

# SOUTHERN ENVIRONMENTAL LAW CENTER

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December 14, 2015

*Via email to:*

Susan Mackert  
Department of Environmental Quality  
Northern Regional Office  
13901 Crown Court  
Woodbridge, VA 22193  
susan.mackert@deq.virginia.gov

**Re: Comments on Draft VPDES Permit No. VA0002071 for Possum Point Power Station**

Dear Ms. Mackert:

Thank you for the opportunity to comment on the draft Virginia Pollutant Discharge Elimination System Permit (“VPDES”) for Dominion Virginia Power’s Possum Point Power Station, VPDES permit no. VA0002071. We submit these written comments and attachments on behalf of the Potomac Riverkeeper Network, whose address is 1615 M Street, N.W., 2nd Floor, Washington, DC 20036 and whose phone number is 202.429.2603.

For the reasons set forth in these comments, the draft permit does not comply with the Clean Water Act and applicable federal and state implementing regulations. Therefore, we ask that the Department of Environmental Quality (“DEQ”) withdraw the draft permit, make the changes outlined here, and reissue a revised permit for public comment. We also ask that these comments and all attachments be made part of the administrative record for this permit.

## **I. OVERVIEW**

The draft permit does not comply with the Clean Water Act and applicable federal and state regulations:

- First, the fact sheet is incomplete in violation of Virginia’s regulations because it does not include information about quantity and duration of the proposed

discharge.<sup>1</sup> This constitutes a procedural error which was not harmless.<sup>2</sup> Without all of the required information, the public was not afforded the opportunity to present meaningful public comment.

- Second, the permit fundamentally misapplies the federal Clean Water Act, and federal and state implementing regulations, by authorizing high levels of pollution to be discharged 365 days a year at unlimited volumes in violation of the legal requirements to apply technology-based effluent limitations and to protect the existing uses of Quantico Creek.

In order for the permit terms to comply with the federal Clean Water Act and federal and state implementing regulations supported by substantial evidence, DEQ must revise the permit in at least the following ways:

- Identify the duration and quantity of the proposed discharge.
- Apply stringent effluent limitations to releases of coal ash wastewater from coal ash pond D based on the more stringent of technology-based effluent limitations developed on a case-by-case basis and water quality-based effluent limitations. Limits must apply to all toxic pollutants discharged from pond D *and* the pond D toe drain. Limits for arsenic and mercury should be at least as stringent as the limits applied in the most recent draft NPDES permit for the Riverbend Steam Station in North Carolina.
- Verify the efficacy of any proposed treatment system prior to discharge of polluted water from pond D.
- Demonstrate that all existing beneficial uses of the unnamed tributary and Quantico Creek will be maintained.
- Require a daily limit on flow from pond D and the pond D toe drain to protect aquatic life. The permit does not the limit the flow of wastewater, and high volume flows will overwhelm the unnamed tributary and, under certain

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<sup>1</sup> See 9VAC25-31-280

<sup>2</sup> See Virginia Code § 2.2-4027; *Com. ex rel. Virginia State Water Control Bd. v. Blue Ridge Env'tl. Def. League, Inc.*, 56 Va. App. 469, 480, 694 S.E.2d 290, 296 (2010) *aff'd*, 283 Va. 1, 720 S.E.2d 138 (2012).

conditions, Quantico Creek. Furthermore, because of the high concentration of pollutants in coal ash pond D and the limits of treatment technology, treated wastewater can be expected to exceed applicable criteria to protect aquatic life for some parameters.

- Require comprehensive sampling study of sediment, water, aquatic communities, and fish tissue in Quantico Creek and the unnamed tributary in order to fully characterize environmental conditions prior to the discharge of treated effluent into the creek. Require ambient monitoring during any authorized discharge.

These issues and others are set forth in more detail below. We believe that as written this permit cannot survive judicial review. We observe that because the primary laws and regulations at issue in this permit are federal, DEQ and the State Water Control Board's interpretation of these laws and regulations is not entitled to deference by a reviewing court.<sup>3</sup>

## II. BACKGROUND

For decades, the coal ash ponds at the Possum Point Power Station have leaked cadmium, arsenic, selenium, and other metals into Quantico Creek near its confluence with the Potomac River. Some of these contaminants leaked into groundwater that then flowed into the creek, others discharged directly into the creek through illegal pipes, leaks, and seeps. These problems were not unknown to Dominion or DEQ. The Department's files contain thirty years of groundwater monitoring results that show levels of cadmium and other pollutants well above the state's groundwater protection standards.

Not surprisingly, Quantico Creek is struggling. DEQ has classified a portion of the creek as impaired for aquatic life because, in part, of elevated nickel levels in sediments tested in 2001.<sup>4</sup> Nickel is a toxic constituent of coal ash. Subsequent testing in 2014 showed high levels of lead, mercury, nickel, copper, and zinc. According to an internal

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<sup>3</sup> See *Finnerty v. Thornton Hall, Inc.*, 42 Va. App. 628, 634 (2004) (noting that an "agency does not possess specialized competence over the interpretation of a statute merely because it addresses topics within the agency's delegable authority").

<sup>4</sup> Va. Dep't of Env'tl. Quality, VPDES Permit Program Fact Sheet, Permit VA0002071, Possum Point Power Station at 10 (Oct. 27, 2015).

DEQ memorandum, “[s]elect copper and zinc levels were the highest observed in sediment results from the Potomac estuary.” And “copper, nickel, and zinc levels in selected samples exceeded DEQ screening thresholds.” A sediment sample taken by the Potomac Riverkeeper Network in 2015 adjacent to pond D also showed levels of aluminum, arsenic, cadmium, chromium, iron, potassium, magnesium, and selenium higher than background levels. But despite these well-documented problems, Dominion continued to store its waste coal ash unlined ponds on the banks of Quantico Creek for decades under the auspices of a state VPDES permit.

In 2015, Dominion consolidated coal ash and wastewater from all of its ponds at Possum Point into a single pond known as pond D. Dominion now seeks authorization to drain millions of gallons of polluted water from pond D into an unnamed tributary of Quantico Creek, Quantico Creek, and the Potomac River. The Department of Environmental Quality (“DEQ”) does not know how much water will be drained from pond D under the draft permit and has only provided an estimate of 100 to 200 million gallons. The Dan River coal ash spill, by comparison, released tons of coal ash but only 27 million gallons of contaminated wastewater, many times less than what Dominion has proposed to release at Possum Point. In pond D, the water in contact with the coal ash contains high concentrations of arsenic (960 µg/l), as well as numerous other metals including aluminum, barium, boron, cobalt, iron, magnesium, molybdenum, manganese, nickel, and zinc.

Dominion also seeks authorization to discharge polluted water from a toe drain in pond D, but again, the flow and the concentration of pollutants in the toe drain are unknown. DEQ has not required Dominion to test the toe drain for coal ash constituents even though the company applied for permit coverage a year ago in December 2014. Samples taken by the Potomac Riverkeeper Network in July 2015 showed elevated levels of metals, including boron, a known coal ash constituent, in the discharge from the toe drain, but the draft permit does not impose any limits for pollutants at this outfall.

### **III. SPECIFIC COMMENTS**

#### **A. The draft permit fact sheet does not contain required information about the type and quantity of water to be discharged.**

The draft permit fact sheet is missing important information about the “type and quantity” of contaminated water that will be discharged from pond D. Virginia regulations require that fact sheets specify “the type and quantity of wastes, fluids, or

pollutants which are proposed to be or are being treated, stored, disposed of, injected, emitted, or discharged.”<sup>5</sup> The Possum Point fact sheet does not contain information about the quantity of wastes that are stored at the site, the actual rate at which the pollutants will be discharged to Quantico Creek, or the time period over which such discharges are expected to occur for either the proposed draining of pond D or the discharge from the pond D toe drain. DEQ also does not have this information. The public cannot formulate adequate comments and propose appropriate revisions to the draft permit without an understanding of the volume of the stored wastewaters in pond D, the expected daily discharge and the duration of the discharge to drain pond D, and the rate of flow and concentrations of pollutants from the pond D toe drain.

**B. DEQ has ignored available technology that can significantly reduce pollutant concentrations in wastewater at Possum Point.**

**1. The Clean Water Act requires technology-based effluent limitations developed on a case-by-case basis.**

DEQ must consider and impose technology-based effluent limits developed on a case-by-case basis for the proposed draining and dewatering discharge from pond D and the ongoing discharge from the pond D toe drain. Federal regulations require technology-based standards developed on a case-by-case basis for (1) pollutants not covered by federal effluent limitations and for (2) aspects of operations or activities not covered by federal effluent limitations. Section 125.3(c)(3) states:

Where promulgated effluent limitations guidelines only apply to certain aspects of the discharger's operation, or to certain pollutants, other aspects or activities are subject to regulation on a case-by-case basis in order to carry out the provisions of the Act.<sup>6</sup>

Citing to this regulatory language, EPA’s NPDES Permit Writer’s Manual confirms that federal effluent limitations are inapplicable when they do not include requirements for the

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<sup>5</sup> 9VAC25-31-280(B)(2).

<sup>6</sup> 40 C.F.R. § 125.3(c)(3).

“pollutant of concern” or when the facility does not “perform the industrial operation triggering” the limitations.<sup>7</sup>

EPA’s newly promulgated final “Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category” (the “Power Plant ELGs”) do not obviate DEQ’s obligation to impose technology-based standards for arsenic and other metals in the wastewater in pond D at Possum Point.<sup>8</sup> The Clean Water Act endeavors “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” in part through the development of “technology necessary to eliminate the discharge of pollutants into the navigable waters of the United States.”<sup>9</sup> Thus, technology-based effluent limitations “represent the minimum level of control that *must* be imposed” in a VPDES permit.<sup>10</sup> Federal regulations specify that when “EPA-promulgated effluent limitations are inapplicable,” permitting agencies must impose technology-based standards “[o]n a case-by-case basis under section 402(a)(1)” of the Clean Water Act.<sup>11</sup>

Apparently relying on the new Power Plant ELGs, DEQ did not evaluate and did not impose technology-based standards on a case-by-case basis for the proposed discharges from coal ash pond D in the draft permit for Possum Point. But DEQ relied on the Power Plant ELGs in error—EPA’s newly promulgated effluent limitations do not apply to arsenic and other toxic metals contained in the wastewater in coal ash pond D nor do they apply to activities, like draining and dewatering, that are outside the normal operation of coal ash impoundments.

Wastewater in coal ash pond D at Possum Point contains arsenic concentrations as high as 960 µg/L, as well as many other pollutants like aluminum, barium, boron, cobalt,

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<sup>7</sup> U.S. EPA, NPDES Permit Writer’s Manual at 5-45, 46 (Sept. 2010), *available at* [http://www3.epa.gov/npdes/pubs/pwm\\_2010.pdf](http://www3.epa.gov/npdes/pubs/pwm_2010.pdf).

<sup>8</sup> *See* Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, 80 Fed. Reg. 67838 (the “Power Plant ELGs”). These new effluent limitations will not apply to coal ash pond D at Possum Point until after November 1, 2018.

<sup>9</sup> 33 U.S.C. § 1251(a).

<sup>10</sup> 40 C.F.R. § 125.3(a) (emphasis added).

<sup>11</sup> 40 C.F.R. § 125.3(c)(2).

iron, magnesium, molybdenum, manganese, nickel, and zinc.<sup>12</sup> The new Power Plant ELGs establish a best available technology limit for a single pollutant—total suspended solids—in “legacy wastewater” discharged from inactive coal ash impoundments like pond D at Possum Point.<sup>13</sup> EPA did not create a technology-based standard for any other pollutants because, the agency concluded, power plants handle legacy wastewater in many different ways throughout the country, including combining it and diluting it with other wastestreams and precipitation.<sup>14</sup> Thus, “the characteristics of legacy wastewater contained in surface impoundments (flow rate and *pollutant concentrations*) vary at both any given plant, as well as across plants nationwide,” and EPA did not consider arsenic or other toxic pollutants in legacy wastewater because it did not have sufficient data to create nationwide effluent limitations.<sup>15</sup> DEQ is not similarly constrained by a lack of data at Possum Point. Dominion’s permit modification application contains ample data on the concentrations of toxic metals in pond D.<sup>16</sup>

The Power Plant ELGs also did not contemplate activities other than the normal operations for coal ash impoundments, *i.e.* discharging treated water only when the impoundment’s volume reaches the level of an engineered outfall.<sup>17</sup> But here, Dominion has not applied for permit coverage for the normal operations of a coal ash pond. Instead, the company seeks authorization to drain all of the water from pond D, including the highly polluted water in contact with and saturating the pond’s coal ash, and to continuously discharge polluted water through an engineered toe drain. Draining and dewatering a coal ash impoundment and toe drain discharges are aspects of Dominion’s operation that are not contemplated by the new effluent limitations from EPA.

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<sup>12</sup> Attachment to Letter from C. Taylor, Dominion Res. Servs., Inc., to S. Mackert, Va. Dep’t of Env’tl. Quality re: Possum Point Power Station VPDES Permit No. VA0002071: Modification Request Letter (Aug. 18, 2015).

<sup>13</sup> See Power Plant ELGs, *supra* n. 8, at 67855–56. The rule defines “legacy wastewater” as “FGD wastewater, fly ash transport water, bottom ash transport water, FGMC wastewater, or gasification wastewater generated prior to the date determined by the permitting authority that is as soon as possible beginning November 1, 2018, but no later than December 31, 2023.”

<sup>14</sup> See *id.* at 67855.

<sup>15</sup> See *id.* (emphasis added).

<sup>16</sup> See Attachments to Letter from C. Taylor, Dominion Res. Servs., Inc. *supra* n. 12.

<sup>17</sup> See Power Plant ELGs, *supra* n. 8, at 67855 (“EPA also decided not to establish BAT limitations for legacy wastewater based on a technology other than surface impoundments . . .”).

In these circumstances, federal regulations require that DEQ apply technology-based treatment standards developed on a case-by-case basis.<sup>18</sup> Thus, to comply with the Clean Water Act, DEQ must use its best professional judgment to evaluate technology standards for the coal ash dewatering discharges and the toe drain discharges at the Possum Point Power Station, based on the best available technology economically achievable.<sup>19</sup> In these circumstances, best professional judgment in determining the best available technology economically achievable “thus take[s] the place of uniform national guidelines, but the technology-based standard remains the same.”<sup>20</sup> We further observe that the Clean Water Act provides that “such effluent limitations shall require the elimination of discharges of all pollutants if the Administrator finds . . . that such elimination is technologically and economically achievable.”<sup>21</sup>

Prior to the promulgation of the new Power Plant ELGs, EPA Region 4 insisted on technology-based standards on a case-by-case basis for similar discharges of legacy wastewater from coal ash ponds in North Carolina. In a September 16, 2014 letter from Region 4 to the North Carolina Department of Environment and Natural Resources, EPA insisted that the permitting agency apply “additional technology-based effluent limitations on a case-by-case basis on best professional judgment” for draining and dewatering discharges at the L.V. Sutton Steam Station.<sup>22</sup> Specifically, the agency noted that these limitations should address pollutants “that are not included in effluent guidelines for the steam electric power generating industry in 40 CFR Part 423.”<sup>23</sup>

North Carolina has either applied technology-based standards or equally or more stringent water quality-based standards for draining and dewatering legacy wastewater from coal ash impoundments even following the release of the new effluent limitations

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<sup>18</sup> 40 C.F.R. § 125.3(c)(3).

<sup>19</sup> See 33 U.S.C. §§ 1251(a)(1), 1311(b)(1)(A); 40 C.F.R. §§ 122.44, 125.3.

<sup>20</sup> *Texas Oil & Gas Assn. v. EPA*, 161 F.3d 923, 928-29 (5th Cir. 1998); see also, *Natural Resources Defense Council, Inc. v. U.S. EPA*, 859 F.2d 156, 183 (D.C. Cir. 1988) (States “are required to compel adherence to the Act’s technology-based standards regardless of whether EPA has specified their content . . .”); *Northern Cheyenne Tribe v. Montana Dept. of Environmental Quality*, 356 Mont. 296, 303 (Mont. 2010).

<sup>21</sup> 33 U.S.C. § 1311(b)(2)(A) (emphasis added).

<sup>22</sup> Letter from M. Nuhfer, Chief, Municipal & Industrial NPDES Section, EPA Region 4 to J. Poupart, Chief, Permitting Section, Division of Water Quality, North Carolina Department of Environment & Natural Resources (Sep. 16, 2014) (copy attached as Attach. A).

<sup>23</sup> *Id.*

from EPA. These limits are far more stringent than the limits proposed here for Possum Point. In 2014, North Carolina developed technology-based standards for a discharge permit renewal for the Riverbend Steam Station recognizing that “[t]he existing federal regulations require development of Technology Based Effluent Limits for the parameters of concern.”<sup>24</sup> North Carolina proposed to limits significantly more stringent than contained in the draft Possum Point permit for total arsenic (10.5 µg/L as a monthly average and 14.5 µg/L as a daily maximum) and total mercury (47.0 ng/L as a monthly average and 47.0 ng/L as a daily maximum).<sup>25</sup> The most recent proposed final permit for Riverbend, sent to EPA on November 12, 2015, after the effective date of the new Power Plant ELGs, continues to require the same technology-based limits based on the agency’s best professional judgment for discharges, including dewatering discharges, from the plant’s ash pond.<sup>26</sup>

Limits that are technologically achievable in North Carolina are technologically achievable in Virginia, and DEQ must impose technology-based standards for the pollutants of concern present in the proposed discharges at Possum Point in order to fulfill its obligations under the Clean Water Act. These limits should be identical for the proposed draining and dewatering of pond and the discharges from the pond D toe drain. The Power Plant ELGs does not set limits for the particular pollutants in this wastestream nor does it account for this particular operational process. The agency must do so through the utilization of its best professional judgment on a case-by-case basis as required by existing federal law and implementing federal and state regulations.<sup>27</sup> As we explain in **Section III.B.2.**, economically achievable technology exists to significantly reduce the levels of pollutants in these discharges.

DEQ cannot rely on state water quality standards to the exclusion of available technology for reducing the concentrations of pollutants discharged from coal ash pond D. State water quality standards provide a “supplementary basis” to further regulate

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<sup>24</sup> N.C. Dep’t of Env’tl. Quality, Fact Sheet for the NPDES Permit Development for Riverbend Steam Station, NPDES No. NC0004961 (May 21, 2014) (copy attached as Attach. B).

<sup>25</sup> *See id.*

<sup>26</sup> *See* N.C. Dep’t of Env’tl. Quality, Proposed Final Permit for Riverbend Steam Station, NPDES Permit No. NC0004961 (copy attached as Attach. C).

<sup>27</sup> *See, e.g.*, 33 U.S.C. § 1311(b)(2)(A); 40 C.F.R. § 125.3; 9VAC25-31-220.A.; *see also Texas Oil & Gas Ass’n v. U.S. E.P.A.*, 161 F.3d 923 (5th Cir. 1998) (When applying BPJ, “[i]ndividual judgments []take the place of uniform national guidelines, but the technology-based standards remain the same.”).

numerous point sources “to prevent water quality from falling below acceptable levels.”<sup>28</sup> Water quality standards are not an adequate substitution in the face of the failure to implement required technology-based effluent limitations. For the toe drain specifically, DEQ has not attempted to characterize the effluent and imposed no limits at all for this wastestream. DEQ’s failure to apply technology-based effluent limits here simply does not comply with the law.

## **2. Economically achievable technology will significantly lower metals concentrations in water discharged from coal ash pond D.**

The Southern Environmental Law Center and the Potomac Riverkeeper Network engaged Mr. Randall Grachek, a professional engineer with expertise in wastewater process design, to evaluate the availability and cost of treatment for arsenic and other toxic metals contained in the wastewater to be discharged from coal ash pond D. We provide a copy of Mr. Grachek’s report as Attachment D and incorporate it fully into these comments by reference.<sup>29</sup>

Under the Clean Water Act, the technology standard that applies to arsenic and the other toxic metals in the pond D wastewater is the “best available technology economically achievable.”<sup>30</sup> Mr. Grachek outlines a treatment methodology, involving “well tested and successfully applied unit processes,” that could reduce arsenic concentrations to approximately 10 µg/L in wastewater discharged from coal ash pond D.<sup>31</sup> This concentration is similar to the technology-based limits proposed by North Carolina for the Riverbend Steam Station permit and forty-four times lower than the proposed daily maximum of 440 µg/L in the draft permit for Possum Point. Moreover, the suggested treatment is also effective for other metals present in the pond D wastewater.<sup>32</sup>

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<sup>28</sup> *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700, 704 (1994), quoting *EPA v. California ex rel. State Water Resources Control Bd.*, 426 U.S. 200, 205, n. 12 (1976) (internal quotations omitted).

<sup>29</sup> See R. Grachek, Evaluation of Permit Requirements for Wastewater Discharge from Coal Ash Pond Closure—Dominion Power Possum Point and Bremo Facilities (Dec. 14, 2015) (copy attached as Attach. D).

<sup>30</sup> See 40 C.F.R. § 125.3(a)(2)(iii)-(iv).

<sup>31</sup> R. Grachek, *supra* n. 29, at 4.

<sup>32</sup> See *id.* at 4–5.

Drawing on two preliminary estimates from vendors that install and operate treatment systems like the one proposed, Mr. Grachek estimated the cost to build, operate, and dismantle a treatment system at Possum Point at approximately \$8,000,000. A significant portion of this expense may already be accounted for in the treatment system that Dominion has pledged to implement. This expense is also a fraction of one percent of the \$9.7 billion that Dominion plans to spend on new generation capacity over the next six years.<sup>33</sup> Similarly, Dominion's 2014 Summary Annual Report shows that the company had over \$12 billion in revenues and over \$3.4 billion in net cash flow in 2014.<sup>34</sup> Furthermore, in its most recent rate case, Dominion reported that it earned \$132.1 million in excess profits over the amount it is authorized to earn, but under Virginia law, the company was only required to refund \$19.7 million of that excess profit to customers.<sup>35</sup> In other words, requiring a wastewater treatment system at Possum Point that can reduce arsenic concentrations to 10 µg/L and reduce concentrations of other toxic metals is economically achievable.

**C. The permit will not protect existing uses of Quantico Creek and the unnamed tributary.**

Under federal and Virginia law, the draft VPDES permit for the Possum Point Power Station must protect the existing uses of Quantico Creek and its unnamed tributary that will receive the discharges.<sup>36</sup> Quantico Creek is a popular fishery for catfish and largemouth bass and a likely nursery and feeding ground for young-of-the-year striped bass, an anadromous species that spawns in the Potomac River near Possum Point.<sup>37</sup>

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<sup>33</sup> See Dominion Res., Inc., Form 10-K Annual Report for Fiscal Year 2014 at 11, *available at* <https://www.dom.com/library/domcom/pdfs/investors/2014-10k.pdf?la=en>.

<sup>34</sup> See Dominion Summary Annual Report, *available at* <https://www.dom.com/corporate/investors/sec-filings-and-reports/summary-annual-report>.

<sup>35</sup> See Final Order, In re: Application of Va. Elec. & Power Co., Case No. PUE-2015-00027 at 15 (Va. State Corp. Comm'n, Nov. 23, 2015), *available at* <http://www.scc.virginia.gov/docketsearch/DOCS/35m401!.PDF>.

<sup>36</sup> 9VAC25-260-30(A)(1) ("Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected"); 40 C.F.R. § 131.12(a)(1).

<sup>37</sup> Md. Dep't of Nat. Res., Adult Spawning Stock Survey, *available at* <http://dnr2.maryland.gov/fisheries/Pages/striped-bass/studies.aspx> (follow link for "historic spawning locations").

Some anglers consume fish from Quantico Creek, and catfish are commercially fished in the creek.

Virginia law classifies Quantico Creek and the unnamed tributary as a “migratory fish spawning and nursery designated use” which applies from February 1 to May 31 of each year.<sup>38</sup> This designation requires the protection of

the survival, growth and propagation of the early life stages of a balanced, indigenous population of anadromous, semi-anadromous, catadromous and tidal-fresh resident fish species inhabiting spawning and nursery grounds.<sup>39</sup>

For the rest of the year, Quantico Creek and the unnamed tributary are designated for the protection of “the survival, growth and propagation of a balanced, indigenous population of aquatic life inhabiting open-water habitats.”<sup>40</sup>

For the following reasons, the draft permit threatens these uses and violates 40 C.F.R. § 131.12(a)(1) and 9VAC25-260-30(A)(1).

**1. Polluted discharges into the unnamed tributary and into Quantico Creek will be highly hazardous for aquatic life.**

Discharges from pond D at the concentration limits set in the draft permit will be highly hazardous for aquatic life. The draft Possum Point permit authorizes discharges at concentrations that exceed the applicable Virginia water quality standards to protect human health and the environment. Under Virginia regulations, establishing permit limits via dilution of the discharge is only permissible so long as it does not “cause lethality to passing and drifting aquatic organisms through the water body in question.”<sup>41</sup> The Southern Environmental Law Center and the Potomac Riverkeeper engaged Dr. A. Dennis Lemly to evaluate the risk to aquatic life posed by the proposed draining and dewatering of coal ash pond D and by the pond D toe drain. We provide a copy of Dr. Lemly’s report as Attachment E and incorporate it fully into these comments by reference.

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<sup>38</sup> See Possum Point Fact Sheet at 11.

<sup>39</sup> 9VAC25-260-10(B)(1).

<sup>40</sup> See *id.* at § 25-260-10(B)(3).

<sup>41</sup> 9 VAC 25-260-20(B)(1)(a).

Dr. Lemly evaluated the toxicity of arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, selenium, silver, thallium, vanadium, and zinc by referencing toxic thresholds that are published in the scientific literature, established by federal guidelines, or set by enforceable standards by Virginia and the State of Washington.<sup>42</sup> The draft permit does not include limits for barium, cobalt, manganese, and vanadium; DEQ should regulate these commonly occurring toxic constituents of coal ash in the Possum Point permit.<sup>43</sup> Of the remaining eleven constituents, Dr. Lemly assigned high hazard ratings to all but thallium.<sup>44</sup>

According to Dr. Lemly, “[d]irect waterborne toxicity would be the primary route of exposure and effects for all of these pollutants except mercury and selenium . . . .”<sup>45</sup> The proposed permit authorizes the discharge of the following toxic metals at concentrations above the hazard level for fish and wildlife:

- arsenic (12 times higher);
- cadmium (10 times higher);
- chromium (14 times higher);
- copper (12 times higher);
- lead (10 times higher);
- mercury (2.8 times higher);
- nickel (5 times higher);
- selenium (7.5 times higher);
- silver (2 times higher); and
- zinc (2 times higher).<sup>46</sup>

The permit would authorize discharge of copper at concentrations (18 µg/L) sufficient to kill 20-50% of “a variety of aquatic organisms” such as “worms, snails, clams, mussels, crustaceans (e.g., amphipods, crayfish) toads [sic], and fish (minnows, darters, trout)” over a 48-96 hour exposure period.<sup>47</sup> Given “the relationships between proposed

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<sup>42</sup> See A. Dennis Lemly, Ph.D., Technical and Toxicological Evaluation of Coal Ash Pond Dewatering Permit Proposed for Possum Point Power Station, Virginia at 2 (Dec. 14, 2015) (attached as Attach. E).

<sup>43</sup> See *id.* at 11.

<sup>44</sup> See *id.* at 8.

<sup>45</sup> *Id.*

<sup>46</sup> *Id.*

<sup>47</sup> *Id.*

permitted release concentrations and documented toxic effect thresholds,” the high hazard ratings given are “toxicologically justified.”<sup>48</sup>

Dr. Lemly also identified selenium and mercury as hazardous to fish and wildlife through bioaccumulation in the aquatic food chain.<sup>49</sup> Selenium can accumulate in tissues to “levels that are several thousand times the initial waterborne concentration.”<sup>50</sup> Selenium can kill embryos in fish and birds and “also result in teratogenic poisoning that produces a variety of skeletal deformities and associated death in the young.”<sup>51</sup> This metal may also bioaccumulate to a greater degree in standing water habitats like the unnamed tributary or stagnant areas of Quantico Creek.<sup>52</sup> The draft permit would authorize the release of selenium concentrations well above concentrations that can “cause bioaccumulation to toxic levels in aquatic food chains and fish and wildlife tissues.”<sup>53</sup>

In light of Dr. Lemly’s analysis, the limits proposed in the draft permit for Possum Point will not ensure that existing uses of the unnamed tributary and Quantico Creek—including migratory fish spawning and nursery uses—will be protected. Additionally, concentrations of pollutants in the discharge plume are likely to reach lethal levels depending on hydrological conditions in violation of Virginia regulations.

Finally, DEQ should take note of the possibility of cumulative and/or synergistic impacts as a function of the combination of metals, salts, and high temperature discharges. At elevated temperatures, the metals contained in the discharges of coal ash water may be even more toxic than at normal stream temperatures.<sup>54</sup>

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<sup>48</sup> *Id.* at 11.

<sup>49</sup> *See id.* 8.

<sup>50</sup> *Id.*

<sup>51</sup> *Id.* at 8–9.

<sup>52</sup> *See id.* at 11.

<sup>53</sup> *See id.* at 9.

<sup>54</sup> *See Mixing Zones: Unreasonable Interference—Discussion Paper # 1*, State of Idaho, Department of Environmental Quality, June 2014, available at <https://www.deq.idaho.gov/media/1117518/58-0102-1401-discussion-paper1-0614.pdf>; Prasada Rao, D. G. V. and M. A. Q. Khan 2000. *Zebra Mussels: Enhancement of copper toxicity by high temperature and its relationship with respiration and metabolism*. Water Environment Research, Vol. 72, No. pp. 175-178; Kamel Naouel, Thierry Burgeot, Mohamed Banni, Mohamed Chalhaf, Simon Devin, Christophe Minier & Hamadi Boussetta. 2014. *Effects of increasing*

## **2. Polluted water from pond D will sacrifice water quality in the unnamed tributary and in Quantico Creek.**

Polluted water from pond D will sacrifice water quality in the tributary of Quantico Creek that receives the discharge from outfall 005. The draft Possum Point permit authorizes discharges at concentrations that exceed the applicable Virginia water quality standards to protect human health and the environment. The unnamed tributary is a first order stream has a small pond at its mouth that is separated from Quantico Creek by Possum Point Road. Two culverts under the road connect the pond to the larger creek. The flow in this small stream is wholly insufficient to dilute the highly concentrated waste stream from pond D. Nonetheless, the draft permit does not include limits on the allowable flow from pond D, and it is possible that the volume of the discharge on any given day may greatly exceed the average flow of 2.53 MGD identified in the permit.

Virginia regulations allow the “use of mixing zone concepts” to set limits for discharge permits. But the Department does not provide an estimate of the flow in this tributary, the volume of water in the pond at its mouth, nor the extent to which the tributary is tidally mixed with water from Quantico Creek. Nonetheless, it assumes that the tributary can sufficiently dilute an average discharge of 2.53 million gallons per day from the coal ash ponds to protect water quality standards. This is improbable and extremely unlikely. Millions of gallons of discharged water would overwhelm this small waterbody, so that the whole volume of the stream is wastewater from the outfall to the culverts connecting it to Quantico Creek.

Under this scenario, the proposed limits in the permit would not protect in-stream water quality in the tributary. If this permit is approved, we expect that water in the tributary will have arsenic concentrations very close to the monthly average limit in the permit of 300 µg/L, twice the chronic water quality standard for the pollutant, and

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*temperatures on biomarker responses and accumulation of hazardous substances in rope mussels (Mytilus galloprovincialis) from Bizerte lagoon. Environ Sci. Pollut. Res. 21:6108–6123 ; BAT, Levent; Mehmet AKBULUT; Mehmet ULHA; Ayşe G.NDOÚDU; Hasan H.seyin SATILMIŞ. 2000. Effect of temperature on the toxicity of zinc, copper and lead to the freshwater amphipod Gammarus pulex pulex (L., 1758). Turk J Zool 24: 409-415; Khan, M. A. Q.; S. A. Ahmed; Bogdon Catalin; A. Khodadoust; Oluwaleke Ajayi & Mark Vaughn. 2006. Effect of temperature on heavy metal toxicity to juvenile crayfish, Orconectes immunis (Hagen). Environ. Toxicol. 21: 513–520.*

intermittently as high as the daily maximum limit of 440 µg/L. Other pollutants would also be present at concentrations near the monthly average limit in the permit. In other words, the draft permit would sacrifice water quality in the tributary and illegally convert this existing state waterway into part of the treatment system for Dominion's coal ash waste.

DEQ also assumes that the mixing of wastewater with an equal volume of instream water will also sufficiently dilute toxic metals to achieve water quality standards in Quantico Creek. However, dilution will not be instantaneous and the discharge plume may, at various times, contain metals as high as the daily maximum limits in the draft permit, including arsenic up to 440 µg/L and selenium up to 15 µg/L. Furthermore, depending on hydrological conditions, storm events, and the volume of flow of effluent, the zone of undiluted contaminants in Quantico Creek could be significantly greater than anticipated. Quantico Creek is very shallow, and with tidal pulsing of approximately 1.5 feet per cycle, a plume of undiluted contaminants will likely persist in the waterway for hours or longer at low tide. DEQ has not provided an analysis of the tidal conditions in Quantico Creek to justify its conclusion that dilution will be sufficient to protect water quality under all hydrological conditions.

### **3. The proposed “dewatering” discharge will contribute to an existing impairment of Quantico Creek and further degrade water quality.**

Virginia has classified a portion of the tidal reach of Quantico Creek, near Probabilistic Monitoring Station 1aQUA001.09, as impaired for aquatic life since 2006. The impairment determination was based on “bulk chemical data, toxicity test data, and an evaluation of benthic community conditions,” including sediment chemistry analysis showing elevated levels of nickel in creek sediments.<sup>55</sup> The Virginia 2012 Final 303(d) List states that 0.426 square miles of the estuary are impaired, and the 2014 Draft 303(d) List characterizes the impairment as extending to a half-mile radius of the monitoring station. Without further monitoring, the full extent of the impairment cannot be known. DEQ has initiated a special study for Quantico Creek, but results from that sampling effort, much of which will take place in 2016, will not be available until after the proposed permit would be finalized.

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<sup>55</sup> See Possum Point Fact Sheet at 10.

The impaired area includes the reach of Quantico Creek into which millions of gallons of “dewatering” wastewater will flow. This wastewater includes high levels of nickel, but the draft permit does not include a limit for this constituent. It also includes arsenic and other toxic metals which are not sufficiently limited. Additionally, the toe drain is discharging an unknown volume of effluent and, under the proposed permit, will continue to discharge metals and other pollutants with no limits at all. Discharged metals will accumulate in creek sediments, adding to the existing impairment and further degrading the ability of Quantico Creek to support aquatic life.<sup>56</sup> Where no Total Maximum Daily Load has been promulgated, TMDL development is not planned until 2018, and no Waste Load Allocation has been performed, it simply does not make sense to risk further impairment of Quantico Creek by authorizing the dewatering discharge without imposing strict limits on the metals and other pollutants that have contributed to the impairment.

**D. The draft permit does not contain an effective monitoring regime.**

The draft permit is deficient because it does not contain meaningfully enforceable limits on the coal ash discharge into Quantico Creek. That is, the permit imposes weekly monitoring to enforce daily maximum and monthly average limits.<sup>57</sup> This means that the discharge is monitored for compliance with daily maximum limits only four times per month, and that these same four data points are used to constitute an average for an entire month of discharge. It is obvious that *weekly* monitoring cannot effectively enforce compliance with *daily* maximum limits. It is also possible that dewatering could be completed within one month’s time—rendering monthly reporting meaningless. For these reasons the permit must require more frequent monitoring and reporting. Monthly average limits should be made weekly average limits, with daily monitoring and weekly reporting.

**E. Polluted discharges from coal ash pond D may adversely affect special status species.**

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<sup>56</sup> See L. Ruhl, et al., *The Impact of Coal Combustion Residue Effluent on Water Resources: A North Carolina Example*, 46(21) *Envtl. Sci. & Tech.* 12226 (Sept. 30, 2012).

<sup>57</sup> See Possum Point Draft Permit at 5.

The Bald and Golden Eagle Protection Act (the “Eagle Protection Act”) prohibits the take of bald eagles without a “take” permit.<sup>58</sup> The Eagle Protection Act defines “take” to include “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.”<sup>59</sup> The permit authorizes harm to eagles where the “take is . . . *necessary* to protect an interest in a particular locality; associated with but not the purpose of the activity” and “unavoidable even though advanced conservation practices are being implemented.”<sup>60</sup> Applying for a permit is voluntary, but if unpermitted take occurs, the United States Fish and Wildlife Service (“USFWS”) may seek civil penalties.<sup>61</sup>

According to the Virginia Bald Eagle Nest Locator, a project of the Center for Conservation Biology at The College of William and Mary (the “CCB”), there are at least four bald eagle nests located on Possum Point in the vicinity of the coal ash ponds, all of which were found to be active in 2015 by the Virginia breeding bald eagle nest survey.<sup>62</sup> Numerous other nests exist in the area.<sup>63</sup> Communal roosting sites for non-breeding bald eagles line the Potomac River in the area of Possum Point, including known roosts at Chopawamsic Creek, Chopawamsic Island, Smallwood State Park, Mattawoman Creek, and Mason Neck Regional Park.<sup>64</sup> According to the CCB, up to 50 eagles may gather at a given roost in the Chesapeake Bay region, and one resident of Possum Point Road commented at the December 8, 2015, public hearing that he had witnessed fifty-two eagles gathered in his yard.

The proposed permit authorizes the discharge of elevated levels of bioaccumulative toxic pollutants, like selenium and mercury, that will impact the eagles’ prey base and become biomagnified in eagles. These contaminants may injure eagles or substantially

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<sup>58</sup> 16 U.S.C. § 668.

<sup>59</sup> 16 U.S.C. § 668c.

<sup>60</sup> 50 C.F.R. § 22.26(a) (emphasis added).

<sup>61</sup> See 16 U.S.C. § 668b (authorizing the Secretary to seek civil penalties for violations); 50 C.F.R. § 22.26(d)(1) (“You are advised to coordinate with [USFWS] as early as possible for advice on whether a permit is needed . . .”).

<sup>62</sup> See Virginia Breeding Bald Eagle Nest Survey <http://www.cbbirds.org/what-we-do/research/species-of-concern/species-of-concern-projects/va-bald-eagle-survey/>; Virginia Bald Eagle Nest Locator <http://www.cbbirds.org/what-we-do/research/species-of-concern/virginia-eagles/nest-locator/>.

<sup>63</sup> *Id.*

<sup>64</sup> *Id.*

interfere with normal breeding and feeding behavior.<sup>65</sup> Any reduction in the abundance or health of bald eagle prey species may also interfere with normal breeding and feeding behavior.

The National Bald Eagle Management Guidelines recommend “[m]onitor[ed] and minimize[d] dispersal of contaminants associated with . . . permitted releases . . . especially within watersheds where . . . bioaccumulating contaminants have been documented.”<sup>66</sup> The Virginia Department of Game and Inland Fisheries (the “VDGIF”) acknowledges that “[a]ny major habitat modification . . . may be detrimental” to communal roosts.<sup>67</sup>

In order to assess compliance with the Eagle Protection Act, the Endangered Species Act, and other laws and regulations applicable to special status species, DEQ should coordinate with VDGIF and USFWS before authorizing the proposed dewatering discharge. DEQ should also require Dominion to apply for an incidental take permit before authorizing the discharge.

#### IV. CONCLUSION

In closing, the proposed draft permit suffers from fatal flaws; does not conform to applicable legal requirements; and is based on insufficient information. As a result, we again ask DEQ to withdraw the draft permit, revise it to address the identified flaws, and thereafter reissue the revised draft permit and provide a complete fact sheet for public comment. In the alternative, we ask that DEQ revise the proposed permit in response to these and other comments.

Thank you for your consideration of these comments

Sincerely,



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<sup>65</sup> See 50 C.F.R. § 22.3.

<sup>66</sup> National Bald Eagle Management Guidelines at 15 (May 2007), available at <http://www.fws.gov/southdakotafieldoffice/NationalBaldEagleManagementGuidelines.pdf>.

<sup>67</sup> Management of Bald Eagle Nests, Concentration Areas, and Communal Roosts in Virginia: A Guide for Landowners at 35 (2012), available at <http://www.dgif.virginia.gov/environmental-programs/files/virginia-bald-eagle-guidelines-for-landowners.pdf>.

Gregory Buppert  
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Encls: List of Exhibits Attached.

cc (by mail and electronic mail):

Shawn Garvin, Regional Administrator, U.S. EPA Region 3

Doug Frankenthaler, Assistant Regional Counsel, U.S. EPA Region 3

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