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SUPPLEMENTAL INFORMATION
TO ACCOMPANY
PERMIT MODIFICATION
FOR
LEVY COUNTY CLASS I LANDFILL
D.E.R. PERMIT NO. SC38-120728

D. E. R.
MAY 28 1991
SOUTHWEST DISTRICT
TAMPA

36895

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SUMMARY:

The Levy County Landfill as permitted in March 1987 was designed to utilize lined trenches for the disposal of solid waste. Three lined trenches were included in this permit. At present Trench No. 1 is nearly filled and the basic excavation for construction of Trench No. 2 has been completed.

The leachate collection system as permitted consists of a single collection line located in the center of the trench bottom. This design performed satisfactorily until the entire trench bottom was covered with solid waste and cover material. From that time forward rainfall trapped within the trench had to percolate through layers of solid waste and cover material. The time lag associated with this percolation created an operational problem due to water standing in the lower areas within the trench.

This permit modification is being requested to provide for separate stormwater and leachate collection systems. This will minimize the production of leachate by removing stormwater before it comes into contact with solid waste. The design has also been revised to provide a more effective collection system. The information that follows describes the proposed changes in design.

MINIMIZE LEACHATE GENERATION:

Water that comes into contact with solid waste is to be managed as leachate. To minimize the volume of leachate, the stormwater must be collected and removed while remaining separated from solid waste. Trench No. 2 will be divided into three (3) individual areas or zones. Each area will be isolated by a Drainage Divide which consists of a section of liner material extrusion welded to the bottom liner and extended vertically upward approximately 4-feet. Stormwater occurring within an individual area that does not contain solid waste or runoff from solid waste will be collected and managed as stormwater.

As in the original design and operational procedure the filling operations will begin at the southerly end of the trench (Trench No. 2) and proceed in a northerly direction. During the early stages of operation in Trench No. 2 only the first or southerly area will be receiving solid waste and therefore generate leachate. The second and third areas to the north will contain only stormwater. The combination of piping and Drainage Divides included in this design will allow for collection and removal of the leachate and stormwater separately.

When the first or southerly area is filled with solid waste to a point that approaches the first Drainage Divide, the underdrain system will be modified within the Conversion Pit. This change in piping will consist of connecting the 6-inch collection laterals to the 8-inch leachate main and replacing the 8-inch perforated section of stormwater main with non-perforated pipe to form a watertight separation between leachate and stormwater.

After the piping changes have been completed within the Conversion Pit it will be backfilled with filter fabric wrapped aggregate and covered by the protective layer. These changes to the piping within the Conversion Pit will provide for leachate collection from two areas within Trench No. 2 while continuing collection of stormwater from the third area.

When the solid waste approaches the second Drainage Divide the piping within Pumping Station No. 2 will be changed. This will consist of removing the 90-degree fitting from the 8-inch stormwater main that passes through Pumping Station No. 2 and into Pumping Station No. 3. Water carried by this main will then discharge into Pumping Station No. 2 rather than passing through into Pumping Station No. 3. The pipe that continues on into Pumping Station No. 3 will be sealed watertight to prevent future discharge of leachate to Pumping Station No. 3.

IMPROVED DRAINAGE COLLECTION WITHIN TRENCH NO. 2:

The leachate collection and conveyance piping in the original design consisted of a single line located at the bottom of the trench beneath the bottom liner protective layer. Once the highly permeable protective layer was covered with less permeable solid waste and cover material, ponding of excess water occurred due to the time lag associated with percolation.

The design included in this proposed permit modification will improve the collection and conveyance system. The collection pipes will be installed not only atop the bottom liner but also up the side slopes of the trench. The collection pipes will be constructed of filter wrapped perforated pipe. By shaping the surface of the waste to slope toward the trench side slope, excess water (leachate) can drain into the collection system without having to percolate through solid waste, cover material and the protective layer above the bottom liner.

REVISE TRENCH ELEVATIONS AND DIMENSIONS:

The elevation of the bottom liner at the top anchor will be field adjusted during construction. This adjustment in elevation together with a reduction in trench dimensions will provide for improved final grading both during operation and final closure.

The reduced trench dimensions will allow for more easily maintained slopes in the area of WRA "B" located at the northeast corner of Trench No. 2 while more closely matching the higher existing elevation to the south and southeast. Additionally, the waste in Trench No. 1 will be added by the high rise method if necessary in order to maintain continued landfill operations while construction of Trench No. 2 is underway.

ADDED SAFETY FEATURES AND RELOCATION OF PUMPING STATION:

The design of the stormwater and leachate collection systems included in this proposed permit modification will require two (2) pumping stations for Trench No. 2. One will pump stormwater and the other will pump leachate.

The pumping stations for Trench No. 2 will be relocated from the south end of to the west side. The access roadway leading to the now active Trench No. 1 passes to the south of Trench No. 2. In addition, the waste tire facility which has been added to the landfill facility by previous permit modification is located south of the access road opposite Trench No. 2. By relocating the pumping stations to the west of Trench No. 2 conflicts between those facilities to the south and the pumping station excavation will be minimized.

The design of the collection system and the pumping station arrangement is such that when all of the area within Trench No. 2 is generating leachate the stormwater pumping station (Pumping Station No. 3) will no longer be required. Therefore, this pumping station (Pumping Station No. 3) can be utilized for the removal of stormwater or leachate when a waste disposal unit (Trench No. 3) is constructed west of Trench No. 2 in the future.

The pumping station design will also be upgraded. Safety features will be added to the pumping stations. Included will be the addition of landings at approximately 10-foot intervals or safety ladders to safeguard against falls. These are being added for the safety and convenience of the workmen that have to enter into the pumping station. Also, a forced air ventilation system will be included to prevent the buildup of methane and other explosive or hazardous gases. This will also assure a safer environment for the workmen when they enter the structures.