



919 Eighteenth Street NW, Suite 975
Washington, D.C. 20006
p: 202-296-8800 f: 202-296-8822
www.environmentalintegrity.org

May 1, 2008

VIA CERTIFIED MAIL

Dominion Virginia City Hybrid Energy Center
c/o Cindy M. Berndt
Department of Environmental Quality
P.O. Box 1105
Richmond, VA 23218

***RE: DOMINION CLEAN AIR ACT PERMIT: CONSIDERATIONS REGARDING
COAL COMBUSTION WASTE***

Dear Air Pollution Control Board of the Virginia Department of Environmental Quality,

Environmental Integrity Project (EIP) appreciates the opportunity to comment on the proposed Clean Air Act permit for the Dominion plant in Virginia. EIP is a nonpartisan, nonprofit environmental group that advocates for more effective enforcement of environmental laws. Before making its final decision on the proposed permit, we respectfully request that the Virginia Department of Environmental Quality (Virginia DEQ):

- Carefully evaluate the risk associated with the disposal of ash and other coal combustion waste from this plant;
- Ensure that any disposal practices include the specific safeguards recommended by the National Research Council in its 2006 report, "Managing Coal Combustion Residues in Mines."

EIP's comments and suggestions follow:

Background:

The Clean Air Act requires agencies like Virginia DEQ to consider the impact of the disposal of ash and other pollution control residues when deciding whether to issue a permit to a new facility.¹ When determining the Best Available Control Technology (BACT) for the Dominion site, the VDEQ must consider related environmental impacts, which include the handling and disposal of ash and other coal combustion waste that will be generated from the site.²

¹ 42 U.S.C. §7479(3).

² Id.

Evaluation of waste disposal practices is particularly relevant, given Dominion's plan to rely upon waste coal for at least part of the feedstock for the plant. "Gob" or "boney" waste coal in West Virginia is the "low-energy-value discards of the coal mining industry."³ Although the idea of using discarded coal, as opposed to newly-mined coal, sounds environmentally friendly, waste coal generates a disproportionate share of ash.

When 100 tons of waste coal is burned, approximately 85 tons of waste coal ash results.⁴ The ash itself is highly concentrated with toxic metals that leach into groundwater and surface water, and pollute properties adjacent to the disposal site.⁵ Thus, disposal of ash from waste coal combustion is more toxic to the environment than disposal of ash from a traditional coal plant because its volume and toxicity are greater.⁶

National Research Council Recommendations:

The NRC released a report on coal combustion waste, entitled, "Managing Coal Combustion Residues in Mines," in March 2006⁷. The report generally found that poorly managed disposal or landfill practices can seriously contaminate drinking water and surface water, and the report outlined specific recommendations for characterizing risk and preventing the leaching of toxic metals from ash.⁸

EIP respectfully requests that the VDEQ review plans for minefilling or disposal of any coal combustion waste and ensure, at a minimum, that the minefilling or disposal is managed according to the criteria recommended by the National Research Council (NRC).

³ Energy Justice Network, Fact Sheet: Waste Coal (Nov. 2007), available at: <http://www.energyjustice.net/coal/wastecoal/> (select "Printable PDF factsheet on waste coal").

⁴ Id.

⁵ Id.

⁶ However, it should not be forgotten that ash from the combustion of "virgin" coal is also extremely toxic.

⁷ NRC uses the term CCRs, coal combustion residues, instead of CCW, coal combustion waste, "to avoid implying that these materials are destined for particular fates." Comm. On Mine Placement of Coal Combustion Wastes et al., Nat'l Research Council of the Nat'l Academies, Managing Coal Combustion Residues in Mines 3 (2006), available at http://www.nap.edu/catalog.php?record_id=11592 [hereinafter NRC, Managing Coal]. EIP uses CCW because it is the more commonly used term for waste generated from coal combustion, and Congress uses the term CCW to refer to this material as well. Id. at 2, Sidebar S.1.

⁸ NRC, Managing Coal

- NRC Found that Disposal of CCW in Minefills Presents a Risk to Human Health and the Environment

NRC found that the disposal of CCW in minefills presents a risk to human health and the environment without proper management.⁹ Proper management involves the careful consideration of subsurface flow of contaminants from the disposal site to human and ecological receptors.¹⁰ Because CCW can enter surface water, drinking water, and biota, NRC concluded that, “the presence of high contaminant levels in many CCR leachates may create human health and ecological concerns at or near some mine sites over the long term.”¹¹ Two of the more common disposal methods, surface impoundments and landfills, have been shown to degrade groundwater and surface water and to have caused the local extinction of multiple species.¹²

According to the NRC report, “[t]he EPA has identified numerous cases of water contamination related to CCR landfills and surface impoundments that, in many cases, have caused considerable environmental damage.”¹³

“In some landfill settings, groundwater has been degraded to the point that drinking water standards were exceeded off-site...[Referring to surface water contamination from landfills and surface impoundments] in the most extreme cases, multiple species have experienced local extinctions”¹⁴

In fact, Virginia has already learned the lesson of poor management the hard way. The Chisman Creek Disposal Site, one of Virginia’s most notorious contamination sites, illustrates what can happen when coal combustion waste is badly managed.

From 1957-1974, approximately 500,000 tons of fly ash were buried in abandoned sand and gravel mines in York County, VA.¹⁵ Just a few years later, in 1980, the local groundwater was contaminated with “excessive concentrations of vanadium, nickel, selenium, and sulfates.”¹⁶ Indeed, “Water in adjacent residential wells actually turned green, and subsequent testing revealed they were contaminated with selenium and sulfate at levels in excess of maximum contaminant levels (MCLs).”¹⁷

The Chisman site eventually became a Superfund site and had to undergo an “aggressive cleanup that included supplying city water in substitution for the 55 residential wells that were eliminated, capping the CCR-containing pits, installing a leachate collection system, diverting surface-water runoff, and rerouting a nearby stream.”¹⁸

⁹ Id. at 3.

¹⁰ Id.

¹¹ Id. at 4.

¹² Id.

¹³ Id.

¹⁴ Id.

¹⁵ Id. at 86, Sidebar 4.2.

¹⁶ Id.

¹⁷ Id.

¹⁸ Id.

This case study illustrates the point of danger for CCW disposal in Virginia. Considering the lack of information available for minefill disposal, the VDEQ should appreciate the inherent risk of CCW disposal and consider all possible environmental effects when issuing Dominion's CAA permit.

- NRC Found that Neutralization By Alkaline-Based CCW Is Not Necessarily Safe

Coal-combustion wastes are sometimes used to "reclaim" abandoned mine sites, on the theory that ash that is high in alkaline content can be used to neutralize acid runoff and reduce the release of toxic metals. The NRC report criticized both assumptions, finding that acid neutralization does not always occur as predicted, and that increasing the pH in abandoned mines can actually increase the mobility of certain metals.

In general, neutralization requires an acid-base reaction that smoothes out the chemical composition of the water and reduces the mobility of contaminants. However, "many sources of bases may not be available for dissolution due to the formation of coatings that prevent contact of the acid with the base. For cementitious CCRs in particular, the base may not be accessible for acid neutralization."¹⁹

NRC reports that, "when the results of acid-base accounting are inaccurate, the addition of CCRs may not be sufficient to neutralize acidic conditions or they may neutralize the acid over the short term, only to see the return of AMD after the source of alkalinity is exhausted."²⁰ Indeed, "There are a substantial percentage of cases where the acid neutralization potential has been overestimated, especially with static tests."²¹

The effectiveness of neutralization depends upon reducing the transport of contaminants from the mine.²² Mobility of contaminants is based upon a variety of factors in the water such as pH and oxidation-reduction potential.²³ According to NRC, "several potentially toxic constituents in CCRs are mobile at neutral or alkaline pHs."²⁴ Thus, NRC concluded that, "acid neutralization will not reduce the mobility of all contaminants of concern from the CCR."²⁵

¹⁹ Id. at 137.

²⁰ Id. at 137-138.

²¹ Id. at 137.

²² Id. at 79.

²³ Id.

²⁴ Id.

²⁵ Id.

- NRC Recommended That Certain Precautions Be Taken To Protect Ground and Surface Water

NRC recommends a variety of precautions to protect ground and surface water:

Management Practices: Because management practices at a CCW disposal site are vital, VDEQ should consider implementing minimum standards and criteria for CCW minefill projects that are clearly defined and enforceable; “[management] plans should be developed in compliance with enforceable standards for using CCRs in minefilling...”²⁶

Monitoring: Given the many cases of groundwater contamination, VDEQ should require Dominion to install leachate collection and treatment systems, liners, and extensive long term ground and surface water monitoring (covered by bonds) to protect against toxic disposal of CCW in landfills and minefills. The NRC report was critical of the current lack of monitoring for CCW minefill sites in the United States, “Based on its reviews of CCR post-placement monitoring at many sites visited during the course of this study, the committee concludes that the number of monitoring wells, the spatial coverage of wells, and the duration of monitoring at CCR minefills are generally insufficient to accurately assess the migration of contaminants.”²⁷ Thus, VDEQ should take the lead to implement adequate monitoring at the Dominion site.

VDEQ should also take into account long term costs of monitoring because, “it may take many years before groundwater contamination from CCR mine disposal reaches downgradient monitoring wells,”²⁸

Permitting: VDEQ should require that disposal of CCW be permitted so that the public is given the opportunity to comment on the impact of CCW disposal in their local neighborhoods. The NRC report stresses that putting CCWs in coal mines as part of reclamation is viable so long as, “*the regulatory process for issuing permits includes clear provisions for public involvement.*”²⁹

Virginia’s local communities will be subject to the disposal of CCW in their backyards. Virginia DEQ should allow full participation in the form of the permitting process given the threat to human health and the environment. NRC has reported that, “*A few trace elements found in source coal are inherently radioactive; therefore, concern has been raised that CCRs may also be radioactive.*”³⁰

Virginia DEQ should respond to community concerns regarding the release of toxic (and potentially radioactive) chemicals into the environment.

²⁶ *Id.* at 7.

²⁷ *Id.* at 8.

²⁸ *Id.* at 78.

²⁹ *Id.* at 1-2.

³⁰ *Id.* at 39.

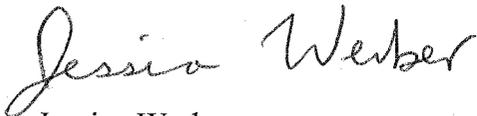
Penalties: Finally, VDEQ should issue penalties for failure to comply with permit conditions and VDEQ should take into account the air effects of ash released at Dominion.

Any permits issued by VDEQ are invalid without enforcement. Thus, NRC suggests that, “where violations of permit requirements or performance standards occur, authority for appropriate penalties or corrective actions must be available to mitigate the damage and prevent future violations.”³¹

In conclusion, EIP recommends that VDEQ assess the air effects from fugitive fly ash and combustion residue of CCW disposal so as to further protect local communities from harm.

Thank you for considering the above comments and suggestions,

Sincerely,



Jessica Werber
Attorney (Bar Admission Pending)
Environmental Integrity Project
1920 L Street, N.W., Suite 800
Washington, DC 20036

cc (via Certified Mail):

Richard D. Langford, Chairman
1106 Horseshoe Lane
Blacksburg, Virginia 24060

Bruce C. Buckheit
8904 Karen Drive
Fairfax, Virginia 22031

John N. Hanson
1803 Windmill Lane
Alexandria, Virginia 22307

Hullihen Williams Moore
502 Welwyn Road
Richmond, Virginia 23229

³¹ Id. at 181.

Vivian E. Thomson
2006 Meadowbrook Road
Charlottesville, Virginia 22903