

US EPA ARCHIVE DOCUMENT

**Pamela F. Faggert**  
Vice President and Chief Environmental Officer

**Dominion Resources Services, Inc.**  
5000 Dominion Boulevard, Glen Allen, VA 23060  
Phone: 804-273-3467



February 4, 2011

Mr. Stephen Hoffman  
US Environmental Protection Agency (5304P)  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

Re: Response to EPA Dam Safety Assessment Reports for Dominion Virginia Power's  
Bremo, Chesterfield, Chesapeake, and Possum Point Power Stations

Dear Mr. Hoffman:

Thank you for providing the opportunity to provide a status report on the Dam Safety Assessment of CCW Impoundments for Dominion's Bremo, Chesterfield, Chesapeake, and Possum Point Power Stations. Our responses are provided as Attachments A through D for each of the named power stations, respectively.

After the Kingston Ash Dredge Cell failure in late 2008, Dominion proactively conducted extensive re-evaluations of management practices for its ash ponds, including those that were not regulated as dams. An annual inspection program has been developed and implemented in accordance with Virginia Department of Conservation and Recreation requirements. Based on these evaluations, we developed and have implemented action plans to address identified issues. Furthermore, Dominion has completed all dam safety assessment recommendations that were deemed urgent. In addition, we have addressed most of the long term improvements recommended by EPA, with the remaining recommendations to be addressed as described in Attachments A – D. In light of these efforts, we request that EPA establish a method for recognizing these improvements and reassessing the condition ratings identified in the Dam Safety Assessments of CCW Impoundments.

If you have any questions, please contact Mr. Glenn Johnson at (804) 273-2946.

Sincerely,

Pamela F. Faggert

Enclosures: Attachments A – D

## ATTACHMENT A – Response for Bremono Power Station

Urgent Action Items: None recommended by EPA.

Long Term Improvements:

1. West Ash Pond – Inboard Slopes: The observed “erosion” was inspected and determined to actually be irregular ash topography from past dredging operations and does not threaten upstream dike slope. The inboard slopes will continue to be inspected and any significant slope erosion will be repaired as necessary. Vegetation control will be conducted twice annually.
2. West Ash Pond – Outboard Slopes: The station has a program to mow/control vegetation twice annually. A follow up inspection will be conducted in 2011, after the next mowing.
3. West Ash Pond – Drainage Ditches: Regrading of the perimeter ditches to improve drainage was completed in December 2010. A follow up inspection was conducted in January 2011 and positive drainage has been re-established.
4. West Ash Pond – Storm Water Discharge Piping: Construction commenced in 2010 to replace the below-grade piping with above-grade piping. The existing pipe was abandoned and grouted in place, as recommended in the report. This work was completed on February 3, 2011.
5. North Ash Pond – Inboard Slopes: The observed inboard slope erosion occurred many years ago when pond water levels were much lower. Inboard slopes are monitored during regular inspections. Areas reported to be minor sloughing are disturbances from previous construction activities. Dominion will continue to monitor these areas and make repairs as necessary. The station has a program to mow/control vegetation twice annually.
6. North Ash Pond – Outboard Slopes: The station has a program to mow/control vegetation twice annually. A follow up inspection will be conducted in 2011, after the next mowing of vegetation. Trees encroaching into groin drains at the abutments were removed in October 2010. The removal of burrowing rodents and backfill of animal burrows is part of the ongoing maintenance program for the dam. Regrading of the toe berm to improve drainage was completed in October 2010.
7. North Ash Pond – Emergency Spillway: Inspection of the emergency spillway is part of the station’s annual inspection program. An evaluation of the spillway conducted in January 2011 concluded that tree removal is recommended for a distance of 50 feet downstream of the centerline of the spillway crest. Dominion will remove trees and vegetation within the limits of the spillway crest for a distance of approximately 50 feet downstream of the crest centerline. We expect to complete this work in the second quarter of 2011.

8. North Ash Pond – Drains/Drainage Ditches: Vegetation has been cleared from the drains and drainage ditches. The station has a program to mow/control vegetation twice annually. A follow up inspection will be conducted in 2011, after the next vegetation control activity.
9. North Ash Pond – Stilling Basin/Overflow: Vegetation and sediments are regularly removed from the basin as required. Riprap will also be repaired as required.

Monitoring and Future Inspection:

1. Engineering annual inspections will continue to be conducted. An O&M Plan has been developed for the West Ash Pond.
2. Monitoring of observation wells at the North Ash Pond will continue to be part of the dam inspection program. Estimated flow rate and turbidity of drainage from toe drains will be documented in the annual inspections.
3. A survey of the crest elevation of the West Ash Pond was conducted in 2010 to assess whether this pond could be overtopped by a 100-year flood. Based on this survey, a 100-year flood would not overtop the dam.

## **ATTACHMENT B – Response for Chesapeake Energy Center (CEC)**

### **Urgent Action Items:**

All recommendations in the Schnabel 2009 report provided by Dominion were completed by the end of 2010.

### **Long Term Action Items:**

1. Repairs of the eastern and western embankment slopes were completed by the end of 2010. Daily observations of these embankments were made until repairs were completed.
2. An annual inspection program has been implemented for this impoundment. Inspections and reporting will be conducted in accordance with VDCR regulations, even though this facility is not regulated by the VDCR.
3. A flood routing analysis and engineering stability analysis were performed in 2010. Based on the analyses, the dam is not at risk of overtopping from a 100-year storm event.

### **Monitoring and Future Inspection**

Dominion has implemented an annual inspection program developed in accordance with VDCR requirements.

## ATTACHMENT C – Response for Chesterfield Power Station

Urgent Action Items: None recommended by EPA.

Long Term Improvements:

1. Lower Ash Pond – Measures to Improve Slope Stability: A topographic survey of the lower ash pond dike has been completed. An engineering study was conducted which identified improvements to be made to the west dike slope and toe drainage area. Construction of recommended improvements was commenced in December 2010 and was completed in January 2011.
2. Lower Ash Pond – Additional Maintenance Recommendations: the metal components of the outlet structure have been repainted. Care is used in digging flow channels in accumulated ash to avoid undercutting into the upstream slope of the east dike. Toe ditches will be observed twice per year and sediment will be removed as necessary.
3. Upper Ash Pond – Minor Maintenance Recommendations: Additional crushed stone road base was placed and regraded along the crest in third quarter 2010. Metal components of decanting tower have been cleaned of rust and repainted. Toe ditches will be observed twice per year and sediment will be removed as necessary.

Monitoring and Future Inspection:

Engineering annual inspections will continue to be conducted. Observation of areas of saturation at the toe of slopes for flow rate and turbidity will be incorporated into the next and subsequent annual inspections. Quarterly inspections of the Upper Ash Pond north dike have been incorporated into the station's quarterly inspection plan. This area will also be inspected during the annual dike inspection.

## ATTACHMENT D – Response for Possum Point Power Station

### Immediate Action Items:

1. Ash Pond E – Crest Profile and Critical Cross Section Survey: A topographic survey of the dike and toe area was completed in November 2010 to obtain accurate crest elevation, downstream slope configuration, and upstream slope configuration above the pond level at the critical cross sections. The only critical load case for the upstream slope of Ash Pond E would be a rapid drawdown scenario. However, based on how Ash Pond E operates, a rapid drawdown of the pond level is not a credible load case. Therefore, it is not necessary to obtain bathymetric information to verify the 1.5H:1V upstream slope shown on the original design drawings.
2. Ash Pond E – New Borings and Piezometers: A geotechnical investigation including borings, piezometers, and laboratory testing of boring cores was completed in December 2010 to investigate the condition of the foundation sand layer and the phreatic surface in the embankment.
3. Ash Pond E – Updated Hydraulic Analysis: A hydraulic analysis was completed in December 2010. The results of this analysis are addressed in Long Term Improvements, Item 8.
4. Ash Pond E – Updated Slope Stability Analysis: An updated slope stability analysis based on surveyed crest elevations, cross sections, measured phreatic water levels, and normal and maximum reservoir levels was conducted in 2010. The analysis concluded that the dam has no adverse stability issues.

### Long Term Improvements:

1. Ash Pond D – Sloughed Section Grass Cover: Vegetation was established in this area in 2010.
2. Ash Pond D – Monitoring Downstream of Dam: Based on the geotechnical analysis of the dam construction, the wet area is a result of water on top of an abutment clay layer and no piezometer instillation is warranted. This area is regularly monitored.
3. Ash Pond D – Piezometers and Monitoring Wells: Piezometers and monitoring wells have been measured regularly since first filling of the ash pond in 1988 and will continue to be measured annually.
4. Ash Pond D – Slope Maintenance: The station will continue to administer its vegetation and slope maintenance activities twice per year, including mowing and rodent removal.
5. Ash Pond D – Maintenance of Toe Drain Outlet Pipe: The erosion issue that was causing the outlet pipe to become buried was corrected. This work was completed in November 2010.
5. Ash Pond E – Maintenance of Slopes: The station will continue to administer its vegetation and slope maintenance activities twice per year, including mowing and rodent removal.
6. Ash Pond E – Tree Encroachment: The recommended removal of trees in the specified area 10 – 20 feet from the toe of the dam encroaches on Chesapeake Bay Preservation Act (CBPA) jurisdiction. Dominion will work with the appropriate agencies in 2011 to address this issue.

7. Ash Pond E – Southwestern Drainage Ditch: The recommended tree removal and regrading along the drainage ditch encroaches on Chesapeake Bay Preservation Act (CBPA) jurisdiction. Dominion will work with the appropriate agencies in 2011 to address this issue.
8. Ash Pond E – Crest Elevation: Based on the hydrologic analysis and flood routing study completed in December 2010 and the results of the topographic survey completed in November 2010, Ash Pond E cannot pass the Spillway Design Flood (1/2 Probable Maximum Flood) required for a “Significant” Hazard Classification by the 2008 revision to the VDCR Impounding Structure Regulations without overtopping. Prior to 2008, these regulations classified this dam as a “Low” Hazard Classification and the required Spillway Design Flood was the 100 year storm event. Raising the Dike crest to provide additional storage will allow the dike to safely pass the new Spillway Design Flood. In 2011, Dominion will undertake final engineering and permitting for the required measures to meet the current Spillway Design Flood requirements and then will proceed to construction. All work will be performed in accordance with current (December 22, 2010) VDCR regulations.
9. Ash Pond E – Regrade Saturated Area along Western Embankment: Dominion will regrade this area in 2011. This area will be monitored in subsequent inspections.

**Monitoring and Future Inspection:**

The station will continue to inspect Ash Pond D and Ash Pond E on a quarterly basis. Annual inspections will continue to be conducted.



From: Glenn P Johnson <glenn.p.johnson@dom.com>  
To: James Kohler/DC/USEPA/US@EPA  
Cc: Frank N Brayton <frank.n.brayton@dom.com>, Jean Tribull <jean.tribull@dom.com>, Cathy C Taylor <cathy.c.taylor@dom.com>, Karen K Canody <karen.k.canody@dom.com>  
Date: 04/06/2011 10:28 AM  
Subject: RE: Dominion Brema Action Plan Confirmation

Jim,

I have confirmed with the Brema Power Station that removal of burrowing rodents and filling the burrow holes is an on-going part of the facility's inspection and maintenance practices for the ash ponds. Burrow holes identified by EPA's contractor were filled in 2010.

Do you require additional information or a letter to this effect?

Regards,

Glenn

Glenn Johnson  
Supervisor, Environmental Regulation  
Dominion Resources Services, Inc.  
5000 Dominion Boulevard, Glen Allen, VA 23060  
Phone: 804-273-2946

-----Original Message-----

From: Kohler.James@epamail.epa.gov [mailto:Kohler.James@epamail.epa.gov]  
Sent: Monday, March 28, 2011 11:34 AM  
To: Glenn P Johnson (Services - 6)  
Cc: Hoffman.Stephen@epamail.epa.gov; Kelly.PatrickM@epamail.epa.gov  
Subject: Dominion Brema Action Plan Confirmation

Glenn,

EPA received Dominion's Action Plans for Brema, Chesterfield, Chesapeake, and Possum Point Power Stations. They are all acceptable. Thank you for your cooperation and follow up. One item I wanted to confirm:

With regards to West Ash Pond, EPA contractor (O'Brien & Gere) report "Dam Safety Assessment of CCW Impoundments: Brema Power Station" recommends that burrowing rodents should be trapped and removed and burrow holes should be filled following animal removal in outboard slope of the West Ash Pond. The Dominion Virginia Power response letter (from Feb 4, Attachment A) concerning planned remediation does not explicitly mention plans to remove burrowing rodents or fill burrow holes in the West Ash Pond.

Please confirm whether/how you will be addressing this recommendation. Again, thank you for your attention and continue cooperation.

Jim

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Jim Kohler, P.E.  
Environmental Engineer  
LCDR, U.S. Public Health Service  
U.S. Environmental Protection Agency  
Office of Resource Conservation and Recovery  
Phone: 703-347-8953  
Fax: 703-308-0514

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