COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
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January 22, 2016

Cathy C. Taylor
Director, Environmental Services
Dominion Resources Services, Inc.
5000 Dominion Boulevard
Glen Allen, VA 23060

RE: Possum Point Facility (SWP 617) Surface Impoundments Submittal Review

Dear Ms Taylor:

The Virginia Department of Environmental Quality (DEQ) has reviewed the application provided by Dominion in accordance with the applicable provisions of the Virginia Solid Waste Management Regulations (VSWMR) and the EPA 2015 Final Rule on the Disposal of Coal Combustion Regulations (EPA Rule).

Please note that that this facility has been assigned Solid Waste Permit Number 617. Please use this number in future submittals for this facility.

Permit Application Fee

1. Based upon the modules applicable to the facility, Dominion needs to remit a permit application fee in the amount of $5,470. This amount shall be paid by check, draft or postal money order made payable to "Treasurer of Virginia."

Closure by Removal

2. Dominion has proposed closure by removal of Ponds A, B, C, and E. The submitted closure plan includes the appropriate demonstration pursuant to 40 CFR 257 §257.100(b)(5); however, the closure by removal and closure plan must address the required standard under 9 VAC 20-81-370(A) in addition to the EPA rule standard. Please revise the closure plan to include an appropriate protocol to take additional action to meet the requirements of 9 VAC 20-81-370(A). This protocol should include additional excavation beyond visible residual material as well as groundwater monitoring upon removal to make the required demonstration.

Closure Plan

3. Please provide a discussion on the removal of additional ash within the "Pond ABC Additional CCR Area" as identified on Drawing 004 and unnamed area identified on Drawing 010.

4. Section C.2. briefly mentions the need for removal of free liquids for the purpose of installing final cover on Pond D; however, other sections of the application mention use of an underdrain geotextile (Coal Drain 300 mil), drainage aggregate, and perforated HDPE pipe in "underdrains" beneath the geosynthetic cap system to discharge CCR drainage during and after construction (Section 3.2 of the CQA Plan). In addition, Technical Specification 02150 for Construction Dewatering indicates dewatering will occur to 10 feet below proposed subgrade elevation or the CCR is sufficiently dewatered to allow for installation of geosynthetic cap. Please elaborate on these plans for dewatering/draining of Pond D within the body of the Closure Plan.

5. 9 VAC 20-160.D.5.a. requires posting one sign at the entrance of the facility notifying all persons of the closing, and the prohibition against further receipt of waste materials. A sign shall be posted to identify the prohibition against further receipt of waste materials in Pond D. Please include this requirement.

6. Section E of the Closure Plan does not address the notification and certification requirements of the CCR Rule and only speaks to the VSWMR requirements. Please address both requirements.

Construction Quality Assurance Plan & Technical Specifications (Attachment 3 of the Closure Plan)

7. Section 3.1 - Low Permeability Soil Liner and Section 4.0 - GCL of the CQA Plan indicates the potential need for removal and replacement of a portion of the existing low permeability soil liner. Please address this potential need within the text of the Closure Plan.

8. Section 4.2 of the CQA Plan references geotextile in first paragraph, but this may be a typo as the section is about GCL. Please clarify.

9. Section 5.0 of the CQA Plan indicates there will be a 6 oz/sy non-woven cushion geotextile beneath the LLDPE liner while Section 5.1.1 indicates the cushion geotextile will be 12 oz/sy non-woven. All other instances of cushion geotextile reiterate the 12 oz/sy size. Please verify and correct accordingly.

10. Section 10.1 of the CQA Plan indicates that benchmarks will be established within normal land surveying standards. Please ensure established benchmarks also meet the VSWMR definition of benchmark: "Benchmark" means a permanent monument constructed of concrete and set in the ground surface below the frostline with identifying information clearly affixed to it. Identifying information will include the designation of the benchmark as well as the elevation and coordinates on the local or Virginia state grid system.

11. Please provide a Technical Specification for Groundwater Monitoring Wells.

Calculations (Attachments 4 - 9 of the Closure Plan)

12. Attachment 4 - Universal Soil Loss Demonstration - Soil loss was calculated for 2.5%, 6%, and 20% slopes during the vegetation growing period, with second year grass coverage, and with vegetation fully stabilized. Soil loss was not calculated for 4:1 (25%) slopes which are proposed in the Closure Design. Please address.

13. Attachment 5 - Stability Analyses (Appendix A - Deep Seated and Appendix B - Veneer) and Attachment 7 (Appendix A - Liquefaction Potential Analysis) use the 2008 USGS National Seismic Hazard Map. Instead the calculations should use Peak Ground Acceleration from the 2014 USGS map. Please determine if the PGA value used in these calculations (0.06g) is different when using the 2014 USGS map. If the PGA is different, please revise calculations accordingly.

14. Attachment 5 - Stability Analyses (Appendix A - Deep Seated and Appendix B - Veneer) reference a desired factor of safety for seismic conditions as 1.1. EPA's Guide to Technical Resources for the Design of Land Disposal Facilities (EPA/625/6-88/018, dated Dec 1988) identifies the recommended factor of safety for slope stability (Exhibit 3-3) as 1.2-1.3 for seismic stability. The selected factor of safety for design varying on whether there would be an imminent (1.3) or no imminent (1.2) danger to human life or major environmental slope failure. Please revise the desired factor of safety for seismic conditions and adjust calculations and technical specifications accordingly.

15. Attachment 5 - Appendix A - Attachments 3 and 4 - Undrained/Drained slope stability analyses - Please clarify what the drainage blanket is as shown on the Section 1 plots. Also, please confirm the significance of the blue dashed line, which appears to be the water level within the CCR Pond. While the model inputs vary between the undrained and drained plots, the position of the blue lines appear to remain unchanged. Please verify.

16. Attachment 5 - Appendix B - Attachment 4 - The input parameters for the second veneer stability calculation (found on PDF pg 397) states the Vertical Rise over Horizontal Distance, S (slope) is 0.025 ft/ft. This should likely be 0.25 to represent a 4H:1V slope. Please verify and adjust accordingly.

17. Attachment 6 - Stormwater Calculations - Be sure to update the stormwater calculations as necessary for any changes in outfalls or other site features due to changes necessary to reflect conditions of the VPDES permit once issued.

18. Attachment 9 - Appendix E - HELP Model Inputs use HELP default values instead of specified values and/or values used/determined in other calculations (please address):

    (1) The cover soil modeled at HC of 7.2x10-4 cm/sec (PDF pg 909) while calculations for determining geocomposite transmissivity used 5.0x10-5 cm/sec as the cover soil HC;

    (2) HC of 270mil GDN modeled at 10 cm/sec while specified transmissivity of GDN from TS 02590 is 4.1x10-4 m2/sec (or converted HC of 5.978 cm/s).

Closure & Post-Closure Cost Estimates (Attachment 8 of the Closure Plan)

19. The Closure Cost Estimate for Ponds ABC and E needs to include additional costs to cover the closure by removal demonstration. Please include these costs.

20. The Closure Cost Estimate for Pond E does not contain the item for “ash disposal” and associated costs. Please include these costs.

21. Please include any added costs associated with installation of any additional GW wells to be installed to the Closure Cost Estimate for Pond D. Please include these costs.

22. Section I of the Post-closure cost estimate should be adjusted accordingly for any proposed changes to the GW monitoring network.

23. Section IV of the Post-closure cost estimate indicates inspections will be performed quarterly. Be sure to update the number of inspections per year based on the stated inspection frequency (see comments under Post-Closure Care Plan).

24. Once the cost estimates are revised accordingly, please provide a signed DEQ Form CE SWDF certifying the cost estimates provided are in accordance with 9 VAC 20-70. Form provided: http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/Forms.aspx

Post-Closure Plan

25. Section 2.4 indicates that inspections during post-closure care will be performed "at a frequency appropriate to maintain environmental and structural integrity of the cover system." 9 VAC 20-81-170.A.2.a. states the postclosure plan shall provide "the frequency at which these (monitoring/maintenance) activities will be performed." Please specify the inspection frequency.

26. Appendix A - Post-closure Inspection Schedule - Add inspection items for dike/dam stability as required by DCR Impounding Structure Regulations. The post-closure cost estimate should be adjusted to cover costs associated with these inspections during the post-closure care period.

Groundwater Monitoring Plan (GMP)

27. Please identify groundwater monitoring wells which can begin immediate monitoring under the solid waste permit. These wells should include appropriate upgradient, cross-gradient, and depending upon closure activity around the particular impoundment, downgradient wells. Locations of these wells should consider potential off-site receptors such as adjacent property and Quantico Creek.

28. Please include the historical groundwater monitoring wells ED22, if feasible and ED23 located on the western portion of the property. If either monitoring well cannot be properly rehabilitated or yield sufficient groundwater, please identify a replacement well in the same proximity and screen depth.

29. Please identify a schedule for all proposed monitoring wells of when each well shall be established, if a new well, and when monitoring will begin of each well.

30. Please note that the facility should begin collecting background for the proposed groundwater monitoring constituents no later than 90 days after a final permit decision.

31. Please note that the facility should identify appropriate perimeter wells that can begin to be monitored no later than 90 days after a final permit decision.

32. Please include appropriate monitoring wells to address Comment #2 above to make the required closure by removal demonstration under 9 VAC 20-81-370(A). These wells should be scheduled to be installed and monitored within 90 days after completion of excavation for each surface impoundment.

33. Because a railroad right-of-way is located on-site, the GMP should contain detailed maps showing the surveyed location of the right-of-way with respect to the extent of final waste unit closure cover and the adjacent limits of any risk receptor.

GMP Section 1.0 Introduction

34. Text should note that monitoring of groundwater will commence under the solid waste permit in the Phase 2 program, modified as needed to incorporate aspects of the EPA CCR rule.

GMP Section 2.2.1.2 Site-specific Geologic Setting

35. The GMP should reference available U.S. Geological Survey and Virginia Department of Mines, Minerals, and Energy published mapping available for the site area.

GMP Section 2.2.3 Regional Hydrology and Groundwater

36. Please provide a published source for the information provided in 2.2.3.

37. This section should identify which Coastal Plain aquifer underlies the site.

GMP Section 2.2.4 Uppermost Aquifer

38. Please clarify the term ‘decompression areas’ when characterizing topographically low areas. Such areas may be zones of groundwater ‘discharge’ into drainage swales if they are located atop local or regional aquitards. Otherwise, in unconsolidated, water bearing, surficial coastal plain deposits, groundwater typically discharges laterally at the break of slope as seeps, weeps, or springs usually aligned along the basal contact with an underlying clay rich horizon.

39. As part of additional monitoring well installation on site, the Geologic Cross Section included in the submission should be updated to include the future boring log data.

40. Section should discuss the uses and locations of any potable or non-potable supply wells onsite as well as depths and construction details of such wells.

GMP Section 2.2 Miscellaneous

41. Throughout this discussion there should be some description of, or reference to, site soils classification per USDA Soil Conservation Service data - including notes on whether any hydric soils are found on site.

GMP Section 2.3.1 Groundwater Monitoring System

42. Monitoring wells to be used for groundwater compliance purposes should be installed and screened in a natural geologic formation, not artificial fill or other anthropomorphic deposits.

43. Wells used as point of compliance wells or background wells must contain a screened interval that lies entirely within the zone of saturation in the uppermost aquifer. At no point in time should the screened interval be exposed to the capillary fringe zone above the zone of saturation. Any existing well that does not meet these criteria will be required to be replaced by a new well.

44. Compliance wells located near roadways should be protected from impact by four concrete bollards installed outside of the concrete apron.

45. Please document the reason, e.g. located in an area to be included in final closure cover, for any monitoring well which is slated for decommissioning.

46. Groundwater monitoring wells should be installed, as practical or necessary, as nested well pairs (shallow and deep). The deep wells may need to be screen below Stratum E, unless further site characterization identifies Stratum E as a thick, laterally extensive aquitard (correlative to a unit already identified by USGS or VDMME mapping).

47. Please add “Stratum screened in”, as a column in Table 1, which will also be updated to include additional wells needed to address comments listed above.

48. During the initial sampling event, existing monitoring wells should be monitored for turbidity using a turbidity meter. Turbidity shall be measured in nephelometric turbidity units (NTU), and monitored until the turbidity levels have reached equilibrium. Monitoring wells that show turbidity values above 10 NTUs should be redeveloped. If redevelopment is not successful in lowering the turbidity, the facility should perform additional development or consider replacing monitoring wells. The plan should also update Section 2.3.5, including this information.

GMP Section 2.3.3.2 Casing and Screen Type

49. Because the groundwater constituents of concern are metals, all monitoring wells to be used as upgradient or downgradient components of the VSWMR compliance network must contain a screened interval that lies below the top of the groundwater table such that at no time during the year, is the screened interval located within or above the capillary fringe zone.

GMP Section 2.3.5 Well Development

50. The Plan should note that bailers shall not be used for well development. Clay rich Coastal Plain sediments are not conducive to this type of well development procedure.

GMP Section 2.3.6 Well Abandonment

51. The Plan should note that wells to be abandoned shall be abandoned by over drilling to remove well components, followed by grouting.

GMP Section 2.4 Groundwater Analytical Parameters

52. Text should be amended to remove reference to surface impoundment D and replace with, "groundwater compliance wells onsite shall be sampled for …."

GMP Section 3 Statistics

53. The section did not include language for Checking Data for Outliers as part of the statistical evaluation. Please add following language: Inconsistently large or small values (outliers) can be observed due to sampling, laboratory, transportation, transcription errors, or actual extreme values. The historical background dataset will be screened for each well and constituent for the existence of outliers method described by Dixon (1953) or another method approved by the VADEQ. Background observations, which are considered to be outliers, will not be included in the statistical analysis to preserve the power of the test to detect a release from the facility.

54. The section did not include language for treatment of non-detects in background data. Please add the following language: For data where the percentage of data below the laboratory limit of detection or laboratory limit of quantitation is less than 25 percent, the facility will replace the non-detects or non-quantified values with half the laboratory limit of detection or quantitation. When the percentage of non-detects or non-quantified values is greater than 25 percent and less than 50 percent, the mean and standard deviation will be adjusted using either Aitchison's adjustment or Cohen's adjustment. When the percentage of non-detects or non-quantified values is greater than 50%, a non-parametric statistical test method will be applied.

55. The section did not include language for assessing data distribution. Please add the following language: The facility will use the Shapiro-Wilk test to evaluate the normality of the background data sets equal to or less than 50 and the Shapiro-Francia Test for data greater than 50. If the facility intends to use a statistical method other than the Shapiro-Wilk or the Shapiro-Francia test, the facility must demonstrate that the other method has similar power to detect deviations from the normal distribution as the above tests.

56. The facility did not include language for statistical methods. Please add the following language: Statistical interval methods (prediction or tolerance) will be applied for ground water data. For all interval methods, the facility will check the normality or log normality of the background dataset and the percentage of non-detects in the background dataset. If the background dataset is normally or log-normally distributed, and there are less than 50% non-detects, then a parametric interval will be

calculated. If a distribution cannot be established for the background dataset or 50% or more of the data are non-detects, the facility will calculate a non-parametric statistical limit. Prediction interval or tolerance interval parameter values will include an alpha value no less than .01 and the coverage for tolerance intervals will not be greater than 95%, unless the facility demonstrates that a lower false positive rate (or higher coverage for tolerance intervals) will provide at least 50% power to detect a 3 standard deviation increase above background levels and 80% power to detect a 4 standard deviation increase above background levels for an individual constituent/well comparison. If the facility intends to apply a statistical comparison of mean/median constituent concentrations in background to mean/median constituent concentrations in the downgradient wells during the compliance period, the facility will collect at a minimum four independent samples from compliance wells during the compliance period.

57. The facility did not include language for comparisons to a standard. Ground water will be compared to a groundwater protection standard (GPS). Please add the following language: The facility will initially perform a value-to-value comparison to GPS for all groundwater monitoring data. If a GPS exceedance is noted during the value-to-value comparison for a parameter(s), the facility may collect a verification sample and results from the verification sample will be compared to the GPS in a value-to-value comparison as long as the comparison is completed within 30 days of the initial sampling event. Further, the facility may collect three additional independent groundwater samples for the suspect constituent(s) in order to perform a statistical comparison to GPSs. The facility should calculate lower normal confidence limit to compare it to the standard. The level of confidence of the interval should be 80% for a sample size of 4-7 and 90% for a sample size of 8-10.

<u>GMP Sections 3.1 and 3.7 Background Monitoring</u>

58. Because all the compliance wells are to be installed downgradient from existing surface impoundments, there will be no need to collect “interwell” background data from each downgradient compliance well. Statistical comparisons will be completed by comparing up versus down “intrawell” data only.

59. Background data must be collected from screened intervals intercepting the compliance point in the downgradient wells from the same geologic unit. An owner/operator may be subject to false exceedance recognitions by comparing upgradient saprolite screened wells to downgradient bedrock screened wells, or vise-versa. As a result, the screened stratum interval at each downgradient well should be identified and an upgradient well or wells must be installed to acquire background data from that specific stratum interval.

<u>GMP Section 3.5.6 Laboratory Analytical Procedures</u>

60. For groundwater constituents listed on Table 3.1 and those metals found on EPA Appendix IV of the CCR rule, SW-846 methods (as amended) shall be used. Methods used for the groundwater quality parameters that appear on the EPA appendix shall be VELAP accredited and shall be able to provide an accurate representation of groundwater quality.

61. Please note that samples shall not be field filtered.

62. All laboratory results for metals must be analyzed for and reported in total metals.

GMP Section 3.8.5 Verification Sampling

63. Timeframes for completion of any verification sampling must be performed within the required VSWMR timeframe of 30-days from receipt of final laboratory results, not after completion of statistical analysis as noted in the GMP [see 250.A.4.a.(1)].

64. Language referring to an ASD should not be included in this section.

GMP Section 3.10 Groundwater Elevation Data

65. Please include a discussion of how an effective porosity value would be chosen to assess aquifer characteristics/behavior (refer to 40 CFR 257.91.(a).(2).(b)).

66. The facility shall prepare a potentiometric map for each monitoring event.

GMP Section 3.11 Recordkeeping and Reporting

67. To ensure an even reporting schedule, the Department will require that the semi-annual and annual groundwater monitoring reports be submitted on a defined schedule of no later than June 30th and December 31st, respectively, each calendar year.

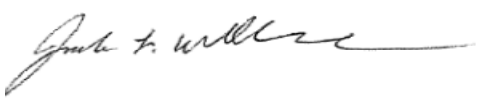
68. The content and format of these groundwater submissions shall meet applicable DEQ guidance in the Submission Instructions available online at http://townhall.virginia.gov/L/ViewBoard.cfm?BoardID=119.

Surface Water Monitoring

69. Please note that the facility will be required to conduct surface water monitoring. The Department will be providing additional requirements regarding this monitoring.

Please provide the additional information and necessary revisions. Please note that this letter should not be considered a legal opinion or a case decision as defined by the Administrative Process Act, Code of Virginia § 2.2-4000 *et seq*. If there are any questions about this letter, please contact me at (804)-698-4185 or Justin.Williams@deq.virginia.gov.

Respectfully,



Justin L. Williams
Land Protection & Revitalization Division Director

cc: Richard Doucette, NRO Regional Land Protection Program Manager
Nancy Perry, DEQ, Office of Financial Management
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