Company has proposed two different pipeline routes through the Township which said proposed routes will cross preserved farmlands, open space, environmentally-constrained lands, Category One streams and tributaries, habitats of species protected by the Endangered Species Act, and properties of significant historic and cultural value; and

WHEREAS, the Township in partnership with County, State, Federal and non-profit agencies have invested $15,414,546.70 in the preservation of 2,146 acres of open space and farmland with the understanding that said properties are to be preserved and undeveloped for no fewer than one hundred (100) years from the date said properties were preserved; and

WHEREAS, the Township has significant interests in the Wichecheoke, Lockatong, and Rosemont Valley preserves in whose path the PennEast Pipeline is proposed; and

WHEREAS, any disturbance of the aforementioned lands, species and historic sites by survey work is deemed as potentially harmful and could result in irreparable harm; and

WHEREAS, on July 30, 2015 the New Jersey Conservation Foundation, a valued partner in the preservation of hundreds of acres of Township open space and farmland, issued a declaration to "cease and desist unauthorized entry and survey activities" on New Jersey Conservation's properties in response to the "discovery that PennEast surveyors entered land owned by New Jersey Conservation Foundation and Hunterdon Land Trust" without the permission of the owners.

NOW, THEREFORE, BE IT RESOLVED by the Township Committee of the Township of Delaware, in the County of Hunterdon, as follows:

1. Delaware Township hereby denies any and all survey access to PennEast Pipeline Company, L.L.C., including denying access to its employees, agents, servants, representatives, consultants and contractors on any and all Township-owned property.

2. Delaware Township hereby denies any and all survey access to PennEast Pipeline Company, L.L.C., including denying access to its employees, agents, servants, representatives, consultants and contractors on any and property in which the Township has a legal interest.

3. Copies of this resolution be distributed to Governor Chris Christie, U.S. Senator Robert Menendez, U.S. Senator Cory Booker, Congressman Leonard Lance, Senator Christopher "Kip" Bateman, Assemblywoman Donna Simon, Assemblyman Jack M. Ciattarelli, the New Jersey Department of Environmental Protection, the New Jersey State Agricultural Development Commission, Hunterdon County Freeholders, Hunterdon County Agricultural Development Board, the New Jersey League of Municipalities, The New Jersey Conservation Foundation, the Sierra Club, the Delaware Riverkeeper Network, the Hunterdon Land Trust, the Delaware Township Citizens Against the PennEast Pipeline (DTCAP) and a copy posted on the Township web page for the benefit of its residents and for those affected communities in Hunterdon and Mercer counties in New Jersey as well as for those affected communities located within Luzerne, Carbon, Northampton, and Bucks Counties in Pennsylvania.

4. A copy of this Resolution shall be placed on file in the office of the Township Clerk.

ATTEST:

Judith A. Allen, RMC
Township Clerk
August 10, 2015

Joseph Vocke, Deputy Mayor

CERTIFICATION

I, Judith A. Allen, RMC, Clerk of the Township of Delaware, certify that the foregoing resolution was adopted by the Township Committee of the Township of Delaware at its meeting held on the 10th day August, 2015.

Judith A. Allen, RMC

Appendix 14

Citizens Against the Pipeline

The Honorable John King
The Honorable Suzanne Lagay
The Honorable Mathew Holt
The Honorable John Lanza
The Honorable Robert Walton
The Honorable Anthony Kearns

Dear Sirs and Madam:

We would like to share with you our concerns regarding aerial surveying by the PennEast Pipeline Company LLC in Hunterdon County. Delaware Township received notice from the company to expect surveying by air to commence on November 23, 2015 (but this may not have occurred due to high winds). Residents were notified by the township of the scheduled aerial surveying; however, some level of aggressive aerial surveying appears to have already taken place in recent weeks. A resolution passed last night by Delaware Township opposing PennEast's use of municipal rights of way to survey from the roads was partly inspired by these aerial incidents, as described in an article this morning at nj.com.

http://www.nj.com/hunterdon/index.ssf/2015/11/delaware_to_penneast_no_to_surveys_from_rights-of-.html

Impacted landowners along the route and residents nearby have reached out to us and to the FERC docket about these recent low altitude overflights by airplanes and helicopters, and with fear about upcoming scheduled surveys. Owners of farms are very concerned about the impact of these disturbances on the safety of horses and other livestock that are prone to spooking. The intensity of a horse's reaction when spooked makes the animal unpredictable and places it, and any humans around it, in grave danger. Horses and farm animals are ubiquitous in Hunterdon County and along the proposed route of the pipeline. Landowners have expressed to us that they feel they cannot leave their farms and animals because of the anticipated danger. As such, aerial surveying seems a particularly harassing and potentially dangerous method to obtain information.

Linked below is one such comment on this issue placed to the FERC docket yesterday:
https://elibrary.ferc.gov/IDMWS/common/opennat.asp?fileID=14052387

We are also very concerned about the purpose of these surveys. Given that nearly 70% of New Jersey landowners impacted by this project have refused survey access, landowners are concerned that PennEast is attempting to obtain survey information by remote estimates via aerial surveys. NJDEP in its July 2015 meetings with PennEast as filed to the FERC docket in the July Progress Report stipulates that PennEast must obtain field survey permission from all affected landowners in order to submit a legitimate and complete application for the necessary state permits, and that remote or estimated survey information would not be accepted. Landowners fear that these aerial surveys are attempts to circumvent their legal rights to refuse survey and that they constitute trespassing.

We ask the Freeholders and the Prosecutor's Office to determine the purpose and the legality of these aerial surveys, and to ensure that the safety and property rights of impacted residents are of the highest concern to the County. We thank you in advance for your support on this issue, and we appreciate knowing that we could reach out to you for help. We wish you all a Happy Thanksgiving.

Sincerely,

Lorraine Crown
Holland-Alexandria Citizens Against the Pipeline
Milford, NJ

Laura Wilson
Holland –Alexandria Citizens Against the Pipeline
Milford, NJ

Michael Spille
Board of Trustees, West Amwell Citizens Against the Pipeline
West Amwell, NJ

Cathy Urbanski
Board of Trustees, West Amwell Citizens Against the Pipeline
West Amwell, NJ

Kristin McCarthy
Co-director, Delaware Township Citizens Against the Pipeline
Delaware Township, NJ

Debra Bradley
Co-director, Delaware Township Citizens Against the Pipeline
Delaware Township, NJ

Deborah Kratzer
Kingwood Citizens Against the Pipeline

Kingwood, NJ

Maureen Syrnick
Kingwood Citizens Against the Pipeline
Kingwood, NJ

Cc: Ruth Foster, Ph.D.
Director, Permitting and Environmental Review
NJDEP

John Gray
Deputy Commissioner
NJDEP

Congressman Leonard Lance
NJ Senator Michael Doherty
NJ Assemblyman John DiMaio
NJ Assmeblyman Eric Peterson
NJ Senator Shirley Turner
NJ Assemblyman Reed Gusciora
NJ Assemblywoman Elizabeth Maher Muoio
NJ Senator Kip Bateman
NJ Assemblyman Jack Ciattarelli
NJ Assemblywoman Donna Simon
Alexandria Township New Jersey
Holland Township New Jersey
Delaware Township New Jersey
Kingwood Township New Jersey
West Amwell Township New Jersey

Appendix 15

U.S. Department
of Transportation
**Federal Aviation
Administration**

Flight Standards District Office

961 Marcon Blvd, Suite111
Allentown, PA 18109-9371
Phone (610)264-2888
FAX (610)264-3179

January 14, 2016

File: CEA0520160005

Ms. Jacqueline Evans
112 Worman Road
Stockton, NJ 08559

Dear Ms. Evans:

This letter is in response to your complaints from September 20, 2015 through December 7, 2015, concerning flights of various types of aircraft over your property in Stockton Township, New Jersey. You indicated these flights were in support of PennEast Pipeline survey operations.

Regarding flights before December 2015 for which you were able to provide registration numbers, we have determined those flights were conducted by aircraft operated by several flying schools in your vicinity. Some of the maneuvers you described are typical of student flights, although we cannot be certain they were strictly conducted by student pilots. Regardless, as long as these flights are conducted in accordance with the "Rules of the Air", Code of Federal Regulations (CFR) Part 91, they may be legally conducted over your property.

Of specific interest to you were the rules for minimum safe altitude; therefore, we discussed and sent you those rules by e-mail on November 13, 2015. The rule, Code of Federal Regulations (CFR) 91.119, pertains to both helicopter and fixed wing operations. We also contacted the flight schools operating these aircraft. We approached them from the standpoint of the FAA philosophy of "fly neighborly". This approach encourages pilots to carefully abide by the rules of the air and to conduct their flights in different airspace from time to time. This was a joint effort conducted by the Allentown and Philadelphia Flight Standards District Offices.

Concerning the flight conducted on December 7, 2015, by a Bell 407 helicopter, N407J, this was a flight on behalf of the PennEast Pipeline Project for the purpose of aerial survey along the proposed pipeline route. We reviewed the qualifications and procedures of the operator that conducted this operation, and the statements plus photographs submitted to us by witnesses that observed it. We found the operator that conducted the operation to be qualified to do it, and the operation conducted in accordance with applicable CFRs.

The statements and photographs submitted to us did not meet the evidentiary requirements supporting a finding of violation sufficient for us to proceed with any FAA action. Based on all the facts and circumstances regarding this matter, there is insufficient evidence at this time to support further investigation. Accordingly, we consider the matter closed. However, if you have any new information that would assist the FAA in pursuance of an action, please do not hesitate to contact us at this Flight Standards District Office.

Thank you for your concern and interest in aviation safety.

Sincerely,

Arthur N. Brownell
Aviation Safety Inspector-Operations

Appendix 16

Phone Conversation: 1/4/16
Between Jacqueline Evans and Jeff England
Original recording was 15:21. Recording started part way into conversation.
Recorded by Jacqueline Evans
Transcribed by Samantha Messina

Jacqueline Evans: ...ummm a directly impacted landowner.

Jeff England: (*Unclear*) (8 Sec)

Jacqueline Evans: yeah and i've had (*sigh*) over 4 months, since you changed the line, uhh, of flying from sun up to sun down, with two or three planes circling my house, frightening my children, and I just wanted to know what the point of this was?

Jeff England: Uh airplanes?

Jacqueline Evans: mhm, they circle they circle my house, they circle houses on the line and it appears that your surveying from the air?

(*Pause*)

Jeff England: umm uhh that's. We're not. umm I I really don't know what's a what they could be. They're they're not us. umm I can I can assure you that. Um We actually had some similar requests come in and uh actually got a call from FAA here recently asking uh if we could show them our flight plans and and quite honestly we we responded back with the FAA that we're not we're not doing aerial surveys. Now in the past umm back in July there was a flight, one flight with a helicopter, this was July, and I'll have to go back and look, maybe July 26th something like that, where we basically did a an overview flight with the FERCs umm just showing them the route and some prior alternatives but that's the only flight that we've we've conducted ummm really since the project originally began which would of been the original route which wouldn't have wouldn't have wouldn't have impacted your property. So umm I I I really don't know what to tell you ma'am. I am not real sure. I I know we've been umm I won't say accused but uhh people have have have mentioned that we've been doing surveys from the air and and we're not. Um really the the surveys that we that we conduct we have to do physically on on the ground umm surveyors obviously is looking for wetlands, uh water bodies, streams umm uhh cultural, like arrow heads that kind of thing and then of course just standard civil survey so...

Evans: (*Interrupts*) And so so these planes that come fly sometimes three or five hundred feet above my house stall their engines, circle repeatedly around me, uh you have not had, you and or subcontractors that you have hired, have not flown in these planes that have been flying repeatedly for all this time over over your pipeline proposal area? That's all...

England: That that is correct ma'am. That (Evans: So) is is absolutely not us.

(2:38)
Evans: So who would do such a thing?

England: Uh I I don't know. I really don't know um I know that (Evans: Okay) um that other people have flown the pipeline route. um I know that um down in New Jersey there is a uh uh gentleman down in Hopewell township I've seen posted on websites that he's flown the route and taken pictures but umm it's it's it's it's really not us. I I I can assure ya.

Evans: It's It's...

England: I apologize.

Evans: It's kind of hard to believe I have to tell you. But that I also have last night, as many of us did here, I had a helicopter less than two hundred feet over my house hovering in one place for twenty minutes and then it moved to where you're proposing, right over where you are proposing to put your pipeline in, and stopped there for ten minutes and I had a police officer that witnessed it as long as well as a journalist. And it happened to many people in our town and uh do you know anything about that?

England: I I don't ma'am. I I honest to God I don't and I uh I uh and you know again just to kinda reiterate like we would, from the information that we need to gather umm you know to do our our environmental analysis that kind of stuff there's there's no information that we could gather from a pipe uh a helicopter at night or a or airplanes umm you know for that matter so. (*Over top each other* Evans: Okay so could you could you) um so I don't know what so but

Evans: tell me why you moved the route to my place? When I have such a small piece of property and and you don't even show things (England Interupts: um could you uh) on it that are there?

England: What's that I am sorry ma'am? What's that?

Evans: I I just feel like your maps are incomplete they don't show things that are that exist that are that are very visible by planes and. they're just they're just obvious and they're not they're not listed on your maps. I don't feel like it's honest presentation of where you are proposing to put your pipeline and I don't think that you're uh, I kinda wonder why you say that you're not within a hundred and fifty feet of wells when you are and and then you won't come to a uh board of health meeting in our town, you won't come to any meeting every time it's you are requested to be at a meeting PennEast says no and it just it really comes across like you guys are gonna cram this down our throat with little or no actually absolutely no consideration for us. There seems to be no consideration for us. And and in any any matter I have three little kids and this is everything I have and and and I've worked really hard for it and then you're gonna come and

destroy it. You're going to make it so that I can never use my property the way I am using it. So why did you why did you move it here?

(5:13)
England: Um well I mean the I'm just trying to pull an (*unclear* 5:18) where your property is right now. um We, one one of the major reroutes that we did you know way back when I guess we moved we moved onto your property was that the March timeframe or January timeframe?

Evans: No it was like July. July. That's when I

England: July?

Evans: Yeah

England: okay.

Evans: I didn't get notice until then

England: You know I to be honest with you off the top of my head without without going back and looking at that particular reroute umm I would you know we have obviously reasons why we moved to where it was but I would have to go back and do some more research and and figure out why it was moved onto your property versus where it was before. (5:53) Um we were paralleling the the JCPno or the PP or um PSGandE power lines they're not on your property.

Evans: Right

England: And we we deviated away from them for a reason um and uh I uh I I I have to get back and look at it ma'am. I apologize that I don't know that off the top of my head but. I just saw saw an email that I was suppose to call you so I *(giggles)* I just I just figured I'd would pick up the phone and call you but I can I can absolutely get back to you on that (Evans: Yeah) uh I can look it up.

Evans: Yeah I would like to know because it seems particularly like I I nobody in my town can make sense out of why why you are coming through my property. I mean it's like it it I don't.... I whatever. And I I can't make sense of it and like I have a thousand reasons why that really is a bad idea but I'd be curious to see why you think it's a good idea. Um

(6:46)
England: Okay no absolutely and and you know I I know that um obviously you haven't signed the survey permission and these these are the things that we hope to talk to folks about in in in the benefits of of being out and being able to sit down and have a land agent sit down with you know property owners like you that really fully understand that it's um that's why it's so important you know to have these discussions. Uh Just looking at imagery here um on google earth um I

am coming down. It looks like we deviated around off the power lines to and and that's where it impacted your property. Uh you have a pond there in the corner? Is that correct?

Evans: Yes that is a spring fed pond. (*laughs)* Won't be anymore when you do what you do. yeah.

England: Yeah so *(sighs)* um um I am assuming that we when we deviated off it was for some sort of environmental consideration umm uh but again I will have to get back and get back and look at that. And I'll absolutely get back to you though. That's that's not a problem. I am more than happy to talk to you and I would be more than happy to have um you know uh somebody come out and sit down with you at some point if you would like have a sit down.

Evans: You know I I I uhh I don't know that I could I could do that but I would I would like to have a conversation on the phone but I don't want anyone from PennEast on my property at this point I um I I I have a trust issue. I've had signs stolen. I just I just had another four no trespassing signs stolen right where you are coming through. I I you know I don't know. I I've had a lot of nonsense I've had a chain on my driveway cut and half of it taken (England: right) uh that was when you guys flew over with the helicopter. Um you know so I have a huge trust issue here and then I also heard *(sigh)* the story of Hopewell where somebody had a, they are at the end of the line and they cooperated with you guys to get you guys to go on the edge of their properties so they could put a development in and then you still went through the center of it. So there aren't very good stories about people cooperating with you and I don't know what I would possibly get out of that. I I I'm left with a a house that I could never get a morgage on to put my kids through college that's what I am left with. How do you fix that? you know? and that's that's where I sit right now. So I have three little kids, um I am a single mom and I have their future to think about. And and leaving me with a a property nobody will want and nobody will want their children to come here for birthday parties or playdates (*stutters*) What kind of life do I have? You know so that's where I am at. you know?

England: I I (*unclear)*

Evans: it's a small property, it's not it's not like a big farm that you're cutting through the corner of you know? You are a hundred and eighty feet from my door. (*laughs)* I am not gonna even tell you how close you are to my wall but that's kinda disturbing um so... But I would like to know why you are coming through my property, I would you know.

England: Okay yeah what I can do is is I will look up the reasons for the deviations from the powerlines that that brought us over to where we are currently are shown going through and I can get back to you on that. I promise.

Evans: I really appreciate it. Thank you for your time

England: Yes ma'am. Not a problem and listen I I you know um you know I I understand your concerns I I do and I um you know apologize that that you have er feel bad that you have trust issues because I can tell you that that I will um no matter what I will tell you the truth (*laughs*) on everything. I mean I've I've got several little kids of my own and and you know I I um spent eleven years in the military and and I I when I say something it's true so I I can assure you that I won't lie to you.

Evans: Okay Okay

England: so

Evans: alright. I appreciate...

England: Well let me let me look into this and I will I'll follow up with you and and in the meantime, but with regards to the airplanes and the helicopters ma'am I I you know with all sincerity that is absolutely not us so I I don't know where they come from but I guess my uh suggestion on that would possibly you know maybe call the FAA and see if somebody has filed flight plans in that area um and

Evans: They they don't know anything about it but I have photographs everyday of these planes and I have tail numbers and I'm investigating it because I'm I'm I'm I, whoever whoever it is I am finding out who it is and they they there have been laws broken they flew over my kids birthday party on Sunday, this goes on everyday, holidays included. Sunday I had an entire third grade class of my twin boys and (England: Mhm) their parents outside and they are playing over the hailbails and all this stuff right? (England: yeah) And this plane that keeps circling my place flys three hundred feet above us repeatedly and my children have to explain to them what that's about and then I have to explain to the parents and apparently that's a pretty serious thing that whoever was in that plane did and and it... I I I I don't know so anyways that's the I I I I've

England: Yes that's

Evans: I've had it with this

England: Yeah that's against the law and hopefully you do have um tail numbers and I would absolutely encourage you to uh forward them on to the police or whoever to find out who it is and (*unclear*) property

Evans: Well you know one of them actually is uh a plane that I did tail numbers for and I think at a township meeting the police looked into it and PennEast uh admitted they were flying that plane that day. So uh

England: uhhh

Evans: and that they were allowed to. I am going to look into that but I think that that's what it came down to so I don't know maybe it's information you don't know that somebody else does but uh we were told that yes they were surveying in planes and that they've you know like we're allowed to do that so unless they...

England:Yeah I don't know

Evans: went under five hundred feet that they weren't they weren't you know breaking any laws. But this reoccurring flying all the time people who live near airports have rights to have quite during certain times and and this this...

England: Oh yeah absolutely there are there are quiet rules around that I I lived near air force bases for part of my life believe me (Evans: Yeah) Yeah I understand. And (Evans: Well) and I will tell you that if you can if you find if you know if you can give me you know I won't be able to do anything with the tail numbers but if you can find out who's airplane and then and and I'd be interested to know myself because um all of our subcontractors you know the folks doing the surveying they they work for me and I can assure you that we're not that we're not you know flying around an airplane so

Evans: Okay. Alright

England: I apologize I would hate that myself believe me I would. so if uh especially at night if uh you know my little one is is well both little ones are hard enough to get to bed at night and uh if they would wake them you I would be furious, pretty furious about that.

Evans: Yeah they went to bed at eleven o'clock last night scared because of what happened I mean it was like it was like having a ufo over my house. It sat so still so loud a neighbor from from half a mile away came over because she could hear it and and and (England: right) followed the sound like what is that and it's not just me it was many people you know. So I don't know you know I think if if I am gonna find out who those people are if you could find out uh you know since since nine eleven I know there's a way to find out about every aircraft that's out there in the sky flying around and I am going to find out who did that and and so help me if it's you guys... I I just like that that that would I mean it would infuriate me no matter who did that because I don't know how you could even justify that you know?

England: Yeah no I I agree. and and you know please feel free to do so so like I said we've got um it's it's it's not us so we don't have anything to hide there so umm

Evans: okay

England: I I do apologize that there are I do I feel for you that is that's troubling. I don't know who would be doing that but it's it's um it's it's not us ma'am.

Evans: Okay. Alright okay well well um get back to me when you can you know find out about why why you think I should have a pipeline in my property (*Laughs*) and uh let me know. okay

England: Alright. Yes ma'am. Listen uh you have a good evening and take care. I'll get back to you.

Evans: Okay thank you. You too.

England: Thank you. Bye.