Changed Pages

Part III, Appendix III-D.8

Alternative Final Cover Demonstration

Part III
Attachment III-D
Appendix III-D.8

ALTERNATIVE FINAL COVER DEMONSTRATION

Pescadito Environmental Resource Center
MSW-2374
Webb County, Texas

PESCADITO
ENVIRONMENTAL RESOURCE CENTER

Initial Submittal March 2015
Revised September 2015
Technically Complete March 11, 2016
Modified August 2017

8-15-2017

STATE OF TEXAS
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REGISTERED
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8-15-2017

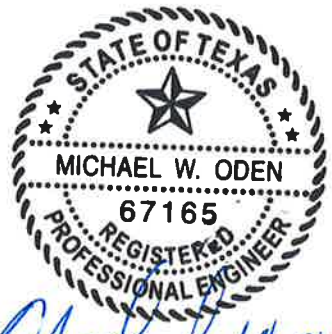

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Table III-D.8-2: HELP Model Input Parameters				
	AFC Model Runs		Prescriptive Cover Model Runs	
Parameter	AFC_WB13	AFC_WB19	PRE_FC3	PRE_FC4
General Design and Evapotranspiration Data				
Number of Years Modeled	30	30	30	30
Runoff Curve Number	92	92	92	92
Area Allowing Runoff (%)	100	100	100	100
Evaporative Zone Depth (in)	37	37	25	7
Maximum Leaf Area Index	1	0	0	0
Average Annual Wind Speed (mph)	11.6	11.6	11.6	11.6
Erosion Layer				
Layer No.	1	1	1	1
Layer Type	Vertical Percolation (Type 1)	Vertical Percolation (Type 1)	Vertical Percolation (Type 1)	Vertical Percolation (Type 1)
Thickness (in)	7	7	7	7
Hydraulic Conductivity (cm/sec)	$1.0X10^{-5}$	$1.0X10^{-6}$	$1.0X10^{-5}$	$1.0X10^{-5}$
Geomembrane Liner				
Layer No.	N/A	N/A	N/A	2
Layer Type				Flexible Membrane Liner (Type 4)
Thickness (in)				0.06
Hydraulic Conductivity (cm/sec)				$2x10^{-13}$
Infiltration Layer				
Layer No.	2	2	2	3
Layer Type	Vertical Percolation (Type 1)	Vertical Percolation (Type 1)	Vertical Percolation (Type 1)	Vertical Percolation (Type 1)
Thickness (in)	30	30	18	18
Hydraulic Conductivity (cm/sec)	$1x10^{-5}$	$1.0x10^{-6}$	$1x10^{-5}$	$1x10^{-5}$
Geomembrane Liner				
Layer No.	N/A	N/A	3	N/A
Layer Type			Flexible Membrane Liner (Type 4)	
Thickness (in)			0.06	
Hydraulic Conductivity (cm/sec)			$2x10^{-13}$	

5.1.7 HELP Model Results

The results of the HELP model are summarized in the table below. The average annual percolation for the bottom-most layer for each final cover figuration is shown in **Table III-D.8-3**. As can be seen, average annual percolation through either of the AFC configurations is less than either of the prescriptive cover configurations.

Table III-D.8-3: HELP Model Results

Model File Name	Average Annual Percolation	
	in/year	mm/year
AFC_WB13	0.00243	0.061722
AFC_WB19	0.01509	0.383286
PRE_FC3	0.06869	1.744726
PRE_FC4	0.07157	1.81788

7.0 CONCLUSION

In accordance with TCEQ regulations at 330.457(d)(1) both of the AFCs modeled achieve an equivalent reduction in infiltration compared to the two prescriptive cover scenarios modeled. Therefore, the AFC design provides appropriate protection from infiltration and associated leachate generation.

As demonstrated in **Attachment III.C** the proposed surface water protection and erosion control practices will maintain non-erodible velocities and will minimize soil erosion losses to less than 3 tons/acre/year. All final cover and stormwater management controls have been evaluated and been determined to provide adequate performance for all storms up to the 100-year storm without resulting in erodible velocities without adequate erosion protection.

A geotechnical analysis of the AFC has determined that it will function with appropriate factors of safety, as shown in **Appendix III-D.5**.

The AFC will be constructed in accordance with the Final Cover Quality Control Plan (FCQCP) found in **Appendix III-D.9**. The FCQCP will provide guidance for the materials, equipment, and construction methods to be used for final cover construction and the cover testing, evaluation and reporting procedures.