

**Part III
Attachment III-D**

WASTE MANAGEMENT UNIT DESIGN

**Pescadito Environmental Resource Center
MSW No. 2374
Webb County, Texas**

PESCADITO
ENVIRONMENTAL RESOURCE CENTER

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9-18-2015



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The image shows a circular professional engineer seal for the State of Texas. The seal features a five-pointed star in the center, surrounded by the words "STATE OF TEXAS" and "REGISTERED PROFESSIONAL ENGINEER". The name "MICHAEL W. ODEN" and the number "67165" are printed within the seal. A handwritten signature in blue ink is written across the bottom of the seal. The date "9-18-2015" is handwritten in blue ink at the top right of the seal area.


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Attachment III-D Appendices:

- III-D.1 – Site Layout
- III-D.2 – Landfill Cross Sections
- III-D.3 – Landfill Design and Details
- III-D.4 – Landfill Operation and Site Life
- III-D.5 – Geotechnical Analyses
- III-D.6 – Leachate and Contaminated Water Plan
- III-D.7 – Liner Quality Control Plan
- III-D.8 – Alternate Final Cover Demonstration
- III-D.9 – Final Cover Quality Control Plan

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facility in stages as the demand for this service increases. Initially, smaller units will be constructed as shown in Appendix III-B.1. In all cases, the required freeboard of one foot for the 25-year 24-hour rainfall event will be maintained. Run-on will be prevented by constructing berms around the facility, or by elevating the basin(s) above the surrounding ground level.

If the mixing basin(s) are filled to the maximum level (to within one-foot of the top – see Figure III-B.1-5 in Appendix III-B.1), no additional liquids will be added until they are emptied. However, PERC may provide a metal or fiberglass storage tank for a maximum of one day of acceptance (50,000 gallons) to account for temporary delays in the bulking process. Secondary containment will be provided around the tank, if used, by one of the following methods:

- Placing the tank over a lined area of the landfill
- Constructing a secondary containment of compacted soil liner with a maximum permeability of 1×10^{-7} cm/sec. Construction will be documented using methods specified in the LQCP (Appendix III-D.7) with only one permeability test required
- Utilizing a dual-walled tank

1.2 Large Item and Tire Storage Areas

A storage area for large items, white goods and tires may be provided near the citizen's convenience center or near the active working face for items delivered in enclosed vehicles or in mixed loads. Large items and white goods include ovens, dishwashers, freezers, air conditioners, and other large items, typically containing a large metal content. Should large items, white goods or tires be received in mixed loads, they will be removed from the active face if it is determined to be safe to do so and staged near the active working face, or removed to the designated area near the citizen's convenience center. The large items, white goods and tires will be transferred into roll-off containers, or similar storage device until transported to an off-site recycler. The containers will be covered to prevent the accumulation of rainfall inside the containers and to prevent the generation of contaminated water. The minimization of contaminated water will also limit the potential for generating odors within the storage areas. These items will be recycled to prevent a nuisance and to preclude discharge, but will not be stored in excess of 180 days. Large items and white goods that are not recycled will be disposed of at the working face. Tires will not be disposed unless they are split or quartered prior to disposal.

The procedure for acceptance, storage, processing and ultimate disposal is presented in Part IV – Site Operating Plan for PERC. Specific details regarding these areas can be found on drawings in Appendix III-D.1.

2.0 SURFACE IMPOUNDMENTS

The PERC facility may utilize an on-site evaporation pond (considered a surface impoundment) for leachate, contaminated water and landfill gas condensate. Detail drawings are provided in Appendix III-B. A minimum of 12-inches of free board will be provided at all times to account for the 25-year, 24-hour rainfall event of 7.5-inches. Leachate, contaminated water and gas condensate will be transported to the pond, or storage tanks, via a force main or hauled via tanker truck. If by force main, the level in the pond will be visually checked prior to activating the pumps to assure the required free board is available. Should there be a need for leachate, contaminated water and gas condensate disposal and the evaporation pond is filled to within 12-inches of the top, alternate disposal methods will be employed such as direct haul off-site to a permitted facility, storage in tanks until the pond is emptied or recirculation back into the waste mass. Only leachate and gas condensate may be re-circulated.

The landfill entrance road will be a 30 to 50-foot- wide concrete paved roadway and will provide mud control for waste hauling vehicles prior to exiting the site and returning to the off-site roads. Additional details of the landfill entrance road are provided in Appendix III-D.1.

3.2 Landfilling Method

The method of development of the north and south waste management units will be a combination of area-excavation fill followed by aerial fill. Daily cover will be applied whenever the landfill closes or at the end of each week during 24-hour per day operations as detailed in Part IV – Site Operating Plan. Final cover placement will generally follow the sequence of cell development as shown in Appendix III-D.1 and will occur as portions of the site are filled to capacity. Closure of completed areas will be in accordance with the closure plan provided in Part III, Attachment III-H.

3.3 General Landfill Design and Site Life Calculations

The north waste disposal unit has been designed with a deepest elevation of excavation of 444.7 NAVD88 which is located in the sump of cell N-8 and assumes a three foot compacted soil liner. NAVD 88 is the same as mean sea level (msl) and msl will be referenced in this application. The maximum elevation of waste is 855 and the maximum elevation of final cover is 858. The south waste disposal unit has been designed with a deepest elevation of excavation of 431.3 msl which is located in the sump of cell S-8 and assumes a three foot compacted soil liner. The maximum elevation of waste is 840 and the maximum elevation of final cover is 843.

For both units, the final excavation side slopes will not be steeper than 3 horizontal to 1 vertical (3H:1V) and the side slopes of the aerial fill component will not be steeper than 4H:1V. The slope of the top domes will be approximately 6 percent.

Together the two units represent approximately 233,316,800 cubic yards for waste and daily cover. Based on a daily waste receipt amount of 10,000 tons per day, 365 days per year of operation and an airspace utilization factor of 0.8775 (65 pounds per cubic foot), the life expectancy is estimated at 53 years. Detailed calculations and assumptions can be found in Appendix III-D.4.

Landfill design cross sections can be found in Appendix III-D.2 and other design details can be found in Appendix III-D.3