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VIA E-MAIL (COURTESY COPY TO FOLLOW BY U.S. MAIL)

Virginia Department of Environmental Quality
c/o Beverley Carver
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Re: Final Comments on Draft VPDES Permit No. VA0004138, Bremo Power Station

Dear Ms. Carver,

We write to submit final comments on the Draft Virginia Pollution Discharge Elimination System ("VPDES") Permit for the Bremo Power Station. The Southern Environmental Law Center ("SELC") submits these comments on behalf of itself and the James River Association ("JRA") located at 4833 Old Main Street, Richmond, VA 23231, phone: (804) 788-8811.

As you know, we previously submitted two sets of initial comments on December 1, 2015 and on December 10, 2015. We did so because we believed that it was appropriate to submit comments as soon as practicable. These final comments raise additional issues as well as encapsulate the previous comments. We ask that these comments and all attachments, as well as the previous comments and all attachments, be made part of the Administrative Record.

I. OVERVIEW.

The proposed Draft Bremo Permit does not comply with the applicable state and federal regulatory and statutory requirements:

- First, the Fact Sheet is incomplete in violation of Virginia regulations governing the required contents of the "Fact Sheets" that must accompany draft VPDES Permits.[1] This constitutes a procedural error which was not harmless.[2] 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, to protect designated uses of the James River, and to prevent degradation of the James River's high quality under Virginia's Antidegradation Policy. Here, where the Virginia Department of Environmental Quality ("VDEQ") and State Water Quality Control Board are implementing federal mandates, the legal questions at issue fundamentally turn on the proper construction of the federal statutory and regulatory provisions as well as the Virginia regulations. In such circumstances, VDEQ is not entitled to deference respecting its legal construction of the regulatory and statutory provisions involved.[3]

- Third, VDEQ improperly relies on an "assumption of complete mixing" for its conclusion that the limits in the permit will protect the James River, which, in turn, VDEQ bases on a mixing analysis that shows that complete mixing of the effluent and the James River water will not occur for about 9 to 11 miles downstream at critical low flow conditions. Thus, VDEQ has no factual basis to support its assertion that the permit will protect water quality during low flow conditions for 9 to 11 miles downstream. As such, VDEQ's conclusions that the James River in the mixing area will be protected are not based on substantial evidence, nor on any evidence at all for that matter.[4]

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[1] *See* 9VAC25-31-280

[2] *See* Virginia Code § 2.2-4027; *Com. ex rel. Virginia State Water Control Bd. v. Blue Ridge Envtl. Def. League, Inc.*, 56 Va. App. 469, 480 (2010) *aff'd*, 283 Va. 1 (2012).

[3] *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").

[4] *See* Virginia Code § 2.2-4027; *Mazloumi v. Dept' of Envtl. Quality*, 55 Va. App. 204, 208 (2009) (applying substantial evidence standard to uphold VDEQ determination that VDEQ properly revoked license of inspector who conducted fraudulent emissions tests).

In summary, the draft permit cannot survive judicial review, because it contains a procedural error that is not harmless; misapplies the law; and is not supported by substantial evidence. As such, VDEQ must re-publish a revised permit together with a complete fact sheet. In addition, in order for the permit terms to comply with the federal Clean Water Act and federal and state implementing regulations and be supported by substantial evidence, VDEQ must revise the permit in at least the following ways:

- Apply stringent effluent limitations to releases of coal ash wastewater to the James River and all waters of the United States (and not just internal outfall limitations) based on the more stringent of technology based effluent limitations developed on a case-by-case basis and water-quality based effluent limitations;
- Justify any lowering of water quality in the James River as necessary for important economic or social development under Virginia's Antidegradation Policy;[5]
- Demonstrate that all beneficial uses of the James River will be maintained;
- Demonstrate that any mixing area downstream of the discharges from the Bremo Power Station will comply with Virginia's regulations governing mixing zones;[6]
- Limit the volume of water that may be discharged at any time and the total loading of pollution to the James River;
- Disallow or further restrict the discharge of coal ash wastewater during low flow conditions when the impacts to the James River will be greatest; and
- Apply sufficient monitoring terms, including baseline monitoring and ambient monitoring of water quality, sediments, aquatic communities, and fish tissue, to ensure that the James River and human health are protected.

Because of the high levels of pollution in the decanting and pore water contained in the Bremo Coal Ash ponds, including high levels of salts, and the limits of treatment technology, even after revision of the permit terms to contain much more stringent concentration-based limits on the discharge of coal ash wastewaters, the treated wastewater can be expected to exceed applicable criteria to protect aquatic life for at least some parameters. Thus, even after treatment, it will be necessary to strictly limit the volume of the discharges to the James River, and to disallow any discharge at low flow conditions. DEQ neither performed the requisite analyses nor provided the necessary information to allow for performance of calculations for SELC and JRA to offer more specific

[5] 9VAC25-260-30.A.2; *see also* 40 C.F.R. § 131.12 (containing federal Antidegradation Policy).

[6] 9VAC25-260-20.

recommendations respecting the precise limits on volume and discharge at low flow conditions that are needed to protect the James River. While SELC and JRA worked diligently to develop such analyses on their own, given VDEQ's failure to perform the required analyses, failure to include all of the requisite information, and refusal to extend the comment period, we are unable to offer more specific recommendations at this time.

II. SPECIFIC COMMENTS.

1. The Draft Permit Fact Sheet is Incomplete in Violation of 9VAC25-31-280.

The Draft Permit Fact Sheet is missing important information that is needed to provide for review of the permit. This remains the case even after we pointed this deficiency out to VDEQ at the December 1, 2015 public hearing and in our initial, written comments. The Virginia Administrative Code provides that fact sheets must 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." 9VAC25-31-280(B)(2). The Bremo Fact Sheet does not contain information on the quantity of wastes that are stored at the Site, the actual rate at which the pollutants will be discharged to the James River, or the time period over which such discharges are expected to occur. Confusingly, VDEQ performed a mixing analysis based on an estimated flow of approximately 10.3 MGD (million gallons per day) while it appears that the maximum expected flow of coal ash wastewater from the Bremo Power Station will be approximately 5.5 MGD. (*See* Grachek Report, Attachment D)

2. VDEQ has Ignored Available Technology that can Significantly Reduce Pollutant Concentrations in Wastewater at Bremo Power Station.

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

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.[7]

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

[7] 40 C.F.R. § 125.3(c)(3).

"pollutant of concern" or when the facility does not "perform the industrial operation triggering" the limitations.[8]

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 VDEQ's obligation to impose technology-based standards for arsenic and other metals in the wastewater in the coal ash ponds at Bremo Power Station.[9] 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."[10] Thus, technology-based effluent limitations "represent the minimum level of control that *must* be imposed" in a VPDES permit.[11] 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.[12]

Apparently relying on the new Power Plant ELGs, VDEQ did not evaluate and did not impose technology-based standards on a case-by-case basis for the proposed coal ash discharges from the Bremo Power Station. But VDEQ 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 coal ash wastewater nor do they apply to activities, like draining and dewatering, that are outside the normal operation of coal ash impoundments. Indeed, as we pointed out in our initial comment letter, EPA's promulgated effluent limits for flue gas desulfurization wastewater are illustrative of the availability of treatment technologies as applied to coal ash dewatering water.

Wastewater in the coal ash ponds at Bremo Power Station contains arsenic concentrations as high as 1,460 µg/L in the East Pond and 1,020 µg/L in the North Pond, as well as many other pollutants like aluminum, barium, boron, cobalt, iron, magnesium, molybdenum, manganese, nickel, and zinc.[13] 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 the North and East Ponds

[8] 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.

[9] *See* Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, 80 Fed. Reg. 67,838 (the "Power Plant ELGs"). These new effluent limitations will not apply to coal ash ponds at Bremo Power Station until after November 1, 2018.

[10] 33 U.S.C. § 1251(a).

[11] 40 C.F.R. § 125.3(a) (emphasis added).

[12] 40 C.F.R. § 125.3(c)(2).

[13] Attachment to Letter from C. Taylor, Dominion Res. Servs., Inc., to A. Owens, Va. Dep't of Envtl. Quality re: Bremo Power Station Power Station VPDES Permit No. VA0004138: Modification Request Letter (Oct. 6, 2015), Table 3: Statistical Summary of Constituents in Process Water Bremo Power Station.

at Bremo Power Station.[14] 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.[15] 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.[16] DEQ is not similarly constrained by a lack of data at Bremo Power Station. Dominion's permit modification application contains ample data on the concentrations of toxic metals in the North Ash and East Ash Ponds at Bremo.[17]

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.[18] 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 the North Ash and East Ash Ponds at Bremo, including the highly polluted water in contact with and saturating the pond's coal ash. Draining and dewatering a coal ash impoundment is an aspect of Dominion's operation that is not contemplated by the new effluent limitations from EPA.

In these circumstances, federal regulations require that VDEQ apply technology-based treatment standards developed on a case-by-case basis.[19] Thus, to comply with the Clean Water Act, VDEQ must use its best professional judgment to evaluate technology standards for the coal ash dewatering discharges and the toe drain discharges at the Bremo Power Station, based on the best available technology economically achievable.[20] 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."[21] We further observe that the Clean Water

[14] *See* Power Plant ELGs, *supra* n. 9, at 67,855–56. 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."

[15] *See id.* at 67,855.

[16] *See id.* (emphasis added).

[17] *See* Attachment to Letter from C. Taylor, Dominion Res. Servs., Inc. *supra* n. 13.

[18] *See* Power Plant ELGs, *supra* n. 9, at 67855 ("EPA also decided not to establish BAT limitations for legacy wastewater based on a technology other than surface impoundments . . . .").

[19] 40 C.F.R. § 125.3(c)(3).

[20] *See* 33 U.S.C. §§ 1251(a)(1), 1311(b)(1)(A); 40 C.F.R. §§ 122.44, 125.3.

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."[22]

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.[23] 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."[24]

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 from EPA. These limits are far more stringent than the limits proposed here for Bremo Power Station. 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."[25] North Carolina proposed limits significantly more stringent than those contained in the draft Bremo Power Station 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).[26] 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

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[21] *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).

[22] 33 U.S.C. § 1311(b)(2)(A) (emphasis added).

[23] 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).

[24] *Id.*

[25] N.C. Dep't of Envtl. Quality, Fact Sheet for the NPDES Permit Development for Riverbend Steam Station, NPDES No. NC0004961 (May 21, 2014) (copy at Attach. B).

[26] *See id.*

agency's best professional judgment for discharges, including dewatering discharges, from the plant's ash pond.[27]

Limits that are technologically achievable in North Carolina are technologically achievable in Virginia, and VDEQ must impose technology-based standards for the pollutants of concern present in the proposed discharges at Bremo Power Station in order to fulfill its obligations under the Clean Water Act. The Power Plant ELGs do not set limits for the particular pollutants in this wastestream nor do they 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.[28] As we explain in Section II.2.B., economically achievable technology exists to significantly reduce the levels of pollutants in these discharges.

State water quality standards provide a "supplementary basis" to further regulate numerous point sources "to prevent water quality from falling below acceptable levels."[29] Water quality standards are not an adequate substitution in the face of the failure to implement required technology-based effluent limitations. VDEQ's failure to apply technology-based effluent limits here simply does not comply with the law.

B. Economically achievable technology will significantly lower metals concentrations in water discharged from the coal ash ponds at Bremo.

The Southern Environmental Law Center and the James River Association 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 the North Ash and East Ash Ponds at Bremo. We provide a copy of Mr. Grachek's Report as Attachment D and incorporate it fully into these comments by reference.

Under the Clean Water Act, the technology standard that applies to arsenic and the other toxic metals in the North and East Ash Ponds at Bremo is the "best available technology economically achievable."[30] 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 the coal ash ponds

[27] *See* N.C. Dep't of Envtl. Quality, Proposed Final Permit for Riverbend Steam Station, NPDES Permit No. NC0004961 (copy attached as Attach. C).

[28] *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.").

[29] *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).

[30] *See* 40 C.F.R. § 125.3(a)(2)(iii)-(iv).

at Bremo. This concentration is similar to the technology-based limits proposed by North Carolina for the Riverbend Steam Station permit and seventy-four times lower than the proposed daily maximum of 740 µg/L in the draft permit for Bremo Power Station. Moreover, the suggested treatment is also effective for other metals present in the coal ash ponds at Bremo.

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 Bremo Power Station at approximately $10,000,000, which is based on an expected flow rate of 4 to 6 MGD.

This expense is only a small fraction of one percent of the $9.7 billion that Dominion plans to spend on new generation capacity over the next six years.[31] 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.[32] 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.[33] In other words, requiring a wastewater treatment system at Bremo Power Station that can reduce arsenic concentrations to 10 µg/L and reduce concentrations of other toxic metals is economically achievable.

3. The Draft Bremo Permit Does Not Comply with the Clean Water Act and Implementing Regulations because VDEQ Improperly Relies on a "Complete Mix Assumption" even though VDEQ's own Analyses Show that Complete Mixing of the Coal Ash Pollution with the James River Will Not Occur for 9 to 11 Miles Downstream During Low Flow Conditions.

The draft Bremo Permit authorizes discharges at concentrations that exceed the applicable Virginia water quality standards to protect human health and the environment. For example, as set forth in Table 2 below, the permit authorizes the discharge of antimony at more than 5 times the public health standard (which is intended to make sure that fish are safe to eat) and at over 600 times the standard for waters designated as Public Water Supply. While the James River is apparently not used for drinking water in the immediate area of the discharge, the James River Water Authority is proposing a new water intake 8.7 miles downstream. (Permit Fact Sheet, page 1.)

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[31] *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.

[32] *See* Dominion Summary Annual Report, *available at* https://www.dom.com/corporate/investors/sec-filings-and-reports/summary-annual-report.

[33] *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.

Table 1: Overview of "Dewatering" Limits Compared to Water Quality Standards

Parameter (all numbers expressed as total recoverable in µg/L – micrograms per liter)	**Monthly Average Limit in Bremo Draft Permit**	**Maximum Limit in Bremo Draft Permit**	**VA Human Health Standard for PWS[34]**	**VA Human Health Standard for Other Waters**	**VA Aquatic Life - Chronic**	**VA Aquatic Life – Acute**
Antimony	3,400	3,400	5.6	640		
Arsenic	500	740	10		150	340
Cadmium	4.5	6.6	5		1.1[35]	3.9
Chromium III	500	730	100 (total)		74	570
Chromium VI	24	35			11	16
Copper	16	24	1,300		9	13
Lead	73	110	15		14	120
Mercury	2	3			.77	1.4
Nickel	130	190	610		20	180
Selenium	29	43	170		5	20
Silver	3.5	5.1				3.4
Thallium	2.5	2.5	.24	.47		
Zinc	140	210	7,400	26,000	120	120
Chloride	1,300,000	1,900,000	250,000		230,000	860,000
Ammonia	9,600	14,000				

[34] PWS = Public Water Supply

[35] The acute and chronic whole effluent toxicity standards for Cd, Cr, Cu, Pb, Ni, and Ag are based on the hardness of the water. The figures given here are based on water hardness as calcium carbonate of $CaCO_3$ = 100 mg/l. The actual mean hardness of the water in the ash ponds is reported in the Bremo Draft Permit as 70.1 and in the James River as 62.5.

In order to justify the discharge of pollution at concentrations exceeding ambient standards, VDEQ is relying on a "complete mix assumption." This assumption, in turn, is based on a mixing analysis for the permit reflected at Appendix B, Page 14 of the Fact sheet. A map depicting this mixing analysis is provided at Attachment G. According to VDEQ's mixing analysis, complete mixing of the coal ash wastewater with the James River will not occur for many miles downstream from the discharge point during low flow conditions. The calculated, large mixing area extends almost 10 miles downstream during 7Q10 (*i.e.* the lowest 7 day flows expected to occur once every 10 years) flow conditions. The calculated mixing zone would be even larger during 1Q10 conditions, extending almost 10.7 miles downstream. However, at 1Q10 conditions, VDEQ determined that a complete mix assumption is only appropriate using a small percentage (3.54%) of the flow of the James River.

VDEQ's reliance on a "complete mix assumption" here based on this mixing analysis violates the applicable Virginia regulations. A "mixing zone" is defined in the Virginia Administrative Code as "**a limited area or volume of water** where initial dilution of a discharge takes place and where numeric water quality criteria can be exceeded but designated uses in the water body on the whole are maintained and lethality is prevented." 9VAC25-260-5 (emphasis added).

The Virginia Administrative Code at 9VAC25-260-20 (General Criteria) contains default limits on the use of mixing zones. For example, 9VAC25-260-20.B.1. provides that mixing zones: "evaluated or established by the board in fresh water shall not:

a. Prevent movement of or cause lethality to passing and drifting aquatic organisms through the water body in question;
b. Constitute more than one half of the width of the receiving watercourse nor constitute more than one third of the area of any cross section of the receiving watercourse;
c. Extend downstream at any time a distance more than five times the width of the receiving watercourse at the point of discharge."

However, based on the discussions at our November 19, 2015 meeting, we understand that VDEQ does not even have the technical capacity to calculate mixing zones that comply with these dimensional limits. Thus, VDEQ has no choice but to rely on an assumption of complete mixing under subsection B.10 of the regulations, which provide that the Board may waive the requirements of subsections b. and c. above on a "case by case" basis where "the board determines that a complete mix assumption is appropriate." 9VAC25-260-20.B.10.

According to a mixing analysis for the "Combined Dewatering Activities" contained at Appendix B – Page 14 of the Fact Sheet, the length of the area of the James River where

mixing of the effluent and river water will occur is calculated as 52,772.32 feet – or almost 10 miles – using an effluent flow rate of 10.2912 MGD (million gallons per day) and the 7Q10 Flow of the James River at the point of discharge. The width of the James at the point of discharge is 400 feet. Thus, the generally applicable maximum permitted length for a mixing zone here is 2,000 feet. However, VDEQ proposes that the Water Control Board waive these dimensional limitations by concluding that an assumption of complete mixing is appropriate here. (Again, for the 1Q10 flow, VDEQ determined that the "complete mixing" assumption is appropriate for only 3.54% of the 1Q10 flow.) Here the "complete mixing" assumption—upon which VDEQ's assertion that water quality standards will be maintained wholly depends—is unsupported by any evidence, much less the substantial evidence required by law, for a substantial reach of the James River.[36] In this situation, where complete mixing will not occur for several miles at low flow conditions, the Board cannot reasonably support an assumption of "complete mixing." Thus, VDEQ's mixing analysis and the permit limits based on it fail to adequately protect the James River for many miles downstream of the discharge. Indeed, given that VDEQ set effluent limitations for most parameters based on consumption of 25% of the assimilative capacity of the stream based on the applicable aquatic life chronic or acute toxicity standards at about 10 miles downstream, it stands to reason that there will be an area of water extending for about a quarter of that distance during such conditions – or about 2.5 miles—where at least a portion of the water column exceeds water quality criteria.

Virginia regulations governing the use of mixing zones provide that "No mixing zone shall be used for, or considered as, a substitute for minimum treatment technology required by the Clean Water Act and other applicable state and federal laws." 9VAC25-260-20.B.7. This requirement is not subject to waiver. But that is exactly what the Draft Permit does: allow Dominion to use the James River to dilute its pollution in lieu of applying the best available technology economically achievable required by the Clean Water Act.[37] As discussed above, technology exists to achieve stringent effluent limitations. Such limits should be applied here.

Finally, the Virginia Administrative Code provides that "[t]he board shall not approve a mixing zone that violates the federal Endangered Species Act of 1973, (16 USCA §§ 1531 – 1543) or the Virginia Endangered Species Act, Article 6 (§ 29.1- 563 et seq.) of Chapter 5 of Title 29.1 of the Code of Virginia." 9VAC25-260-20(B)(8). The Green Floater Mussel (*Lasmigona subviridis*) is listed as a threatened species under the Virginia Endangered Species Act and is known to exist in the James River in the area of the Bremo Plant and in the downstream reach of the James River before complete mixing of the effluent with the James will occur, and where exceedances of ambient water quality criteria to protect aquatic species will occur within an as-yet-undefined portion of the James River. Additionally, the Federally Endangered James Spinymussel (*Pleurobema collina*)

[36] *See, e.g., Crutchfield v. State Water Control Bd.*, 45 Va. App. 546, 553, 612 S.E.2d 249, 253 (2005).

[37] *See* 33 U.S.C. § 1311(b)(2)(A); 40 C.F.R. § 125.3(g).

historically occurred in the James River. Yet VDEQ failed to even confer with the state and federal resource agencies regarding the impacts of the discharges of toxic water from coal ash ponds on endangered species and their habitat in the James River prior to issuing the Draft Bremo Permit for public comment. Indeed, earlier today the United States Fish and Wildlife Service ("USFWS") submitted a comment by electronic mail raising similar concerns to many of the comments made here, and joined the chorus of voices asking for an extension of the permit comment period. VDEQ should withdraw this permit and take the time to confer with the USFWS as requested.

As is set forth in Dr. Lemly's Expert Report, included as Attachment E and incorporated by reference into these comments, the limits in the VDEQ permit present a high risk of toxicity to aquatic life. In addition, VDEQ has neglected to set limits for barium (present at up to 2,510 µg/L in the North Pond and 9,370 µg/L in the East Pond); cobalt (present at up to 77.6 µg/L in the North Pond and 265 µg/L in the East Pond), manganese (present at up to 1,280 µg/L in the North Pond and 1,850 µg/L in the East Pond) and vanadium (present at up to 407 µg/L in the North Pond and 1,420 µg/L in the East Pond).[38]

Finally, VDEQ 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. The combined thermal and toxic effluents will be 167 MGD, which will be 43% of low flow at 7Q10 (389 MGD). At elevated temperatures, the metals contained in the discharges of coal ash water may be even more toxic than at normal stream temperatures.[39]

4. The Draft Permit Fails to Comply with Virginia's Tier 2 Antidegradation Policy at 9VAC25-260-30.A.2.

The Draft Permit does not comply with Virginia's Antidegradation Policy, which—with respect to "Tier 2 waters"—provides as follows:

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[38] *See* Attachment to Letter from C. Taylor, Dominion Res. Servs., Inc. *supra* n. 13.

[39] *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 Chalghaf, Simon Devin, Christophe Minier & Hamadi Boussetta. 2014. *Effects of increasing 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; Ayße G.NDOÚDU; Hasan H.seyin SATILMIÞ. 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.

> Where the quality of the waters exceed water quality standards, **that quality shall be maintained and protected unless** the board finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the Commonwealth's continuing planning process, that **allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.** In allowing such degradation or lower water quality, the board shall assure water quality adequate to protect existing uses fully. **Further, the board shall assure that there shall be achieved the highest statutory and regulatory requirements applicable to all new or existing point source discharges of effluent** and all cost-effective and reasonable best management practices for nonpoint source control.[40]

The Fact Sheet summarizes the antidegradation analysis on Page 2. VDEQ determined that the James River is a Tier 2 water, such that "no significant degradation of the existing water quality will be allowed."[41] The plain text of the regulation, however, requires that the existing water quality levels—the entirety of the existing level of water quality—"shall be maintained and protected" for Tier 2 waters, such that no lowering of water quality is permitted unless such lowering of water quality is necessary to support important social or economic development in the area where the waters are located. VDEQ disregards this requirement, and instead incorrectly concludes that the Antidegradation Policy will be met so long as the degradation of water quality for toxic parameters is not more than 25% of the unused "assimilative capacity" of the criteria for the protection of aquatic life and 10% for the protection of human health.

Moreover, VDEQ's calculation of the use of assimilative capacity is also predicated on the "complete mix assumption." Thus, VDEQ's antidegradation-based limits consume more than the calculated portions of the "assimilative capacity" of the James within a reach of river extending about 10 miles downstream at low flow conditions. It does not make sense for VDEQ to have concluded that this discharge is only consuming 10% of the purported ability of the James River to absorb toxins that accumulate in fish tissue and are harmful to human health or 25% of the purported "assimilative capacity" of the river to absorb toxic pollution that can harm and kill aquatic species, when the actual levels of pollutants proposed to be discharged far exceed water quality standards at the point of discharge. In fact, because the permit authorizes pollution discharged at levels in excess of ambient water quality criteria, the Draft Permit would allow for consumption of more than 100% of the assimilative capacity of an undefined portion of the James River for a suite of toxic parameters without any showing that the discharge is necessary to important economic or social development in the area where the waters are located.

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[40] 9VAC25-260-30.A.2 (emphases added).

[41] Bremo Draft Permit Fact Sheet – Introduction at 2.

In short, despite the requirement that the agency only allow lowering of water quality if necessary to allow for important economic or social development in the area where the waters are located, neither the permit nor the supporting fact sheet contain any analysis to support VDEQ's conclusion that lowering of water quality is permissible under the Antidegradation Policy here. Indeed, these discharges will not support *any* economic or social development, nor are the proposed discharges at the permitted levels necessary given the availability of treatment technologies that can substantially reduce the levels of metals in the discharged water. The Bremo Power Station is no longer burning coal, and so the discharges are not associated with any benefit to the citizens of Virginia: this permit would merely allow Dominion to avoid the expense of cleaning up its coal ash pollution. Indeed, an investment in pollution control would not only help protect the James River, but would surely also generate economic benefits.

5. The Failure to Place Any Limits on the Volume of the Discharge of Polluted Waters to the James River is Unacceptable.

Because the Draft Permit fails to place any limits on the volume of polluted water discharged to the James, even the weak limits it contains are illusory. The permit is predicated on a modelled effluent discharge rate of nearly 10.3 million gallons per day. However, the permit itself does not place any limits on the total loading of metals discharged to the James River or how quickly Dominion may discharge this polluted water to the James River. Obviously, the larger the discharge, the greater the dimensional area of the James River in which water quality criteria will be exceeded. Additionally, as a general matter, the faster the rate of discharge of water from the coal ash ponds the greater the risk of catastrophic failure of the impoundments that are holding back tons of coal ash and millions of gallons of polluted water at the Bremo Power Station.[42] VDEQ should confer with the Virginia Department of Conservation and Recreation Dam Safety Program regarding dam safety issues, and place limits on the volume of discharges from the coal ash ponds into the James River to protect the water quality of the James River and the integrity of the dams that are holding back high volumes of coal ash and polluted water.

6. The Permit Contains Insufficient Monitoring Requirements.

The current draft Bremo Permit contains insufficient monitoring requirements. First, the Permit needs to establish limits, not just on internal outfalls, but the actual outfalls to the James River. Daily monitoring of flow and chemical constituents at appropriate quantification levels must be established in the permit. For example, the Draft Permit should require 24-hour composite sampling at least 3 times per week, not merely 1 grab sample per week. Additionally, as set forth in Dr. Lemly's Report, the Whole Effluent

[42] The Fact Sheet at Page 2 notes that the North Ash Pond is created by a 102 foot dam and the West Ash Pond is created by a 19 foot dam.

Toxicity testing requirements in the permit are inadequate and need to be modified as specified in Dr. Lemly's Report.

In addition, the final permit needs to mandate baseline sampling of the James River for water quality, sediment quality, ecological health, and fish tissues. The permit must then mandate ongoing sampling of conditions in the James River to ensure that the dewatering is not causing harm to aquatic resources or increasing risks to public health. Monitoring of actual conditions in the James River during dewatering activities is the only way to ensure that the river is not being harmed, including through possible processes such as increased bioaccumulation of metals like arsenic and selenium in fish tissues downstream, and through synergistic impacts associated with the combined impact of the high volume of metals and salts, together with the thermal discharges from the plant.

III. CONCLUSION.

In closing, the proposed Draft Permit does not conform to applicable legal requirements and is based on insufficient information. As a result, we respectfully request that VDEQ to withdraw the Draft Permit, revise it to address the identified flaws, and thereafter reissue a revised draft permit and provide a complete fact sheet for public comment. In the alternative, we respectfully request that VDEQ substantially revise the proposed permit in response to these comments.

Thank you for your consideration of these comments.

Sincerely,

Bradford T. McLane
Gregory Buppert

Encls: Attachments A to G

cc:

Molly Joseph Ward, Secretary of Natural Resources, Commonwealth of Virginia
S. Rene' Hypes, Project Review Coordinator, Virginia Department of Conservation and Recreation
Ernie Aschenbach, Environmental Services Biologist, Virginia Department of Game and Inland Fisheries
Shawn Garvin, Regional Administrator, U.S. EPA Region 3
Doug Frankenthaler, Assistant Regional Counsel, U.S. EPA Region 3
Brian Trulear, Permits Manager, U.S. EPA Region 3
Brett Hillman, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service