Duke Energy®

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Charlotte, NC 28202

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NC DEPT. OF ENVIRONMENT
AND NATURAL RESOURCES
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APR 22 2010

MOORESVILLE REGIONAL OFFICE
DIVISION OF WASTE MANAGEMENT, SWS

April 21, 2010

Mr. Charles Gerstell
NCDENR
Division of Waste Management
Mooresville Regional Office
610 East Center Avenue
Mooresville, NC 28115

Subject: Duke Energy - Plant Allen
Retired Ash Basin Ash Landfill, Permit #36-12
Request for Landfill Alternate Daily Cover Demonstration

Dear Mr. Gerstell:

Attached for your review is a proposed plan for the demonstration of an alternate operational cover material for the landfill at Duke Energy's Plant Allen in Belmont, North Carolina. The demonstration is proposed for a 6-month period following the approval from the Division of Waste Management.

If you have any questions concerning this proposal, please contact me by e-mail at ed.sullivan@duke-energy.com or by telephone at 980-373-3719.

Sincerely,

D. Edwin M. Sullivan

D. Edwin M. Sullivan, PE
Corporate EHS Services

OPERATIONS PLAN FOR USE OF GORILLA SNOT

MATERIAL AS ALTERNATE OPERATIONAL COVER

BELMONT, NORTH CAROLINA

Industrial Solid Waste Landfill Facility Permit No. 36-12

Street Address
526 South Church St.
Charlotte, NC 28202

Mailing Address
EC10A / PO Box 1006
Charlotte, NC 28201-1006

April 15, 2010

Chris L. Ussery, EIT

Tony R. Mathis, PE

NC Registration No. F – 0566

I. Introduction

The landfill at Allen Steam Station is owned by Duke Energy and Operated by Southeastern Fly Ash (SEFA). It is a landfill designed to accept combustion products residuals including fly ash, bottom ash, boiler slag, mill rejects, and flue gas desulfurization (FGD) residue generated at the Allen Steam Station. Soils from an on-site borrow area is presently used to provide a 6- inch thick operational soil cover to the landfill. The reasons to utilize an alternative cover are: preserve/optimize landfill airspace; conserve limited on-site soil resources; simplify operational cover application.

The alternative weekly cover option being presented to NCDENR-Division of Waste Management as a Pilot Demonstration will be governed by the landfill permit to operate (December 9, 2009) and landfill Operations Plan (November 20, 2009) for Phase I and II of the landfill. The proposed demonstration period is six months. After this six- month period of successful compliance and monitoring Duke Energy will submit the demonstration results to the Solid Waste Section for review and approval. Assuming the demonstration is successful and meets Solid Waste Section requirements, we anticipate the Solid Waste Section will issue a permit modification to allow for alternative operational cover use.

II. Proposed Alternative Cover Material

Per the operations plan in place for the Allen Steam Station Landfill, the required operational cover is a 6-inch thick soil cover constructed of on-site soil or an approved alternative. The alternative must meet the same requirements as the soil operational cover. In the case of a coal combustion product landfill, the purpose of the weekly cover soil is dust control. Coal combustion products (CCP) are similar to silty soils, with a small particle size and no cohesion; they are susceptible to blowing/dusting when exposed to wind. This could create a nuisance if it is blown from the designated disposal location and into the surrounding environment. Ash landfills do not typically encounter problems with vectors, litter, fire, odor, or

scavenging that traditional municipal solid waste landfills present. With the understanding that dust control is the major concern for the Allen Steam Station Landfill, and similarly dusting can be an issue for soil covers, we believe that soil may not be the only solution as a cover material.

The alternative operational cover, Gorilla Snot, is a proven dust suppressant material which can be utilized under many different circumstances as seen in Appendix A. Material safety data sheets, as well as a frequently ask question (FAQ) sheet have been attached in Appendix B to address any specific questions about the material. Both sheets are directly from the manufacturer. Also, results from a small scale test that was conducted in 2009 at Allen Steam Station for soil and several alternative covers can be found in Appendix C. During the small scale testing at the Allen site, Gorilla Snot was considered the best fit for dust control out of the materials tested. Some of the products fell short as a sufficient dust control where others seemed to be a little more than what is needed for suppressing dust. The Gorilla Snot application was observed to be effective during the 3 month test and was still holding up perfectly at the end of testing. Note, this application was utilizing the 3 month dust control mix and not the 6 month that is being suggested for the alternative cover testing proposed.

III. Storage of Alternative Cover Material

The alternative cover material proposed, Gorilla Snot, is packaged in 55 gallon plastic drums. These drums will be stored on site in the chemical injection facility building. The enclosed facility will provide protection from outdoor elements, such as sun, wind, and rain. The alternative cover material is also required to be stored in temperatures above freezing to maintain its properties, and the enclosed building will provide the best location for temperature control at the site. Keeping the material in an enclosed facility will also help to prevent damage to the packages due to traffic or station operations.

IV. Usage of the Cover Material

In general, waste placement within the landfill will be performed in 10-foot thick operational lifts within individual sub-cell areas. The operations in the cell will generally be limited to an exposed surface area of approximately two acres. Waste in other areas will be covered with operational, intermediate, or final cover as appropriate. The alternative cover material proposed for testing is intended to take the place of the operational cover within these other areas outside of the present operating area of the landfill.

The alternate cover material will be applied directly on the coal combustion products deposited into the landfill each week, as a part of normal operations. The weekly cover application will be sprayed onto the landfill area utilizing an on-site water truck. To maintain a consistent application, the material will be applied each week by SEFA personnel, who have been contracted to manage landfill operations. The individual will be trained in the mixing, application and cleanup processes of the cover material prior to testing. The mixing instructions directly from the manufacturer, as well as application instructions, are attached in Appendix A. Both mixing directions for traffic and non-traffic applications are included. The core mix design that will be used for landfill testing will be the six month dust control for non-traffic areas. Other mix designs may be used for side testing and documentation, but the six month testing mix design will remain constant throughout the testing period. The material will also be colored with dye to distinguish the application area for weekly observations.

One concern that was found within the application directions is the material should be applied with an expected 72 hours of dry weather following the application. This could be an issue as there is no way to know there will be three days without precipitation after application. The problem was discussed with the manufacturing company, they responded that the material would only seep into the covered area and would not cure until given enough time in dry weather. This suggests that the addition of rain water following application should not affect the quality of the cover

alternative as a dust suppressant. With this said following a significant rainfall (½ - inch or greater) the cured material shall be observed for performance after given time to dry and is susceptible to dusting.

The intent of this testing period is to understand the performance of the alternative cover for up to a maximum of six months. The thought behind the use of the "Gorilla Snot" is to cover the CCP's in the landfill that are not within the working face but have not been covered by an interim soil cover. The small 10-acre space and high material volumes at the Allen Steam Station landfill, allows the operator to return to any given landfill space prior to the 12 month requirement for interim cover soil. This would suggest that a large portion of the landfill would be covered with "Gorilla Snot" as an alternative to soil cover. The proposal is to evaluate the performance of the "Gorilla Snot" over the six month period and note the durability and performance during the test period. The purpose is also to determine a realistic life expectancy for the alternative cover material.

As a contingency if deficiency in the product and a life expectancy less than that of six months is observed, the alternative cover material can be reapplied at any time to provide the suppression of dusting at the site. Also, as a contingency plan, soil cover will be utilized anytime the outside temperature is below freezing (32° F), because the uncured alternative cover material loses its properties at these temperatures.

V. Facility Monitoring

The area where the alternate cover material will be applied shall be monitored weekly over a six-month period by a member of the Duke Energy byproducts group or an approved alternate to provide consistency. The observer will be monitoring the dust control the product provides, durability of the alternative cover, and the weather present during the observation. A control section of 6-in thick operational soil cover will also remain within the landfill for direct comparison to the alternative cover area. Photos will be taken of the testing site throughout the observation period to allow a visual example for each week's recording. Monitoring of the site will be visible and

the observer will look for things such as; visible dust blowing, accumulation of dust downwind of the landfill and the condition of the surface where material has been applied. A format for the observation recordings is attached in Appendix D. This format allows for the observer to describe the performance of the alternative cover whether it be tested for a long term cover (preferably six months) or if there is any testing for short term cover uses (ex: traffic areas, slopes prior to seeding, etc.). The Leachate Collection System and Leak Detection System will also be monitored weekly to monitor that the alternate cover has not introduced an unusual volume of water into either system.

VI. Record Keeping

The following records shall be kept on site in the SEFA scale house trailer:

- Weekly alternative cover documents
- Weekly Leak Detection System water volumes
- Daily log of amount of ash placed in the landfill in tons
- Rainfall records
- Binder containing relevant alternate cover material information

VII. Training

Employees applying the alternative cover material shall be familiar with properties of the material, as well as application rates and methods. All personnel applying the material will go through on-site orientation for using the material and what is expected for applying the product.

VIII. Regulatory Authority

The regulatory authority which permitted the landfill facility is:

NC Department of Environment & Natural Resources
Division of Waste Management
1646 Mail Service Center
Raleigh, NC 27699-1646