



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

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Secretary

January 7, 2015

Mr. Norman Divers, Environmental Manager
Charah, Inc. and Green Meadow, LLC
Post Office Box 287
Belmont, North Carolina 28012

Subject: Permit Application – Technical Review
Colon Mine Site, Structural Fill
Lee County, DIN 22502

Dear Mr. Divers:

On November 21, 2014 the Division of Waste Management, Solid Waste Section (Section) received Charah Inc.'s Permit Application, entitled:

Permit Application, Colon Mine Site, Structural Fill, Charah, Inc., Sanford, North Carolina. Prepared for Charah, Inc. Prepared by HDR Inc. November 2014. DIN 22354.

The Section has reviewed the application and has questions. Please address the following items:

Engineering Review

Facility Plan

1. 2.4.2- Leachate generation rates- How does this number compare to experience at the Asheville airport?
2. 2.4.3.3 Final Disposal- The text indicates that leachate will be hauled by truck to the wastewater treatment facility. How many trips a day are anticipated under normal and storm loads?

Operations

3. Records 1.1- Documentation of stormwater flap removal and valve adjustments from stormwater to leachate should be considered for recordkeeping
4. 1.9- Training materials used to train operators should be incorporated into the record.
5. 2.1.2 (Facility 2.1.7) Acceptance Requirements- With what frequency will TCLP be run during the course of the movement to verify constancy with the initial results?
6. 2.2.2 LCS Maintenance- LCS – All new segments should be camera and cleaned as necessary to detect blockage or glue that could impede future inspections. Propose a schedule for checking and verifying integrity of the system, particularly early on when silting could be an issue.
7. 2.2.3-There are activities that need to be accomplished including turning valves on or off, and removal of the storm flap. It is recommended that a process be developed to do this and document that the right valve is in the right position and that the flap has been removed with no damage to the liner and the documentation be kept in the facility record.

Closure Plan

8. Introduction- first paragraph- revisions to the plan must be sent to the agency for modification of the permit prior to implementation

9. 2.9- Certification of Closure should be submitted to the agency for any partial closure within 30-days.
10. 3.7 A structural fill qualifies as a beneficial use and mine reclamation is a structural fill. What is the intended post-closure use of the facility beyond a field?
11. The Section financial assurance officer will provide guidance to the owner on the submittal of documentation for the instrument chosen, separately. Financial Assurance will be updated annually for construction, closures and inflationary increases.

Engineering Plan

12. The liner stability analysis recommends the minimum bottom liner interface friction angle be 25 degrees. Is this reflected in the preconstruction testing requirements of the Technical specifications? Verify that the cross sections of the test are correct to match the analysis.

HELP Modeling

13. With respect to the Help models of the various scenarios- How does the output match with experience by Charah at the Asheville Airport?
14. For the open conditions, 100% runoff was allowed. Anything that contacts the ash is leachate. Is this number included in the leachate generation rates? What is the expected effect on the generation rate during operation if there is no runoff? The HELP model is iterative and a layer must be saturated before water moves to or from the next layer. Given the thickness of the ash in the model layers (20 feet) and the fact that the ash will be spread in thinner lifts, consideration might be given to breaking the thick layers into thinner ones. In general, the very bottom layer gives more representative results if layered as 1-2 feet thick. This lends to a more representative movement of the water in and out of the high permeability leachate collection system.
15. In the determination of leachate storage capacity, a 2-year, 24-hour rain is used for sizing. All of the other determinations used the 10-year, 24-hour storm. Why the difference and how does it affect the results?
16. While not specifically addressed by the statutes, please discuss the threatened and endangered species of the area and any potential cultural resources or lack thereof. Is it correct to assume this work was done prior to the issuance of a mining permit at some time in the past?

CQA Plan

17. Camera/Inspection of leachate lines after construction and before use is not specified, but highly recommended. In the experience of the section there is almost always an issue discovered in this process that can be fixed before the line is totally submerged under waste. For example, bends in the pipe or leftovers from the joining process can prohibit the movement of cameras or cleaning equipment, blockage due to dirt, rocks, and/or bottles is often found.
18. 6.2.4 -Are any of the materials sensitive to environmental exposure and are they properly speced to be covered, or have adequate UV protection? What is the UV standard for the geotextile of the drainage net?
19. 10.2 Do you use traditional film or digital camera for photographic evidence?

Technical Specs

20. There are no specifications or engineering for leachate storage tanks and secondary containment, or leachate lagoons. Please provide.

21. Are survey specifications needed? How many points and on what grid is the survey required? Make sure to remind the surveyor to survey at the same points for thickness, and that depth on side slopes is measured perpendicular to the slope.
22. 02220-What is the frequency of density testing on a berm? Is a test per unit foot and/or lift required as opposed to the 1 test per 10,000 ft² mass area fill requirement?
23. 02774- What are the specifications and conditions for the Interface Friction testing? (Section 2.3), such as layers and arrangements and confining pressure, friction etc. Are these tests required before placement of materials?
24. 02774 and 02275 – What are the specs for the nondestructive air pressure testing? (Section 3.Bb5b) Such as duration, pressure loss, accounting for temperature change and isolating the leak. Please ensure that it is recognized that repair of a leak by extrusion welding the flap is not an acceptable method. It should be cut out and wedge welded or have a cap strip placed over the area.
25. Specification 3.1A2e, what are the approved methods of determining thickness?
26. 2777-2.3 Transmissivity Testing- Is the cross section correct? It uses soil against the upper fabric, but isn't ash the contact substance? Why is a confining pressure of 10,000 psi and gradient of 0.3 used? The transmissivity needed was determined with a 5k psi confining pressure and 0.02 gradient.
27. 02800 What is the reinforcement method for the GCL that is required?
28. Interface friction - Specify the specifications and layers.

Drawings

29. 01-08 Document flap removal and valve switch, and also verify that valves don't inhibit camera or cleaning equipment used in the cleaning of the leachate lines.

The following items are provided for information and planning purposes.

General

30. Upon issuance of the Permit, any further modification or amendment to approved plans will require Section approval prior to implementation.

Prior to Construction – the following must be provided to the Section prior to commencement of construction;

31. Submit well abandonment records (Form GW-30) for each abandoned piezometer as needed during the progression of construction of each Subcell in electronic format (pdf).
32. The permit will include conditions to submit the Construction Quality Assurance documentation for the constructed liner to the Section for review upon the completion of each permitted subcell or increment of construction. Should any discrepancies be indicated, the Section will contact the engineer for follow up. Placement of coal in the area prior to sign off by the section will be at the owner's risk.
33. Provide the approved Erosion and Sedimentation Control permit from the Division of Energy, Mining and Land Resources, in electronic format (pdf), for the Section's database record.

Prior to Initial Operation – the following must be provided to the Section prior to commencement of operations;

1. Once the monitoring wells have been installed, submit boring logs and well construction records (Form GW-1b) for each of the nine (9) compliance groundwater monitoring wells in electronic format (pdf).
2. Recent publication of the proposed CCR rules by the USEPA include provisions for groundwater sampling. Propose a ground water monitoring sampling schedule for the first six (6) months which addresses the initial baseline sampling of eight (8) independent background sampling events for the nine (9) compliance groundwater monitoring wells and one (1) background sampling event for the two (2) surface water monitoring locations. At least one sampling event must be completed before waste is put in the lined fill area. Plan to submit all results in electronic format (pdf).

The section acknowledges that there is already a previous request for information, see DIN 22536 issued December 19, 2014. That information submitted in response to the request will also be reviewed. This letter in no way restricts the ability of the agency to request additional information or clarification.

Please address the above questions from your original application and provide any responses or addendums to the Section. It is not necessary to provide a complete application. Upon completion of the permit application process all the addendums can be combined into a final document for the record. Two (2) hard copies and an electronic (pdf) copy of the amended application must be provided to the Section, at that time. Should you have any questions contact Mr. Larry Frost at (828) 296-4704 larry.frost@ncdenr.gov or Mrs. Elizabeth Werner (919) 707-8253 elizabeth.werner@ncdenr.gov.

Sincerely,

Edward F. Mussler, III, P.E., Supervisor
Permitting Branch, Solid Waste Section
Division of Waste Management, NCDENR

cc:	Joe Readling	HDR Engineering
ec:	Larry Frost	DWM
	Elizabeth Werner	DWM
	Linda Culpepper	DWM
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