



July 14, 2016

Aaron Durso
Borough Manager
Borough of Birdsboro
202 E Main Street
Birdsboro, PA 19508

RE: Proposed Official Plan Revision to the Borough of Birdsboro's Act 537 Plan

Dear Mr. Durso:

The Delaware Riverkeeper Network is writing to comment on the proposed revision to the Borough of Birdsboro's Sewage Facilities Plan (Act 537 Plan), prepared by SSM Group, Inc., on behalf of Birdsboro Power, LLC, which is proposing to construct a 485 MW natural gas combined cycle power plant along the banks of the Schuylkill River.

These comments are submitted on behalf of the Delaware Riverkeeper and the Delaware Riverkeeper Network (DRN), a private, non-profit organization with over 16,000 members throughout the Delaware River Watershed. DRN champions the rights of the River to be free-flowing, clean, healthy and filled with an abundant diversity of life. DRN gives voice, strength and protection to the communities and waterways of the Delaware River. Through independent advocacy, and the use of accurate facts, science, and law, DRN had become a regional leader in watershed protection.

DRN has reviewed the official plan revision submitted to the Borough of Birdsboro's Act 537 Plan to accommodate a the power plant proposed by Birdsboro Power (a collaboration formed by EmberClear and DCO Energy). Please find below DRN's comments on the proposed official plan revision.

Need for the Revision

DRN understands that the site of the proposed development was not included in the Borough of Birdsboro's official plan revision dated September 2004. Any development proposed for this site therefore requires an official plan revision. This official plan revision has been prepared with information specific to the project. However the magnitude of the proposed development warrants not just a planning module specific to the proposed project, but rather a comprehensive update to Birdsboro's base plan which is now 12 years old.

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The proposed development, a 485 MW natural gas power plant would result in an increase of 350,000 gallons per day (gpd) with a peak flow of 450,000 gpd. Current flows treated at the Birdsboro Municipal Authority (BMA) wastewater treatment plant (WWTP) are listed as 526,000 gpd with peak flows of 657,000 gpd. This suggests that with one development, the BMA WWTP will see a 67% increase in the volume of flows to be treated and a 68% increase in peak rates. This planning module does not address how the proposed increase will affect allocated but unused capacity in the Borough or in Union Township.

In addition, the proposed development may have implications for surrounding land use in both the Borough and Union Township as well as on future flow volumes and even population growth. None of these factors is addressed in the planning module, and so a comprehensive update of Birdsboro's Act 537 plan is warranted.

BMA WWTP Capacity and Flow Volumes

The current permitted capacity of the BMA WWTP is 1.35million gallons per day (mgd), average annual design flow, and 1.89 mgd design hydraulic capacity. With these permitted levels, and current flows of 526,000 gpd with peak flows of 657,000 gpd, the addition of the power plant wastewater would seem to be within the BMA WWTP's permitted capacity. However, BMA minutes for February 2016 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.¹

If a moratorium on connections to the WWTP is currently in place through 2016, DRN suggests that a connection with daily flows of 350,000 gpd and peak flow of 450,000 gpd is premature. In addition, the planning module submitted should address the moratorium as well as the suitability of current facilities at the WWTP.

DRN also questions why, with current flows of just 526,000 gpd and peak flows of 657,000 gpd, the BMA applied for, and has been permitted for, an increase in an average daily discharge from 1.0 mgd to 1.35 mgd. In 2001, before the approved expansion and construction of a new wastewater treatment plant, BMA was reporting average daily flows over 800,000 gpd.² If these numbers are correct, BMA has been able to achieve a reduction of nearly 34% in the average daily flows from those reported previously. Again such a reduction suggest significant changes have occurred in the area served by the BMA WWTP and underscore the argument for a comprehensive update of Birdsboro's Act 537 plan.

When discussing flow rates in *Section J – Chapter 94 Consistency Determination*, the planning module focuses on flow rates for the portion of the BMA service area that is served by the interceptor into which Birdsboro Power will connect. These flow rates for this area are based on an allocation of 211 gallons per Equivalent Dwelling Unit (EDU) within that service area. This estimate of water usage is calculated based on an average of the past 5 years of flow. However, it is not indicated whether this gpd estimate is determined based on the usage of just the basin served by the interceptor into which Birdsboro Power will connect, or for BMA's entire service area.

¹ Birdsboro Municipal Authority (9 February 2016). *Birdsboro Municipal Authority Meeting 2/9/16*.

² Birdsboro Municipal Authority Chapter 94 Municipal Wasteload Management 2001 Annual Report. (as cited in Hawk Valley Associates, ARRO Consulting & RothPlan (2004). Chapter X: Utilities. *Southern Berks Regional Comprehensive Plan*).

To get the estimated flow rate of 43,888 gpd for the area served by the interceptor into which Birdsboro Power will connect, the 208 EDUs in the area are multiplied by 211 gpd. This number is then added to the flow rate of 89,923 gpd reported for Union Township. The basis for Union Township's flow rate is not indicated. The module should indicate whether it is a measured flow rate or a calculation based on estimates flows and the number of EDUs allocated to Union Township.

It should also be recognized that for the purpose of the sewage treatment plant planning, the Pennsylvania Department of Environmental Protection recommends estimating flows based on 100 gallons per capita per day for municipal systems and subdivisions of over 150 homes; plants serving less than 150 homes may use 75 gallons per capita per day figure³. For a family of four occupying a single family home, these figures would result in estimates use per EDU ranging from 300 gpd to 400 gpd. These flow rates would suggest much higher flows than those being used in this planning module. At a minimum, the data used to determine the 211 gpd for EDU should be included with the module. Ideally, measured flows would be reported and not only for the area served by the interceptor into which Birdsboro Power will connect, but each basin of the BMA service area.

Treatment Facilities and Water Quality

In materials submitted to the Delaware River Basin Commission (DRBC),⁴ it is reported that the cost of extending the Reading Area Water Authority (RAWA) waterline from the Birdsboro line to the power plant site to supply water will be borne by BMA. However, this planning module does not address who will bear the cost of the lateral from the site to the BMA interceptor. An estimated cost should be included here and, given BMA's responsibility to pay for infrastructure to bring water to the power plant site, the planning module should make clear the party responsible for the costs of the infrastructure to transport wastewater to the treatment plant.

In addition to the increase in the volume of wastewater to be received by the BMA WWTP, the quality of that discharge will also be altered. Birdsboro Power provides no information on the expected physical, chemical, and biological characteristics of industrial wastewater, only that it will be implementing an industrial pre-treatment program with local limits. The BMA WWTP is not currently permitted to discharge wastewater with the characteristics of a power plant discharge. By accepting the power plant discharge, which includes blowdown, the BMA WWTP is likely to require additional investment in effluent monitoring as a result of new parameters likely to be added to its DRBC docket and NPDES discharge permit.

Recognizing that some power plants discharge wastewater to publicly owned treatment works (POTW), the U.S. Environmental Protection Agency (EPA) conducted research on whether the pollutant in the discharge pass through a POTW or interfere with POTW operations or sludge disposal practices. The EPA found that:

Secondary treatment technologies are generally understood to be ineffective at removing [total dissolved solids (TDS)] and as such TDS removals at POTWs are likely to be close to zero.⁵

³ Pennsylvania Department of Environmental Protection. (1997). Domestic Wastewater Facilities Manual.

⁴ Memorandum of Understanding (Bulk Service to BMA).

⁵ U.S. Environmental Protection Agency. (2015). Technical Development Document for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category.

BMA WWTP's current DRBC docket includes a level of 1,000 mg/l for TDS. Given that the Borough of Pottstown's drinking water intake is a short distance downstream from this discharge, the permitted TDS level should be reduced to 500 mg/l. The DRBC's in-stream TDS criteria requires that a receiving stream's resultant TDS concentration shall not exceed 500 mg/l to protect the stream as a drinking source. The EPA's Safe Drinking Water Act's secondary standard for TDS is also 500 mg/l.

DRBC is also likely to require a temperature standard for the BMA WWTP's discharge:

Other Nontidal Waters. In nontidal waters other than described in 4.30.6.A, the discharge of waste effluents shall not increase the ambient temperature of the receiving waters by more than 5°F (2.8°C), nor shall such discharge result in stream temperature exceeding 87°F (30.6°C), which temperatures shall be measured in the stream outside of heat dissipation areas as described in 4.30.6.F.⁶

Based on a review of NPDES permitting of other natural gas power plants, other new parameters for which monitoring could be required include: Sulfate, Dissolved Iron, Total Iron, Total Aluminum, Total Chromium, Total Copper, Total Lead, Total Manganese, Total Mercury, Total Nickel, Total Phosphorus, Total Selenium, Total Zinc, PCBs (Dry Weather), PCBs (Wet Weather), Oil and Grease, Bis(2-Ethylhexyl)Phthalate, Chloride, Chloroform, Chlorodibromomethane, and Dichlorobromomethane. Birdsboro Power indicates that it will be responsible for meeting water quality standards and effluent limitations for the flow produced by the generating station, but it is unclear whether this commitment is for the current effluent limits or for new effluent limits that may be imposed as a result of the WWTP accepting the power plant discharge. The party to be responsible for the costs for additional monitoring that may be required at the BMA WWTP should be indicated.

Required Alternatives

The planning module is required to include any potential alternative sewage disposal methods that are available to the project. In this are the planning module is lacking. It is asserted that no potential alternatives are available, and no real alternatives are presented. However, alternatives to discharges of this type are available. Cooling alternatives exist that could significantly reduce or even eliminate the proposed discharge at the Birdsboro power plant:

Dry and hybrid (wet-dry) cooling systems are mature technologies to cool thermoelectric power plants, and are highly efficient in terms of water usage. These technologies are commercially operational at some power plants, particularly in the arid western regions of the United States where water is scarce⁷

Zero Liquid Discharge (ZLD) wastewater treatment systems are available:

GE offers complete thermal and non-thermal ZLD solutions to manage tough-to-treat wastewaters. GE's proprietary evaporators, brine concentrators, and crystallizers can help recover more than 95% of your plant's wastewater while reducing the remaining brine as a product or solid.⁸

⁶ Delaware River Basin Commission. (2103). Administrative Manual –Part III Water Quality Regulations with Amendments through December 4, 2013.

⁷ U.S. Government Accountability Office. (2015). Technology Assessment: Water in the Energy Sector.

⁸ GE Corporation. (n.d.). Zero Liquid Discharge (ZLD). Retrieved from <http://www.gewater.com/zero-liquid-discharge-zld.html>

ZLD technology is now being employed by other natural gas power plants under construction and should be considered here.⁹

Protection of drinking water sources is within the scope of Act 537 plans, therefore DRN notes that Berks County has experienced growth and continued to seeing increasing water demand particularly with respect to thermoelectric generation. In its *Schuylkill River Hydrology and Consumptive Use Report* (2010), the Philadelphia Water Department (PWD) notes that Pennsylvania “defines watersheds with a consumptive use above 50% of the 7Q10 as having stressed water resources.” PWD goes on to note that:

The Schuylkill River is approaching water stress conditions. Combined upstream consumptive use and downstream consumptive use total 42% of the 1 in 25 year annual average baseflow, which implies the Schuylkill River is approaching a water stress situation. The upstream consumptive use is 22% and the downstream consumptive use is 20% of the predevelopment 1 in 25 year annual average baseflow.¹⁰

With the Schuylkill River is approaching a stressed conditions, alternatives to consumptive use should be strongly encourages. The proposed power plant site is adjacent to the BMA WWTP, yet the power plant developers have failed to consider using reclaimed water from the WWTP for cooling. In addition to the BMA WWTP, Reading’s Fritz Island wastewater treatment plant is just seven miles upstream. Fritz Island is designed to treat 28 mgd, presenting sufficient reclaimed water for the proposed power plant’s cooling needs without diversions from RAWA or other drinking water sources.

Floodplains and Scenic River Designation

Act 537 plans are to consider local zoning and land use designations. DRN notes that the site of the proposed power plant is almost entirely within the 100 year flood plain. (see *Attachment A: Berks County Flood Insurance Rate Map* showing the site of the proposed power plant.

The site of the proposed power plant is designation Zone AE:

Areas subject to inundation by the 1-percent-annual-chance flood event determined by detailed methods. Base Flood Elevations (BFEs) are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.¹¹

Berks County notes that properties that are included “within a Zone A or AE on the DFIRMs and FIRMs are considered to be in the Special Flood Hazard Areas (SFHAs) or a High Risk Zone.”¹² As a participant in the National Flood Insurance Program, Birdsboro’s floodplain regulations and development initiatives should be designed to ensure that new development will not make the flood hazard worse. Advancing the location of power plant in Zone AE is contrary to this goal and is indeed likely to make flooding worse.

9 Loudoun County Office of Public Affairs and Communications. (2015). Panda Stonewall Power Project Fact Sheet. Retrieved from <https://www.loudoun.gov/DocumentCenter/View/116861>

10 Philadelphia Water Department. (2010). Schuylkill River Hydrology and Consumptive Use Report. Retrieved from phillywatersheds.org/doc/Sourcewater/PWD_Water_Budget_Report.pdf

11 Federal Emergency Management Agency. (n.d.). AE and A1-30. Retrieved from

¹² County of Berks. (3 July 2012). FEMA Flood Map Modernization Program. Retrieved from <http://www.co.berks.pa.us/dept/planning/pages/femafloodmapmodernizationprogram.aspx>

Moreover, the Schuylkill River is a Scenic River, designated under Pennsylvania's Scenic Rivers Act. In fact, the Schuylkill was Pennsylvania's first Scenic River, so designated in 1978:

It shall be the policy of the Commonwealth to protect these values and to practice sound conservation policies and practices within this Scenic Rivers System ... The General Assembly affirms that it must assure the people of this generation and their descendants the opportunity to refresh their spirits with the aesthetic and recreational qualities of unspoiled streams.¹³

As a result of this Scenic River designation, wetlands within the corridor of a watercourse or body of water that has been designated as a Scenic River are protected as Exceptional Value wetlands.¹⁴ The planning module states a general permit is being sought to complete and repair and/or replace stormwater outfalls located along the banks of the river. Any impacts that will affect protected wetlands along the Schuylkill including activities associated with these stormwater outfalls would require an individual permit, not a general permit.

Errors and Inconsistencies

DRN also notes that the planning module document contains errors and inconsistencies. For example, the planning module identifies the proposed facility as a 485 MW natural power plant. Documents submitted to DRBC describe the facility as a 450 MW plant. DRN also notes that in *Section J – Chapter 94 Consistency Determination* under 2c, the planning module lists the flow rate and peak rate from the power plant as 250,000 gpd and 35,000 gpd, respectively, rather than the 350,000 gpd and 450,000 gpd stated elsewhere. All errors and inconsistencies should be corrected.

Summary

This official plan revision is premature if a moratorium remains in place at BMA WWTP. Accurate flows must be used to evaluate the impact of the increased discharge. Responsibility for future monitoring obligations should be indicated. Real alternatives to discharge to the BMA WWTP, including ZLD, should be considered. If ZLD cannot be implemented, reclaimed water from WWTPs should be considered for cooling to reduce stress on drinking water sources. Ultimately, impacts of this proposed development must be considered more seriously through a comprehensive revision to Birdsboro's base plan.

DRN opposes shale gas extraction in Pennsylvania as well as the pipelines, compressor stations, processing plants, power plants, and other infrastructure projects that go hand in hand with drilling. This power plant, to be located in the Schuylkill's floodplain, and which will require a new three mile long 230 kV power line, also proposed for the banks of Pennsylvania's first Scenic River, is a bad idea and should be rejected.

Respectfully submitted,



Maya K. van Rossum
the Delaware Riverkeeper

cc: Maria Bebenek, Program Manager, Clean Water Program, Southcentral Office, PADEP
Barry Sweger, Clean Water Program, Southcentral Office, PADEP

¹³ Pennsylvania Scenic Rivers Act (32 P. S. § 820.21–820.29)

¹⁴ 25 Pa. Code § 105.17(1)(iii)