NOTICE OF INTENT TO INITIATE CLOSURE
PLANT SMITH ASH POND

In accordance with the Environmental Protection Agency (EPA) Coal Combustion Residuals (CCR) rule, 40 CFR Part 257, Gulf Power has completed necessary pre-closure activities and improvements to the process water management system to cease discharging process water and stormwater to the existing ash impoundment as of April 9, 2021. Improvements have included construction of a lined pond and required pipelines to direct plant process water and stormwater flows to the newly constructed lined pond.

In accordance with 40 CFR 257.102(g), this serves as Gulf Power's notice of intent to close the Plant Smith ash impoundment. Closure activities will commence no later than 30 days from April 9, 2021, or May 9, 2021. Closure activities will be completed by May 9, 2026. Initial closure activities will include excavation of ash materials outside of the limits of the recently constructed lined ponds, including the perimeter dike system. Ash will be placed and compacted in the final closure area in accordance with the Florida Department of Environmental Protection (FDEP) approved closure plans. In accordance with 40 CFR 257.102(d)(3), Gulf Power intends to construct an alternate final cover system for the Plant Smith impoundment closure. Attachment A includes a certification from a qualified professional engineer that the proposed final cover system meets the requirements of Section 257.102(d)(3) of the CCR rule.

ATTACHMENT A

GOLDER
MEMBER OF WSP

TECHNICAL MEMORANDUM

DATE April 30, 2021

TO Gulf Power Company

FROM Kevin Brown, PE, Golder Associates Inc (Member of WSP).

PLANT SMITH ASH IMPOUNDMENT CLOSURE - ALTERNATIVE COVER ASSESSMENT

In accordance with 40 CFR 257.102(d)(3), Gulf Power intends to construct an alternate final cover system for the Plant Smith impoundment closure. The required final cover system must include the following:

- The permeability of the final cover system must be less than or equal to the permeability of the bottom liner system or natural subsoils present, or a permeability no greater than 1 x 10^{-5} cm/s, whichever is less. Note that the existing ash impoundment does not have a bottom liner system and is underlain by natural sand materials. Thus, the permeability of the final cover system must be no greater than 1 x 10^{-5} cm/s.
- The infiltration of liquids through the closed CCR unit must be minimized by use of an infiltration layer that contains a minimum of 18 inches of earthen material
- The erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.
- The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

Section 257.102 (d)(3)(ii) of the rule allows for an alternate final cover system design, provided the alternative design meets the following criteria:

1. The design of the final cover system must include an infiltration layer that achieves an equivalent reduction in infiltration as the required infiltration layer;
2. The design of the final cover system must include an erosion layer that provides equivalent protection from wind or water erosion as the required erosion layer;
3. The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

The Plant Smith alternate final cover system includes the following:

- A textured linear low-density polyethylene (LLDPE) geomembrane liner layer with a minimum thickness of 40 mils will be used to control infiltration into the final closure area. On side slopes, a 50-mil liner will be used with improved interface friction properties
- The erosion layer will include a layer of ClosureTurf™ that includes a geotextile with integrated synthetic grass. This layer will be covered with a 0.5 inch layer of manufactured sand to protect the geotextile.

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To address the requirements of Item 1 above, Golder has prepared a calculation using the Hydrologic Evaluation of Landfill Performance (HELP) model to model infiltration of the required and alternate final cover systems. This model is commonly used to evaluate infiltration into landfill units. Golder has developed two scenarios based on an average rainfall simulation and a wet weather simulation to account for more active hurricane seasons. The HELP model results are summarized in the following table:

Cover System	Average Rainfall Simulation Percolation (ft^3/year/acre)	Wet Weather Simulation Percolation (ft^3/day/acre)
Required CCR Unit Cover	1,461	3,235
Proposed Alternate Cover	2.6	2.9

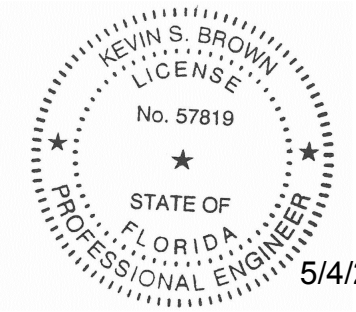
Based on HELP model analyses that consider average annual and maximum precipitation events, the proposed alternative cover system provides over 500 times better performance (less infiltration) for the average rainfall simulation and over 1,000 times better performance for the wet weather simulation. The attached calculation summary also provides maximum percolation (based on the largest rainfall event simulated) with similar results, noting that the same maximum precipitation event was used for both scenarios, so the maximum infiltration is the same for both simulations.

The proposed synthetic grass cover system will also provide improved performance over the required cover system. The proposed alternative system virtually eliminates erosion of the final cover system during heavy rainfall events and also reduces annual maintenance as mowing and replacement of eroded material is not required. During heavy rainfall events, some migration of the infill sand is expected, and this material will be replaced or redistributed as needed. The elimination of the soil erosion layer will prevent erosion rills that may expose the infiltration layer and accumulation of sediment in the perimeter channel and sediment ponds.

Lastly, the proposed final cover system will accommodate expected settlement and subsidence of the final closure area. Note that much of the subsidence occurs during active placement of excavated CCR materials on the final closure area. Further, the final closure area is designed such that greater settlement would be expected in the center of the closure area (based on the additional load in the highest point of the closure area); this settlement would not induce strain or place tension on the liner system. The flexible membrane liner can withstand differential settlement without development of cracks that would be expected with a soil infiltration layer. The cracks that develop in the soil erosion layer would significantly increase infiltration through the landfill final cover system.

Based on the analyses summarized herein, Golder certifies that the proposed final cover system meets the requirements of Section 257.102(d)(3) of the rule.

Golder Associates Inc.



Kevin Brown, PE
Principal and Practice Leader

5/4/2021

Distribution: Gulf Power, Hopping, Green and Sams

Attachments: HELP Model Analyses Summary

https://golderassociates-my.sharepoint.com/personal/kbrown_golder_com/documents/clients/closure notification letter/2020_04_19_technical memorandum_plant smith closure notification.docx

Date:	April 22, 2021	Created by:	KAS
Project No.:	154425121	Checked by:	JK
Subject:	HELP Model - Liner Equivalency Calculation	Reviewed by:	KSB
Project:	Plant Smith - Ash Impoundment Closure		

OBJECTIVE

Demonstrate equivalent or superior performance of designed final cover system (consisting of ClosureTurf™) with respect to the prescribed CCR Rule final cover system as presented in §257.102(d)(3)(i).

METHOD

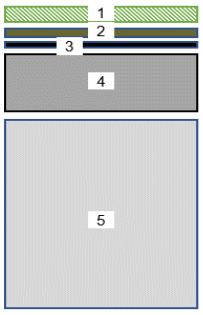
Use USEPA Hydrologic Evaluation of Landfill Performance (HELP) model v4.0.1 to estimate and compare leakage (percolation) through the two liners into the ash body.

ASSUMPTIONS

Assumptions for the geosynthetics:
-The drainage length and slope for the geocomposite is 600 ft and 8%, respectively. The length is approximated based on site geometry and grading plans.
- Pinhole defects are assumed to occur at a frequency of 1 hole per acre, installation defects are assumed to contribute an additional 1 hole per acre, and the geomembrane is placed with "good installation" as defined by Schroeder et al. (1994).

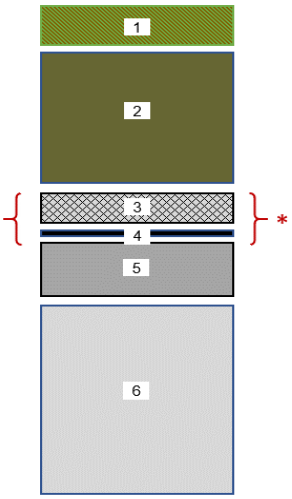
The model uses a unit area of 1 acre. Additionally, it does not include the full thickness of the CCR underlying the final cover system. The intent of the model is to model flow through the two composite liner systems and into the ash, rather than model flow through and / or out the bottom of the ash.

ClosureTurf Cover System



1. ClosureTurf Grass (0.5 in, n=0.41 , ksat=1x10^{-3} cm/sec)
2. ClosureTurf Geotextile backing (0.24 in, n=0.85 , ksat=3 cm/sec)
3. Geomembrane Liner (0.04 in, n=0.0, ksat=4x10^{-13} cm/sec)
4. Barrier Compacted material (12 in, n=0.45 , ksat=7x10^{-4} cm/sec)
5. Vertical Percolation Compacted material (Coal Ash) (948 in, n=0.45 , ksat=7x10^{-4} cm/sec)

CCR Rule Cover System



1. Topsoil/Vegetative Cover (6 in, n=0.46, ksat=3x10^{-4} cm/sec)
2. Infiltration Layer(18 in, n=0.47, ksat=1x10^{-6} cm/sec)
3. Lateral Drainage Layer (0.2 in, n=0.85, ksat=1 cm/sec)
4. Geomembrane Liner (0.04 in, n=0.0, ksat=4x10^{-13} cm/sec)
5. Barrier Compacted material (12 in, n=0.45 , ksat=7x10^{-4} cm/sec)
6. Vertical Percolation Compacted material (Coal Ash) (948 in, n=0.45, ksat=7x10^{-4} cm/sec)

* Layers 3 and 4 are dummy layers included in the model to allow an export of the values for flow from bottom of cover (i.e., bottom of Layer 2). Layers 4 though 6 match ClosureTurf Cover system for similitude in the equivalency evaluation.

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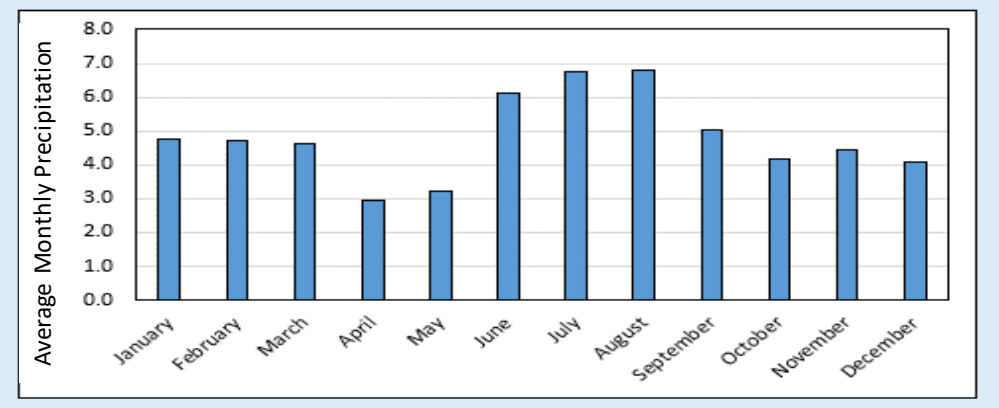
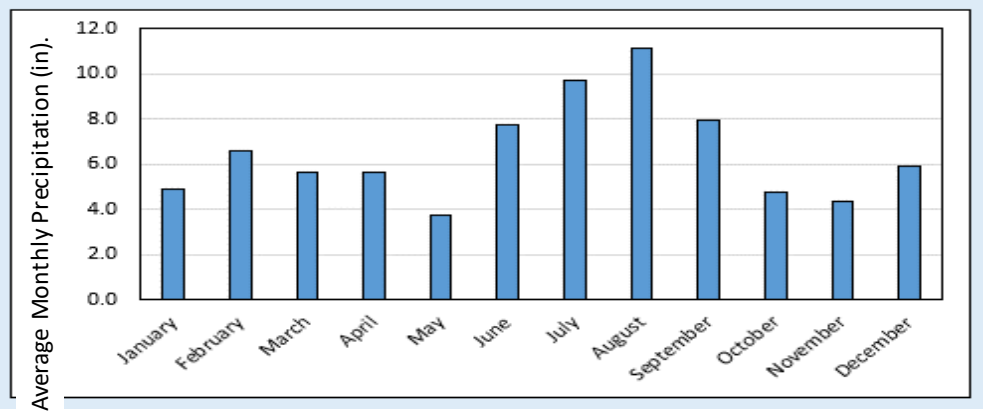
Climatic conditions were estimated using site-specific precipitation data and weather simulator from the HELP model.
- The climatic conditions, including the wind speed and relative humidity were averaged from NOAA Station 72096400338.
- The auto-generated HELP climate data was verified to show general agreement with the NOAA climate data for the site. Therefore, the HELP climatic input was used for the average weather analysis (precip, temperature, and solar radiation).
- NOAA data from 3 stations located near the site were used to average the maximum daily precip data to model an extreme weather event.
- Wind speed for the wet weather simulation was set at 20 mph, maximum wind speed allowed in HELP model.
- The evaporative zone was assumed to extend to the bottom of the ClosureTurf™, as recommended by manufacturer (i.e. 0.5 inches). The evaporative zone was assumed to extend 10 inches for the CCR Rule cover system.
- The maximum leaf area index was estimate to be 2 assuming a fair stand of grass for both cover systems.
- Curve numbers for the two covers were 61 and 98 for the CCR Rule and ClosureTurf™ cover systems, respectively.

Average Weather Simulation:



Wet Weather Simulation:



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HELP MODEL RESULTS

Calculated Model Results - Percolation through Final Cover System - Top Deck (8%)

Cover	Average Daily Percolation (ft3/day/acre)	Average Annual Percolation (ft3/year/acre)	Maximum Percolation (ft3/day/acre)
Average Weather Simulation			
ClosureTurf™	0.007	2.612	0.058
CCR Rule	4.00	1460.65	50.13
Wet Weather Simulation			
ClosureTurf™	0.008	2.874	0.059
CCR Rule	8.86	3234.63	50.13

CAVEATS

The full HELP model output is included for completeness; but should not be used except as intended herein.

REFERENCES

Schroeder, P. R., Aziz, N. M., Lloyd, C. M. and Zappi, P. A. 1994. "The Hydrologic Evaluation of Landfill Performance (HELP) Model: User's Guide for Version 4,"EPA/600/B-20/219, January 2020, U.S. Environmental Protection Agency Office of Research and Development, Washington, DC.