September 11, 2017

Attention: Waterways and Wetlands Program Manager
Pennsylvania Department of Environmental Protection
Southcentral Region
909 Elmerton Avenue
Harrisburg, PA 17110

By email to: WW-SCRO@pa.gov

RE: Proposed State Water Quality Certification Required by Section 401 of the Clean Water Act for the Birdsboro Pipeline Project: ***DEP File No.: WQ03-003. DTE Midstream Appalachia, LLC Inc.***

Note: *This comment is being submitted both for purposes of the Section 401 Water Quality Certification as well as Chapter 105 review for the proposed DTE Midstream Pipeline. Please ensure all relevant PADEP personnel and files receive a copy of this comment in order to ensure full and fair review in all contexts and please ensure this comment is made part of the official file and record for both reviews.*

Attention: Waterways and Wetlands Program Manager:

The Delaware Riverkeeper Network (DRN), a private non-profit organization, champions the rights of our communities to a Delaware River and tributary streams that are free-flowing, clean, healthy, and abundant with a diversity of life. DRN has nearly 20,000 members throughout the Delaware River Watershed including residents of Birdsboro and Berks County.

In the August 12, 2017 issue of the *Pennsylvania Bulletin*, the Pennsylvania Department of Environmental Protection (PADEP) noticed its intent to issue a Clean Water Act Section 401 Water Quality Certification for DTE Midstream Appalachia, LLC's (DTE's) Birdsboro Pipeline Project. This project includes: 13.2 miles of new 12-inch diameter natural gas pipeline which will run from the receipt point on Texas Eastern Transmission Company's (TETCO) pipeline in Rockland Township, Berks County, to the Birdsboro Power Facility in the Borough of Birdsboro, Berks County, and will cross 28 streams and 21 wetlands. The project also proposes one new pig receiver at the Birdsboro Power Facility and one new meter site at the TETCO interconnect with two new taps on the TETCO

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pipelines. The pipeline is being proposed to fuel the proposed Birdsboro Power facility. The proposed Birdsboro Pipeline Project will require approximately 128 acres of earth disturbance, and permanent impacts to 493 linear feet and temporary impacts to 649 linear feet of streams including the Schuylkill River (WWF) and two Unnamed Tributaries (UNT's) to the Schuylkill River (WWF); Monocacy Creek and eighteen UNTs to Monocacy Creek (WWF); four UNTs to Manatawny Creek (CWF); Little Manatawny Creek (CWF) and one UNT to Little Manatawny Creek (CWF), 0.2 acre of permanent impacts to floodway, 2.0 acres of temporary impacts floodway, 1.09 acre of temporary wetland impacts, and 1.22 acre of permanent wetland impacts that are associated with permanent right-of-way maintenance.

DRN has reviewed information about DTE's proposed pipeline and we submit this comment. This comment also supplements DRN's June 30 submission regarding **E06-716: Birdsboro Power, LLC**; and **E06-717: DTE Midstream Appalachia**. DRN also requests a hearing on the proposal to issue 401 Certification for the Birdsboro Pipeline Project.

The proposed Section 401 Certification is unlawful in process, substance, and law. It has been argued that once a state 401 certification has been granted that it cannot be rescinded. Pennsylvania's decision to give its power away in advance of conducting the necessary review and approval is illegal as well as unwise.

Data Availability

The PADEP established the Pennsylvania Pipeline Portal website, http://www.dep.pa.gov/Business/ProgramIntegration/Pennsylvania-Pipeline-Portal/Pages/default.aspx, to provide information to the public about the pipeline permitting process in Pennsylvania and the roles that citizens, companies, non-profit organizations and government officials can play in that process.

DRN has repeatedly requested that the Birdsboro Pipeline Project be added to the Pennsylvania Pipeline Portal site. However, it has not been added there as of the date of this letter. The Birdsboro Pipeline Project does not cross multiple counties or regions, but it is a component of the proposed Birdsboro power plant. Members of the public have struggled to gain access to information about the full extent of the impacts that will result from this project.

This proposed power plant and its appurtenant structures have moved through permitting process with limited opportunities for public comment. The Birdsboro Pipeline Project will cross the Schuylkill River, a recreational resource that draws angles, paddlers, and birders from across Pennsylvania. The 230 kV transmission line that will connect the power plant to the grid will mar the landscape of Pennsylvania's first scenic river, a resource that belongs to Pennsylvanians now as well as generations yet to come. The proposed power plant to be fueled by the Birdsboro Pipeline Project is located on land in The Borough of Birdsboro and Union Township in Berks County, in the PADEP's southcentral region. However, the power plant is located in the easternmost county of the sprawling 15 county southcentral region. The site of the proposed power plant is closer to Philadelphia (less than 50 miles) than it is to the southcentral regional office in Harrisburg (more than 60 miles).

The proposed power plant will impact the people, communities, and natural resources of the southeast region, yet the far ranging impacts are not being considered. The dominant winds in the Reading area are west and northwesterly. With the power plant is proposed to be located in the northeastern corner of Birdsboro, communities to the east and south of the Borough will be affected. The proposed power plant is located in the floodplain of the Schuylkill River with the downwind

landscape being gently rolling terrain or even flat. Downwind land use is suburban becoming rural without large structures or heat sources to affect the dispersion of pollutants, which means the pollutants emitted from the proposed power plant will impact people, communities, and natural resources outside of the southcentral region.

As a result, the Birdsboro Pipeline Project, and the power plant it will fuel should be included on the Pennsylvania Pipeline Portal website to ensure the public is provided information about the permitting processes for the power plant and all of its components to ensure that Pennsylvania citizens, companies, non-profit organizations and government officials can take part in that process.

Comprehensive Environmental Evaluation

The Birdsboro Pipeline Project, the proposed power plant and all of its required components constitute a single and complete project. None of these components have independent utility. None of these components would be constructed without the construction of the other components. This lack of independent utility was expressly stated in correspondence to the PADEP regarding the water line proposed to supply the power plant.

> Response: Your understanding is correct; the project will not be undertaken without the Birdsboro Power project.[1]

DTE's Birdsboro Pipeline Project would not be built independently of the power plant. Therefore, PADEP should be considering the power plant and all its required components, along with the Birdsboro Pipeline Project, as a single and complete project. These proposed projects should be considered together to determine the total land requirements, wetland disturbance, waterbody crossings, water consumption, water quality impacts, and floodplain impacts:

The Reading Area Water Authority (RAWA) is proposing to construct and maintain a 16-inch water main permanently impacting:

- 190 square feet of Hay Creek (CWF, MF)
- 60 square feet of Exceptional Value Wetlands.
- 1,953 square feet of Angelica Creek (CWF, MF)
- 4.5 square feet of an UNT to Schuylkill River (WWF, MF)
- 10.5 square feet of a second UNT to the Schuylkill River (WWF, MF)
- 9 square feet of a third UNT to Schuylkill River (WWF, MF) and
- 15.75 square feet of a fourth UNT to Schuylkill River (WWF, MF).

This work is all for the purpose of providing cooling water to the proposed Birdsboro Power facility in Birdsboro, PA.[2]

Work proposed by Birdsboro Power[3,4] includes:

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[1] Weld, T.L. 24 Feb 2017. Letter to Nicholas T. Pyo, PADEP Southcentral Regional Office, *Ref: 18th Ward Water Booster Pump Station Upgrade and Water Main installation*

[2] 47 Pa.B. 3587 (July 1, 2017)

[3] 47 Pa.B. 3119 (June 3, 2017)

[4] Delaware River Basin Commission. (2016). DOCKET NO. D-2016-004-1

- Filling within the 100-year regulatory floodplain, specifically in the flood fringe to raise the land surface by 4 feet for the entire footprint of the power plant. The final grade is intended to be at least 1 foot above the regulatory flood elevation.
- Repair and replacement of existing outfalls, requiring the placement of R5 riprap and /or concrete apron, that will permanently impact:
    - 16 linear feet of Hay Creek (CWF, MF)
    - 8 feet of the Schuylkill River (WWF, MF)
    - 6 linear feet of the Schuylkill River (WWF, MF)
    - 40 feet of the Schuylkill River (WWF, MF)
- Construct and maintain an aerial electric transmission line with monopoles impacting
    - The Schuylkill River (WWF, MF) and its floodway and impacting:
    - 0.02 acre of a Palustrine Forested (PFO) wetland
    - An Unnamed Tributary to the Schuylkill River (WWF, MF) and the floodway associated with this stream and two other UNTs to the Schuylkill River
    - 0.01 acre of a Palustrine Emergent (PEM) wetland
- Construct and maintain eight 8-inch PVC electrical conduits underneath Unnamed Tributaries to the Schuylkill River
- Construct and maintain extensive temporary access roads in and along the floodway of the Schuylkill River (WWF, MF)

In addition, PADEP has waived[5] the permitting of additional impacts including:

- Construction and maintenance of an aerial electric transmission line attached to with monopoles impacting
    - Hay Creek (CWF, MF) and its floodway
    - An Unnamed Tributary to the Schuylkill River (WWF, MF) and the floodway associated with this stream and another UNT to the Schuylkill River (Latitude: 40.271655, Longitude: -75.807488)
    - 0.03 acre of an exceptional value Palustrine Emergent (PEM) wetland
    - Unnamed Tributary to the Schuylkill River (WWF, MF) and its floodway
    - Three Unnamed Tributaries to the Schuylkill River (WWF, MF) and their floodways
    - Two Unnamed Tributaries to the Schuylkill River (WWF, MF) and their floodways
    - Heisters Creek (WWF, MF) and its floodway
- Construction and maintenance of permanent road crossings utilizing culverts impacting
    - An Unnamed Tributary to the Schuylkill River (WWF, MF) impacting 25 linear feet
    - A second Unnamed Tributary to the Schuylkill River (WWF, MF) impacting 25 linear feet

Taken together, this power plant, pipeline, and its other required components will have substantial adverse impacts on the water resources of Pennsylvania. By not considering the cumulative impact of these projects, PADEP is inappropriately segmenting this single and complete project.

Also, DTE proposes the construction of two taps on the TETCO pipeline. The construction of two taps suggests future plans to expand pipeline and/or power generation capacity associated with the Birdsboro Pipeline Project and/or the Birdsboro Power facility. DTE should provide appropriate documentation on any future expansion, and PADEP must comprehensively evaluate all proposed

[5] Delaware River Basin Commission. (2016). DOCKET NO. D-2016-004-1

aspects of the project(s) for compliance. If the applicant asserts the taps are needed for safety and redundancy, they should be required to provide documentation regarding the industry standards demonstrating this need.

DRN has submitted in the past various considerations to take into account in regard to segmentation of pipeline and related projects. It is important and critical with such a proposed build out of pipelines in the Commonwealth to move natural gas abroad and to other markets, and given FERC's track record of improper segmentation as evidenced in successful litigation brought by DRN, that PADEP also consider cumulative environmental impact of the power plant, pipeline, and other appurtenant infrastructure as part of the state's permitting and certification process. The court held that FERC violated National Environmental Policy Act (NEPA) by: "(1) segmenting its environmental review of the Northeast Upgrade Project – i.e., failing to consider the Northeast Upgrade Project in conjunction with three other connected, contemporaneous, closely related, and interdependent Tennessee Gas pipeline projects – and (2) failing to provide a meaningful analysis of the cumulative impacts of these projects to show that the impacts would be insignificant" (*Delaware Riverkeeper Network, et. al. v. Federal Energy Regulatory Commission, Tennessee Gas Pipeline Company*). It is critical that PADEP use all regulatory measures in its authority to consider the wetlands and stormwater impacts through Chapter 102, Chapter 105 and Chapter 106 regulations.

The applicant should be required to provide PADEP with a Comprehensive Environmental Assessment of the Entire Project as a Whole, including the power plant and all its appurtenant structures. The Comprehensive Environmental Evaluation also needs to provide a detailed narrative and other appropriate documentation that comprehensively evaluates the project as a whole for compliance with the requirements associated with 25 Pa. Code Section 105.14 in its entirety.

Special attention should be given to the Comprehensive Alternatives Analysis, Avoidance and Minimization and Mitigation. That analysis must be environmentally based and include a "no impact" alternative. Furthermore, Comprehensive Alternatives Analysis, Avoidance and Minimization and Mitigation should consider the need proposed natural gas pipeline in the context of the need for the proposed power plant. Without the power plant, there is no need for the proposed pipeline. The sole customer for this pipeline is Birdsboro Power. Pennsylvania is already the largest exporter of electricity in the nation, so the electricity to be generated at the proposed power plant Birdsboro is not needed in Pennsylvania, yet Pennsylvanians and Pennsylvania's environment will bear the harm from these impacts. Moreover, given that the costs of shipping electricity make it impractical to move long distances, building the power plant and constructing these appurtenant structures in Berks County, where the electricity is not needed, does not make sense.

<u>Ongoing FERC Review</u>

The Federal Energy Regulatory Commission (FERC) filed a notice on January 18, 2017 that it would prepare an environmental assessment (EA) that would discuss the environmental impacts of the construction and operation of DTE's Birdsboro Pipeline Project. This work is ongoing. When FERC issues its EA, there will be opportunity for the public to comment and provide additional information. Based on the findings of the EA, FERC may decide to require preparation of a formal environmental impact statement (EIS). Given that FERC's EA is ongoing and that agency continues to ask DTE for supplemental information, it would seem unlikely that PADEP has in hand all the data necessary to issue the Section 401 Water Quality Certification.

For example, in Resource Report 6.0: Geological Resources provided to FERC,[6] the applicant contends that earthquake risk in the vicinity of the pipeline is low. However, earthquakes can and have occurred in the vicinity of the proposed Birdsboro Pipeline Project, including in the Flying Hills area, as well as the vicinity of the proposed power plant (see Attachment A).[7] Peak horizontal ground acceleration (PHGA) is the rate in change of motion of the earth's surface during an earthquake as a percent of the established rate of acceleration due to gravity. PHGA values for the path of the proposed the proposed Birdsboro Pipeline Project are approximately 14-percent, values that correspond to earthquakes that can cause significant building damage.

PADEP should not grant 401 Water Quality Certification or other permitting to the Birdsboro Pipeline Project given FERC's ongoing review. Furthermore, PADEP must pursue its own review to fully assess the impacts of the proposed project prior to issuance of 401 Water Quality Certification.

Full PADEP Review Prior to Section 401 Water Quality Certification

The August 12, 2017 public notice announces PADEP's intent to issue a Section 401 Water Quality Certification despite not having all of the requisite information required by Pennsylvania regulation, and despite not, prior to issuance of the certification, having applied and considered compliance with all of the criteria required by regulation to determine if the grant or denial of certification is appropriate. The notice specifically states:

> PADEP anticipates issuing a state water quality certification to Applicant for the Birdsboro Pipeline Project that will require compliance with the following State water quality permitting programs, criteria and conditions established pursuant to State law to ensure the Birdsboro Pipeline Project does not violate applicable State water quality standards set forth in 25 Pa. Code Chapter 93 …[8]

PADEP appears to be proposing to issue section 401 Water Quality Certification to the Birdsboro Pipeline Project prior to completing review of the information and criteria demanded by 25 Pa. Code 105.15(b). In Pennsylvania, a Section 401 Water Quality Certification cannot be issued prior to PADEP insuring that a proposed project meets the requirements and criteria outlined in Chapter 105 of the Pennsylvania Code.

There is no procedure in Pennsylvania's water quality standard regulations that authorizes separate review of a Section 401 Water Quality Certification without the information contained within the Chapter 105 permits or without a determination that the proposed project will comply with water quality standards as outlined in Pennsylvania law.

Nowhere in the regulations exists any support for a precursor anticipatory approval process as is proposed in the August 12, 2017 public notice. PADEP's failure to follow the express provisions outlined in Chapter 105 of the Pennsylvania Code will render its decision unlawful and subject to the legal challenge.

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[6] GAI Consultants, Inc. (February 2017) Federal Energy Regulatory Commission Draft Resource Report 6: DTE Midstream Appalachia, LLC Docket No. PF17-1-000, Birdsboro Pipeline Project, Berks County, Pennsylvania (Pre-Filing Draft).

[7] https://earthquaketrack.com/

[8] 47 Pa.B. 4716 (August 12, 2017)

Floodplain Impacts

The proposed 485 MW Birdsboro power plant is located within the 100-year regulatory floodplain, specifically in the flood fringe. A Chapter 106 Floodplain Management Permit is needed to undertake any construct type of activity in a floodplain. However, it appears that no Chapter 106 permit has been granted for this power plant, the construction of which is made possible only through filling of the floodplain at the proposed project site with compacted fill to raise the land surface by 4 feet for the entire footprint of the power plant. The final grade is intended to be at least 1 foot above the regulatory flood elevation.

Given the footprint of the proposed power plant facilities, this floodplain filling would displace significant volume of floodwaters when inundated by the regulatory flood, exacerbating flooding in the vicinity of the project site as well as downstream. Past flooding in Birdsboro has been attributed to backup of the Hay Creek from high stages of the Schuylkill River. The proposed fill on this site will only exacerbate the issue of Hay Creek backup during high Schuylkill flows.

PADEP has requested the applicant provide "plans and cross sections depicting the existing and proposed structures, fills, etc. and whether the structures are permanent or temporary for the proposed access road crossings of streams," in connection with the obstruction and encroachment associated with the structures listed in this application, but the more significant filling of the floodplain associated with the power plant does not appears to be receiving scrutiny.

With the risk that facilities like this pose to surrounding communities during flooding events, PADEP should be requiring analysis of the likely impact on Birdsboro and the Hay Creek during flood events. Given the recent example of the Arkema plant in Crosby, Texas, PADEP scrutiny should include consideration of flooding events worsened by climate change, and how the neighboring community would be at risk during a storm like Hurricane Harvey.

In addition, the site for the proposed 230 kV ring bus substation is located in the floodplain and floodway, therefore a Chapter 106 Floodplain Management Permit should be before any construct is permitted.

> The areas within the Robeson Township adjacent to the Schuylkill River are particularly low lying areas and are subject to minor flooding even after moderate rain or thaw conditions.[9]

Furthermore, the developer of the substation appears to be planning to undertake floodplain filling to secure local zoning approval:

> [T]he current [substation] design is, or can readily be made, generally consistent with the Robeson Township Floodplain Management and Stormwater Management Ordinances.[10]

[9] Dawood Engineering, Inc. (December 2016). Hydrologic and Hydraulic Report for Birdsboro Power, LLC Electric Transmission Line

[10] Kraft, G.D. 4 Feb 2017. Letter to Toby R. Stutzman, Dawood Engineering, Inc., Re: Birdsboro Power, LLC, KE File - A278c

This need to for floodplain filling is underscored in the Assumptions listed in the *Generation Interconnection Facility Study Report* (emphasis added):

> Initial surveys indicate portions of the AA2-115 interconnection substation site are in the 100-year flood plain of the Schuylkill River. *Due to geology/topography and environmental impacts of the proposed substation site, the Developer must work through Transmission Owner on design details relative to the civil site development design requirements for raised elevation of the substation site and access road and associated environmental mitigation requirements.*[11]

PADEP must determine prior to section 401 Water Quality Certification whether such floodplain impacts prevent the ability of meeting state 401 water quality certification and Chapter 106 regulatory requirements.

Water Dependence

Where a natural gas pipeline impacts an exceptional value ("EV") wetland, the PADEP may not grant a permit under Chapter 105 of the Pennsylvania Code or Section 401 of the Clean Water Act unless the applicant affirmatively demonstrates in writing that "[t]he project is water-dependent. A project is water-dependent when the project requires access or proximity to or siting within the wetland to fulfill the basic purposes of the project."[12]

This water line is proposed specifically to supply the proposed Birdsboro power plant. RAWA should be required to provide statement of water dependency. No part of this pipeline of the power plant it is proposed to serve is water dependent. A water dependent use is one that can only be conducted on, in, over, or adjacent to the water. The power plant proposes to secure water for cooling from RAWA. Discharged effluent will be directed to the Birdsboro Municipal Authority's (BMA's) wastewater treatment plant (WWTP). The Birdsboro Power facility, as proposed, along with this water lines, transmission line and natural gas pipeline, can be located anywhere. No public interest is served by permitting these structures. In fact, the public's interest is harmed by permitting these structures.

Wetlands and Streams

The applicant appears to have relied on in-office data review supplemented by field observations for wetland delineation. DRN believes that the applicant's delineated wetland boundaries deserve scrutiny. We have seen that applicants have failed to identify and delineate wetlands along with other proposed pipeline routes. For example, data collected by DRN volunteer monitors along a ½ mile section of the proposed PennEast Pipeline route found at least 12 vernal pool complexes or groundwater seeps where the PennEast Company identified just two vernal pool habitats and no groundwater seeps. The applicant identified just 3 vernal pools along the path of the Birdsboro Pipeline Project.[13]

The applicant proposes to affect 2.48 acres of wetlands during the construction of the Birdsboro Pipeline Project, including approximately 1.35 acres of palustrine emergent wetland (PEM), 0.06

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[11] PJM Interconnection. (December 2016). Generation Interconnection Facility Study Report For PJM Generation Interconnection Request Queue Position AA2-115 S. Reading-Boyertown 230 kV

[12] 25 Pa. Code § 105.18a(a)(2). Permitting of structures and activities in wetlands.

[13] Dawood Engineering, Inc. (February 2017). Wetland and Stream Delineation Report, Birdsboro Pipeline Project 216097.01, Union, Amity, Oley, and Rockland Township; Borough of Birdsboro, Berks County, Pennsylvania.

acres of palustrine scrub-shrub (PSS) wetlands and 1.07 acres of palustrine forested wetlands (PFO). Following construction, applicant proposes to restore disturbed wetland areas to preexisting contours and allowed them naturally revegetate. Approximately 0.06 acres of PSS and 1.07 acres of PFO wetlands, located in the permanently maintained corridor, will be permanently converted to PEM wetlands. Likely more extensive alterations than described here will occur in these wetlands. DRN has attached a report by Schmidt Associates (Attachment B) documenting the adverse impacts associated with the conversion of forested wetlands to emergent wetlands.

The Little Manatawny Creek is on the Pennsylvania Fish and Boat Commission's Wild Trout List due to the presence of naturally reproducing brown trout. As such, all wetlands in an along the floodplains of the Little Manatawny and its tributaries are classified as Exceptional Value (EV) and cannot be degraded. The applicant does not indicate whether any of the wetlands to be permanently converted are EV wetlands. Conversion of EV wetlands should not be allowed. If any EV wetlands are being permanently converted from a PFO to a PEM, they are being altered in direct conflict with Pennsylvania state law.

The extent of the wetland impacts associated with this pipeline suggests that impact avoidance and minimization does not appear to have been attempted aggressively. A review of the pipeline route suggests that impacts to roads or structures may have been avoided by diverting the route through wetlands.

Instead of making every effort to avoid wetlands, the applicant has opted for a program of compensatory mitigation. The applicant proposes to offset permanent wetland conversion impacts to PSS and PFO wetlands with a PEM wetland enhancement totaling 3.72 acres. Given that replacement and enhancement may both be ineffective, compensatory mitigation should be a last resort. When proposed, it should strive toward functional replacement of lost wetlands, rather than just areal replacement. The applicant proposes wetland enhancement rather than replacement. As such, it appears this project will result in a net loss of wetland acreage as well as a loss of wetland functions and values.

Wetlands provide various ecosystems services such as carbon storage, flood abatement, water quality maintenance, and biodiversity support. Wetland mitigation and other "offset" policies rely on restoration as a form of compensation for the loss of ecosystem function and structure, with the assumption that the entire suite of ecosystem services that have been lost will be replaced.[14] Research over the past decade indicates that there are many cases where wetland restoration, including compensatory mitigation, leads to the creation of wetlands that are not ecologically equivalent to naturally occurring wetlands, which calls into question the level to which ecosystem services can be replaced. [15] It is unlikely that any mitigation will fully restore each ecosystem service equally.

Tradeoffs occur when one service is changed at the expense of another. For example, studies have shown that optimizing restored wetlands for nutrient cycling and removal comes at the expense of

[14] Jessop, J., et al. (2015). Tradeoffs among ecosystem services in restored wetlands. Biological Conservation, 191, 341-348. http://ward.nres.illinois.edu/pubs/Jessop%20et%20al%20Bio%20Conservation%20(2015).pdf

[15] Jessop, J., et al. (2015). Tradeoffs among ecosystem services in restored wetlands. Biological Conservation, 191, 341-348. http://ward.nres.illinois.edu/pubs/Jessop%20et%20al%20Bio%20Conservation%20(2015).pdf

less biodiversity.[16] There are currently no standard requirements for measuring ecosystem functions at impacted wetlands prior to impact or after mitigation or restoration. The performance standards used to evaluate mitigation wetlands are based on vegetation and provide little indication of whether other ecosystem functions are being replaced in any capacity. Therefore, it is unknown which ecosystems services are being provided through wetland mitigation and their level of effectiveness.[17] It is likely that many ecosystem services will be impaired compared to what the natural wetland provided.

After construction, the applicant proposes to restore preconstruction contours, vegetation, and hydrology. However, compaction of soil along pipeline routes ultimately leads to differences in hydrology of impacted wetlands and waterbodies. Soil samples were taken along the existing the Tennessee Gas Pipeline Company's (TGP) 300 Line on November 29, 2012 and simply attempting to dig along the right of way (ROW), in comparison to digging in the nearby adjacent intact forest, indicated that severe compaction had occurred along the existing ROW. This soil compaction is further illustrated by the lack of vegetation that continues to persist adjacent and near wetlands and elsewhere along the TGP 300 Line.

DRN has learned that appears that some pipeline companies considers temporary work spaces (TWS) or additional temporary work spaces (ATWS) to have no impact on wetlands located there. TGP considers this to be "no impact" and as a result no acreages are included for wetlands in these areas. Since TWS and ATWS are often located in very close to streams and wetlands, or in forest areas, soils in these work spaces will be compacted by heavy equipment. Removal of adjacent trees eliminates shading for nearby waterbodies. Forests will take generations to recover and grow back. ATWS and TWS areas should be avoided and minimized and the footprint of the ROW should be reduced to the greatest extent possible.

DRN notes that the applicant does not appear to have identified any wetlands as EV based on the drinking water supply criteria:

> (iv) Wetlands located along an existing public or private drinking water supply, including both surface water and groundwater sources, that maintain the quality or quantity of the drinking water supply.[18]

In fact, the applicant identified just one well classified for domestic use within 150 feet of the construction right-of-way. The applicant also states that no wells or springs were located within the construction ROW or within 150 feet of staging areas, aboveground facilities, or access roads. Given the record of pipeline companies like Sunoco on the Mariner East 2 pipeline project in Chester County, PADEP needs to ensure the accuracy of the applicant's drinking water well location data. In addition, PADEP must confirm that the applicant offers pre-drilling, private well testing to homeowners with wells within 150 feet of areas of proposed drilling. A water suppliers and/or well owners notification contact list needs to be included in the Preparedness, Prevention and Contingency Plan and Inadvertent Release Plan.

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[16] Jessop, J., et al. (2015). Tradeoffs among ecosystem services in restored wetlands. Biological Conservation, 191, 341-348. http://ward.nres.illinois.edu/pubs/Jessop%20et%20al%20Bio%20Conservation%20(2015).pdf

[17] Jessop, J., et al. (2015). Tradeoffs among ecosystem services in restored wetlands. Biological Conservation, 191, 341-348. http://ward.nres.illinois.edu/pubs/Jessop%20et%20al%20Bio%20Conservation%20(2015).pdf

[18] 25 Pa. Code § 105.17. Wetlands.

Waterway Crossings

The Pennsylvania Bulletin notice for this project indicates 28 stream crossings and 21 wetland crossing. However, materials provided to FERC suggest 22 stream crossings.[19] This discrepancy should be corrected before a Water Quality Certification is issued.

The applicant indicates identifying delineating stream reaches as perennial, intermittent, and ephemeral based on the characterization of the benthic macroinvertebrate communities, however this data is not indicated on Stream Determination Field Data Forms. The applicant should indicate all macroinvertebrate data collected, or explain why this data was not included.

The applicant proposes to use open cut dry crossing methods, conventional bore, and horizontal directional drilling (HDD), a process that results in cuttings or spoils. The wetland and waterbody HDD crossings total approximately 4,500 feet, nearly a mile, with approximately1,400 feet of that total associated with the HDD crossing of the Schuylkill River.[20] This volume of HDD will undoubtedly produce large amounts of spoils.

The applicant states that "All HDD fluids and cuttings recovered from the bore pits will be hauled off-site to a state approved facility." No mention is made regarding the potential for some of the spoils to be contaminated. The power plant site where the HDD crossing of the Schuylkill River will exit has seen industrial use since 1740. The level of contamination of the soils on this brownfield site has prompted DTE to make the recommendation that:

> Fill containing surface soils located in the proposed pipeline right-of-way should be removed prior to performing pipeline work. The fill containing surface soil should be disposed at properly regulated waste facility. [21]

Despite the agricultural nature of the region the Birdsboro Pipeline Project will cross, this area has a long history of development, including industrial uses that may have passed from memory. Amity Township is the oldest incorporated township in Berks County with settlement dating to the early 1700s. HDD spoils from the Schuylkill River crossing and the other waterbody and wetland crossings may include harmful constituents which may require special handling and disposal. PADEP needs to require special conditions for special handling of spoils.

The applicant does not adequately address the threat of inadvertent returns, or inadvertent spills of drilling fluids. Inadvertent returns are considered to be a common occurrence with HDD crossings.[22]

> An analysis by FracTracker and the Clean Air Council finds that approximately 202,000 gallons of drilling fluids have been accidentally released in 90 different spill events

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[19] Rucker, K. (27 June 2017). Email to Gregory Lech. Subject: Birdsboro Pipeline - SIR# 46159, In-stream Construction Restrictions

[20] GAI Consultants, Inc. (February 2017). Federal Energy Regulatory Commission Draft Resource Report 1, DTE Midstream Appalachia, LLC, Docket No. PF17-1-000, Birdsboro Pipeline Project, Berks County, Pennsylvania.

[21] Dawood Engineering, Inc. (May 2017). Limited Geoprobe Investigation Report: HDD Pit and Pipeline, Former Armorcast Site for: Birdsboro Pipeline, Berks County, Pennsylvania.

[22] Tetra Tech, Inc. (December 2016). HDD Inadvertent Return Assessment, Preparedness, Prevention and Contingency Plan: Pennsylvania Pipeline Project.

while constructing the Mariner East 2 pipeline in Pennsylvania. In a more recent update, FracTracker estimates these occurred at 42 distinct locations.[23]

Among the Mariner East 2 spills was one not far from the path of the Birdsboro Pipeline Project in Cumru Township where approximately 500 gallons of fluids surfaced in retention pond on May 31, 2017. The drinking water intake for the Borough of Pottstown's is located just a short distance downstream from the site of the proposed HDD crossing of the Schuylkill River. Given problems that have resulted with inadvertent returns during construction of other pipelines such as the Mariner East 2, PADEP should require special conditions for notification, containment, cleanup, and restoration activities.

The applicant asserts that inadvertent returns are unlikely as a result of design precautions,[24] but the two paragraph narratives provided for the HDD crossings suggest short shrift was given to risk assessment. This brief discussion of this real risk runs counter to what proved to be a common occurrence with the Mariner East 2 pipeline project.

The applicant's HDD risk assessments should speak to the probability each of these HDD construction risks:[25]

- Hydrofracture/Inadvertent returns–escape of the drilling fluid from the bore to the surface.
- Loss of circulation – escape of drilling fluid from formation without flowing to the entry and/or exit holes or to the surface.
- Hydrolock – creation of a hydraulic cylinder due to pressure buildup after loss of circulation.
- Loss of depth/Floating line.
- Mixed soil conditions.
- Heave/hump on surface.
- Surface subsidence.
- Hitting unknown existing utilities and structures –includes cross-bores and utilities that are affected by the displacement of soil and other movement.
- Loss of formation/collapse of borehole – refers to collapse of borehole and is common in loose soil situations, especially random fill.
- Collapse of product pipe – can result if the bore is not adequately prepared to receive the product pipe or if the pipe is not adequately designed.
- Drill pipe/down-hole tooling failure – here, the tooling (bottom hole assembly - BHA) or pipe is damaged to a level beyond the normal anticipated and manageable wear and tear.
- Stuck pipe – where the product pipe is lodged in the bore hole and is immovable.
- Weather related risks – delays and other damages that may result from weather related issues including excessive rains or snow.

[23] Jalbert, K. (2 August 2017).Mariner East 2 Drilling Fluid Spills – Updated Map and Analysis. FracTracker Alliance. Retrieved from https://www.fractracker.org/2017/07/me2-drilling-fluid-spills/

[24] DTE Midstream Appalachia, LLC Response to FERC Staff Environmental Data Requests Dated June 12, 2017. Attachment O: Updated HDD Assessments (3 July 2017)

[25] Onsarigo, L., Adamtey, S., & Atalah, A. (2014). Analysis of Horizontal Directional Drilling Construction Risks Using the Probability-Impact Model: A Contractor's Perspective. In Pipelines 2014: From Underground to the Forefront of Innovation and Sustainability (pp. 1772-1783).

- Operational risks – this covers the time lost when operations are halted following unscheduled maintenance, delay of equipment, client request, need to make decisions, and other events leading to delays.
- Obstructions –includes cobbles, boulders and other obstructions that may be encountered during the drilling operation with the potential to deter bore completion.
- Inability to maintain line and grade.
- Safety – physical/bodily harm to workers or/and general public.
- Environmental risks – contamination, drilling fluid disposal, drilling through contaminants, and potential risks when drilling in environmentally sensitive areas.
- Bypass related risks – risk involved when you have to bypass the flow to allow construction to take place, especially when rehabilitating or replacing a section of a pipeline.

Among these HDD construction risks, Onsarigo et al (2017) identified Hydrofracture/Inadvertent returns and Mixed soil conditions as risks with high impact on the project and with high probability of occurrence.

DRN notes that roads and a railroad will also be crossed using HDD, but no risk assessment appears to have been prepared for these crossings.

Irreparable Harm from Pipeline Construction, Operation and Maintenance

As the result of document reviews and field investigations during construction of three sections of pipeline -- the TGP 300 line upgrade, TGP Northeast Upgrade Project (NEUP), and Columbia 1278 pipeline -- in the Upper Delaware River Basin, DRN documented:

- Over 60 instances where best management practices (BMPs) were not present, inadequate or not functioning or in need of repair, maintenance or reinforcement
- 4 instances of fueling being conducted in wetlands or near waterbodies
- Dozens of instances of poor signage and staking and mapping errors which sometimes led to impacts off of the permitted right of way (ROW), loss of trees outside the row, and inaccurate mitigation calculations
- Thermal impacts, extreme (and unreversed) soil compaction, nutrient impacts, benthic invertebrate changes from pipeline cuts, including for streams with exceptional value, high quality and or c-1 anti-degradation classifications
- Discrepancies between pipeline company monthly compliance reports and what work and activities to meet compliance and avoid pollution were actually occurring or not occurring on the ground. We also noted excessive lag time in the filing and/or public release of construction reports making for difficult follow up in the field. We documented too few pipeline inspectors and a lack of oversight person-power for these extensive linear projects that spanned many miles and where work was going on simultaneously along the routes with little independent oversight.

Based on first hand observations and monitoring, DRN has concluded:

- Natural gas pipeline projects result in a multitude of environmental impacts that inflict high levels of unnecessary ecological damage – this damage is not avoided, nor properly mitigated, despite the resource reports that are drafted or the guidance provided by FERC or other federal or state agencies;
- Violations of environmental laws are common place and an accepted part of pipeline construction – and compliance outweighs penalties and violations to the detriment of the environment and the public;

- Construction problems and potential violations are not properly responded to by the company, by FERC or by other state or federal agencies and mitigation does not undo the harms inflicted -- as a result of both, pipelines inflict enduring and/or repetitive harms on natural resources; and
- Current or proposed guidance from FERC or other regulatory agencies do not prevent, avoid, or otherwise mitigate these ecological and public harms or the multitude of bad practices used by the pipeline companies.

Wastewater Treatment

Given compliance issues of local sewage treatment plants, PADEP should ensure that the selected treatment facility has adequate capacity to treat and dispose of the water used for hydrostatic testing for this project. The City of Reading signed on to consent decrees with the U.S. Environmental Protection Agency in 1997 and again in 2004 for longstanding discharge violations at the City's Fritz Island wastewater treatment facility.[26] As plant upgrades are not expected to be completed until 2019, this facility should not be allowed to accept DTE's hydrostatic testing wastewater. The February 2016 minutes for the Birdsboro Municipal Authority state that:

> Discussion was had on the moratoriums on connections to the wastewater treatment plant.
> There needs to be two years of good data for the moratorium to be lifted. That should happen after this year. [27]

If a moratorium on connections to the Birdsboro wastewater treatment plant is currently in place, it should not be allowed to receive the DTE's hydrostatic testing wastewater. PADEP should also require the list of the wastewater treatment plant facilities proposed to treat and dispose of the hydrostatic testing wastewater be provided 90 days in advance and provide opportunity for public comment on the treatment facility to be selected.

PADEP should also require that DTE secure an industrial discharge permit with the wastewater treatment facility. The hydrostatic testing water should also be required to meet pretreatment limits before being accepted at the selected treatment facility.

Upstream, Downstream, and Midstream Impacts

Because the Commonwealth has permitted 8,191 unconventional gas wells (since January 30, 2015) and the scientific community has published, since April 2015, over 400 peer reviewed papers indicating harm, it is also critical that PADEP use its authority and consider these beginning of pipe and end of pipe impacts that fracking and related infrastructure is causing and will exacerbate if these additional pipelines are permitted by PADEP. According to Physicians for Safe Energy, 72% of these original research studies on water quality indicate potential, positive association, or actual incidence of water contamination; and 95% of all original research studies on air quality indicate elevated concentrations of air pollutants. Air pollution impacts water so all of these cumulative impacts must be considered by the DEP as part of its 404 and Chapter 105 review. And air pollution in the state already is ailing on many levels, causing harm to our waterways and the public. For example, just last

[26] City of Reading. (2017). Wastewater Conveyance And Treatment, https://www.readingpa.gov/content/waste-water-treatment-plant

[27] Birdsboro Municipal Authority (9 February 2016). Birdsboro Municipal Authority Meeting 2/9/16.

week two of the five consecutive days (5/25 and 5/26/16 for Bristol, PA DEP air station) had ozone way above the 70 ppb ozone standard (90 ppb and 85 ppb). In Tioga County, three of the five consecutive days (5/24, 25, 26/16) last week were in exceedance for ozone (73, 77, and 74 ppm). These exceedances were detected by PADEP's ambient air quality monitoring program.

A recent decision by the United States Court of Appeals for the District of Columbia Circuit (D.C. Circuit) in *Sierra Club, et al. v. FERC* found that FERC failed to consider or quantify the downstream greenhouse gas (GHG) emissions from the combustion of the natural gas transported by the project as part of NEPA review. Just as in *Sierra Club*, FERC must consider or quantify the indirect effects of downstream GHG emissions in its environmental review of the Birdsboro Pipeline Project that will result from burning the natural gas that this project will transport to the Birdsboro power plant. PADEP should consider these GHG emissions as well.

The applicant attempts to address these emissions,[28] but the information provided fails to convey the complete impact of the Birdsboro power plant's GHG emissions. The applicant fails to consider the 20 year global warming potential of methane, using instead the for the 100 year global warming potential emission factor.

> The 100-year GWP value underestimates the gas's negative impacts by almost five times, said Ilissa Ocko, a climate scientist at the nonprofit Environmental Defense Fund. The quick warming in the short run catalyzed by methane can affect environmental processes, such as the flowering of plants, she said at the American Geophysical Union meeting last week.
>
> "The short-lived climate pollutants [like methane] that we emit from human activities are basically controlling how fast the warming occurs," she said. "This is because they are very powerful at absorbing radiation."[29]

By focusing on what is emitted by the power plant, the applicant's attempt to address GHGs falls far short of the true impact of the natural gas that will be consumed by the power plant and transported by the pipeline. No consideration is given to the leaks, gas blows, or other lost or unaccounted for gas. The proposed power plant's 485 MW converts to approximately 1,655,000,000 btu per hours (1.655 mmbtu). The EPA had estimated lost or unaccounted for gas to be 1.4 percent of the gas produced by the industry, but these figures could be much higher.[30]

> In the PHMSA [Pipeline and Hazardous Materials Safety Administration.] database, which lists more than 1,400 gas companies, 72 companies reported lost and

[28] GAI Consultants, Inc. (7 September 2017). Attachment 44a Birdsboro Power LLC Greenhouse Gas Emissions Table in DTE Midstream Appalachia, LLC, Docket No. CP17-409-000 Response to FERC Staff Environmental Data Requests dated August 28, 2017.

[29] Vaidyanathan, G. (22 December 2015). "How Bad of a Greenhouse Gas Is Methane?" ClimateWire. Rpt. In Scientific American, https://www.scientificamerican.com/article/how-bad-of-a-greenhouse-gas-is-methane/

[30] Ogburn, S.P. (1 August 2013). "How Much Natural Gas leaks?"ClimateWire. Rpt. In. Scientific American, https://www.scientificamerican.com/article/how-much-natural-gas-leaks/

> unaccounted for rates of 10 percent or higher. Two-hundred-and-seventy-five companies had a rate between 3 and 9.9 percent.[31]

PADEP should also consider the GHG emissions associated with the construction of the Birdsboro Pipeline Project itself. The steel require for pipelines requires large amounts of energy and contributes to steels carbon footprint.

> Steel manufacturing emits 1.74 tonnes CO^2 per tonne of steel.[32]

Given the weight of the pipe proposed to be used in the proposed pipeline (see Attachment B. Tioga Pipe Dimensions and Weights) and its 13.19 mile length, DRN estimates that the Birdsboro Pipeline Project will require 1.567.16 tonnes of steel resulting in the emission of 2,726.86 tonnes of CO^2

> 49.61 pounds/foot x 69,643.2 feet = 3,454,999.152 pounds of steel
>
> 3,454,999.152 pounds = 1,567.16 tonnes
>
> 1,567.16 tonnes of steel x 1.74 tonnes CO^2/tonnes of steel = 2,726.86 tonnes of CO^2

Safety and Proximity to Homes

The applicant's 12-pipeline will be designed to meet the maximum allowable operating pressure of TETCO's mainline, which is 1,050 pounds per square inch gauge. The Landowner's Guide to Pipelines, from the Pipeline Safety Trust, suggests that according to the C-FER model a 12-inch 1,050 psi natural gas pipeline would have a hazard area on either side of the pipeline of approximately 300 feet (or 600 feet total width). That's wider than two football fields are long.

The Birdsboro power plant is proposed to be built within 500 feet of occupied homes. This proximity puts residents of Birdsboro a risk. An attempt to assess the impact that this power plant would have on home values by a consultant for the DRN (see Attachment C) could not be completed because an initial screening of power plants could not identify a facility for comparison with homes located closer than one mile. Even when significantly broadening the sample, fewer than 25 homes were found to be located within a one-half mile radius of the power plants reviewed in Pennsylvania, New York, or New Jersey. It is remarkable that this power plant, to be located in the floodplain of the Schuylkill River, will presumably be the only plant in our region located within 500 feet of occupied homes. Only 25 homes were found to be within one half mile of power plants in Pennsylvania, New York, or New Jersey.

Section 401 Water Quality Certification should be denied

In order to secure Chapter 105 approval and/or Section 401 Water Quality Certification, § 105.14. (b) requires, among other things, consideration of:

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[31] Ogburn, S.P. (1 August 2013). "How Much Natural Gas leaks?"ClimateWire. Rpt. In. Scientific American, https://www.scientificamerican.com/article/how-much-natural-gas-leaks/

[32] Fischedick, M., J. Roy, A. Abdel-Aziz, A. Acquaye, J.M. Allwood, J.P. Ceron, Y. Geng, H. Kheshgi, A. Lanza, D. Perczyk, L. Price, E. Santalla, C. Sheinbaum, and K. Tanaka. 2014. Industry. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Edenhofer, O.,R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kreimann, J. Savolainen, S. Schlomer, C. von Stechow, T. Zwickel, and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

(1) Potential threats to life or property created by the dam, water obstruction or encroachment.
(3) The effect of the dam, water obstruction or encroachment on the property or riparian rights of owners upstream, downstream or adjacent to the project.
(4) The effect of the dam, water obstruction or encroachment on regimen and ecology of the watercourse or other body of water, water quality, stream flow, fish and wildlife, aquatic habitat, instream and downstream uses and other significant environmental factors.
(5) The impacts of the dam, water obstruction or encroachment on nearby natural areas, wildlife sanctuaries, public water supplies, other geographical or physical features including cultural, archaeological and historical landmarks, National wildlife refuges, National natural landmarks, National, State or local parks or recreation areas or National, State or local historical sites.
(6) Compliance by the dam, water obstruction or encroachment with applicable laws administered by the Department, the Fish and Boat Commission and river basin commissions created by interstate compact.
(7) The extent to which a project is water dependent and thereby requires access or proximity to or siting within water to fulfill the basic purposes of the project. ….
(8) Present conditions and the effects of reasonably foreseeable future development within the affected watershed upstream and downstream of the dam, water obstruction or encroachment ….
(9) Consistency with State and local floodplain and stormwater management programs, the State Water Plan and the Coastal Zone Management Plan.
(10) Consistency with the designations of wild, scenic and recreational streams under the Wild and Scenic Rivers Act of 1968 (16 U.S.C.A. § § 1271—1287) or the Pennsylvania Scenic Rivers Act (32 P. S. § § 820.21—820.29), including identified 1-A candidates.
(11) Consistency with State antidegradation requirements contained in Chapters 93, 95 and 102 (relating to water quality standards; wastewater treatment requirements; and erosion and sediment control) and the Clean Water Act (33 U.S.C.A. § § 1251—1376).
(12) Secondary impacts associated with but not the direct result of the construction or substantial modification of the dam or reservoir, water obstruction or encroachment in the area of the project and in areas adjacent thereto and future impacts associated with dams, water obstructions or encroachments, the construction of which would result in the need for additional dams, water obstructions or encroachments to fulfill the project purpose.
(13) For dams, water obstructions or encroachments in, along, across or projecting into a wetland, as defined in § 105.1 (relating to definitions), the Department will also consider the impact on the wetlands values and functions in making a determination of adverse impact.
(14) The cumulative impact of this project and other potential or existing projects. In evaluating the cumulative impact, the Department will consider whether numerous piecemeal changes may result in a major impairment of the wetland resources. The Department will evaluate a particular wetland site for which an application is made with the recognition that it is part of a complete and interrelated wetland area.

Pipelines using the construction techniques proposed by the Birdsboro Pipeline Project inflict stream, wetland, water quality and groundwater degradation contrary to the above criteria that guide Chapter 105 and 401 Certification decisionmaking. PADEP's 401 Certification analysis does not consider or address these many pathways of degradation nor determine that this degradation will not result in violation of Pennsylvania's water quality standards and applicable review criteria. Given the size and length of the proposed Birdsboro Pipeline Project and the construction strategies and techniques to be used, and the complete footprint of this pipeline, the power plant and its appurtenant structures, 401 Certification cannot be justified when reviewed against § 105.14. (b) and the various standards it incorporates.

Summary
Construction of the Birdsboro Pipeline Project makes the Birdsboro power plant possible. This pipeline, the power plant and its appurtenant structures will have adverse impacts on natural areas, critical species and habitats, water supplies, the Scenic Schuylkill River and recreation opportunities, and local historical sites. If constructed, this project will collect and transport methane gas to fuel the Birdsboro power plant, driving additional and unsustainable gas drilling in the Marcellus shale where the health and environment of local communities are currently being harmed by this unconventional and highly industrialized process of drilling. DRN does not believe that gas drilling is sustainable for the health of our communities or a thriving economy for our region today or for future generations.

PADEP should use regulatory measures in its authority to consider the wetlands, stormwater, and floodplain impacts through Chapter 102, Chapter 105, and Chapter 106 regulations. PADEP should not grant 401 Certification or other permitting to the Birdsboro Pipeline Project. At the very least, PADEP has not complied with the laws necessary to support legal granting of section 401 water quality certification or Chapter 105 approval.

Submitted,

Maya K. van Rossum
the Delaware Riverkeeper