

Comments on Aspects of
DEP FORM 28 CLOSURE OF THE POTTSTOWN LANDFILL
Submitted by Waste Management, Inc. to PA DEP
"Revised April, 1994"

Comments Submitted by
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In response to a request from the Pottstown Landfill Closure Committee, I (G. Fred Lee) have reviewed the DEP Form 28 covering the proposed closure of the Pottstown Landfill. Presented below are excerpts from DEP Form 28 covering the closure of the Pottstown Landfill that was submitted to DEP by Waste Management as "Revised April, 1994." It is my understanding that these are the conditions that currently apply to the closure of the landfill. The excerpts from Form 28 that were provided to DEP by Waste Management are presented in *italics*, and my comments are presented in Arial type font. The issues discussed herein are areas that the Pottstown Landfill Closure Committee may wish to address as part of reviewing the adequacy of the current closure plan for this landfill.

GENERAL

"Post-closure refers to that period of time following the completion of closure in which the expansion and appurtenant features will be maintained and covered by a bond in accordance with Section 271.314 of the Regulations. The area will be maintained in the Post-Closure phase for a period of 30 years."

The designation of a 30-year postclosure period is for Closure and Postclosure funding calculation purposes only. The Postclosure period should be for as long as the wastes in the landfill are a threat to generate leachate that can pollute groundwater.

Post Closure Land Use Plan

"After closure, the landfill will be maintained as a grass covered hill. The hill will provide open space and access will be controlled. Development of the area for other uses is not considered prudent due to the steep slopes and the possibility of damage to the final cover system. Site operations personnel will continuously investigate options for future use during the post-closure period."

Closure Plan

- (1) *"The sediment and erosion control structures will be maintained and kept operable until all areas contributing to the basin have been sufficiently stabilized to warrant their removal. Approval will be obtained from PADER prior to removing the sedimentation basin."*

The closure plan should specify maintenance of sediment and erosion control structures forever, since this will be an ongoing problem that will need to be addressed.

- (3) *“A geomembrane cap cover profile will consist of the following in ascending order:*
- *12 inches of compacted cover soil*
 - *12 ounces per square yard nonwoven geotextile*
 - *40 mil. textured HDPE geomembrane*
 - *Geotextile/Geonet/Geotextile composite drainage layer*
 - *24 inch layer of surficial soil capable of supporting vegetative growth”*

If properly installed and rigorously maintained this cover should result in very little leachate and landfill gas production. However, adequate maintenance will be difficult to achieve. Inadequate maintenance will allow entrance of moisture into the landfilled wastes to generate leachate.

- (5a) *“Water quality monitoring for the Pottstown Landfill has been ongoing and will continue throughout the Post-Closure period.”*

Table 4 indicates that “Water Quality Sampling” will be done “quarterly.” Is this the sampling of the groundwater monitoring wells? What parameters will be analyzed in those samples? Will monitoring of the DEP Form 19 parameters be continued? Radioactivity should be added to the list of parameters that are required in the groundwater monitoring.

What measurement/analysis will be conducted of flow and composition of each cell’s leak detection system during the postclosure period? Has there been any analysis of the liquid that has been found in the leak detection systems? If so, can those data be obtained?

In addition to the chemical characterization currently required of the fluid in each cell’s leak detection system, VOCs in the leachate in each cell should be determined each time the sampling is conducted. Also, radioactivity should be added as a monitoring parameter for the fluid in the leak detection systems.

No mention is made of postclosure stormwater runoff monitoring. I understand that this is done under a separate NPDES permit. The required monitoring should be referenced in the closure plan with an indication that that monitoring will be carried out during the postclosure period.

No mention is made of continuing the monitoring of the benthic “macroinvertebrate community” in Goose Run. That monitoring should be continued throughout the postclosure period.

- (5b) No mention is made of the monitoring of the landfill gas production rate or of its chemical characteristics. The amount of landfill gas produced each day in each section/cell of the landfill should be determined; the chemical composition of the gas should also be monitored. Detailed information should also be provided on the landfill gas monitoring that is to be done in landfill gas perimeter wells.

- (5c) *“Leachate will be collected during the life of the facility, during closure, and throughout the post-closure period. Regular weekly inspections of the primary and secondary leachate collection sumps (manholes) and submersible pumps will be conducted.*

Leachate flow rates in the secondary collection manholes will be recorded weekly throughout the post-closure period and reported to PADER on a quarterly basis.”

Do these flow measurements provide information on the leachate production in each cell? The leachate production rate in each section (cell) of the landfill should be determined bimonthly to provide insight into the maintenance of integrity of the landfill cover in each of the sections.

No mention was made of continuing the DEP Form 50 monitoring of leachate. It appears that the only monitoring of leachate that is proposed is the analysis of the leachate that is discharged to the Borough. The Form 50 analysis of leachate from each landfill cell should be continued during the postclosure period. As noted above, VOCs and radioactivity should be added to the analytical parameters measured in leachate.

- (5c) *“The practice of discharging pretreated leachate from the landfill to the borough will continue throughout the post-closure period. Records will be maintained of the date, approximate number of gallons pumped, and the analytical results in accordance with the conditions of the discharge permit with the Borough of Pottstown.”*

“Where accessible, the leachate collection system will be cleaned by accessing either cleanouts or manholes. Cleaning will be accomplished on an as-needed basis (at least once every five years) by high pressure back washing.”

- (5d) *“As each phase of the Eastern Expansion is closed and capped, a surface drainage system will be established to direct surface runoff to the sedimentation pond. The runoff will be decanted into the pond and discharged to an unnamed tributary of Manatawny Creek.”*

“The sedimentation pond at the facility will be cleaned when sediment accumulation in the pond reaches the sediment storage elevation specified during the 30 year post-closure period if required. Additionally, the drainage ditches will be cleaned during post-closure as necessary to prevent flows from being significantly impeded.”

“After the vegetative cover is established and stabilized, the drainage areas will be regraded and the crest area will be seeded. The area will be allowed to stabilize before regrading continues to the base of the slope.”

- (5e) *“During each site inspection performed during the post-closure period, the condition of the final geomembrane cover will be evaluated to determine the extent, if any, of settlement, erosion or other disturbances affecting the integrity of the final cover. Final cover maintenance will be conducted, as necessary, throughout the post-closure maintenance period an[d] may include regrading, revegetation and repair of the geomembrane cap.”*

“During each site inspection, the condition of the vegetative cover will be evaluated to identify areas of sparse vegetative cover. Vegetative maintenance will be required in all areas where final cover maintenance has been completed and will consist of reseeding and fertilizing disturbed areas. Vegetative maintenance will be conducted, as necessary, throughout the post-closure maintenance period to ensure that uniform vegetative growth exists on the landfill. This will include mowing the grass as needed, and repairing, if necessary, areas disturbed by erosion.”

- (6) *“Funding for the closure and post-closure costs will be provided by corporate funds. Funding for the closure and post-closure costs will be guaranteed by a collateral or surety bond in a form acceptable to the Department as described in Section 271.313. A new collateral bond and a letter-of-credit will be provided after approval of this Permit Modification. The letter-of-credit will be a standby letter-of-credit issued by a Federally insured or equivalently protected institution authorized to do business in the Commonwealth of Pennsylvania. The letter-of-credit will be irrevocable and designated as such.”*

Is the proposed funding adequate to address all plausible worst-case failures during the postclosure period, including cleanup of additional groundwater pollution that will occur when the landfill liner system fails to collect all leachate that is generated in the landfill? If not, how will the additional funding be obtained to meet those needs?

Monitoring Data Review

All monitoring data should be tabulated and presented in quality control charts made available to the Landfill Closure Committee in a timely manner. Data reported in this manner should include the rate of generation and composition of leachate in each cell, the amount and composition of fluid in the leak detection systems, results of groundwater well monitoring, landfill cell gas production rate and composition. Such charts will help the Pottstown Landfill Closure Committee review the monitoring data and identify changes in the monitored parameters that need attention. For example, if a landfill cell starts producing more leachate and/or landfill gas than it has in the past, there is need repair the landfill's low-permeability cover.

Information on quality control charts is available at <http://www.statsoft.com/textbook/stquacon.html>.

Adjusting the Monitoring Frequency

It may be appropriate to consider reducing the frequency of monitoring for some parameters after it has been established that it is possible to reliably predict the composition of the monitored parameter. It is suggested that at about 5-year intervals, a detailed review of the monitoring program be conducted by DEP to see if the frequency of monitoring of some parameters can be reduced, and if there is need to add new parameters to the list of measured parameters.

T A B L E 4
POST-CLOSURE ACTIVITY AND
MAINTENANCE SCHEDULE
EXISTING POTTSTOWN LANDFILL AREA

<u>ACTIVITY</u>	<u>FREQUENCY</u>
INSPECTION OF PERIMETER SECURITY	
Fences	Quarterly
Signs	Quarterly
Gates/Locks	Quarterly
Access Roads	Monthly
INSPECTION OF CAP INTEGRITY	
Cap Vegetation	Monthly
Cap Erosion	Monthly
INSPECTION OF EROSION AND SEDIMENTATION CONTROL SYSTEMS	Monthly
INSPECTION OF MONITORING AND COLLECTION SYSTEMS	
Monitoring Wells	Quarterly
Gas Collection Systems	Monthly
Leachate Collection Systems	Weekly
OPERATION OF PRETREATMENT PLANT	Continuous
OPERATION OF POWER PRODUCTION FACILITY	Continuous
WATER QUALITY SAMPLING	Quarterly
SITE REPAIRS AND MAINTENANCE	
Perimeter Security	As Needed
Cap Integrity	As Needed
Monitoring Systems	As Needed
Pretreatment Plant	As Needed
Power Production Facility	As Needed
Grass Mowing	As Needed