

**EPA Superfund
Record of Decision:**

**RIVER ROAD LANDFILL (WASTE MANAGEMENT,
INC.)
EPA ID: PAD000439083
OU 01
HERMITAGE, PA
12/29/1995**

RECORD OF DECISION RIVER ROAD LANDFILL SITE

DECLARATION

SITE NAME AND LOCATION

River Road Landfill
The City of Hermitage
Pymatuning Township Mercer County, Pennsylvania

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the River Road Landfill Site ("the Site"), in the City of Hermitage, Pymatuning Township, Mercer County, Pennsylvania. The remedial action was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA"), as amended by the Superfund Amendments and Reauthorization Act of 1986 ("SARA"), 42 U.S.C. §§ 9601 et. seq.; and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300. This decision document explains the factual and legal basis for selecting the remedy for this Site. This decision is based on the Administrative Record for this Site.

In accordance with Section 114 (a) of CERCLA, 42 U.S.C. § 9614 (a), nothing in this CERCLA response action shall be construed or interpreted as preempting the Commonwealth of Pennsylvania from imposing any additional liability or requirements with respect to the release of hazardous substances from the Site.

The Commonwealth of Pennsylvania concurs with the selected remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, have greatly been addressed by the implementation of the response actions already completed at the Site. The selected response action in this Record of Decision ("ROD"), is inclusive of the additional action necessary to ensure that actual or threatened releases of hazardous substances from this Site which may present an imminent and substantial endangerment to public health, welfare, or the environment do not occur.

DESCRIPTION OF THE REMEDY

The selected remedy for the Site in continuation of the operation and maintenance of the Existing Treatment Scheme which already exists at the Site along with the addition of Institutional Controls. The Existing Treatment Scheme is comprised of: a Fence, a PADER Solid Waste Cap, a Ground Water Dam, a Ground Water/Leachate Collection System, and a Monitoring program. The major components of the Existing Treatment Scheme previously implemented and continuing to operate are described below:

- Continued operation and maintenance of the existing ground water/leachate collection system.
- Continued maintenance of the PADER approved landfill cap and integrated surface water drainage system and the passive landfill gas venting system currently installed at the landfill.
- Continued maintenance of the existing Ground Water Dam.
- Continued maintenance of the existing Fence.
- Continuation of the existing monitoring program (with expansion or modification as required or approved by EPA and PADEP).

The selected remedy will further protect the public from exposure to hazardous substances. The selected remedy as described below is the only planned CERCLA response action for the Site.

The selected remedy includes the following major components:

- Deed Restrictions to prohibit the installation of new on- site potable wells.
- Deed Restrictions to prohibit the excavation or disturbance of the soil cap which results in exposing the fill materials.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. Implementation of the selected remedy will not involve excavation, or other remedial action measures that would pose any appreciable short-term risks to the public or to the workers during construction or implementation. EPA has determined that its future response at this Site does not require physical construction. Therefore, the Site now qualifies for inclusion on the Construction Completion List.

Because this remedy will result in hazardous substances remaining on-site above health-based levels, a review under Section 121 (c) of CERCLA, 42 U.S.C. § 9621 (c) will be conducted within five years after the issuance of the ROD to ensure that the selected remedy continues to provide adequate protection of human health and the environment.

RECORD OF DECISION RIVER ROAD LANDFILL SITE

DECISION SUMMARY

I. SITE NAME, LOCATION AND DESCRIPTION

SITE DESCRIPTION

The superfund site addressed in this Record of Decision ("ROD") is defined as the River Road Landfill Superfund Site ("Site") The River Road Landfill Site lies within the boundaries of the City of Hermitage, South Pymatuning Township, PA. The 102-acre Site is located approximately two miles northeast of the City or Sharon in southwestern Mercer County (Figure A). Approximately 37.5 acres of the Site have been developed. It consists of open grassy areas, drainage ditches, and sedimentation basins.

The Site is bounded by River Road (Route 846) to the northwest. The Shenango River forms the southern boundary of the Site, beyond which is industrial development. Wooded and residential properties are located to the northeast and east and west of the Site. The natural topography slopes from the road at an elevation of 920 feet mean sea level (MSL) to the Shenango River at an elevation of approximately 860 feet MSL. The landfill is 1,000 feet wide by 2,100 feet long, along a nearly east-west axis, and the top of the landfill is at an approximate elevation 955 feet MSL. The top slopes at about 1.5 to 6 percent to the top of the side slopes. The side slopes of 12 to 20 percent are broken every 10 to 20 feet in elevation by gently sloping terraces, which collect and convey surface water runoff to two sedimentation basins. Perimeter drainage channels also collect and convey runoff to the two sedimentation basins. Each of the sedimentation basins has an overflow for discharging water to the Shenango River.

In accordance with Section 114(a) of CERCLA, 42 U.S.C. § 9614 (a), nothing in this CERCLA response action shall be constructed or interpreted as preempting the Commonwealth of Pennsylvania from imposing any additional liability or requirements with respect to the release of hazardous substances from the Site.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

Industrial activity at the Site began in the 1940s, when the Site was used for oil and gas production. Prior to that, the Site was reportedly used for agricultural purposes. In the late 1950's, the property was operated as a sand and gravel mine. During the period from 1962 to 1980, the Site accepted municipal, residential, and industrial waste from area communities. PADER granted technical approval for operations in 1978, allowing continuance of operations until PADER issued a final Solid Waste Permit. Erie Disposal Company, a subsidiary of Waste Management of Pennsylvania ("WMPA"), purchased the Site in 1980. PADER issued the final solid waste disposal permit in 1984.

In 1980, WMPA initiated response actions at the Site, with construction of a subsurface leachate collection system/ground water dam on the south side of the landfill. The collected leachate was temporarily stored on-site in a lagoon and periodically collected and trucked off-site for disposal until 1983. After 1983, the collected leachate was discharged into a regional Public Owned Treatment Works ("POTW") sewer main, which traverses the Site. In 1982, WMPA installed soil erosion and sediment control systems. The leachate lagoon was closed in 1983.

Between 1982 and 1985, in accordance with PADER approval, PCB-containing sludge was removed from segregation areas and disposed with refuse in the landfill. WMPA capped the landfill in accordance with existing PADER regulations in 1987, and added further upgrades to the leachate collection system through 1988.

The Site stopped receiving waste in 1986. Closure activities were completed and certified in accordance with the PADER approved Closure Plan in 1987. Post-closure plans prepared by WMPA were approved by PADER in 1988.

The activities which have been completed at the Site by WMPA and are currently being operated and maintained will be identified as "the Existing Treatment Scheme" and include the following: a fence, a PADER solid waste cap, a ground water dam, a ground water/leachate collection system, a monitoring program.

The fence is comprised of an 8-ft high chaining fence. The fence surrounds the Site on three sides, with access from the fourth side blocked by the Shenango River. The fence is maintained to control Site access, thus limiting exposure to the Site. In 1986 and 1987, the PADER solid waste cap was constructed over the entire landfill cap construction adequately promotes surface water runoff. A surface water collection system was integrated into the cap to promote surface water runoff and collect sediment.

Surface water runoff is discharged from the basins to the Shenango River. The combination of the PADER solid waste cap and the surface water collection system is minimizing infiltration through the cap, and maximizing runoff from the landfill. The ground water dam is located at the downgradient (southern) perimeter of the landfill. The ground water dam was constructed to limit potential ground water flow from the Site to the Shenango River, and conversely, to limit flow from the Shenango River toward the ground water/leachate collection system and is effectively meeting both objectives. The ground water/leachate collection system consists of a perforated pipeline in a gravel envelope, which was installed around the entire landfill, below the water table. The ground water/leachate collection system is effectively collecting leachate percolating from the landfill and ground water flowing beneath the landfill. However, it is suspected that the collection system is partially blocked in one or more areas. This blockage may be the reason that minor amounts of contamination have migrated to the ground water immediately adjacent to the northwest and east sides of the landfill.

The current monitoring program includes sampling and analysis of ground water, leachate, and landfill gas and sediment.

The U.S. EPA listed the Site on the National Priorities List ("NPL") in 1989 on the basis of surface water, ground water, and direct contact risk components of the Hazard Ranking Score ("HRS") score. An administrative Order on Consent for the Remedial Investigation/Feasibility Study (RI/FS) was negotiated with WMPA in 1990.

III. HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Remedial Investigation/Feasibility Study ("RI/FS") Report and the Proposed Plan for the River Road Landfill Site were released to the public for comment on August 10, 1995 in accordance with Sections 113 (k) (2) (B), 117 (a), and 121 (f) (1) (G) of CERCLA, 42 U.S.C. §§ 9614 (k) (2) (B), 9617 (a), 9621 (f) (1) (G). These documents were made available to the public in both the Administrative Record maintained at the EPA Region III Administrative Record Reading Room, and the information repository located at the Buhl- Henderson Community Library, Sharon, Pennsylvania. The notice of availability for these documents and the notice for the public meeting were published in the Sharon Herald on August 10, 1995. A public comment period on the documents was held from August 10, 1995 to September 11, 1995. In addition, a public meeting was held on August 24, 1995 at the South Pymatuning Volunteer Fire Department in Sharpsville, Pennsylvania. At this meeting, representatives from EPA and Pennsylvania Department of Environmental Protection ("PADEP", formerly known as PADER) answered questions about the Site and the remedial alternatives considered.

EPA's response to all comments on the Proposed Plan and related documents received during the comment period is included in the Responsiveness Summary in this ROD. A copy of the transcript of the public meeting has been placed in the Administrative Record file and information repository.

IV. SCOPE AND ROLE OF RESPONSE ACTION

This Record of Decision ("ROD") mandates the final planned response action for the Site. The previously conducted remedial actions adequately address the threats to human health and the environment posed by the presence of contaminants migrating from the Site. This ROD is the only planned CERCLA response action for the Site.

V. SUMMARY OF SITE CHARACTERISTICS

A. LANDFILL CONDITIONS

During PADEP-approved closure activities many remedial systems and monitoring programs were installed to prevent off-site migration. These systems and programs include:

- Landfill Cap, with a Surface Water Control System
- Ground Water Dam
- Ground Water/Leachate Collection System
- Landfill Gas Monitoring System

Landfill Cap - A landfill cap was installed in 1986 through 1987 in accordance with the PADEP-approved closure plan. Investigations have determined that the cap is structurally sound, free of cracks, deformities, major depressions, and seeps, and promotes surface water runoff. Cap depth and soil type are generally consistent with the closure plan.

Surface Water Control System - Studies conclude that the surface water control system collects approximately one-third of the total rainfall to the local watershed. Steep landfill slopes,

sedimentation basins.

Ground Water Dam - The ground water dam investigation confirmed the presence of a 2,400 ft. compacted-soil dam that is keyed into fine-grained till foundation over at least 75 percent of its length. An approximately 9 ft. hydraulic head drop maintained between outside and inside the dam demonstrates the dam's ability to limit ground water flow.

Leachate Collection System - The leachate collection system is functioning to collect leachate percolating from the landfill and ground water flowing beneath the landfill. Collection volumes are directly related to rainfall, with actual system response variable depending on moisture levels of surface soils.

Landfill Gas - Landfill gas was not identified in significant quantities on the landfill surface. Quarterly monitoring for landfill gas at 13 perimeter monitoring stations demonstrate that landfill gas is not leaving the Site.

B. GEOLOGY

The River Road Landfill is located in the Glaciated Section of the Appalachian Plateau physiographic setting. The Site is directly underlain by unconsolidated materials which in turn overlie Mississippian age sandstone and shale bedrock formations. The unconsolidated material has been divided into three units which in ascending order are coarse-grained till, fine-grained till and alluvium, lacustrine and ice contact deposits, and soil fill. The Orangeville Shale and Berea Sandstone Formations are the two bedrock units encountered during the Remedial Investigation.

Coarse grained till directly overlies bedrock across most of the Site and is described as very dense, olive gray to gray, fine to coarse sand containing varying amounts of silt and gravel. This was defined as a till based on the extreme compact nature of the unit. This till is absent in the north-central portion of the Site and up to 28 feet thick at the Site.

The fine-grained till overlies the coarse-grained till across the majority of the Site and appears to be absent in the southeastern portion of the Site. It is described as a medium dense to very dense, gray to dark gray and dark yellow-brown, fine to medium sandy silt with occasional layers of fine to coarse sand. The thickness of this unit ranges from 1.5 to 83 feet at the Site.

A veneer of silt, silty sand, and sand was found overlying the till units and regional information suggests that these sediments are of variable genesis. These sediments may be the result of Pleistocene lacustrine and ice-contact settings, and Pleistocene and Recent stream valley processes. The depositional environment could not be conclusively determined at each sampled location and as a consequence in the RI this veneer was labeled as alluvium for ease of identification. This unit was described as consisting of fine to medium sands and silts, with occasional gravel. The distinction between the alluvium and underlying till was based on a combination of lithologic information and blow counts recorded during drilling. This unit exceeded 20 feet in thickness at the southern portion of the Site along the river.

The top of bedrock surface ranges in elevation from 810.2 ft. MSL to 855 ft. MSL across the Site. Two bedrock stratigraphic units were encountered during the Site investigation. Based on comparisons to the regional geologic information, these units include the upper unit of the Berea Sandstone and lower unit of the Orangeville Shale.

The Berea sandstone was described from Site drilling logs as consisting of soft to medium hard, fine to medium sandstone with variable amounts of shale interbedded with the sandstone. The percentage of shale within the sandstone was recorded to be as high as 20 percent with shale layers between 0.01 and 4 inches thick. Bedding was observed to generally be horizontal with fractures observed to usually occur in horizontal orientation with some vertical fractures reported as well.

The Orangeville Shale was encountered at some locations directly above the Berea Sandstone with a reported thickness of up to 22 feet.

C. HYDROGEOLOGY

There are four hydrostratigraphic units at the Site that have similar hydraulic characteristics which makes it difficult to differentiate ground water flow along the stratigraphic units. The hydrostratigraphic units in descending order are the alluvium, fine-grained till, coarse-grained till and bedrock. Both horizontal and vertical components of groundwater flow occur at the Site with the horizontal component of flow to the south water flow is generally in an upward direction, toward the

discharge area of the Shenango River.

The alluvium is the surficial aquifer and aquifer testing at monitoring wells completed in this unit were analyzed for the estimating the hydraulic conductivity. The results of the analysis was a range in hydraulic conductivity between 2.6×10^{-2} cm/sec (5.1×10^{-2} ft/min) and 1.2×10^{-6} cm/sec (2.3×10^{-6} ft/min). The estimated mean hydraulic conductivity was 3.6×10^{-4} cm/sec (7.2×10^{-4} ft/min). Ground water flow in this unit is to the south toward the Shenango River, however, based on water elevation data in the vicinity of the "groundwater dam" and leachate collection system, it appears that the shallow ground water is being intercepted by the leachate collection system.

The estimated hydraulic conductivity ranges from aquifer tests performed from monitoring wells in the fine-grained till are 2.9×10^{-4} cm/sec (5.7×10^{-4} ft/min) and 1.3×10^{-5} cm/sec with the mean hydraulic gradient estimated at 6.1×10^{-5} cm/sec (1.2×10^{-4} ft/min).

The coarse-grained till estimated hydraulic conductivity ranges from 8.9×10^{-3} cm/sec (1.8×10^{-2} ft/min) to 4.0×10^{-5} cm/sec (7.9×10^{-5} ft/min). The estimated mean hydraulic conductivity for the coarse-grained till was 6.2×10^{-4} cm/sec (1.2×10^{-3} ft/min).

The bedrock aquifer, which underlies the coarse-grained till, packer testing and slug testing results show an estimated hydraulic conductivity range from 9.6×10^{-3} cm/sec (1.9×10^{-2} ft/min) to less than 1.8×10^{-7} cm/sec (3.5×10^{-7} ft/min). The estimated mean hydraulic conductivity of the bedrock aquifer was 1.5×10^{-5} cm/sec (3.0×10^{-5} ft/min).

There was no observed confining unit between the unconsolidated stratigraphic units, and the mean hydraulic conductivity values of each of the units is approximately within an order of magnitude of each other. Therefore, there appears to be no significant contrast in hydraulic conductivity values among the stratigraphic units beneath the Site. It is suggested that this lack of contrast in mean hydraulic conductivity results would result in ground water flow driven by gradients and not stratigraphic boundaries. As reported in the RI, the estimated range of ground water flow velocities was 4.3×10^{-3} to 0.86 ft/day.

D. SURFACE WATER

The Shenango River is south of the Site, and the Shenango Dam located approximately 1.25 miles upstream of the Site regulates peak surface water discharge with a high of 4,460 cubic feet per second ("cfs.") and a low of 2,380 cfs. The 100 year flood plain estimated for the Shenango River extends to just below the lowest elevation of the landfill. A surface water drainage system was implemented as part of the closure plan to control surface drainage to the Shenango River. The surface water collection system is designed to collect surface water from the western half of the landfill to Sedimentation Basin B (Figure B). Landfill grading, and a series of surface water collection trenches have been constructed to direct surface water to the Basins.

A surface water assessment was conducted to monitor the flow of surface water into and out of the two sedimentation basins.

Sedimentation Basin A - The base discharge flow from Sedimentation Basin A, before the measured rain event, was 0.12 cfs or 53 gallons per minute ("gpm."). During the storm, the water level in the basin rose a maximum of 1.3 ft, storing a maximum of approximately 25,400 cubic feet ("cf.") of runoff at one point. Basin storage discharge was limited to a maximum of 1.8 cfs. After the storage peak, the discharge of stored water in Basin A continued, decreasing to 0.16 cfs. over a five-day period. The estimated maximum storage capacity of the Basin is 121,000 ft³.

Sedimentation Basin B - The base discharge flow from Sedimentation Basin B, before the measured rain event, was 0.001 cfs. This indicates Basin B barely discharged unless there was a precipitation event. During the storm, the water level in the basin rose a maximum of 0.9 ft, storing approximately 29,300 cf at the maximum of 0.62 cfs. After the peak storage, discharge continued decreasing to approximately 0.026 cfs over a five-day period, when another rainfall event occurred. The estimated maximum storage capacity of the Basin is 194,000 ft³.

E. NATURE AND EXTENT OF CONTAMINATION

The nature and extent of contamination at the Site was characterized through sampling of leachate, sediment from drainageways leading to the Sedimentation Basins and from within the Basins, and soil composing the ground water dam, from beneath the former leachate pond area, and in the area of the Site entrance.

An assessment of the nature and extent of contaminants present at the River Road Landfill Site indicates that the extensive remedial actions performed at the Site have, for the most part, been successful in controlling contaminant migration from the landfill to the surrounding environment. However, investigations have shown that limited migration of contaminants is occurring from the landfill.

Leachate was considered the primary potential source at the River Road Site. However, analysis of the leachate indicated that it is limited as a potential source. No pesticides or PCBs were detected in the leachate samples. Total concentrations of volatile organic compounds ("VOCs") and semi-volatile organic compounds ("SVOCs") in Leachate were less than 150 micrograms per liter (ug/L). The drainageways leading to the Sedimentation Basins and the Basins themselves, were found to have limited potential to act as sources. Low concentrations of polycyclic aromatic hydrocarbons ("PAHs") (concentrations less than 100 ug/L) were not detected in the drainageways leading to the Sedimentation Basins. Arocolor 1248 was detected at concentrations below the contract required quantitation limit ("CRQL") in Sedimentation Basin B. Metals concentrations varied little among the inlet drainageway, Basins, and outlet drainageways with the exception of a limited area in the spillway from Basin B, which contained elevated chromium concentrations. The extent of elevated chromium is limited to an area approximately 20 feet in length, and is located at the downstream end of the drainage system. This area with elevated chromium levels is considered to be a source. Soil near the Site entrance has a limited potential as a source of PCBs. The detection of PCBs was limited to one sample out of a total of nine collected.

Two VOCs (2-butanone at an estimated concentration of 15 micrograms per kilogram (ug/kg), and 1,1,1-trichloroethane at an estimated concentration of 1 ug/kg) were detected in soil samples underlying the former leachate pond. Soil does not appear to be a source of VOCs in wells.

Organics were detected in the dam soil (SVOCs) at concentrations below the CRQL. Of the SVOCs detected in the ground water dam soil, only bis(2-ethylhexyl) phthalate was detected in the ground water downgradient of the landfill at 26 ug/L. This detection was not considered evidence of ground water impact, because bis(2-ethylhexyl)phthalate was present in laboratory blank samples and is a common laboratory contaminant. Therefore, soil composing the ground water dam does not constitute a significant source of contamination at the Site.

Migration Pathway Assessment Migration pathway assessment activities performed during the RI included; sampling and analysis of sediments in the sedimentation basin spillways, sampling and analysis of surface water samples collected at Site springs and in the sedimentation basins, sampling and analysis for indicator parameters of selected monitoring wells, analysis of ambient air quality, and analysis of the presence of landfill gas.

No substantial contamination was detected along potential migration pathway. There is no evidence that contaminants are migrating through the drainageways around the landfill. Organic compounds detected in the Basin spillways were low concentrations of PAHs below the CRQL in samples from the Basin B spillway.

Analysis of ground water samples for indicator parameters did not show landfill impacts. Concentrations of major cations and anions detected in the ground water samples indicated that samples from the shallow and intermediate wells exhibited similar ionic composition (calcium-sulfate-carbonate) while samples collected from the bedrock wells exhibited a differing composition (sodium-potassium-carbonate).

Ambient air quality at the landfill is not being impacted by landfill gas emissions. Methane concentrations in ambient air are substantially below explosive limits, and non-methane VOCs are not measurable in either the ambient air or the leachate headwells and manholes. Methane concentrations were elevated inside confined manholes and leachate headwells, as would be expected.

Chemical Characterization Chemical characterization during the RI was performed for the following media; ground water at Site monitoring wells and an off-site private well and the on-site well, and sediment sampling in the Shenango River

Limited impacts to on-site ground water have occurred, and no impacts to river sediments can be attributed to the landfill. There were 22 downgradient or sidegradient wells sampled at the Site, three contained detectable concentrations of organics similar to leachate compounds: two shallow ground water wells adjacent to the ground water/leachate collection system, and one shallow ground water well downgradient of the ground water dam. The two wells adjacent to the leachate collection system represent areas where the leachate collection system is apparently not fully effective.

Xylenes were detected at a concentration of 2 ug/L in one monitoring well during the first round sampling event only. The private wells sampled exhibited no ground water quality affects attributable to the Site. No target compounds list ("TCL") VOCs, SVOCs, pesticides, or PCBs were detected in private well samples.

PCBs were detected in sediments adjacent to and downstream of the landfill and were within the concentration range of PCB contaminated sediments located upstream of the Site.

VI. SUMMARY OF SITE RISKS

The Risk Assessment ("RA") studies the carcinogenic, non-carcinogenic, current and future risks at the Site based on the levels of contaminants found during the RI and a reasonable maximum exposure.

The National Contingency Plan ("NCP"), 40 C.F.R. Part 300, establishes a range of acceptable levels of carcinogenic risk for Superfund Sites that range between one in 10,000 and one in 1 million additional cancer cases if cleanup action is not taken at a Site. Expressed in scientific notation, this translates to a generally acceptable excess risk range of between 1×10^{-4} and 1×10^{-6} over a defined period of exposure to Site related contaminants.

In addition to carcinogenic risk, chemical contaminants that are ingested, inhaled or dermally absorbed may present non-carcinogenic risks to different organs of the human body. The non-carcinogenic risks or toxic effect are expressed as a Hazard Index ("HI"). EPA considers a HI exceeding one to be an unacceptable non-carcinogenic risk.

The RA is used to evaluate the need for remedial action. It also helps in determining the levels to which Site related contaminants have to be treated to ensure the protection of human health and the environment. The risk assessment is based on the assumption that exposure to Site related contaminants can occur only if a complete exposure pathway exists. The exposure pathway consists of the following elements: contaminants; a medium (such as water, soil, air) through which contaminants are transported; a point of contact with the contaminants (exposure point); and a route of exposure (such as ingestion, inhalation, or dermal (skin) contact) at the exposure point.

Baseline Human Health Risk Assessment

No unacceptable levels of risk were calculated under the current land use scenario. Estimated carcinogenic risks were less than 1×10^{-6} , and hazard indices were less than 1.

Under the future residential land use scenario, estimated reasonable maximum exposure carcinogenic risks above 1×10^{-6} were calculated for three potential exposure pathways: ground water ingestion (3×10^{-5}), dermal contact with soil (2×10^{-6}) and ingestion of sediment while wading (5×10^{-6}).

The hazard indices for the future residential land use scenario exceeded 1 for two ground water pathways: ingestion of ground water and dermal contact with ground water. These non-carcinogenic risks were driven by manganese and aluminum. Manganese and aluminum are compounds commonly found in the Site area and the risk is based upon people living on the landfill and drinking and bathing in ground water from wells placed in the landfill.

Environmental Risk Assessment

In the ecological risk assessment, a number of analytes detected in surface water and sediment exhibited a potential for ecological hazard. Aluminum, calcium, and lead were contaminants within the probable significant effects range for surface waters. However, these metals were determined to pose no risk greater than risk associated with these metals in upgradient surface waters.

Arsenic, 4,4-DDD, mercury, nickel, Aroclor-1248, cadmium, chromium, dieldrin and zinc were contaminants that may pose possible significant effects for the sediments. However, arsenic, nickel, and cadmium are common in sediments of the region and potentially may not pose risk significantly greater than background levels. The remaining contaminants are found in sediments which over the years have become established wetlands. These contaminants in their present location pose a minimal risk if they continue to remain undisturbed.

The range of alternatives is limited to viable options that would mitigate Site specific risks to human health and the environment.

CONCLUSION

Actual or threatened releases of hazardous substances from this Site, have substantially been addressed by the implementation of the response actions already completed at the Site. The selected response action in this ROD, is inclusive of the additional action necessary to ensure that actual or threatened releases of hazardous substances from this Site which may present an imminent and substantial endangerment to public health, welfare, or the environment do not occur.

VII. DESCRIPTION OF ALTERNATIVES

The Feasibility Study ("FS") contains the remedial alternatives considered for cleanup at the Site. The FS presents the process to evaluate a comprehensive list of general response actions to identify the best approach currently available to meet the remedial action objectives for the River Road Landfill Site. Through the screening process, general response actions which are comprised of remedial technology subsets and further broken down into process options, were assembled into five remedial action alternatives for the Site. During EPA's review of the FS it was identified that an additional remedial alternative was required to detail the specific remedial action EPA feels is needed to mitigate Site risk. Therefore the total number of remedial alternatives discussed in this ROD is six. The range of alternatives is limited to viable options that would mitigate Site specific risks to human health and the environment.

Habitat Enhancement

In the FS, "Habitat Enhancement" was introduced as a component of Alternatives 3 through 5. Habitat Enhancement will not be included by EPA as an alternative which was considered in this ROD since habitat enhancement is considered to be beyond the remedial actions necessary to mitigate Site risk. Habitat enhancement has been identified as being of particular importance to WMPA and could possibly be completed by WMPA in the future to establish a beneficial use for the property that is of value to the surrounding community.

Below are the Remedial Alternatives that were considered in this ROD:

TABLE : Remedial Alternatives Examined

Alternative 1	No Action
Alternative 2	No Further Action
Alternative 2a	Existing Treatment Scheme and Institutional Controls
Alternative 3	Existing Treatment Scheme and Institutional Controls, Off-Site Disposal of Sediment and an Expanded Monitoring Program
Alternative 4	Existing Treatment Scheme and Institutional Controls, Off-Site Disposal of Sediment and Ground Water/Leachate System Enhancement
Alternative 5	Existing Treatment Scheme and a RCRA Subtitle D cap over the already capped landfill, Ground Water/Leachate System Enhancement, Institutional Controls and Off-Site Disposal of Sediment

Alternative 1 - No Action

The no action alternative discussed in the FS assumes that no further action to remove or treat contaminated media or to reduce present or future exposure risks at the Site. In the case of the River Road Landfill Site, components of a remedial treatment scheme have previously been implemented as part of the upgrade and closure activities, and are therefore included in the "No Action" Alternative. It is comprised of Remedial Action Components, including Fencing, the PADEP Solid Waste Cap, the Surface Water Collection System, and the Ground Water Dam. Under the no action alternative in the FS, the existing ground water/leachate collection system would be shut down. Shutdown of the ground water/leachate collection system would allow the migration of leachate constituents to ground water beneath the Site. Also, no monitoring would be performed to document ground water quality changes which could lead to off-site migration of ground water containing leachate constituents at concentrations that represent an unacceptable health risk.

Alternative 2 - No Further Action (Existing Treatment Scheme) (Fence, PADEP Solid Waste Cap, Ground Water Dam, Ground Water/Leachate Collection System, and Monitoring)

Remedial Action Alternative 2 is the "Existing Treatment Scheme" alternative. It includes the remedial systems which have previously been implemented at the Site and are detailed in Section V: Site Characteristics. The Existing Treatment Scheme is comprised of remedial systems that have already been implemented at the River Road Landfill as part of the upgrade and closure activities performed by WMPA.

Alternative 2a - Existing Treatment Scheme and Institutional Controls (Fence, PADEP Solid Waste Cap, Ground Water Dam, Ground Water/Leachate Collection System, and Monitoring) and Institutional Controls

Remedial Action Alternative 2a is the "Existing Treatment Scheme and Institutional Controls" alternative. It includes the remedial systems and activities which have previously been implemented at the River Road Landfill as part of the upgrade and closure activities performed by WMPA (existing treatment scheme as described in Alternative 2) with the addition of institutional controls.

Institutional controls would include both zoning and deed restrictions. Zoning restrictions would be proposed to be implemented by the local zoning commission to prevent future zoning changes that would allow for residential development or other types of development that would be inappropriate for a former landfill. Deed restrictions would include preventing: residential construction on the Site, on-site installation of extraction wells for potable water use, and disturbance of the existing cap. The institutional controls will be designed to allow for beneficial use of the property, assuming that the beneficial use would not pose a risk to human health or potential ecological receptors.

Alternative 3 - Existing Treatment Scheme and Institutional Controls, Off-Site Disposal of Sediment and an Expanded Monitoring Program Existing treatment scheme (Fence, PADEP Solid Waste Cap, Ground Water Dam, Ground Water/Leachate Collection System and Monitoring) along with Institutional Controls and Off-Site Disposal of Sediment and an Expanded Monitoring Program

Remedial Action Alternative 3 augments the existing treatment scheme in Alternative 2a with an expanded monitoring program and one additional remedial action component, off-site disposal of Sediment. Monitoring - The Site currently has a monitoring program which includes sampling and analysis of ground water, leachate, and landfill gas. The expanded monitoring program proposed in Alternative 3 would include additional annual Site inspections to evaluate the condition of the landfill cover and Sedimentation Basins. Site walkovers during each inspection to look for any differential settlement or excessive erosion. Four media would be monitored as part of Alternative 3: ground, leachate, landfill gas, and sediment. A detailed monitoring plan would be developed during the remedial design stage. Off-site disposal of sediment would include the excavation and off-site disposal of sediment contaminated with arsenic, Aroclor 1248, and chromium. Remediation would include removing approximately 2,000 cubic yards of sediment from the Site. Excavated material would be tested and then disposed at an off-site secure landfill.

Alternative 4 - Existing Treatment Scheme and Institutional Controls, Off-Site Disposal of Sediment and Ground Water/Leachate System Enhancement Existing Treatment Scheme (Fence, PADEP Solid Waste Cap, Ground Water Dam, Ground Water/Leachate Collection System and Monitoring) Expanded Monitoring, Institutional Controls, Off-Site Disposal of Sediment and Ground Water/Leachate System Enhancement

Remedial Action Alternative 4 adds a Ground Water/Leachate System Enhancement component to the remedial systems described in Remedial Action Alternative 3.

The ground water/leachate system enhancement would include developing a detailed proposal of enhancement activities in connection with remedial design. The enhancement would go beyond existing routine maintenance of the system which includes a program of cleaning the existing ground water/leachate collection system lines which would correct the suspected partial blockage of the collection system. Enhancement would possibly include a study of the system and exploring system expansion and redesign possibilities.

Alternative 5 - Existing Treatment Scheme and a RCRA Subtitle D Cap (over the already capped landfill), Ground Water/Leachate System Enhancement, Institutional Controls and Off-Site Disposal of Sediment (Fence, Ground Water Dam, Ground Water/Leachate Collection System, Monitoring, Institutional Controls, On-Site Disposal of Sediment, Ground Water/Leachate System Enhancement and RCRA Subtitle D Cap)

Remedial Action Alternative 5 includes placing a RCRA Subtitle D cap over the already capped landfill, in addition to ground water/leachate system enhancement, institutional controls, off-Site Disposal of Sediment, and the existing remedial systems.

The RCRA Subtitle D Cap Component would include constructing a RCRA Subtitle D Equivalent Cap over the entire surface of the landfill, which would include a passive landfill gas system. To construct this cap the top 6 in. of topsoil from the existing cap would be removed and stockpiled for later reuse. The top surface of the landfill would be graded to promote surface water channels located on the southeast and southwest sides of the landfill. The RCRA Subtitle D Cap is a multi-layer cover over the landfill which essentially eliminates percolation of rain water to the refuse. With a RCRA Subtitle D Cap leachate production is nearly eliminated. Generated landfill gas would be vented via a passive landfill gas system.

Costs

The estimated costs for each alternative discussed above are presented in Table A.

These estimated costs are representative of the expenditures which would be associated with the additional remedial work to take place at the Site. Additional remedial work would be any work over and above the "Existing Treatment Scheme" which already exists at the Site and as described in Alternative 2.

TABLE A

Alternatives	Capital	O&M	Present Worth
Alternative 1	\$0	\$0	\$0
Alternative 2	\$0	\$0	\$0
Alternative 2a	\$10,000	\$0	\$10,000
Alternative 3	\$147,000	\$47,000 to	\$1,120,000 \$54,000
Alternative 4	\$475,000	\$47,000 to	\$1,601,000 \$54,000
Alternative 5	\$2,944,000	\$67,000 to	\$5,654,000 \$74,000

VIII. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

EPA evaluates each remedial alternative against the nine criteria specified in the National Contingency Plan ("NCP"). The alternative selected must first satisfy the threshold criteria. Next the primary balancing criteria are used to weigh the tradeoffs or advantages and disadvantages of each of the alternative. Finally, after public comment has been solicited, the modifying criteria re considered.

Below is a summary of the nine criteria used to evaluate remedial alternatives.

Threshold Criteria:

Overall Protection of Human Health and the Environment: Whether the remedy provides adequate protection and how risks posed through each pathway are eliminated, reduced or controlled through treatment, engineering controls, or institutional controls.

Compliance with ARARs: Whether or not a remedy will meet all applicable or relevant and appropriate requirements ("ARARs") of Federal and State environmental statutes and/or whether there are grounds for invoking a waiver. Whether or not the remedy complies with advisories, criteria and/or guidance that may be relevant.

Primary Balancing Criteria:

Long-Term Effectiveness and Permanence: The ability of the remedy to afford long term, effective and permanent protection to human health and the environment along with the degree of certainty that the alternative will prove successful.

Reduction of Toxicity, Mobility or Volume: The extent to which the alternative will reduce the toxicity, mobility, or volume of the contaminants causing the Site risks.

Short-Term Effectiveness: The time until protection is achieved and the short term risk or impact to the community, on-site workers and the environment that may be posed during the construction and implementation of the alternative.

Implementability: The technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement that remedy.

Cost: Includes estimated capital, operation and maintenance ("O&M"), and net present worth costs.

Modifying Criteria:

State Acceptance: Whether the State concurs with, opposes, or has no comment on the Selected Remedial Alternative.

Community Acceptance: Whether the public agrees with the Selected Remedial Alternative.

A. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

A primary requirement of the Comprehensive Environmental Response, Compensation and Liability Act, as amended ("CERCLA"), is that the selected remedial action be protective of human health and the environment. A remedy is protective if it eliminates, reduces, or controls current and potential risks posed through each exposure pathway to acceptable levels through treatment, engineering controls, or institutional controls.

All of the alternatives, with the exception of Alternative 1 (the No Action Alternative) provide adequate protection of human health and the environment. Because Alternative 1 is not protective of the human health and the environment, it will not be considered further.

Calculations in the Baseline Risk Assessment indicate that unacceptable risk to human health might occur under a potential future land use scenario through ingestion of contaminated ground water. Alternative 2 includes the presently operating ground water/leachate collection system which prevents ground water impact. Alternative 2a would add institutional controls, which would prohibit residential development and prevent installation of drinking water wells, and thus eliminate the potential future land use scenario and the potential future risk. Alternative 5 would introduce additional remedial components that limit ground water contamination. These would include installation of a RCRA Subtitle D Cap in Alternative 5.

The Ecological Assessment indicates that minimal risk to ecological communities might potentially occur at isolated locations from exposure to sediment. This minimal risk would not be addressed by alternatives 2 and 2a. Alternatives 3 through 5 would equally address this risk, through removal of the contaminated sediment. However removal of the sediment would disturb the well established wetland areas on Site and may result, during the actual excavation of the sediment, in a much higher actual exposure risk to the workers and would result in disturbance of the wetlands and loss of the established wetlands species. Therefore EPA has determined that it is more protective of the environment, to leave the sediment undisturbed.

Ground Water The remedial action objectives developed to address ground water include: 1) preventing off-site migration, and 2) preventing ingestion of ground water containing leachate constituents at concentrations creating an unacceptable health risk. These objectives would be met by Alternatives 2a through 5. Alternatives 2a through 5 would meet the remedial action objectives through continued operation of the ground water/leachate collection system, monitoring, and institutional controls.

Leachate The remedial action objective developed for leachate is to minimize the release of leachate constituents to ground water that present unacceptable health risks. Alternatives 2 through 5 would meet this objective through on-going maintenance of the current cap, and the surface water collection system which would minimize erosion. Alternative 5 would offer a further performance enhancement which would not be necessary to meet the remedial action objective.

Sediment The remedial action objective developed for sediment includes preventing exposure to sediment contaminated by arsenic, Aroclor 1248, and chromium. Alternatives 3 through 5 would meet this objective, through excavation and off-site disposal of the contaminated sediment. Alternatives 2 and 2a would meet this objective by leaving the contaminated sediment intact and on-site.

Based on the discussions above, Alternatives 2a through 5 would adequately protect human health and the environment by 1) eliminating unacceptable risk to human health, 2) eliminating unacceptable risk to the environment, and 3) by meeting the remedial action objectives.

B. COMPLIANCE WITH ARARS

In accordance with Section 114(a) of CERCLA, 42 U.S.C. § 9614 (a), nothing in these CERCLA response actions shall be construed or interpreted as preempting the Commonwealth of Pennsylvania from imposing any additional liability or requirements with respect to the release of hazardous substances from the Site.

Criterion 2 considers the chemical-specific, location-specific, and action-specific ARARs that are potentially applicable to the five alternatives. The following discussions are limited to Alternatives 2 through 5.

Chemical-Specific ARARs

Ground Water - Further ground water remediation is not contemplated at the Site because the existing ground water/leachate collection system is an effective system in limiting contaminant migration.

Leachate - The chemical-specific ARARs for leachate treatment are the current permit requirements from the Upper Shenango Valley Water Pollution Control Authority pertaining to the ongoing operation and maintenance of the existing ground water/leachate collection system (see 25 PA Code §§ 92.31, 92.57, and 92.71).

Alternatives 2 through 5 would meet ARARs.

Surface Water - Surface water analyses collected during the RI indicate that water quality criteria for aluminum and manganese may be exceeded in the discharge from the Sedimentation Basins. This water quality criteria ARAR is being waived pursuant to the greater risk to human health and the environment waiver found at section 121 (d) (4) (B) of CERCLA, 42 U.S.C. §9621 (d) (4) (B). Justification for waiver is based upon the Sedimentation Basins having over the years developed into established wetland areas and determination by the EPA, Biological Technical Assistance Group that disturbance of these established wetland areas present greater risk to human health and the environment than that posed by possible water quality criteria exceedances in the discharge from the Sedimentation Basins. In addition, the exceedances are representative of the natural surface water quality for the Site. Surface water quality would be monitored in Alternatives 2 through 5 to indicate any future changes and to ensure that surface water discharge complies with State requirements under the Pennsylvania NPDES Regulations (see 25 PA Code §§ 92.31, 92.57, and 92.71).

Location-Specific ARARs

Potential location-specific ARARs relate to construction activities required for the excavation of sediments in potential wetlands, within the small portion of the Site which is located in a 100 year floodplain, and in habitats of endangered species. Substantive requirements of location specific ARARs from PADEP and the U.S. Army Corps of Engineers would be required to complete the sediment removal component of Alternatives 3 through 5 (see 40 CFR part 6, appendix A).

Action-Specific ARARs

Since in 1987 the landfill has been properly closed under the supervision of PADEP (pursuant to 25 PA Code §§ 92.31, 92.57, and 92.71) and there are no additional ARARs in connection with closure and post-closure which are not encompassed by these plans.

C. LONG-TERM EFFECTIVENESS AND PERMANENCE

This criterion evaluates the risk remaining at the Site after the response objectives have been met, and the potential for change in this risk over time.

Magnitude of Residual Risk The magnitude of residual risk would be mitigated by Alternatives 2a through 5, and the calculated risk would remain if Alternative 2 were implemented. Alternatives 2a through 5 would mitigate risk to human health and the environment through implementation of institutional controls. Alternative 5 would include a RCRA Subtitle D cap, which would enhance the current system's ability to minimize leachate mobilization.

Remaining Sources of Residual Risk Sources of residual risk include refuse, ground water, leachate, and sediment. Ground water residual risk would be mitigated by Alternatives 2 through 5, since cleaning and/or enhancement of the ground water/leachate collection system would eliminate the remaining ground water contaminant sources. Alternatives 2 and 3 would remove all except residual contamination in the immediate vicinity of the landfill. Leachate residual risk would be addressed by Alternatives 2 through 5 through continued maintenance of the PADEP solid waste cap and the surface water collection system. Alternative 5, which would include leachate mobilization. Sediment residual risk would be eliminated by Alternatives 3 through removal and disposal of contaminated sediment.

Five Year Review Five year reviews would be conducted through implementation of Alternatives 2 through 5. The five year reviews would be conducted to assess the continued effectiveness of the remedial systems for which ever alternative is selected.

Adequacy and Reliability of Controls Site risk would be adequately and reliably controlled through implementation of Alternatives 2a through 5. Potential future risk and potential ecological risk would be addressed by institutional controls, and sediment removal, respectively. Alternatives 4 and 5 would provide further enhancement of the leachate reduction.

Alternatives 2 through 5 would include engineering controls consisting of long-term management, monitoring, operation and maintenance, and system component replacement.

Alternatives 3 through 5 would present on-site treatment activities

The long term effectiveness criterion would be satisfied by Alternatives 4 and 5. These alternatives 1) mitigate residual risk, 2) eliminate the remaining sources of residual risk with the exception of refuse, which would remain at the Site, 3) adequately and reliably control Site risk.

D. REDUCTION OF TOXICITY, MOBILITY, AND VOLUME THROUGH TREATMENT

Criterion 4 addresses: 1) the treatment process used and the material treated, 2) the amount of hazardous materials destroyed or treated, 3) the reduction of toxicity, mobility, and volume through treatment, 4) the degree to which treatment is irreversible, 5) the type and quantity of treatment residuals, and 6) the reduction of inherent hazards. The following summarizes how each of the five alternatives would meet or fail to meet each of these sub-criteria.

Treatment Process Used and Materials Treated

The treatments considered in the alternatives include: off-site treatment of leachate contaminants at the Sharon STP and settlement of sediment in Sedimentation Basins A and B. Leachate treatment and sediment settlement would be conducted in alternatives 2 through 5.

Amount of Hazardous Material Destroyed or Treated

Hazardous materials destroyed or treated consist of leachate and sediment. Leachate constituents are treated at the Sharon STP in Alternatives 2 through 5. Sediment is excavated and landfilled in Alternatives 3 through 5.

Degree of Expected Reductions in Toxicity, Mobility, and Volume Through Treatment Toxicity

The toxicity of leachate and contaminated sediment would be reduced through off-site treatment and landfilling. Leachate would be treated at the Sharon STP in Alternatives 2 through 5. Sediment would be excavated and landfilled off-site in Alternatives 3 through 5.

Mobility

The mobility of contaminated leachate and sediment would be reduced through off-site treatment and stabilization/landfilling. Leachate mobility would be reduced in Alternatives 2 through 5. Sediment mobility would be reduced in Alternatives 3 through 5.

Volume

In Alternatives 2 through 5, the volume of leachate contaminants would be reduced to a negligible amount. The Sharon STP would reduce the volume of contaminants by digestion to water, carbon dioxide, and biomass. In Alternatives 3 through 5, the on-site volume of contaminated sediment present on-site would be eliminated through excavation and off-site disposal in a secure landfill.

Degree to which Treatment is Irreversible

Leachate treatment at the Sharon STP, after collection and transport by the on-site interceptor line, would irreversibly reduce the toxicity of landfill leachate contaminants in Alternatives 2 through 5. Treatment of organics would be irreversible due to the digestion of the treated organic compounds which forms water, carbon dioxide, methane, and biomass. Suspended solids and biomass would be dewatered and placed in a secure landfill. In Alternatives 3 through 5, sediment that has collected in the Sedimentation Basins by gravitational settling would be transported off-site for disposal at a secure landfill.

Type and Quantity of Residuals Remaining After Treatment is limited to leachate and sediment contaminants.

Alternatives 2 through 5 would treat leachate at the Sharon STP where organic contaminants would be converted into carbon dioxide, water, and biomass. The quantity of residuals remaining after treatment would be negligible since VOCs would be easily digested by the treatment system process.

All sediments would remain on-site for Alternative 2 and 2a unless off-site sediment removal is deemed necessary by PADEP for continued operation and maintenance of the existing treatment scheme associated

with the existing closure plan. After off-site sediment removal in Alternatives 3 through 5, there would likely remain some sediment trapped by the Basins.

Reduction of Inherent Hazards

Inherent hazards consist of ground water contamination through leachate migration, and of sediment containing arsenic, Aroclor, and chromium. Alternatives 2 through 5 would mitigate the hazard from ground water through continues collection and treatment of leachate. Human health and ecological hazards would be mitigated in Alternatives 3 through 5 by the excavation and off-site disposal of sediments.

Based on this comparison, Alternatives 3 through 5 would satisfy the requirements of this criterion. These alternatives would address 1) the treatment process used and the material treated, 2) the amount of hazardous materials destroyed or treated, 3) the reduction of toxicity, mobility, and volume through treatment, 4) the degree to which treatment is irreversible, 5) the type and quantity of treatment residuals, and 6) the reduction of inherent hazards.

E. SHORT-TERM EFFECTIVENESS

This criterion involves the assessment of the alternative in terms of its effects on human health and the environment during the construction and implementation phase, up until remedial action objectives are met.

Risks to Community During Remedial Actions

Short term risk to the community associated with Alternatives 2 through 5 would increase with increasing construction activity Alternative 2 and 2a would not pose risk to the community, since no construction related activities are involved. Alternative 3 would involve sediment removal, which would involve some minimal construction related activities. Alternative 4, which would include enhancement of the ground water/leachate collection system, would potentially generate dust, and release volatile organic compounds to the air. The installation of a RCRA Subtitle D Cap (Alternative 5) would potentially generate a large quantity of dust, and generate significant local truck traffic. Potential dust and chemical releases could be controlled through the use of engineering controls. Additional area truck traffic would be a continued risk to the community during the entire construction period.

Risk to Workers During Remedial Action

There would be risks to workers in the implementation of Alternatives 2 through 5. The cap installation (Alternative 5) and ground water/leachate system enhancement (Alternatives 4 and 5), off-site disposal of sediment would expose remediation workers to chemicals through direct contact, ingestion, or inhalation. Workers would also incur risk of injury or death while performing construction activities due to operation of heavy equipment. These risks could be minimized by use of dust control measures, personal protective equipment, and safety procedures.

Workers performing sampling activities as part of a monitoring program (Alternatives 2 through 5) would incur potential risk through exposure to chemicals in ground water, leachate, and sediment. These risks could be minimized by use of personal protective equipment and safety procedures.

Environmental Impacts

Environmental impact resulting from the proposed remedial actions would result from both recapping of the landfill and sediment removal. Capping (Alternative 5) would disturb the habitat of animals on the landfill surface. Sediment removal (Alternatives 3 through 5) would disturb the habitat of aquatic and vegetative species living in Sedimentation Basins A and B and the discharge channel from Basin B. Following installation of the cap and removal of the sediment, the construction areas would be replated to restore these areas to their present condition.

Time Until Remedial Action Objectives are Achieved

Remedial action objectives associated with ground water, leachate, and sediment are addressed by the construction activities. Time frames for achieving remedial action objectives for each media of concern are discussed below.

The remedial action objective for ground water would be met upon completion of the system enhancement construction activities (Alternatives 4 and 5). It is estimated that installing manholes, removal of sediments from piping, characterizing the sediments, and off-site disposal of the sediments in an approved landfill, would take approximately 12 months.

The remedial action objective for leachate in Alternative 5 would be met upon completion of the RCRA Subtitle D Cap, which would take 12 months. This time frame would include installation of the passive landfill gas system, various geosynthetic layers, soil layer, and revegetation.

The time frame for completion of the sediment removal response action (Alternatives 3 through 5) would be approximately six months. This time frame would include sampling and analysis of sediment from Basins A and B and the discharge channel from Basin B and excavation, loading, and off-site disposal.

Based on this comparison, the short term effectiveness criterion would be satisfied by each of the considered alternatives. In general, short term effectiveness would decrease with increasing alternative numbers, due to the increasing construction aspects of each subsequent alternative.

F. IMPLEMENTABILITY

This criterion considers the technical and administrative feasibility of carrying out the alternatives.

Technical Feasibility

The components of each alternative would be technically feasible. RCRA Subtitle D landfill cap installation (Alternative 5), cleaning sediment from the ground water/leachate collection system (Alternatives 4 and 5), and removing contaminated sediment (Alternatives 3 through 5) would be readily implementable. The technologies are well developed and reliable methods of preventing on-site exposure to and off-site migration of contaminants. These remedial components would not inhibit implementation of further remedial components, if they should become required or appropriate. Monitoring of ground water, leachate, landfill gas, and sediment (Alternatives 3 through 5) would be a reliable technology and be an adequate method to document successful performance of the remedial systems.

Availability of Services and Materials

Materials, services, and equipment required to implement all of the remedial activities in the considered alternatives are readily available. The construction of the RCRA Subtitle D Cap (Alternative 5) would utilize common construction materials and employ experienced contractors. Sewer cleaning contractors would be readily available for enhancement of the ground water/leachate system (Alternatives 4 and 5). Contractors would be utilized to remove contaminated sediment (Alternatives 3 through 5), and maintain the remedial components. Sampling and analytical services to perform monitoring (Alternatives 3 through 5), and be readily available from a qualified laboratory.

Based on this comparison, the implementability criterion would be satisfied by each of the five alternatives. All alternatives are 1) technically feasible, 2) administratively feasible, and 3) services and materials are readily available to implement the alternatives.

Administrative Feasibility

The components of each alternative would be administratively feasible. Institutional controls would require the assistance of City of Hermitage and South Pymatuning Township officials.

G. COST

This criterion compares the cost of each of the alternatives (Table A). All the costs listed are estimates, and could change depending on the extent of contamination and effectiveness of the treatment options. There are uncertainties and assumptions associated with each alternative. The no action and no further action alternatives are the least costly, followed in order of increasing cost by Alternative Number.

Evaluation of cost for each alternative includes calculation of the capital costs, O&M costs, and the net present worth. Capital costs consist of direct items such as labor, materials, equipment, and services. Operation and Maintenance costs or annual costs, are the post-construction costs necessary to maintain the remedial action. O&M costs include such items as operating labor, maintenance, auxiliary materials, and energy. O&M costs are based on a 30 year period of operation and a 5 percent discount rate. The present worth is based on both the capital and O&M costs, and provides the means of comparing the cost of different alternatives.

The Preferred Alternative, Alternative 2a has an estimated Capital Costs of \$10,000, estimated Annual O&M Costs of \$0 and an Estimated Present-Worth Cost of: \$10,000.

H. STATE ACCEPTANCE

The Commonwealth of Pennsylvania has concurred with the selected remedy. A copy of the concurrence letter dated September 29, 1995, is included as an attachment to the ROD.

I. COMMUNITY ACCEPTANCE

The Proposed Plan for the River Road Landfill Site was released for public comment on August 10, 1995. The Proposed Plan identified Alternative 2a Existing Treatment Scheme with Institutional Controls as the Preferred Alternative. EPA reviewed all written and oral comments submitted during the public comment period. Public comments were generally concerned with the quality of the water supply in the area of the Site and what effect on-site containment of the waste would have on the water quality. Generally, the public seemed conditionally supportive of the Preferred Alternative identified in EPA's Proposed Plan. EPA addressed most of the concerns of the public during the Public Meeting and detailed discussion of EPA's responses is contained in the Appendix C: Responsiveness Summary. EPA determined that no significant changes be made to the remedy, as it was originally identified in the Proposed Plan.

After application of the nine criteria, and consideration of public comment, the preferred alternative presented in the Proposed Plan was selected by EPA to be selected remedy at the Site. EPA believes that the selected remedy represents the best balance of the remedial alternatives with respect to the nine criteria, and it best satisfies the statutory requirements of CERCLA, and Superfund guidance involving the selection of remedial alternatives at municipal solid waste landfill sites.

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The selected remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element. Implementation of the selected remedy will not involve extensive construction, excavation, or other remedial action measures that would pose any appreciable short-term risks to the public or the workers during construction or implementation.

IX. THE SELECTED REMEDY: DESCRIPTION AND PERFORMANCE STANDARD (S) FOR EACH COMPONENT OF THE REMEDY

A. GENERAL DESCRIPTION OF THE SELECTED REMEDY

EPA has selected Alternative 2a, Existing Treatment Scheme with the addition of Institutional Controls as the selected remedy for the River Road Landfill Site. Based on current information, this alternative provides the best balance among the alternatives with respect to the nine criteria EPA uses to evaluate each alternative. The existing treatment scheme includes remedial actions which have already been completed at the Site through the closure and post-closure plan and the imposition of deed restrictions.

Each component of the selected remedy and its performance standards are detailed in Section B below.

B. PERFORMANCE STANDARDS

1. Closure and Post-Closure Plan

The performance standards regarding closure and post closure are those set forth in the closure and post closure plans (incorporated by reference and attached hereto in appendix C) as currently implemented or as modified by mutual agreement of PADEP with 25 PA Code §§ 273.191 and 273.192.

The components of this aspect of the remedy shall consists of:

- Continued operation and maintenance of the existing ground water/leachate collection system that removes contaminated leachate and ground water from the Site;
- Continued maintenance of the PADEP approved landfill cap and surface water drainage system;
- Continued maintenance of the ground water dam;
- Continuance of the existing Monitoring program developed in connection with the PADEP closure plan (or modification as required and/or approved by EPA or PADEP);
- Periodic assessment of the effectiveness of the existing ground water/leachate collection system, and its upgrading, as necessary, to prevent contaminant migration.

2. Institutional Controls (Deed Restrictions)

Zoning restrictions would be proposed to be implemented by the local zoning commission to prevent future zoning changes that would allow for residential development or other types of development that would be inappropriate for a former landfill.

Deed restrictions shall be developed and submitted to EPA for approval. Once approved, these deed restrictions shall be placed in the deed to the Site by filing said restrictions with the Recorder of Deed of Mercer, County, PA.

The deed restrictions to prohibit excavation or disturbance of the soil cap which results in exposing the fill materials.

Deed restrictions to prohibit the installation of new on-site wells for use for domestic purposes, including drinking water.

The deed restrictions shall be designed to allow for beneficial use of the property, providing that the beneficial use would not pose a risk to human health or potential ecological receptors. The deed restrictions would, however, prohibit the building of residential construction on the Site.

The deed restrictions shall be valid and binding in the Township, County and the Commonwealth in which the Site is located. The Continuing need for these restrictions shall be re-evaluated during the five-year site reviews which are conducted under CERCLA Section 121 (c), 42 U.S.C. § 9621(c).

3. Five-Year Reviews

Five-year reviews shall be conducted after the remedy is implemented to assure that the remedy continues to protect human health and the environment.

X. STATUTORY DETERMINATIONS

In accordance with Section 114(a) of CERCLA, 42 U.S.C. § 9614 (a), nothing in this CERCLA response action shall be construed or interpreted as preempting the Commonwealth of Pennsylvania from imposing any additional liability or requirements with respect to the release of hazardous substances from the Site.

EPA's primary responsibility at Superfund Sites is to select remedial actions that are protective of human health and the environment. Section 121 of CERCLA also requires that the selected remedial action comply with ARAR's be cost effective, and utilize permanent treatment technologies to the maximum selected remedy for the River Road Landfill Site meets these statutory requirements.

A. PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

The selected remedy will provide adequate protection of human health and the environment by the continued maintenance and operation of the existing treatment scheme, implementation of institutional controls, and the continued monitoring of the effectiveness of the existing treatment scheme.

B. COMPLIANCE WITH AND ATTAINMENT OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS ("ARARs")

The selected remedy will comply with all applicable or relevant and appropriate chemical specific, location-specific, and action-specific ARARs are:

1. Chemical-Specific ARARs

Ground Water - The Remedial action alternatives evaluated for this Site do not contemplate treatment of ground water. The remedial action objectives for ground water stated in this ROD are met by the existing PADEP closure plan activities and imposing Institutional Controls at the Site. (See 25 PA Code §§ 273.191 and 273.192)

Leachate - The chemical-specific ARAR (See 25 PA Code §§ 92.31, 92.57, and 92.71) for leachate is the current permit from the Upper Shenango Valley Water Pollution Control Authority. Alternative 2a would meet the requirements of this permit.

Surface Water - Surface water analyses collected during the RI indicate that water quality criteria may be exceeded in the discharge from the Sedimentation Basins. This water quality criteria ARAR is being waived pursuant to the greater risk to human health and the environment waiver found at section 121 (d) (4) (B) of CERCLA, 42 U.S.C. § 9621 (d) (4) (B)). Justification for waiver is based upon the

Sedimentation Basins having over the years developed into established wetland areas and determination by the EPA, Biological Technical Assistance Group that risk to human health and the environment than that posed by possible water quality criteria exceedance in the discharge from representative of the natural surface water quality for the Site. Surface water quality would be monitored in Alternative 2a to indicate any future changes.

2. Location-Specific ARARs

The selected remedy does not contemplate any construction activities, therefore location specific ARARs do not apply.

3. Action-Specific ARARs

Potential action-specific ARARs relating to monitoring are met by the current closure and post-closure plans. (See 25 PA Code §§ 273.191, 273.192)

C. COST-EFFECTIVENESS

The selected remedy is cost-effective in providing overall protection in proportion to cost, and meets all other requirements of CERCLA. The selected remedy meets these criteria and provides for overall effectiveness in proportion to its cost. The estimated present worth cost for the selected remedy is \$10,000.

D. UTILIZATION OF PERMANENT SOLUTION AND ALTERNATIVE TREATMENT TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE

EPA has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized while providing the best balance among the other evaluation criteria. Of those alternatives evaluated that are protective of human health and the environment and meet ARARs, the selected remedy provides the best balance of consideration in terms of long-term and short-term effectiveness and permanence, cost, implementability, reduction in toxicity, mobility, or volume through treatment, State and community acceptance, and preference for treatment as a principal element.

The selected remedy will provide long-term effectiveness.

E. PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

The selected remedy satisfies CERCLA's statutory preference for treatment as a principal element. The selected remedy addresses the primary threat of future ingestion and direct contact of contaminated ground water through continuation of the existing treatment scheme and imposing institutional controls.

XI. DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the River Road Landfill Site was released for public comment in August 1995. The Proposed Plan identified Alternative 2a as the preferred alternative. EPA reviewed all written and oral comments submitted during the public comment period, it was determined that no significant changes be made to the remedy, as it was originally identified in the Proposed Plan.

XII. RESPONSIVENESS SUMMARY

Overview

The EPA established a public comment period from August 10, 1995 to September 11, 1995 on the Remedial Investigation and Feasibility study (RI/FS), the proposed plan which described EPA's preferred remedial alternative, and other Site-related information for the River Road Site. On August 24, 1995, EPA held a public meeting to present the findings of the RI/FS and to solicit comments on the Proposed Plan issued on August 10, 1995. PADEP and EPA personnel were both present at the meeting and approximately 10 residents and two Waste Management Personnel were in attendance. One written comment was received during the public comment period.

Summary of Public Comments and Lead Agency Responses

Comment: Concern was expressed that hazardous substances are being left in place, and may pose a health threat at some time in the future.

EPA Response: EPA feels the selected remedy for this Site which is inclusive of the many remedial activities which have already been completed in connection with the PADEP closure plan in addition to institutional controls is protective of human health. The ROD provides for a re-examination of Site conditions in five years to determine if the selected remedy is still effective. In the interim PADEP will oversee the operation and maintenance of the existing treatment scheme and will ensure that there are no major changes in Site conditions.

Comment: A local official expressed concern over the integrity of the ground water dam.

EPA Response: A letter detailing this comment was also received.

EPA's response will be included in the following section, "Written Comments Received During the Public Comment Period".

Comment: Interest was expressed in having the landfill moved to another location.

EPA Response: Based upon the studies completed to date, the River Road landfill consists of a high volume of material with comparatively low toxicity and there is already a PADEP approved which involve the excavation of landfills with high volume and low toxicity. Containment is consistently the most practicable remedy. EPA believes the selected alternative is protective of human health and the environment.

Comment: Interest was expressed in determining why the landfill was initially allowed to operate and who was responsible for allowing this activity.

EPA Response: EPA's purpose in issuing a ROD is to determine how the existing hazards at the Site should be addressed. Historical information concerning the processing of local zoning and state permits and the identification of individuals associated with the process is generally maintained in County records and can be accessed by the public.

Comment: There was concern about the downstream location of the Shenango Valley Water company intake and interest in having the intake moved upstream of the Site.

EPA Comment: Public water supply companies perform rigorous testing to insure the quality of the water they provide. Studies have shown that the release of contaminants from the Site into the Shenango River is low and the Shenango Valley Water Company intake has not been significantly affected by the Site.

Citizen: Concern was expressed over the amount of money Waste Management has collected from small party contributors in comparison to the estimated cost of the selected alternative and if Waste Management will give back the money.

EPA Response: Questions concerning agreements made between Potentially Responsible Parties should be directed to the attorneys representing the parties involved.

Written Comment Received During the Public Comment Period

Comment: EPA received a letter from James White, Commissioner, City of Hermitage. He is concerned about the integrity of the ground water dam and the possibility of having the ground water dam replaced for fear of it collapsing and releasing a plume of contaminated leachate into the Shenango River.

EPA Response: The use of the term "ground water dam" may be misleading. The ground water dam is not functioning as a barrier as it would ordinarily be recognized in connection with a dam constructed for the retention of surface water. As part of the Remedial Investigation (RI), sampling was performed to evaluate the current performance of the ground water dam and the leachate collection system. The ground water dam was basically constructed immediately adjacent to the downgradient side of the landfill between the landfill and the Shenango River with the leachate collection line placed at the base of the dam on the landfill side.

The RI investigation of the ground water dam included 1) the excavation of two trenches at the ends of the ground water dam to confirm its lateral extent; 2) several borings were performed through and surrounding the dam and the materials which it is keyed into, were analyzed for physical and chemical analysis. The results of the investigation confirmed that the dam was constructed in a V-shaped trench. The bottom of the trench was 10 feet wide at a depth of 10 to 20 feet below ground surface while to top of the trench reached 30 to a 50 feet width. A 10 feet wide one within the trench was compacted while the remaining volume of the V-shaped trench was backfilled with a mixture of excavated Site material and material used for the dam construction. The boring logs indicate that the dam is keyed into a fine grained till over three quarters of its length along the western portion. Along the remaining length of the dam in the eastern portion, the dam is keyed into a coarser grained till material and possibly shale bedrock at the extreme eastern end. In the eastern end of the dam, one of the boring logs described 1 foot thick sand between the dam and the lower permeability till. This was of potential concern as it may present a discontinuity in the integrity of the dam as a physical barrier to leachate migration beyond the landfill. In order to evaluate whether leachate was migrating past the dam in this area a couple of piezometers were placed in the dam at the location of the discontinuity and two piezometers were placed downgradient and outside the dam material to evaluate the ground water gradient across the dam. The two sets of piezometers water level data through the dam by approximately 9 feet than the piezometer located downgradient and outside the dam. This indicates a strong ground water inward gradient toward the leachate collection line. Consequently, leachate and shallow ground water would be collected by the leachate collection line and prevented from migrating past the ground water dam.

The leachate collection line was installed to minimize and prevent the off-site migration of contaminated landfill leachate through recovery and treatment. The system consists of a perforated PVC pipeline in a gravel envelope just below the water table and totally encompasses the landfill. The shallow ground water beneath the landfill and leachate generate by the landfill drain into the leachate collection system and is discharged to the local POTW. The results of these studies indicate that the leachate collection system is effectively collecting leachate and the ground water dam is not in danger of collapse. EPA feels that the ground water dam does not need to be replaced.

APPENDIX A

FIGURES

APPENDIX B

TABLE 1

SUMMARY OF HUMAN HEALTH CONTAMINANTS OF CONCERN

ANALYTE	SOIL	GROUND	SURFACE	SEDIMENT	WATER	WATER
		ORGANICS Benzene	X Chloroethane			
		X 1,2-Dibromo-3-			X chloropropane	
		1,4-Dichlorobenzene	X 1,1-Dichloroethane			
		X 1,2-Dichloroethane			X cis-1,2-	X
		dichloroethane	1,2-Dichloropropane	X Vinyl		
		chloride		X METALS Aluminum		
	X X Arsenic	X Barium				X
	Lead				X X Manganese	
	X Sulfur	X Vanadium	X PESTICIDES	Aroclor1248		
	X MOBILE IONS	Nitrate+Nitrite,	X Nitrogen			
	Nitrogen, Ammonia			X X		

TABLE 2 SUMMARY OF ECOLOGICAL CONTAMINANTS OF CONCERN

Contaminants of Concern	Surface	Sediment	Sediment	Surface Water		Surface	Water
	Soil	East	West	East	West	Water	
4,4-DDD			X Aluminium	X		X	
X Aroclor 1248		X	X Arsenic				
X Barium	X	X		X			
Benzo(a)anthracene		X X	Benzo(a)pyrene			X	
Benzo(b)fluoranthene		X X	Benzo(g,h,i)perylene			X	
Benzo(k)fluoranthene		X X	Cadmium			X	
X Calcium				X	X		
X Chromium, total		X	X Chryaene	X	X Cobalt		
X Copper	X	X		X	X Dieldrin		
X Fluoranthene		X		X	Indeno(1,2,3-cd)pyrene	X	X Iron
X	X		X	Magnesium			X
X Manganese	X	X		X	Mercury	X	X Nickel
X	X		X	Nitrate+Nitrite	Nitrogen		
X Phenanthrene				X		X	X Potassium X
X Pyrene						X	X Sodium
X Sulfate							
X Vanadium				X	X		
X Zinc		X	X				X
Lead		X	X	X			X

**TABLE - 3 SUMMARY OF CARCINOGENIC RISKS-CURRENT
& FUTURE USE SCENARIOS RIVER ROAD LANDFILL**

	Transient	Juvenile	Resident Adult & Child	Current Use
		Future Use	RME AVG	RME
		AVG Soil	Dermal Contact	1E-07
		5E-09	2E-06	1E-07
Ingestion	4E-08	2E-09	1E-06	1E-07
Ground Water Dermal Contact			4E-07	8E-08
Ingestion			3E-05	7E-06
Vapor Inhalation			3E-09	2E-09
Surface Water Dermal Contact	a	a	a	a
Sediment Dermal Contact	2E-08	3E-10	2E-07	3E-09
Ingestion	5E-08	6E-09	5E-06	5E-07

(a) No slope factors available

**TABLE - 4 SUMMARY OF NONCARCINOGENIC HAZARD
INDICIES-CURRENT AND FUTURE USE SCENARIOS RIVER ROAD LANDFILL**

	Transient Juvenile Future Use		Resident Adult & Child Current Use	
	RME	AVG	RME	AVG
Soil				
Dermal Contact	a	a	a	a
Ingestion	a	a	a	a
Groundwater Dermal Contact			8	2
Ingestion			200	50
Vapor Inhalation			0.0003	0.0006
Surface Water Dermal Contact	0.006	0.0004	0.04	0.004
Sediment Dermal Contact	0.002	0.00006	0.01	0.0005
Ingestion	0.001	0.0003	0.09	0.02

(a)No reference doses available

APPENDIX C

CLOSURE AND POST CLOSURE

WASTE MANAGEMENT OF PENNSYLVANIA, INC.

RIVER ROAD LANDFILL

CLOSURE CERTIFICATION

AND POST CLOSURE PLAN

TABLE OF CONTENTS

PART	SECTION	TITLE
1	1	Closure Certification
1	2	Certification of Facility Design and Construction, Form No. 6
1	3	Notification for Underground Storage Tank Removal
2		Post Closure Plan
APPENDIX		
A		FIELD REPORTS
B		SOIL ANALYSIS REPORTS
C		PERMITS AND AGREEMENTS
D		LEACHATE MONITORING PROGRAM FOR RIVER ROAD LANDFILL
E		POST CLOSURE GROUNDWATER MONITORING PROGRAM FOR RIVER ROAD LANDFILL
F		GAS MONITORING PROGRAM FOR RIVER ROAD LANDFILL, HERMITAGE, PENNSYLVANIA
G		EMERGENCY COORDINATOR'S DUTIES
PLAN SHEETS		
1		FINAL COVER CERTIFICATION
2		LEACHATE COLLECTION
3		DETAILS

WASTE MANAGEMENT OF PENNSYLVANIA, INC.

River Road Landfill

CLOSURE CERTIFICATION AND POST CLOSURE PLAN

INTRODUCTION

Waste Management of Pennsylvania, Inc. (WMI) previously conducted solid waste disposal operations at River Road Landfill under Pennsylvania Department of Environmental Resources (PA DEP permit #100019. Waste disposal activities at River Road were discontinued on May 31, 1986. In order to properly close the la fill, a closure plan was prepared by TODD GIDDINGS and ASSOCIATE INC. (TGAI). A report by Fred C. Hart Associates, Inc. entitled "Application Amendment" for Upgraded Erosion and Sedimentation Control Plan Certification, River Road Landfill Facility, Mercer County, Pennsylvania, Solid Waste Disposal Facility Permit No. 100019 was incorporated into the closure plan and submitted by WMI to the PA DER on April 29, 1986.

A letter conditionally approving the closure plan was received from the PA DER on March 31, 1987. A letter by WMI, dated April 15, 1987, responded to specific conditions of the P. DER approval letter. This report contains all of the requested and proposed information and contains two major parts: (1) close certification documentation; and (2) post closure plan.

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL
RESOURCE 1012 Water Street Meadville, Pennsylvania 16335 Telephone: A.C.
814/724-8526 March 23, 1987

CERTIFIED MAIL #P 414 751 696

Subject: River Road Closure Plan Sanitary Landfill South Pymatuning Township,
Mercer County I. D. No. 100019

Mr. Robert H. Heitman c/o Waste Management of North America, Inc. Eastern
District Office 1121 Bordentown Road Received MAR 31 1987
Morrisville, Pennsylvania 19067

Dear Mr. Heitman:

The Department's Bureau of Waste Management has recently completed its review of the subject closure plan response dated April 14, 1986 and received on April 29, 1986. The closure plan is hereby approved with the following conditions:

1. Show cross-sections of sedimentation ponds A and B on plane.
2. Show Rip-Rap on cross-sections of the diversion ditches.
3. Compact all the diversion ditches berms to 100% of the modified proctor test.
4. Show cross-sections through the 24 inch diameter culvert pipe, include headwater elevations.
5. The final foot of cover material shall meet the textual class specifications as indicated in §75.24(c)(2)(ix), and shall be a soil that can support adequate vegetation. This shall be determined by a soil test.
6. The re-vegetation plan indicated is hereby approved and shall be implemented at the site with the following conditions:
 - a. Crownvetch or Redtop shall be planted in addition to the birdfoot trefoil and tall fescue at the seeding rate of no less than 20 lbs/acre for Crownvetch and 6 lbs/acre for Redtop.
 - b. In those areas where vegetative growth cannot be established due to high landfill gas concentration, wood chips and straw or hay with mulch netting is recommended. Large stones should not be implemented.
 - c. The soil conditioners to be utilized for the top 12 inches of cover shall consist of either peat moss or humus.
 - d. The soil test shall include in addition to the parameters listed, lime and fertilizer requirements.
7. Reseeding and maintenance of the cover material shall be mandatory until adequate vegetative cover is established to prevent erosion.
8. Waste Management shall submit a contingency plan on how to treat all excess volume of leachate that might be produced over the amount permitted to be discharged to the sewer system.

The aforementioned conditions and modifications shall be incorporated into subject closure plan and the required proposals, as indicated above, should be submitted to this office within fifteen (15) days of receipt of this letter. Waste Management will be required to have completed subject closure operations by September 30, 1987.

Please contact me if you should have any questions or comments concerning this matter.

RLC/LD/mls

April 15, 1987

Mr. Russell L. Crawford Regional Solid Waste Manager Bureau of Waste Management Pennsylvania Department of Environmental Resources 1012 Water Street Meadville, PA 16335

SUBJECT: River Road Landfill Response to PADER Letter Date: 3/23/87
Conditionally Approving the Site Closure Plan

Dear Mr. Crawford:

In response to specific conditions outlined in our March 23rd approval of the River Road Closure Plan and the following comments apply:

- 1) Cross-sections of sedimentation basins A and B have been shown on the plans. Please refer to attached revised plan sheets H047-E7 and H047-E7A for details. In the case of Basin B the cross-section shown constitutes and as-built conditions. Basin A is currently undergoing cleaning, enlargement and principal spillway replacement to meet these design conditions.
- 2) Rip rap has been shown and dimensioned on cross-sections of the diversion ditches. See attached revised plan sheet No. H047-E6 for details.
- 3) The diversion ditch berms will be compacted to 90 - 95% Standard Proctor Density. Compaction of diversion ditch berms significantly above this value is unnecessary and unachievable on side slope areas. The ditches will be stabilized with vegetation, and rip rap will be utilized in high velocity reaches as shown on the plans. Experience with final cover placement and compaction over the past 12 months has shown that precise moisture control needed for 100% of the modified Proctor test result is impossible to achieve with the moisture sensitive soils used at the site. Furthermore, vibratory rolling is unfeasible on 3:1 side slopes. The berms will be keyed into the side slope using a small dozer blade to prevent slippage. Quality assurance monitoring of berm placement will be performed to ensure that three feet of final cover remains under the diversion berms. Routine post closure inspection of the berms will determine the need for repair and maintenance. The frequency and details of diversion berm inspection and maintenance will be defined in the Post Closure Plan to be submitted by September 30, 1987, along with the Closure Certification Report.

- 4) Cross-sections through the 24 inch diameter culvert pipe have been provided including headwater elevations. See attached revised plan sheet No. Ho47-E7 for details.
- 5) Composite soil samples have been collected and analyzed from both the borrow area and final covered portions of the site. Additional soil samples will be collected, composited and analyzed during the final phase of cover placement. Results of all soil textural classification and hydrometer analyses will be included in the Closure Certification Report. Approximately two back hoe pits per area are being excavated by Todd Giddings and Associates to verify the required three foot cover thickness. Soil samples are being composited from these pits for laboratory classification and analysis. Results of all of the eleven composited samples analyzed to date have shown that the final cover material meets the textural classification specifications indicated in 75.25 (c) (2) (ix). Completed portions of the landfill and borrow area currently demonstrate that the soils are capable of supporting adequate vegetation.
- 6a) The seed mixture selected and used for final vegetation will contain either Crown Vetch at the specified seeding rate of 20 pounds per acre or Redtop at the specified seeding rate of 6 pounds per acre. This seed mixture will be verified by a formula breakdown provided by the seed distributor. Application rates are being checked by Todd Giddings and Associates and will be included along with the seed breakdown in the Closure Certification Report.
- 6b) Although landfill gas concentrations are not anticipated to inhibit vegetative growth, means of soil stabilization other than large stones are being utilized. Straw mulch and synthetic netting have been successfully used to stabilize the eastern half of the landfill and the perimeter drainage ditch. These and/or similar materials will continue to be used as necessary on remaining areas to be revegetated.
- 6c) Successful revegetation efforts to date at the River Road Landfill have demonstrated that organic soil conditioners such as peat moss or humus are not required to establish a healthy vegetative cover. Therefore, no such soil conditioners are proposed for general use in the top 12 inches of

final cover. Soil conditioners and/or straw mulch will, however, be utilized or perpetual problem areas as part of on-going post closure maintenance.

- 6d) Soil analyses being performed include tests for lime and fertilizer requirements. The results of this testing are being used in the selection of appropriate application rates for revegetation. The same composite test pit soil samples taken for textural classification are being split and sent to Merkle Labs in State College for lime and fertilizer analyses. Eleven composited soils samples have been analyzed to date with approximately four additional composite samples to be taken and analyzed from remaining areas being capped. The results of all lime and fertilizer testing will be included in the Closure Certification Report.

- 7) Reseeding and maintenance of final cover will be performed as needed during the post closure period to establish adequate vegetation. The Post Closure Plan will detail the ongoing site inspection format which will ensure continued site maintenance and erosion control. The permanent vegetative species selected are self perpetuating, extremely competitive and should preclude invasion by undesirable deep rooted species.
- 8) A leachate disposal contingency plan will be included in the Post Closure Plan. This plan will follow the Preparedness Prevention and Contingency Plan format and will include emergency provisions for tanker removal of leachate. Discharges of leachate in excess of a count - totalizer device which automatically shuts down the leachate pumps and activates an automatic dial alarm system in the event that total flows within a 24 hour period reach 50,000 gallons. Flow records at River Road over the past 10 months have shown that total daily flows rarely approach 50,000 gallons was attributable to wet weather following construction activities. The volume of the wet well is such that an inward gradient from the Shenango River will constantly be maintained. Upon completion of final capping the daily flow rate is expected to decrease due to decreased infiltration. The Post Closure Plan will also describe the programmable control equipment and means of telemetering River Road leachate flow data and recording the information at the Lake view landfill.

If you have any questions concerning the above response to comments, please give me a call.

RHH/kag

cc: Mike Andrews Jack Blenk Amy Burbott, Esq Rich Carniewski Keith Doberspike,
TGA Tony Eith Vito Galante/Jim Loveland Pam Goodwin Kevin Kohn Ben Victory
Chuck Knight

Application for Permit for Solid Waste

Disposal and/or Processing Facilities

Form No. 1, Phase No. 1

PART 1, SECTION 1

Closure Certification

GENERAL

Closure activities at River Road Landfill were initiated by Waste Management of Pennsylvania, Inc. (WMI) site personnel in June of 1986. Major items completed during the 1986 construction season included placement of final soil cover over roughly forty percent of the landfill, completion of the leachate collection system, installation of lift station No. 1 and stabilization of roughly ten acres of disturbed area. A construction contract was awarded to David Construction in April 1987 for the remaining earthwork and closure improvements. Additional items installed to date include a flow control system, and automatic alarm system and a perimeter security fence.

Supervision during closure activities was provided by the WMI site manager. Kurtanich Engineers and Associates, Inc. provided surveying support. TODD GIDDINGS and ASSOCIATES, INC. (TGAI) personnel supplied construction management, engineering certification and quality assurance/quality control engineering certification services. Detailed field reports are included with this report as Appendix A. In general, the applicable Pennsylvania Department of Environmental Resources (PA DER) rules and regulations have been met or exceeded.

APPLICATION OF FINAL CAP

A minimum of three (3) feet of final cover material meeting the PA DER soil textural requirements has been emplaced at River Road Landfill. The material was obtained from the on-site borrow area immediately to the north. A total of 129 cover certification pits were excavated in order to verify final cover thickness, textural classification and nutrient requirements. Sheet 1 of 3, enclosed with this report, shows the surveyed locations of these test pits.

TGAI field reports (see Appendix A) detail the final cover thickness for each test pit. Areas found deficient were brought to the attention of the site manager and corrected. Re-certification of these areas was accomplished by additional, overlapping pits and/or visual inspections. A small knob of less than one acre in the extreme southeast corner of the landfill was not investigated due to restrictions imposed by Penn Power Company within this area.

Soil samples were collected from each certification pit and composited, based on location. These composites were sent to the TGAI laboratory located in State Collage for textural analysis. A split sample of each composite was sent to the Merkle Laboratory at Pennsylvania State University for soil nutrient analysis. Individual laboratory analysis reports can be found in Appendix B.

The results of the textural analyses are summarized in Table 1. These textural results were plotted on a U.S.D.A. textural classification triangle (see Exhibit I) in order to derive the specific soil classification. As this information shows, all soil materials sampled meet the PA DER textural criteria for final cover material as set forth in Chapter 75.24 (C)(2)(ix).

WASTE MANAGEMENT OF PENNSYLVANIA, INC.

River Road Landfill

Table 1

Textural Classification Summary

Test Pit #	Composite I.D.	Percent * Coarse Frag.	U.S.D.A. Soils		Classification	
			% Sand	% Silt	% Clay	Classification
1-12	RR1	22.4	51	34	15	loam
13-14	RR2	29.8	52	34	14	loam-sandy loam
28-35	RR3	49.8	63	25	12	sandy loam
36-48	RR4	29.8	57	32	11	sandy loam
49-53	RR5	32.2	47	43	10	loam
54-68	RR6	29.5	54	32	14	sandy loam
78-89	RR7	31.1	57	30	13	sandy loam
68B-77 & 117-118	RR8	35.1	52	31	17	loam-sandy loam
110-116	RR9	38.4	51	35	14	loam
100-109	RR10	28.6	45	38	17	loam
90-99	RR11	45.8	48	37	15	loam
119-121	RR12	33.9	50	36	14	loam
122-124	RR13	28.7	53	31	16	sandy loam
125-127	RR14	46.7	53	32	15	sandy loam
128-129	RR15	26.9	65	24	11	sandy loam

Notes: * Percent not passing through a No. 10 mesh sieve

The results of the nutrient analyses are summarized in Table 2. As was expected with weathered glacial material, the soil pH was relatively high (7.3-8.2) and no lime addition was required. Nitrogen requirements were a consistent 120 lbs/acre, while phosphate and potash requirements ranged from 120 to 200 lbs/acre and 120 to 280 lbs/acre, respectively.

LEACHATE COLLECTION SYSTEM

The leachate collection system has been extended, in accordance with the proposed specifications, along the eastern, western and northern perimeters of the landfill base to completely encompass the filled area. Manhole locations and invert elevations are shown on sheet 2 of 3 enclosed with this report.

Other improvements made to the leachate management system during closure operations include the installation of a new lift station (No.1), emergency tanker connection, flow control system and alarm system. These projects were carried out by WMI personnel with the assistance of the following subcontractors: Arcadia Controls, Inc., ADT Security Systems, Inc., Ferrick Construction, and Penberthy Refrigeration Company. Details of these improvements are shown on the enclosed sheet 3 of 3. Lift station No. 1 was constructed in November of 1986 and consists of five foot diameter precast concrete manhole sections and two (3 Hp) submersible pumps with associated float controls, check valves and gate valves. Leachate flows from manhole No. 3 to lift station No. 1 by means of a 12 inch diameter PVC pipe installed between the two structures.

Leachate is pumped from lift station No. 1 through the emergency tanker connection which consists of a gate valve and a tee fitted with a cam-lock quick disconnect. Next in-line is the flow metering box, where an E & H magnetic flowmeter has been installed. The flow metering and control system is explained in Appendix D, "Leachate Monitoring Program", and includes equipment specification manuals for the submersible pumps, flowmeter, flow controller and back-up chart recorder.

An automatic alarm system has been installed to constantly monitor lift stations No. 1 and No. 2. The system is activated through normally open or normally closed relays, by any of the following scenarios:

- Loss of incoming power.
- Mechanical failure of a pump monitor
- Breach of a pump motor seal
- High level float is engaged by rising leachate level

Once activated, the system initiates an alarm circuit at the Youngstown, Ohio office of ADT Securities Systems, Inc. Personnel on duty at the office, 24 hours a day, are then responsible for notifying the emergency coordinators that an alarm situation exists.

WASTE MANAGEMENT OF PENNSYLVANIA, INC.

River Road Landfill

Table 2

Nutrient Requirement Summary

Test Pit # pH	Composite I.D.	Soil Nitrogen	Nutrient Phosphate	Requirements ¹ Potash	Lime (lb/A)	(lb/A)	(lb/A)	(lb/A)
1-12	RR1	7.9	120	200	200	0		
13-14	RR2	-7.9	120	200	200	0		
28-35	RR3	8.1	120	200	200	0		
36-48	RR4	7.7	120	200	200	0		
49-53	RR5	7.6	120	200	200	0		
54-68	RR6	7.6	120	200	200	0		
78-89	RR7	8.2	120	180	240	0		
68B-77	RR8	7.8	120	140	240	0		
117-118 110-116	RR9	7.6	120	130	200	0		
100-109	RR10	8.1	120	160	270	0		
90-99	RR11	8.1	120	180	260	0		
119-121	RR12	7.4	120	150	150	0		
122-124	RR13	7.3	120	120	120	0		
125-127	RR14	7.8	120	130	170	0		
128-129	RR15	7.9	120	190	280	0		

¹As per Merckle Laboratory, Pennsylvania State University, College of Agriculture (See Appendix B)

EROSION AND SEDIMENTATION CONTROL

A system of eleven (11) diversions and channels has been installed to route stormwater runoff through two sedimentation ponds prior to discharging to the Shenango River. Enlargement of sedimentation basin A and the associated installation of a new principal spillway was completed as proposed by the original plans. Survey control during construction verified the required elevations were achieved. Sheet 2 of 3, enclosed, shows the as-built locations of all erosion and sedimentation control measures. The diversions were constructed by selectively excavating the borrow material with a higher clay content, placing it in multiple lifts and top-dressing the final cover material with microterraces. At a minimum, critical areas of all channels were lined with the proposed riprap material.

Several field engineering modifications to the proposed plan were instituted at two locations. The first design change is located in the southeast corner of the landfill and was mandated by the location of the Penn Power Company transmission tower. Diversion No. 6 was moved approximately sixteen (16) feet vertically upslope in order to provide an adequate safety barrier for equipment working in the vicinity of the tower. This change necessitated the construction of an independent diversion berm around the small knob immediately to the east of the transmission tower. Another design modification in this area concerns the alignment of the "B" reach of diversions No. 4 and 5. These particular sections were constructed in such a manner as to provide for a smoother, less turbulent, transition into reach "C" of diversion No.5.

The second field engineering change to the original design plans was made at diversion No. 7, at the point it crosses the former main access road. Due to the steep gradient from this point to the confluence with the upgradient diversion ditch C.M.P., a lined channel and riprap energy dissipater were installed to prevent possible erosion of the final cover cap. The lining utilized was a NOR-BLOC erosion control system comprised of interlocking, precast concrete pieces overlaying a geotextile. General specifications for this system are included at the end of this section.

In summary, these modifications were dictated by actual field conditions and were instituted using sound engineering judgement in order to meet the required September 30, 1987 deadline. All of the design changes have, to date, operated properly during major precipitation events.

SITE REVEGETATION

As disturbed areas were completed, the final surfaces were prepared by microterracing with a small bulldozer. A fertilizer mix averaging 120 lbs/acre nitrogen, 190 lbs/acre phosphate and 180 lbs/acre potash was applied as indicated by the soil nutrient analyses previously discussed. Partial site revegetation of approximately fifteen acres of borrow and landfill area was accomplished during 1986. The seed mixture, Strip Mine Mixture No. 2, was applied by the broadcast method at a rate of 100 lbs/acre and is detailed below:

29.55%	Annual Ryegrass	7.00%	Birdsfoot Trefoil
29.40%	Kentucky 31 Tall Fescue	1.23%	Crop Seed
14.95%	Alsike Clover	0.47%	Inert Matter
9.95%	Timothy	0.15%	Weed Seed
7.30%	Empire Birdsfoot Trefoil		

As requested by the PA DER letter of March 23, 1987, an additional 6 lbs/acre of Redtop was incorporated into the seed mixture and utilized on all subsequent areas. All seeded areas were immediately mulched with an average of 2.8 tons/acre of hay. Growth to date indicates adequate revegetation has been and can be accomplished at River Road Landfill.

SECURITY

To limit post closure access to the site, a chainlink fence has been installed on three sides of the landfill with the Shenango River utilized as a barrier on the fourth side. The fence consists of six foot high posts, cemented in-place and covered with galvanized chainlink fence topped with three strands of four point barbwire. Dual swing gates were installed to permit authorized vehicular entry at the main access road. Two monitoring wells situated outside of this fenced perimeter were also enclosed by chainlink fencing. A ten foot by ten foot concrete block building has been constructed near lift station No. 1 to protect the flow control and metering equipment. All applicable gates, buildings, manholes and well caps are fitted with keyed alike, all-weather locks.

BONDING

WMI will supply the necessary bonding and insurance documentation as required by the PA DER.

PART 2

Post Closure Plan

PREPAREDNESS, PREVENTION AND

CONTINGENCY (PPC) PLAN FOR

WASTE MANAGEMENT OF PENNSYLVANIA, INC.

RIVER ROAD LANDFILL

SHARPVILLE, PENNSYLVANIA

GENERAL DESCRIPTION

The River Road Landfill, located in Hermitage and South Pymatuning Township, Mercer County, Pennsylvania, is situated north of the city of Sharon, Pennsylvania on the northern bank of the Shenango River (see Exhibit II). The facility comprise approximately 102 acres, of which, only 37.5 acres were permitted for landfill operations.

Originally developed in the early 1960's, the site was acquired by Waste Management of Pennsylvania, Inc. (WMI) in August of 1980. It was operated as a municipal landfill until May 31, 1986, at which time closure operations began. The landfill consists primarily of municipal wastes with lesser amounts of commercial and demolition wastes. Leachate generated by the landfill is collected and discharged, by agreement with the Upper Shenango Valley Water Pollution Control Authority (USVWPCA), to the sewer interceptor which parallels the Shenango River.

DESCRIPTION OF EXISTING EMERGENCY RESPONSE PLAN(S)

A Plan of Operation was submitted February 13, 1984, as part of a Solid Waste Disposal Facility Permit application which was approved and issued (Permit No. 100019) by the Pennsylvania Department of Environmental Resources (PA DER), Bureau of Solid Waste Management on November 30, 1984. Permit documents, including the USVWPCA agreements, are included in this report as Appendix C. In response to special condition No. 18 of this permit, a Contingency Plan for Leachate Handling was submitted to the Department on December 27, 1984. The contingency plan has been incorporated into this PPC Plan, which supersedes the original submission.

An Environmental Monitoring Plan was prepared by Dames & Moore and submitted to WMI on October 17, 1986. This plan is intended for use by sampling personnel and is a compilation of groundwater monitoring information. A copy of this plan will be kept at the site as a reference source.

ORGANIZATIONAL STRUCTURE FOR IMPLEMENTATION

Exhibit III is an internally structured chain of command for Waste Management of Pennsylvania, Inc. The titles and home phone numbers of key personnel are included on this chart.

Mr. Gorniak, along with the district and regional personnel, will have responsibility for maintaining the PPC Plan through periodic review and evaluation. This review should include inspection and monitoring programs, reporting procedures, coordination of emergency activities, and effectiveness of training and educational programs. As a minimum, this review must occur when:

1. Applicable Department regulations are revised;
2. The Plan fails in an emergency;
3. The installation changes in its design, construction, operation, maintenance, or other circumstances, in a manner that materially increases the potential for fires, explosions or releases of toxic or hazardous constituents; or which changes the response necessary in an emergency;
4. The list of emergency coordinators changes;

5. The list of emergency equipment changes; or

6. As otherwise required by the Department.

MATERIALS AND WASTE INVENTORY

River Road Landfill consists mainly of municipal wastes with lesser amounts of residual and demolition wastes. By-products of a landfill waste disposal system include leachate and landfill gases. The leachate is sampled quarterly with results of the analysis sent to the USVWPCA office in Sharpsville, PA. Landfill gases, primarily methane, may accumulate within manholes and confined structures on-site. However, migration of landfill gases off-site is not anticipated.

SPIILL AND LEAK PREVENTION AND RESPONSE

Downward migration of leachate is prevented by the low permeability till underlying the site. Therefore, the primary leachate flow direction is from the base of the landfill towards the Shenango River. An underground clay dike has been constructed between the landfill and the river to prevent leachate from entering the ground water or the river. A leachate collection system has been installed upgradient of the dike, at the base (toe) of the landfill (see sheet 2 of 3). A perforated/solid PVC piping network intercepts and directs the leachate flow to manholes and ultimately to lift station No. 1. A submersible pump delivers the leachate, through a metering device, to the sewer interceptor owned by the USVWPCA.

Extending above the surface of the landfill are numerous PVC pipe risers which indicate the location of the existing leachate collection lines. The risers at the base of the landfill locate the main collection lines while the risers situated above the base of the landfill locate the existing fingerlines. These fingerlines were installed to collect and convey leachate that had surfaced on the landfill as a seep. The risers permit convenient access to the existing piping network in the event that a seep should appear in the future.

Additional protection has also been designed into the system with the installation (in lift station No. 1) of dual identical pumps on alternating control circuitry. Back-up equipment, such as portable generators, spare pumps, or tankers for off-site disposal, are readily available from Lake View Landfill (WMI) or installed between lift station No. 1 and the metering box for quick access should the USVWPCA sewer interceptor be unavailable for leachate disposal. Sheet 3 of 3, enclosed, shows details of the existing leachate collection and control systems.

INSPECTION AND MONITORING PROGRAMS

Site inspections will be conducted by WMI personnel familiar with the Site. Inspections will be conducted on a monthly basis through December, 1987 and quarterly thereafter. These site inspections will include visual examination of drainageways, slopes, sedimentation ponds, vegetative cover and security fencing and will insure proper operation and maintenance of pumping equipment and alarm systems. The site manager, Mr. Gorniak, will schedule the required maintenance activities utilizing personnel and equipment from Lake View Landfill.

Leachate flow from lift station No. 1 to the USVWPCA sewer interceptor is constantly monitored by a flow control system. Main components of the system include an in-line flowmeter, a programmable flow controller and a direct connect modem. A seven day circular chart recorder has been installed as a backup system. Flow metering calibration will be conducted annually by the manufacturer's representative. Details of the flow control system are included in Appendix D, "Leachate Monitoring Program" and sheet 3 of 3 of the enclosed drawings.

Ground water and gas monitoring programs will be conducted on a quarterly basis and are detailed in Appendices E and F respectively. Gas probe and monitoring well locations are shown on sheet 2 of 3 included herein.

SECURITY

A chainlink fence, topped with barbwire encloses the landfill on the north, east and west sides and terminates at the Shenango River to the south. Two monitoring wells situated outside of this perimeter have also been enclosed by chainlink fencing. Locked gates allow access to these wells for sampling purposes. Locking dual swing gates at the main access road allow for authorized vehicular entry. All applicable gates, buildings, manholes and well caps are fitted with keyed alike, all-weather locks. A key control list follows:

Organization	Contact Person	Phone Number
Waste Management of Penna., Inc. - Lake View Landfill	Kirk Gorniak Bob Brogden	(814) 825-8588
Waste Management of North America, Inc. - Eastern District Office	Bob Heitman	(215) 736-2000
Penn Power	Jim Sull	(412) 962-7831
Hermitage Volunteer Fire	Robert Goeltz	(412) 744-1159 Department
ADT Securities Systems, Inc.	Jim Moody	(216) 744-1159

EXTERNAL FACTORS

While power outage is certainly possible, steps have been taken to minimize a substantial delay of service. According to Penn Power Company, the incoming service line (single phase, 120/ 240 volts) provides primary service which has the highest degree of service reliability. The alarm system on site has been wired into the incoming power line through the use of a normally closed relay. Should there be any disruption of incoming power, the alarm will be activated and the appropriate people notified. In the event of a significant power disruption, a portable generator is available from Lake View Landfill or may be rented from local suppliers such as The Ohio Machinery Co., 4000 Lake Park Road, Youngstown, Ohio.

INTERNAL AND EXTERNAL COMMUNICATIONS OR ALARM SYSTEMS

An automatic alarm system has been installed to constantly monitor lift stations No. 1 and No. 2. The system is activated, through normally open or normally closed relays, by any of the following scenarios:

- Loss of incoming power
- Mechanical failure of a pump motor
- Breach of a pump motor seal
- High level float is engaged by rising leachate level

Once activated, the system initiates an alarm circuit at the Youngstown, Ohio office of ADT Securities Systems Inc. Personnel on duty at the office, 24 hours a day, are then responsible for notifying the emergency coordinators that an alarm situation exists.

EMPLOYEE TRAINING PROGRAM

Waste Management of Pennsylvania, Inc. has an active and ongoing employee training program that deals with all aspects of landfill operations including leachate handling, manhole entry and emergency procedures. Monthly safety meetings between personnel and their supervisors are held to review existing safety provisions and to introduce new measures. Training meetings are held quarterly for supervising personnel.

EMERGENCY COORDINATORS

The primary emergency coordinator is Kirk Gorniak, Site Manager. The alternate emergency coordinator will be Bob Brogden, Maintenance Supervisor. Mr. Gorniak shall be responsible for coordinating all emergency response measures if and when an incident occurs. The proper response measures shall include the following:

1. Notify the emergency response agencies
2. Identify the problem
3. Stabilize the situation
4. Assess the possible health or environmental hazards
5. Provide adequate monitoring

Appendix G gives further examples of the emergency coordinator's duties and responsibilities as stated in the PA DER Guidelines for the Development and Implementation of Preparedness, Prevention and Contingency (PPC) Plans.

AGENCIES TO BE NOTIFIED

The following list of agencies must be contacted in the event of an emergency:

Agencies	Location	Contact Person	Telephone Number
PA. D.E.R.	Meadville	Russell Crawford	814/724-8526
PA. Fish Commission	Franklin Office Cochranton	Cloyd Hollen Walter Lazusky	814-437/5774 814/425-7562
Mercer County Dept. of Health	Meadville	Sharon (nights/weekends)	412/983-5150 814/336-6920
Upper Shanango Valley Water Pollution Control Authority	Sharpsville	Bernard Scully	412/962-5331
Shenango Valley Water Company	Sharon Plant	Eric Buzza	412/347/7418
Hermitage Volunteer Fire Department	Hermitage	Robert Goeltz	412/981-8100
Police South	Hermitage	---	412/981-4671
	Pymatuning	---	412/962-7844
State Police	Mercer	---	412/662/4200

EMERGENCY RESPONSE CONTRACTORS AND EQUIPMENT

Emergency personnel and equipment such as submersible pumps, portable generators or self-contained breathing apparatus are available from Lake View Landfill Erie, PA. (814/825-858 . David Constructions, West Middlesex, PA. (412/342-6811) or Robert Ferrick Constructions, Erie, PA. (814/864-2428) have the capability to supply excavation equipment, if needed. Vacuum trucks and/or tank trucks are available form Warren Sanitary Service, Hartford, Ohio (216/744-0902).

EMERGENCY RESPONSE AGENCIES AND HOSPITALS

The following is a list of facilities which shall be available for injuries or accidents:

1. Sharon General Hospital 412/983-3911
2. Shenango Valley Medical Center 412/981-3500
3. Gold Cross Ambulance Service 412/981-3900

APPENDIX C

PERMITS AND AGREEMENTS

Upper Shenango Valley Water Pollution Control Authority
Industrial Waste Discharge Permit

UPPER SHENANGO VALLEY WATER POLLUTION CONTROL AUTHORITY

INDUSTRIAL WASTE DISCHARGE PERMIT

Permit No. 001

In accordance with all terms and conditions of the Industrial Sewer Use Rules and Regulations of the Upper Shenango Valley Water Pollution Control Authority, and any applicable provisions of the State and Federal pretreatment regulations; permission is hereby granted to:

Waste Management of Pennsylvania, Inc. 240 River Road Sharpsville, Pennsylvania 16150 to discharge from River Road Landfill Municipality of Hermitage Mercer County, Pennsylvania to the Authority's 18-inch diameter main interceptor along the north shore of the Shenango River at Manhole No. 19.

This permit is granted in accordance with the permit application filed on February 10, 1982, and in conformance with plans, specifications and other data submitted to the Authority in support of the aforementioned application, all of which are filed with and considered part of this permit, together with the following conditions and requirements contained herein.

Effective this 1st day of March, 1983 To expire the 1st day
of March, 1986

SECTION I - SPECIAL CONDITIONS

1. Discharge Limitations

- A. The maximum daily quantity of effluent discharged to the sanitary sewer system shall not exceed 19,500 gallons per day (gpd).
- B. The quality of the wastewater discharged at a rate of 19,500 gpd shall be as follows:

	MAXIMUM DISCHARGE CONCENTRATION	MAXIMUM DISCHARGE PARAMETER LOADING
Total Cyanide	0.10 mg/l	0.016 lb/day
Arsenic	0.70 mg/l	0.114 lb/day
Barium	1.00 mg/l	0.163 lb/day
Cadmium	0.20 mg/l	0.032 lb/day
Total Chromium	1.00 mg/l	0.163 lb/day
Copper	0.70 mg/l	0.114 lb/day
Lead	0.30 mg/l	0.049 lb/day
Mercury	0.08 mg/l	0.013 lb/day
Nickel	1.0 mg/l	0.163 lb/day
Selenium	0.10 mg/l	0.016 lb/day
Silver	0.80 mg/l	0.130 lb/day
Zinc	1.0 mg/l	0.163 lb/day
PCB's	Detectable Limit*	---

For any flow rate of less than 19,500 gpd, the quality of the wastewater discharge may exceed the maximum discharge concentration specified above provided that the calculated loading based on monthly average daily discharge flow during the sampling period is less than the maximum discharge loading specified above.

*As determined by Method 608 - Organochlorine Pesticides and PC3's; 40 CFR Part 136 (Federal Register Vol. 44, No. 233, December 3, 1979).

2. Self-Monitoring Requirements

- A. Interim Monitoring Requirements - During the first 12 months of operation, the permittee shall effectively monitor the quantity and quality of the wastewater discharge in accordance with the following sampling schedule:

SAMPLE	TYPE OF PARAMETER FREQUENCY	
Total Flow (gpd)	Continuous	--- pH Monthly
Grab BOD5 (mg/l)	Monthly	Grab COD (mg/l)
Monthly Grab Total Suspended Solids (mg/l)	Monthly	Monthly
Grab Ammonia Nitrogen (mg/l N)	Monthly	Grab
Nitrates + Nitrites (mg/l N)	Monthly	Grab Total
Organic Carbon (mg/l C)	Monthly	Grab Total Organic
Halogen (μ g/l CL)	Monthly	Grab Chlorine Demand (mg/l
Cl2)	Monthly	Grab Specific Conductance
(μ mhos/cm)	Monthly	Grab Total Cyanides (mg/l)
Monthly	Grab Phehos (mg/l PhOH)	Monthly
Grab PCB's (μ g/l)	Monthly	Grab Arsenic (mg/l
As)	Monthly	Grab Barium (mg/l Ba)
Monthly	Grab Cadmium (mg/l Cd)	Monthly
Grab Copper (mg/l Cu)	Monthly	Grab Total
Chromium (mg/l Cr)	Monthly	Grab Lead (mg/l Pb)
Monthly	Grab Mercury (mg/l Hg)	Monthly
Grab Nickel (mg/l Ni)	Monthly	Grab Zinc
(mg/l Zn) Monthly	Grab Selenium (mg/l Se) Monthly	Grab
Silver (mg/l Ag) Monthly	Grab Iron (mg/l Fe) Monthly	Grab

- B. Subsequent Monitoring Requirements - After the first 12 months of operation, the permittee shall effectively monitor the quantity and quality of the wastewater discharge in accordance with the following sampling schedule or as hereafter amended pursuant to the Agreement of the Authority and the permittee dated March 1, 1983:

SAMPLE	TYPE OF PARAMETER FREQUENCY		
Total Flow (gpd)	Continuous	---	pH Quarterly
Grab BOD 5 (mg/l)	Quarterly	Grab	COD (mg/l)
Quarterly	Grab	Total Suspended Solids (mg/l)	Quarterly
Grab	Total Dissolved Solids (mg/l)	Quarterly	Grab Ammonia
Nitrogen (mg/l N)	Quarterly	Grab	Nitrates + Nitrites (mg/l N)
Quarterly	Grab	Total Organic Carbon (mg/l C)	Quarterly
Grab	Total Organic Halogen (μ g/l Cl)	Quarterly	Grab
Chlorine Demand (mg/l Cl ₂)	Quarterly	Grab	Specific
Conductance (μ mhos/cm)	Quarterly	Grab	Total Cyanides (mg/l)
Quarterly	Grab	Phenols (mg/l PhOH)	Quarterly
Grab PCB's (μ g/l)	Quarterly	Grab	Arsenic
(mg/l As)	Quarterly	Grab	Barium (mg/l Ba)
Quarterly	Grab	Cadmium (mg/l Cd)	Quarterly
Grab	Copper (mg/l Cu)	Quarterly	Grab
Chromium (mg/l Cr)	Quarterly	Grab	Lead (mg/l Pb)
Quarterly	Grab	Mercury (mg/l Hg)	Quarterly
Grab	Nickel	Quarterly	Grab
(mg/l Zn)	Quarterly	Grab	Selenium (mg/l
Se)	Quarterly	Grab	Silver (mg/l Ag) Quarterly
Grab	Iron (mg/l Fe)	Quarterly	Grab

- C. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored parameter. Samples should be taken on days when the discharge flow is equal to, or greater than, the monthly average daily discharge flow for the preceding month whenever possible. Wastewater samples shall be collected from the monitoring manhole installed between the leachate pump station and the interceptor sewer.

- D. All sampling and analyses shall be performed in accordance with procedures established by the U.S. Environmental Protection Agency pursuant to Section 304 (g) CFR Part 136, as amended, and are subject to approval by the Authority.

3. Reporting Requirements

The permittee is required to submit to the Authority the monitoring data required by Item 2 of the Special Conditions of the permit. Monitoring data, total daily flows, and the monthly average daily flow shall be summarized in a monthly discharge monitoring report to be submitted to the Authority. A discharge monitoring report, properly completed and signed by an authorized representative of the permittee, must be submitted within 30 days after the end of each monthly reporting period. The discharge monitoring report must be sent directly to the Authority's office at the following address:

Upper Shenango Valley Water Pollution Control Authority 94 East
Shenango Street Sharpsville, Pennsylvania 16150

4. The terms and conditions of this permit and any renewal hereof shall be subject to and governed by the Agreement entered into between the Authority and Waste Management of Pennsylvania, Inc., dated March 1, 1983.
5. This permit shall be renewable upon application of the permittee or its successor in interest; provided at the time the application is submitted the service shall not be suspended by the Authority, in which event the permit shall be renewable upon the curing of the conditions for which the service was suspended.
6. In the event there is any conflict between the terms of the permit and the Agreement dated March 1, 1983, the Agreement shall govern.

SECTION II - GENERAL CONDITIONS

1. All wastes discharged under the terms of this permit shall be amenable to treatment by the Authority's existing treatment facilities.
2. The Authority is not responsible for the removal of non-biodegradable constituents contributed by the permittee, and their subsequent discharge to the Shenengo River. If such discharge is in violation of present or future requirements of either the Pennsylvania Department of Environmental Resources or the U.S. Environmental Protection Agency, the permittee shall be responsible for removal of said constituents prior to discharge to the Authority's sewer system.
3. All discharges authorized herein shall be consistent with the terms and conditions of this permit and any applicable special agreement.
4. Any changes in the activities of the permittee's operations or anticipated expansion and/or modification of the permittee's facilities, that will alter the volume and/or characteristics of the waste discharge authorized by this permit must be reported to the Authority. Modifications to this permit may then be made to reflect any necessary changes in permit conditions, including any necessary effluent limitations for any pollutants not identified or limited herein.
5. In the event that either the U.S. Environmental Protection Agency or the Pennsylvania Department of Environmental Resources shall establish effluent standards or pretreatment requirements (including any schedule of compliance) for a pollutant which is present in the permittee's discharge, and such standard or requirement is more stringent than any condition imposed by this permit; this permit shall be revised or modified in accordance with such standard or requirement and the permittee shall be notified.
6. Future limitations required of the Authority and/or the Sharon Sewage Treatment Plant by either the Pennsylvania Department of Environmental Resources or the United States Environmental Protection Agency shall be cause for changing the terms and/or conditions of this permit.
7. Industrial waste surcharges for excess BODs and suspended solids shall be in accordance with Article VII of the Authority's Joint Sewer System Rules and Regulations. After the end of each fiscal year, the Authority will calculate the surcharge rates for the preceding year based on actual costs for the preceding year. When this computation has been made, the surcharge billing for the preceding year will be adjusted by crediting or additional charge, as the case may be. The adjusted surcharge rates will then be used for surcharge billing during the current fiscal year.
8. The permittee shall allow the Authority and/or their authorized representatives, upon the presentation of credentials:
 - (a) To enter at reasonable times upon the permittee's premises where the discharge source is located or in which any records are required to be kept under the terms and conditions of this permit;
 - (b) To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;
 - (c) To inspect at reasonable times any monitoring equipment or monitoring method required in this permit; or,
 - (d) To sample at reasonable times any discharge of pollutants.
9. If for any reason the permittee does not comply with or will be unable to comply with any effluent limitation specified in this permit, or should any unusual, accidental spill, or extraordinary discharge of wastes occur from the facilities herein permitted, the permittee shall immediately notify the Authority and the Sharon Sewage Treatment Plant by telephone at (412) 346-3339, and provide the Authority with the following information in writing within five days of such notification:
 - (a) A description of the non-complying discharge including its location, nature, cause, duration, quantity of flow, and impact upon the sewage treatment system.
 - (b) Cause of non-compliance.
 - (c) Anticipated time the condition of non-compliance is expected to continue or if such condition has been corrected, the duration of the period of non-compliance.

- (d) Steps taken by the permittee to reduce and eliminate the non-complying discharge.
 - (e) Steps to be taken by the permittee to prevent recurrence of the condition of non-compliance.
10. In the event of any change in control or ownership of facilities from which the authorized discharge emanates, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Authority. Any succeeding owner or controller must apply for a new permit and comply with the terms and conditions of this permit until a new permit is granted.
 11. Nothing in this permit shall be construed to preclude the institution of any legal action, nor relieve the permittee from any responsibilities or liabilities established by any applicable Authority Rules and Regulations, any applicable state and federal regulations, or any Special Agreement(s) between the Authority and the permittee.

AGREEMENT

THIS AGREEMENT made and entered into this 1st day of March , 1983, by and between

UPPER SHENANGO VALLEY WATER POLLUTION CONTROL AUTHORITY, an authority organized and existing under the laws of the Commonwealth of Pennsylvania, with its office at 94 East Shenango Street, Sharpsville, Pennsylvania 16150, hereinafter referred to as the "Authority",

AND

WASTE MANAGEMENT OF PENNSYLVANIA, INC., formerly known as ERIE DISPOSAL CO., a Pennsylvania corporation with offices at P.O. Box 9, 2450 River Road, Sharpsville, Pennsylvania 16150, hereinafter referred to as the "Contractor".

WITNESSETH:

WHEREAS, the Contractor presently conducts a landfill operation on land owned by it situate in the Municipality of Hermitage, formerly Hickory Township, Mercer County, Pennsylvania; and

WHEREAS, the Authority owns and operates an interceptor sewer which traverses the property of the Contractor; and

WHEREAS, the Contractor has requested permission to tap into the interceptor sewer of the Authority for the purpose of discharging leachate from its landfill operation into such interceptor sewer for transportation to and treatment at the Sharon, Pennsylvania, sewage treatment plant; and

WHEREAS, as one of the considerations for an easement to construct and maintain said interceptor sewer across Contractor's property, by right-of-way agreement Joseph David, Jr., et al., predecessors in title of the Contractor, and the Authority dated July 15, 1974, the Authority agreed to provide one connection on the interceptor sewer line to accommodate a future tap on such sewer line for the discharge of leachate from said landfill operation but with the right to discharge such leachate being subject to the approval of the Commonwealth of Pennsylvania, the City of Sharon, the Sharon Sanitary Authority, the Borough of Sharpsville and the Townships of Hickory and South Pymatuning; and

WHEREAS, the Water Quality Management Permit for such interceptor sewer, issued June 25, 1971, by the Department of Environmental Resources to the Township of South Pymatuning, the Township of Hickory and the Borough of Sharpsville, which permit remains in the name of these three municipalities, provides as one of its conditions, as follows:

"Attention is directed to the necessity of having a qualified person make proper study of all industrial waste proposed for discharge into the public sewer system, to determine the degree of preliminary treatment, if any, which is necessary before these wastes may be discharged into said system.

"No industrial wastes shall be discharged into the sewer system which will prejudicially affect the sewerage structures or their functioning, or the processes of sewage treatment, and any permission granted by the permittee for industrial wastes discharged into the sewer system should reserve to the permittee the right to regulate the rate of such discharge or to require such further preliminary treatment as may be necessary, or the exclusion of the said industrial wastes from sewers, if this be deemed necessary to protect the permittee's interest."; and

WHEREAS, the City of Sharon, as operator of the Sharon treatment plant, is the permittee of the NPDES permit for said plant; and

WHEREAS, the Authority's consulting engineer has advised the Authority that the analyses of the constituents of the leachate submitted to it by the consulting engineer for Contractor including the samples analyzed in is report dated October 24, 1980, and the analyses of

additional samples submitted on March 26, 1982, and samples taken by the Authority's consulting engineer on March 17, 1982 do not indicate the presence of constituents at a level that would affect adversely the biological processes at the Sharon sewage treatment plant; and

WHEREAS, the Authority's consulting engineer has also advised the Authority that the foregoing analyses and samplings may not be representative in quality or quantity of the constituents that may be discharged into the sewer system in the event the leachate is permitted to be discharged into the system; and

WHEREAS, the Authority's consulting engineer has recommended to the Authority that in the event it permits a tap into the interceptor sewer to serve the Contractor's landfill operation, the Authority reserve the right to disconnect the tap-in otherwise cause suspension of wastewater treatment services to be accomplished upon the occurrence of those events mentioned in paragraph 3 herein below; and

WHEREAS, the Authority is willing to permit a tap into the sewer system subject to the conditions hereinafter mentioned,

NOW, THEREFORE, the parties hereto, intending to be legally bound hereby, agree as follows:

(1) The Contractor is hereby granted the right to tap into the interceptor sewer at Authority Manhole No. 19, subject to the following terms and conditions:

- (a) The landfill operation shall be confined to the present operating site, unless the Pennsylvania Department of Environmental Resources hereafter consents in writing to the use by the Contractor of additional land for its landfill operation, and provided, further, that the use of the additional land is in accordance with all applicable local laws;
- (b) No hazardous waste, as that term is now or hereafter defined by either federal or state law or regulation, shall knowingly or negligently be deposited on the landfill site, and no hazardous waste, so defined, shall be discharged into the interceptor sewer;
- (c) So long as this agreement remains in affect, the Contractor shall have authorization from the Pennsylvania Department of Environmental Resources ("DER") or any successor state agency, and any other authorizations now or hereafter required by any state or federal agency to conduct its landfill operation, and it shall at all times be in substantial compliance with the terms and conditions of such authorization(s).
- (d) The flow per day of leachate into the interceptor sewer shall not exceed 19,500 gallons except with the written permission of the Authority.
- (e) The Contractor shall install and keep properly maintained a strip chart recorder at a location and of the type satisfactory to the consulting engineer of the Authority that will measure continuously the flow of the leachate discharged from the landfill into the interceptor sewer. The Contractor shall cause the strip chart recorder to be checked for accuracy at least once every year by a qualified technician acceptable to the Authority's and Contractor's consulting engineers and who shall furnish to the Authority a certificate as to its accuracy. The Authority may at any reasonable time examine the strip-chart recorder to determine its readings.

- (f) The Contractor shall install and maintain a manhole between the leachate pump station, now located at the site, and the interceptor sewer, at a point close to the interceptor sewer to be used for the taking of samples to test the leachate quality. During the first year of operation, the Contractor at its cost shall take samples once a month and shall have the samples promptly tested by a laboratory certified by DER or EPA for the constituents set forth in Exhibit "A", attached hereto and made a part hereof. Reports shall be submitted monthly by the Contractor to the Authority within 30 days of the end of the sampling period which will indicate the leachate characteristics of the samples taken during the preceding 30-day sampling period, the flow volume per day for that period and the monthly average daily flow for that period. The sampling period shall end on the last day of the calendar month in which the samples are taken.

The Authority may take samples during the business hours of the Contractor at the aforementioned monitoring manhole and have the samples tested by an independent testing laboratory certified by DER or EPA. Contractor shall be entitled to split samples and the Authority shall furnish a copy of the report of its samplings to the Contractor. For the purpose of taking the samplings the Authority shall engage the services of its consulting engineer or other qualified person. The cost of such additional sampling and testing conducted by the Authority shall be at the cost of the Authority; except that in the event the cost of any sample of any of the parameters set forth in Exhibit "A" hereof exceeds the Contractor's monthly service rate under paragraph 2(a) hereof, Contractor shall reimburse the Authority for such excess.

After the first year of operation the Contractor shall take samples and test, at its cost, for the parameters set forth in Exhibit "A" at a frequency to be determined by the consulting engineer of the Authority, whose decision shall be based on reasonable grounds, but not more frequently than quarterly, except that the Authority, upon the recommendation of its consulting engineer, which is based on reasonable grounds, may require the Contractor to sample and test, at Contractor's cost, on a more frequent basis, not to exceed monthly, for any particular parameter or parameters for which more frequent sampling may be reasonably necessary. Examples of circumstances in which such more frequent sampling may be reasonably necessary shall include, but not be limited to, the following:

- (i) In the event pretreatment is initiated under the terms hereof, the Contractor may be required to sample and test the parameter or parameters being pretreated on a more frequent basis.
- (ii) For purposes of the application of the Authority's industrial surcharge rates, monthly monitoring may be required.
- (iii) Any other circumstances where in the judgment of the consulting engineer, whose decision is based on reasonable grounds, additional sampling is necessary.

Reports of the samplings taken after the first year of operation shall be submitted by the Contractor to the Authority within thirty (30) days of the end of the

sampling period indicating the aforementioned leachate characteristics. For these purposes, the sampling period shall end on the last day of the quarter, or such other calendar period (whether more or less frequent than quarterly) as determined in accordance with the above. However, a monthly report shall also be submitted to the Authority by the Contractor showing the flow volume per day and the average daily flow for the preceding thirty days.

- (g) In addition to the sampling required of the Contractor in subparagraph (f), and notwithstanding any language in that subparagraph that may appear to be to the contrary, the Authority may, based on the recommendation of its consulting engineer, require the Contractor at its costs to take up to four additional samples during any given year and furnish reports thereof to the Authority. Before the Authority may exercise its rights under this subparagraph (g) it shall furnish the Contractor with written notice on each occasion stating the reasons why such sampling and testing are deemed necessary.
- (h) The Authority may, upon prior written notice to the Contractor stating the reasons therefor, require the Contractor to include in the analyses required hereinabove such other leachate characteristics as the Authority from time to time may determine, based on the recommendation of its consulting engineer as reasonable necessary for reasons related to the operation of the interceptor sewer, the treatment plant or treatment plant sludge.
- (i) The Authority shall have the right, upon reasonable prior written notice to the Contractor, to have three of the monthly samples required during the first year and two of the samples required in any year thereafter taken by a qualified person of its designation and tested at a DER or EPA certified laboratory for the constituents specified herein. For those sampling periods for which the Authority exercises this right, Contractor shall not be required to sample or submit a report on the leachate constituents; however, Contractor shall report on the flow volume as required herein and shall reimburse the Authority for the reasonable costs of taking and analyzing the samples as aforesaid.

(2) The Contractor shall pay to the Authority, quarterly or monthly as the Authority shall determine, for the privilege of discharging its leachate into the interceptor sewer, the following:

- (a) The rate imposed by the Authority as a transportation and normal treatment charge which currently is \$7.00 per EDU (Equivalent Domestic Unit) per month. Each 350 gallons of flowage per day shall be regarded as one EDU;
- (b) A surcharge industrial rate imposed by the Authority as determined in accordance with Article VII of the Joint Sewer Rules and Regulations of the Authority.

(3) The Authority, upon the happening or certain events as hereinafter provided, may suspend the wastewater treatment services to the Contractor. The following shall constitute the grounds upon which the Authority may disconnect the hook-up or by reasonable means otherwise suspend the wastewater treatment service, in the event of which the Authority shall provide twenty-four (24) hours advance written notice to the Contractor stating the reasons therefor:

- (a) Whenever the maximum level of any constituent as set forth in the leachate specifications prepared by the Chester Engineers (Exhibit "A" hereto), as now existing or as hereafter amended, is exceeded in two consecutive samplings during any year and the Authority determines, upon the recommendation of its consulting engineer, whose decision is based on reasonable grounds, that the continued discharge of leachate will have a prejudicial effect on the interceptor sewer, pumping station structures, treatment plant structures or the process of sewage treatment (collectively, the "sewerage system");
- (b) Whenever the flow per day into the interceptor sewer exceeds 19,500 gallons, except where the Authority has previously consented in writing to the excess flowage;
- (c) Whenever the Authority determines, upon recommendation of its consulting engineer, whose decision is based on reasonable grounds, that the continued discharge of leachate will have a prejudicial effect on the sewerage system;
- (d) Upon the failure of Contractor to pay any proper rate billing from the Authority within the time provided by the Authority to its customers for payment thereof or to comply with the sampling or reporting schedule set forth herein; provided that no suspension of services shall take place under this subparagraph 3(d) unless and until the Authority has afforded the Contractor ten days from receipt of written notice of any deficiency hereunder to cure same and Contractor has failed to do so. In the event of a disconnection or suspension under this subparagraph, the Authority shall reconnect Contractor and resume service to the Contractor at such time as Contractor's deficiency is corrected.
- (e) In the event the continued discharge of leachate is causing contamination of the sludge and hindering or making more costly to the City of Sharon the disposition of the sludge either at the sewage treatment plant or at the site to which the sludge is hauled.

In the event of the disconnection by the Authority of the hook-up or cessation by other means of the wastewater treatment service based on the occurrence of any of the aforementioned events described in subparagraphs (a), (b), (c) or (e) of this paragraph 3, the Authority shall reconnect the hook-up or resume service, at the reasonable cost, if any, of the Contractor, at such time as the Contractor has demonstrated to the consulting engineer of the Authority that the continued discharge of leachate will not exceed the leachate specifications [as to subparagraph (a)] or flow limitations [as to subparagraph (b)], or prejudicially affect the sewerage system [as to subparagraph (c)], or contaminate the sludge and hinder or make more costly its disposition [as to subparagraph (e)]. Determinations required to be made by the consulting engineer of the Authority with respect to any of the foregoing shall be based on reasonable grounds. If the Authority's consulting engineer shall determine, based on reasonable grounds, that pretreatment of the leachate discharge is necessary to accomplish any of the foregoing, either before or after closure of the landfill, a pretreatment of the leachate discharge is necessary to accomplish any of the foregoing, either before or after closure of the landfill, a pretreatment facility shall be constructed, operated and maintained by the Contractor to meet specifications that the consulting engineer of the Authority shall reasonably determine are necessary to allow the leachate to be discharged into the interceptor sewer, said obligation to continue so long as leachate is discharged into the interceptor sewer and pretreatment thereof is required hereunder. The Authority, however, reserves the right to cease receiving the discharge and to disconnect the

tap or by other means suspended the wastewater treatment service upon reasonable notice to the Contractor after such pretreatment facility is placed in operation upon the occurrence of any of the events set forth in subparagraphs (s), (b), (c) or (e) of this paragraph (3), subject to the terms and conditions set forth hereinabove.

(4) The Contractor shall protect, indemnify and save harmless the Authority and each of the participating municipalities from and against all liability, loss, costs and expenses of any kind whatsoever, including attorneys' fees, that the Authority or any of the participating municipalities may incur at any time as a result of any action instituted against them or any of them by any person, firm or corporation for personal injury or property damage resulting principally from (a) the discharge of leachate from the landfill into the interceptor sewer, (b) the transportation through the interceptor sewer of its leachate to the Sharon treatment plant, (c) treatment of such leachate at the Sharon treatment plant, and (d) disposal of such leachate in the form of sludge thereafter. The Contractor shall procure and maintain in effect at all times a liability insurance policy with the Authority and each of the participating municipalities named as insureds therein that will insure the Authority and each of the participating municipalities against all such liability, loss and expense. Such policy shall be in the minimum amount of \$300,000.00 for injury to one person from any occurrence, \$1,000,000.00 for injuries to more than one person in any occurrence, and \$50,000.00 for property damage from any occurrence. Such policy shall provide that it shall not be subject to cancellation except after thirty days' written notice to the Authority. A certificate evidencing coverage by such insurance shall be furnished to the Authority by the Contractor at the time of execution of this agreement.

(5) The Contractor does hereby agree to protect, indemnify and save harmless the Authority and the City of Sharon from any loss or expense either may incur due to injury or damage sustained to the Sharon treatment plant or its equipment, or to the interceptor sewer or pump station of the Authority or its equipment caused principally by metal or other constituents, organic or inorganic, contained in the leachate from the landfill operation.

(6) The Authority agrees to give Contractor notice of any claim, liability, action, suit, proceeding, demand, adjustment, cost or expense that may be asserted to which paragraph (4) applies within a reasonable time after the Authority receives notice thereof. In the event of any action or suit to which the Authority is a party and in which the Contractor is not joined as a party, the Authority shall extend to the Contractor a reasonable opportunity to consult with the Authority in connection with the defense thereof. In the event the Authority fails to comply with the terms of this paragraph, the obligations of the Contractor as to the Authority as set forth in paragraph (4) shall be null and void.

(7) At such time as the Contractor commences discharging leachate into the interceptor sewer, the Contractor shall pay to the Authority the sum of \$2,000.00 to assist the Authority in paying The Chester Engineers, Inc., for its services in its investigation, study, specifications for a permit, preparation of reports and any other services it has rendered, for which it has not heretofore reimbursed the Authority, with respect to the request of the Contractor to discharge leachate from its landfill into the Authority's interceptor sewer and all engineering and legal expenses the Authority has incurred in the preparation of this agreement.

(8) In the event any state or federal agency at any time orders the Authority, the City of Sharon or any of the other participating municipalities to require pretreatment of the leachate from the landfill operation of the Contractor and in connection therewith requires the preparation of pretreatment regulations or specifications for such landfill site that are more stringent than those prescribed by the

consulting engineer of the Authority, the Contractor shall reimburse the Authority or the City of Sharon or the other participating municipalities for all engineering and any other expenses incurred by the Authority or by any of these municipalities in the preparation of such regulations or specification, and any pretreatment facilities that may be directed by any state or federal agency to be constructed in accordance with such regulations or specifications, shall be constructed by the Contractor in strict accordance therewith, and the Authority shall have the right to discontinue the connection to its interceptor sewer until such time as such pretreatment facility has been properly constructed and ready to be placed in operation; provided that Contractor reserves the right to contest any such order, and to the extent that said order is in any way reserved or enjoined by any agency or court of competent jurisdiction, the obligations and right of this paragraph shall be null and avoid.

(9) Contractor agrees to include in its solid waste disposal bond required by DER under the Solid Waste Management Act adequate provisions requiring the construction, maintenance and costs of operation of a pretreatment facility subsequent to closure of the landfill, if needed, and for the continued maintenance and costs of operation of any pretreatment facility constructed prior to closure of the landfill.

(10) The Contractor agrees that after the closure of the landfill, it will continue to pay the rates prescribed by the Authority for the transportation and treatment of leachate from the landfill discharged into the interceptor sewer, this obligation to continue so long as leachate is discharged into the sewer system from the landfill site.

(11) At the time of the execution of this agreement, the Contractor shall furnish the written guaranty of Waste Management, Inc., a Delaware corporation with its corporate offices at 3003 Butterfield Road, Oak Brook, Illinois 60521, of which the Contractor herein is a subsidiary, in the form attached hereto as Exhibit "B".

(12) At the time of the execution of this agreement, the Authority shall issue a permit to the Contractor in accordance with its Rules and Regulations and the terms of this agreement, but no discharge shall be permitted into the interceptor sewer until such time as DER and Contractor have entered into a Consent Order and Agreement for the operation of its landfill.

(13) This agreement shall be binding upon the parties hereto and their successors, and it shall not inure to the benefit of any other person or entity not a party hereto, except as expressly provided herein. This agreement shall not be assigned by the Contractor without the written consent of the Authority, nor shall it be assigned by the Authority without the written consent of the Contractor.

(14) This agreement, including the guaranty mentioned in paragraph (11) hereof, shall remain in effect so long as any permit issued by the Authority to the Contractor pursuant to the Rules and Regulations of the Authority remains in effect and thereafter shall remain in effect with respect to all obligations of the Contractor as set forth herein after the closure of the landfill.

(15) This agreement shall not be altered except by a writing executed by both parties.

(16) As used herein, the phrase "consulting engineer" shall mean a professional engineer registered in the Commonwealth of Pennsylvania.

(17) Until written notice is given to the contrary, all notices to be given by either party to the other shall be given in writing and shall be mailed by registered or certified U.S. Mail, postage prepaid, return receipt requested, to Contractor at either of the following addresses:

Mr. Robert Berry
Manager
P.O. Box 9 933 Frank Road
Columbus, Ohio 43223
Authority at the following address:

Site Manager District Landfill
River Road Landfill Waste Management, Inc. or
2450 River Road
Sharpsville, PA 16150 and to the

Upper Shenango Valley Water Pollution Control Authority 94
East Shenango Street Sharpsville, Pennsylvania 16150

or by personal delivery of such written notice by the Authority to the Site Manager or other person in charge of the River Road landfill, or by personal delivery by the Contractor of such written notice to the Chairman of the Authority; provided, however, that any notice of suspension of service shall be given by telephone, telegram or equivalent prompt means whether by written or oral communication.

IN WITNESS WHEREOF, the parties hereto, by their properly authorized officers, have caused this instrument to be executed the day and year first above written. UPPER SHENANGO VALLEY WATER POLLUTION CONTROL AUTHORITY (Authority)

EXHIBIT "A"

1. DISCHARGE LIMITATIONS

- A. The maximum daily quantity of effluent discharged to the sanitary sewer system shall not exceed 19,500 gallons per day (gpd).
- B. The quality of the wastewater discharged at the rate of 19,500 and shall be as follows:

	MAXIMUM DISCHARGE CONCENTRATION (mg/l)	MAXIMUM DISCHARGE PARAMETER LOADING (lbs/day)
Total Cyanide	0.10	0.016
Arsenic	0.70	0.114
Barium	1.00	0.163
Cadmium	0.20	0.032
Total Chromium	1.00	0.163
Copper	0.70	0.114
Lead	0.30	0.049
Mercury	0.08	0.013
Nickel	1.00	0.163
Selenium	0.10	0.016
Silver	0.80	0.130
Zinc	1.00	0.163
PCB's	Detectable Limit*	

For any flow rate of less than 19,500 gpd, the quality of the wastewater discharge may exceed the maximum discharge concentration specified above provided that the calculated loading based on the monthly average daily discharge flow during the sampling period is less than the maximum discharge loading specified above.

*As determined by Method 608 - Organochlorine Pesticides and PCB's; 40 CFR Part 136 (Federal Register Vol. 44, No. 223, December 3, 1979).

2. SELF-MONITORING REQUIREMENTS

The monitoring data to be collected and submitted to the Authority shall include the following parameters which parameters, except for total flow, shall be sampled by grab sample.

PARAMETER

Total Flow (gpd) pH BOD5 (mb/l) COD (mg/l) Total Suspended Solids (mg/l) Total Dissolved Solids (mg/l) Ammonia Nitrogen (mg/l N) Nitrates + Nitrites (mg/l N) Total Organic Carbon (mg/l C) Total Organic Halogen (mb/l Cl) Chlorine Demand (mg/l Cl2) Specific Conductance (umhos/cm) Total Cyanides (mg/l) Phenols (mg/l PhoH) PCB's (ug/l) Arsenic (mg/l As) Barium (mg/l BA) Cadmium (mg/l Cd) Cooper (mg/l Cu) Total Chromium (mg/l Cr) Lead (mg/lPb) Mercury (mg/l Hg) Nickel (mg/l Ni) Zinc (mg/l Zn) Selenium (mg/l Ag) Iron (mg/l Fe)

GUARANTY

INTENDING TO BE LEGALLY BOUND HEREBY, Waste Management, Inc., a corporation, with its office and mailing address at 3003 Butterfield Road, Oak Brook, Illinois 60521, the undersigned, do hereby absolutely and unconditionally guarantee to Upper Shenango Valley Water Pollution Control Authority, 94 East Shenango Street, Sharpsville, Pennsylvania 16150, (the "Authority"), its successors and assigns, as a party to the Agreement dated March 1, 1983, between the Authority and Waste Management of Pennsylvania, Inc., formerly known as Erie Disposal Co., a Pennsylvania corporation, the performance of all of the obligations of Waste Management of Pennsylvania, Inc., under its said Agreement with the Authority, the undersigned to be bound in the same manner as if the undersigned were a party participant to the said Agreement between the Authority and Waste Management of Pennsylvania, Inc., dated March 1, 1983.

Upon receipt from the Authority of written notice of the neglect or failure of Waste Management of Pennsylvania, Inc., at any time or from time to time to perform any of the obligations of said Agreement between the Authority and the Contractor, the undersigned will promptly cause such obligations to be performed.

The undersigned does hereby declare that this obligation is absolute and unconditional and agrees that it will not be released by any extension of time for the performance of any obligation to be performed by the Contractor or by any other matter or thing whatsoever, whereby it as absolute guarantor or surety, otherwise would or might be released.

IN WITNESS WHEREOF, the undersigned has caused this Guaranty to be executed by its Vice President, whose signature has been attested by its Secretary, with its corporate seal hereto affixed, this 2nd day of March, 1983.

ADDENDUM TO AGREEMENT

THIS ADDENDUM TO AGREEMENT dated March 12 , 1985, amending the Agreement dated March 1, 1983, by and between

UPPER SHENANGO VALLEY WATER POLLUTION CONTROL AUTHORITY (the "Authority"),

AND

WASTE MANAGEMENT OF PENNSYLVANIA, INC., (the "Contractor"),

WITNESSETH:

WHEREAS, the Contractor has requested the Authority to modify paragraph (1)(d) of the existing agreement between the parties hereto dated March 1, 1983, to permit the flow per day of leachate from the landfill operation into the interceptor sewer in a quantity up to 50,000 gallons per day rather than up to 19,500 gallons per day as now provided; and

WHEREAS, the Contractor has also requested the Authority to modify Exhibit A of the existing agreement between the parties hereto dated March 1, 1983, to increase the maximum allowable discharge loadings based upon the maximum allowable discharge concentrations as now provided and the proposed maximum discharge flow of 50,000 gallons per day; and

WHEREAS, the Authority, based on the recommendation of The Chester Engineers, its consulting engineer, is willing to agree to such modification subject to the conditions hereinafter mentioned which the Contractor recognizes as reasonable and with which the Contractor is willing to comply.

NOW, THEREFORE, the parties, intending, to be legally bound hereby, agree as follow:

1. Paragraph (1) (d) of the existing agreement between the parties dated March 1, 1983, is amended to read as follow

"(d) The total flow per day of leachate into the interceptor sewer shall not exceed 50,000 gallons except with the written permission of the Authority and the discharge rate shall not exceed 50 gallons per minute (gpm) except with the written permission of the Authority."

2. Based on the new maximum discharge flow, the maximum allowable discharge loadings shall also be revised, and there shall be substituted for the maximum discharge loadings as set forth in Exhibit "A" of the existing agreement dated March 1, 1983, new maximum allowable discharge loadings as are set forth on a sheet, also marked Exhibit "A" (Revised 2-85) hereto attached and made a part hereof.

3. Permit No. 001 heretofore granted by the Authority to Waste Management of Pennsylvania, Inc., effective March 1, 1983 and expiring March 1, 1988, is amended by substituting for existing Page 2 of 9 of this Permit, which sets forth Discharge Limitations under SECTION I - SPECIAL CONDITIONS, a new Page 2 of 9 (Revised 2-85), a copy of which is hereto attached and made a part hereof, which sets forth revised maximum discharge loadings.

4. From and after January 1, 1985, and EDU (Equivalent Domestic Unit) shall mean each 150 gallons per day (gpd) of leachate or other sewage flow, which is more consistent with the estimated water consumption for households within the service area, and, accordingly, Paragraph 2(a), page 9, of the existing agreement dated March 1, 1983, is amended to read as follows:

"(a) The rate imposed by the Authority as a transportation and normal treatment charge, which currently is \$7.00 per EDU (Equivalent Domestic Unit) per month. Each 150 gallons of flowage per day shall be regarded as one EDU."

5. Unless the annual certificate required under Paragraph (1)(e) of the existing agreement dated March 1, 1983, is furnished by the date of execution of this agreement to the Authority, the contractor shall have the flow meter inspected, calibrated and certified to the Authority by a qualified manufacturer's representative within thirty days of the date of execution of this agreement, and failure to furnish such certification shall be a ground upon which the Authority may disconnect the hookup or by reasonable means otherwise suspend the wastewater treatment service until such time as this deficiency is corrected.

6. Paragraph 3(b), page 10, of the existing agreement dated March 1, 1983, is amended to read as follows:

"(b) Whenever the flow per day into the interceptor sewer exceeds 50,000 gallons, or whenever the flow per minute exceeds 50 gallons, except where the Authority has previously consented in writing to the excess flowage."

7. Notwithstanding anything to the contrary in the existing agreement between the parties dated March 1, 1983, during the 6 month period following the date of execution of this addendum, the Contractor, at its cost, shall take samples to test the leachate quality once a month and shall have the samples promptly tested by a laboratory certified by DER or EPA for the constituents set forth in Exhibit "A" attached hereto and made a part hereof. Reports shall be submitted by the Contractor to the Authority within 30 days of the end of the sampling period which will indicate the leachate characteristics of the samples taken during the preceding 30-day sampling period, the flow volume per day for that period and the monthly average daily flow for that period. The sampling period shall end on the last day of the calendar month in which the samples are taken.

Except as expressly set forth hereinabove, the rights and obligations of the parties concerning the sampling of leachate as set forth in paragraph 1(f), (g), (h) and (i) of the existing agreement between the parties dated March 1, 1983 shall be unaffected.

8. All other provisions of the existing agreement March 1, 1983 and of the existing Permit No. 001 shall remain in full force and effect.

9. The Contractor shall pay all expenses of the Authority incurred to The Chester Engineers in considering the request of the Contractor to increase the flowage rate of leachate into the interceptor sewer.

IN WITNESS WHEREOF, the parties hereto, by their properly authorized officers, have caused this instrument to be executed the day and year first above written.

EXHIBIT "A"

1. Discharge Limitations

A. The maximum daily quantity of effluent discharged to the sanitary sewer system shall not exceed 50,000 gallons per day (gpd) and the maximum discharge rate shall not exceed 50 gallons per minute (gpm).

The quality of the wastewater discharged at a rate of 50,000 gpd shall be as follows:

	MAXIMUM DISCHARGE CONCENTRATION	MAXIMUM DISCHARGE PARAMETER LOADING
Total Cyanide	0.10 mg/L	0.042 lbs/day
Arsenic	0.70 mg/L	0.292 lbs/day
Barium	1.00 mg/L	0.417 lbs/day
Cadmium	0.20 mg/L	0.083 lbs/day
Total Chromium	1.00 mg/L	0.417 lbs/day
Copper	0.70 mg/L	0.292 lbs/day
Lead	0.30 mg/L	0.125 lbs/day
Mercury	0.08 mg/L	0.033 lbs/day
Nickel	1.00 mg/L	0.417 lbs/day
Selenium	0.10 mg/L	0.042 lbs/day
Silver	0.80 mg/L	0.334 lbs/day
Zinc	1.00 mg/L	0.417 lbs/day
PCB's	Detectable Limit*	

For any flow rate of less than 50,000 gpd, the quality of the wastewater discharge may exceed the maximum discharge concentration specified above provided that the calculated loading based on monthly average daily discharge flow during the sampling period is less than the maximum discharge loading specified above.

*As determined by Method 608 - Organochlorine Pesticides and PCB's; 40 CFR Part 136 (Federal Register Vol. 44, No. 233, December 3, 1979).

SECTION I - SPECIAL CONDITIONS

1. Discharge Limitations

A. The maximum daily quantity of effluent discharged to the sanitary sewer system shall not exceed 50,000 gallons per day (gpd) and the maximum discharge rate shall not exceed 50 gallons per minute (gpm).

B. The quality of the wastewater discharged at a rate of 50,000 gpd shall be as follows:

	MAXIMUM DISCHARGE CONCENTRATION	MAXIMUM DISCHARGE PARAMETER LOADING
Total Cyanide	0.10 mg/L	0.042 lbs/day
Arsenic	0.70 mg/L	0.292 lbs/day
Barium	1.00 mg/L	0.417 lbs/day
Cadmium	0.20 mg/L	0.083 lbs/day
Total Chromium	1.00 mg/L	0.417 lbs/day
Copper	0.70 mg/L	0.292 lbs/day
Lead	0.30 mg/L	0.125 lbs/day
Mercury	0.08 mg/L	0.033 lbs/day
Nickel	1.00 mg/L	0.417 lbs/day
Selenium	0.10 mg/L	0.042 lbs/day
Silver	0.80 mg/L	0.334 lbs/day
Zinc	1.00 mg/L	0.417 lbs/day
PCB's	Detectable Limit*	-

For any flow rate of less than 50,000 gpd, the quality of the wastewater discharge may exceed the maximum discharge concentration specified above provided that the calculated loading based on monthly average daily discharge flow during the sampling period is less than the maximum discharge loading specified above.

*As determined by Method 60B - Organochlorine Pesticides and PCB's; 40 CFR Part 136 (Federal Register Vol. 44, No. 233, December 3, 1979).

On this, the 29th day of March, 1985, before me, the undersigned officer, personally appeared Joseph J. Simos, who acknowledged himself to be the Chairman of the Upper Shenango Valley Water Pollution Control Authority, and that he, as such officer, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the Authority by himself as such officer.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL
RESOURCES BUREAU OF SOLID WASTE MANAGEMENT

Permit For

Solid Waste Disposal and/or Processing Facility FORM NO.8

Permit No. 100019 Date Issued November 30,
1984 Date Expired

Under the provisions of the Pennsylvania Solid Waste Management Act of July 7, 1980,
Act 97, a permit for a solid waste disposal and/or processing facility at (municipality)
City of Hermitage and South Pymatuning Township in the County of Mercer is
granted to (applicant) Waste Management of Pennsylvania, Inc.

(address) 1154 West 16th Street
Erie, Pennsylvania 16512

This permit is applicable to the facility named as River Road Landfill

and described as:

RIVER ROAD LANDFILL

Latitude: 41° 16' 00''

Longitude: 80° 29' 20''

This permit is subject to modification, amendment and supplement by the Department
of Environmental Resource and is further subject to revocation or suspension by the
Department of Environmental Resources for any violation of the applicable laws or the rules
and regulations adopted thereunder, for failure to comply in whole or in part with the
conditions of this permit and the provisions set forth in the application no. 100019
which is made a part hereof, or for causing any condition inimical to the public health,
safety or welfare.

See attachment for waste limitations and/or special conditions

THIS PERMIT IS NON-TRANSFERRABLE

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL
RESOURCES BUREAU OF SOLID WASTE MANAGEMENT

Permit For

Solid Waste Disposal and/or Processing Facility FORM NO. 8

Permit No. 100019 Date Issued November 30,
1984 Date Expired

1. This permit is issued for the construction and operation of a 37.5 acre sanitary landfill in the City of Hermitage identified as "River Road Landfill." The permit will affect 62 acres of land in the City of Hermitage and South Pymatuning Township pursuant to the application for permit dated October 24, 1980 and the following information:
 - a) Phase I Report, as prepared by Kurtanich Engineering, undated and submitted on September 11, 1983.
 - b) Site Application Module Phase 1, as prepared by Kurtanich Engineering, dated August 17, 1973 and submitted on September 11, 1973.
 - c) Module 3A - Supplementary Geology and Groundwater Information, as prepared by Moody and Associated, Inc., dated August 17, 1973 and submitted on September 11, 1973.
 - d) Phase II Report, as prepared by Kurtanich Engineering, dated August 29, 1974 and submitted on December 19, 1975.
 - e) Site Application Module Phase II, as prepared by Kurtanich Engineering, dated August 29, 1974, revised April 11, 1975 and submitted on December 19, 1975.
 - f) Plan of Operation, as prepared by Kurtanich Engineering, undated, submitted on December 19, 1975 and revised on March 17, 1976.
 - g) Right-of-Way Agreement, dated July 15, 1974 and submitted on April 18, 1975.
 - h) Water Quality Data Report, as prepared by Moody and Associated, Inc., dated October 26, 1973 and submitted on October 30, 1973.
 - i) Groundwater Module 5A, as prepared by Kurtanich Engineering, dated April 12, 1976 and submitted on April 13, 1976.
 - j) Design Plans - 5 pages, as prepared by Kurtanich Engineering, submitted on March 8, 1976.
 - k) Notarized Statement, as prepared by Robert C. Berry, dated November 10, 1980 and submitted on November 14, 1980.
 - l) Transfer of Ownership Narrative, as prepared by Williams J. Kozuh, dated November 11, 1980 and submitted on November 14, 1980.
 - m) Hydrogeologic Investigation Report, as prepared by Todd Guddings and Associates, Inc., dated October 23, 1980 and submitted on October 24, 1980.
 - n) Supplement to Phase II Design Report, as prepared by Todd Giddings and Associates, Inc., dated November 13, 1980 and submitted on March 20, 1981.
 - o) Module No. 8, as prepared by Todd Giddings and Associates, Inc., dated April 1, 1981 and submitted on May 26, 1981.
 - p) Investigation of Alleged Oil and Gas Wells Report, as prepared by Todd Giddings and Associates, Inc., dated August 6, 1982 and submitted on August 10, 1982.
 - q) Review Response Letter, as prepared by Todd Giddings and Associates, Inc., dated December 13, 1982 and submitted on December 14, 1982.

THIS PERMIT IS NON-TRANSFERABLE

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL
RESOURCES BUREAU OF SOLID WASTE MANAGEMENT

Permit For

Solid Waste Disposal and/or Processing Facility FORM NO. 8

Permit No. 100019 Date Issued
November 30, 1984 Date
Expired

- r) Leachate Collection and Disposal Report, as prepared by Todd Giddings and Associates, Inc., dated October 24, 1980, revised April 19, 1983 and submitted on April 22, 1983.
- s) Module No. 10, as prepared by Waste Management of Pennsylvania, Inc., undated, revised July 21, 1983 and submitted on July 27, 1983.
- t) Erosion and Sedimentation Control Plan, as prepared by Todd Giddings and Associates, Inc., dated September 1, 1983 and submitted on September 26, 1983.
- u) Review Response Letter, as prepared by Todd Giddings and Associates, Inc., dated February 6, 1984 and submitted on February 7, 1984.
- v) Review Response Letter, as prepared by Todd Giddings and Associates, Inc., dated February 10, 1984 and submitted on February 13, 1984.
- w) Plan of Operation, as prepared by Todd Giddings and Associates, Inc., undated and submitted on February 13, 1984.
- x) Form No. 2, as prepared by Todd Giddings and Associates, Inc., dated January 16, 1984 and submitted on February 13, 1984.
- y) Landfill Gas Venting and Monitoring Plan, as prepared by Todd Giddings and Associates, Inc., undated and submitted on February 13, 1984.
- z) Review Response Letter, as prepared by Todd Giddings and Associates, Inc., dated November 13, 1984 and submitted on November 15, 1984.
- aa) Design Plans - 4 pages, as prepared by Todd Giddings and Associates, Inc., submitted on December 14, 1982.

Where there is a conflict between an earlier and a later dated submittal, the later dated submittal shall take precedence.

- 2. If there is a conflict between the application, its supporting documents and/or amendments on one hand and the terms and conditions of this permit on the other hand, the terms and conditions shall apply.
- 3. The permit is issued for the construction and operation of the 37.5 acre landfill as delineated on sheet 2 of 4 of the Design Plans, as prepared by Todd Giddings and Associates, Inc., submitted on December 14, 1982.
- 4. Wastes approved for disposal within "River Road Landfill" shall be limited to municipal wastes, demolition wastes, and the following residual wastes generated by Hodge Foundry:
 - a) foundry sand
 - b) reclaim - baghouse dust
 - c) shotblast - baghouse dust
 - d) ladle slag
 - e) floor sweepings
 - f) furnace slag
 - g) furnace refractory

All other residual wastes are prohibited unless a permit modification or written approval is obtained from the Department.

THIS PERMIT IS NON-TRANSFERABLE

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL
RESOURCES BUREAU OF SOLID WASTE MANAGEMENT

Permit For

Solid Waste Disposal and/or Processing Facility FORM NO. 8

Permit No. 1000019 Date Issued November 30,
1984 Date Expired

5. The permittee is prohibited from accepting or disposing of any hazardous wastes at the "River Road Landfill."
6. Groundwater monitoring reports must be submitted to the Department for monitoring points 101, 102A, 103A, 104, 105 and 106, as identified and proposed in the Module No. 8 and the Review Response Letter dated November 13, 1984.
 - a. Chemical Analysis Report for each monitoring point within thirty (30) days of the issuance date of this permit.
 - b. Chemical Analysis Quarterly Report for each monitoring point on a quarterly basis thereafter.
 - c. Chemical Analysis Annual Report for each monitoring pint on or before the anniversary date of this permit.

The quarterly and annual monitoring shall include the water elevation, temperature, and the sampling method for each sampling point. The quarterly test parameters include: pH, alkalinity, total iron, sulfates, total solids, chlorides, COD, BOD and specific conductance. The annual test parameters include all the quarterly parameters plus the following additional parameters: manganese, aluminum, fluorides, albuminoid nitrogen, ammonia nitrogen, ortho phosphates, nitrite-nitrogen, nitrate-nitrogen, suspended solids, settleable solids, TOC and PCB. The monitoring wells must be purged prior to quarterly and annual sampling, and this should be noted on the report submitted.

All monitoring reports are to be submitted to the Bureau of Solid Waste Management, Department of Environmental Resources, 1012 Water Street, Meadville, Pennsylvania 16335.

7. All earthen materials to be utilized for daily and intermediate cover shall be soils that fall within the United States Department of Agriculture (USDA) textural classes of sandy loam, loam, sandy clay loam, silty clay loam, loamy sand, and silt loam. All other cover materials must be approved by the Department. The coarse fragment content (fragments not passing the No. 10 mesh sieve, 2mm.) shall not exceed 75% by volume and the combustible and/or coal content shall not exceed 12% by volume.
8. All earthen materials to be utilized for final cover shall be soils that fall within the USDA textural classes of sandy loam, loam, sandy clay loam, silty clay loam, and silt loam. All other final cover materials must be approved by the Department. The soil must compact well, not crack excessively when dry and support a vegetative cover. The coarse fragment content (particles not passing the No. 10 mesh sieve, 2mm.) shall not exceed 60% by volume.
9. All earthen materials to be utilized for daily, intermediate and final cover must be sampled in a manner approved by the Department. The exact sampling locations, methods of compositing, and sampling depths must be approved by the Department. An analysis of the coarse fragment content and the grain size shall be conducted on each sample and submitted to the Department and approved by the Department prior to its utilization.
10. The Department shall be notified at least five (5) business days prior to collection of samples for permit condition 6 and 9 so that a Departmental representative may be present.
11. The horizontal grid control system shall be controlled and tied to a permanent physical marker or object located on site. The vertical control shall be tied to an elevation established for the permanent marker. The permanent marker must be established and identified within thirty (30) days of the issuance date of this permit.
12. The permit area shall be staked out with a minimum of a three (3) foot high marker prior to construction survey of each stage area. This permit area must remain identified throughout the life of the site. Staking should occur in each stage area before earth work or ditch installation commences on that stage.

THIS PERMIT IS NON-TRANSFERABLE

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL
RESOURCES BUREAU OF SOLID WASTE MANAGEMENT

Permit For

Solid Waste Disposal and/or Processing Facility FORM NO. 8

Permit No. 1000019 Date Issued November 30,
1984 Date Expired

13. A topographic survey of the site must be performed each year and a topographic map of the area utilized the previous year shall be submitted to the Department within forty-five (45) days of the anniversary date of this permit. This map must bear the signature and seal of a registered professional engineer or a registered surveyor and be prepared according to the same scale and grid system as provided in the approved design plans. In addition to the map the permittee shall provide statistics of the waste volumes received and the remaining site capacity in cubic yards.
14. You are required to submit, on a form as provided, certification by a Registered Professional Engineer of site construction in accordance with the approved plans.
15. Nothing in this permit shall be construed to authorize the removal of minerals by surface mining without the permittee first obtaining all necessary permits and authorizations pursuant to the Surface Mining Conservation and Reclamation Act, 52, P.S. Section 1396.1 et seq., and the Clean Streams Law, 35 P.S. Section 691.1 et seq., from the Department.
16. All accumulated liquids/leachate shall be permitted to drain freely from the leachate collection system to the pump station manhole. Within sixty (60) days and thereafter the liquid level in the pump station manhole, as shown on Sheet 1 of 2 of the Leachate Collection and Disposal Report, submitted on April 22, 1983, shall be maintained at or below the invert elevation of the influent line to the manhole.
17. This permit does not authorize nor shall be construed as an approval to discharge industrial waste, including without limitation any leachate discharge from the permitted area to waters of the Commonwealth, absent an NPDES discharge permit.
18. Within thirty (30) days of the issuance date of this permit, the permittee shall submit a written contingency plan to the Department to address the prevention of unauthorized leachate discharges from the leachate collection system and/or landfill in the event leachate is precluded from discharging to the sanitary sewer due to a power outage, pump failure or suspension of wastewater treatment service by the Upper Shenango Valley Water Pollution Control Authority.
19. Sedimentation Basin B as delineated in the Erosion and Sedimentation Control Plan submitted on September 26, 1983, shall be constructed and operational by June 1, 1985.
20. Under this permit as issued, the permittee is responsible for the landfill operations and the conditions at the landfill to the extent required by the Pennsylvania Solid Waste Management Act, the Clean, Streams Law, the Rules and Regulations promulgated thereunder as well as any decisional law interpreting the aforesaid statute and regulations.
21. The Surety Bond in the amount of \$86,600 executed in support of this permit between the permittee and the Department is approved. Conditions of this bond shall be amended in accordance with Rules and Regulations promulgated under Act 97. Such amendment shall be executed within 90 days of the effective date of those regulations.
22. All construction, operation, and procedures shall be in accordance with the application and submittals and supporting documentation, and such application, submittals and supporting documentation are hereby made a part of this permit.

THIS PERMIT IS NON-TRANSFERABLE

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL
RESOURCES BUREAU OF SOLID WASTE MANAGEMENT

Permit For

Solid Waste Disposal and/or Processing Facility FORM NO. 8

Permit No. 100019 Date Issued November 30,
1984 Date Expired

23. As a condition of this permit and of the permittee's authority to conduct the activities authorized by this permit, the permittee hereby authorizes and consents to allow authorized employees or agents of the Department, without advance notice or search warrant, upon presentation of appropriate credentials, and without delay, to have access of and to inspect all areas or adjacent areas to which Solid Waste Management activities are being or will be conducted. This authorization and consent shall include consent to collect samples of waste, water or gases, to take photographs, to perform measurements, surveys, and other tests, to inspect any monitoring equipment, to inspect the methods of operation, and to inspect and/or copy documents, books and papers required by the Department to be maintained. This permit condition is referenced in accordance with Sections 608 and 610.7 of the Solid Waste Management Act (Act 97).
24. Any final operation, design or other plan developed subsequent to permit issuance which exhibits changes in the structures, locations, specifications, or other changes of substance shall be submitted to the Department for subsequent permit action. Any deviation of plans herein approved shall not be implemented before first obtaining a permit amendment, or written approval from the Department.
25. The permit, as issued, shall not be construed to have allowed or authorized any disposal activities which took place prior to the issuance hereof.
26. In the event that the Department determines that the operation of this disposal site causes and adversely affect upon the quality or quantity of any non-community or private water supply, within twenty-four (24) hours of said notice to the permittee by the Department, the permittee shall replace the supply with a temporary source of water of at least equal quantity and quality. If the temporary supply is purchased from a drinking water purveyor, the purveyor shall be licensed by and in good standing with the Commonwealth of Pennsylvania. The permittee shall continue to provide the temporary supply until the quantity and quality of the original supply has been restored or a permanent alternate water supply is provided.
- Within fifteen (15) days after the Department determines and has notified the permittee in writing that the permittee has affected the quality or quantity of any community water supply so as to render it unsuitable for treatment for use by the public pursuant to the requirements of the Pennsylvania Safe Drinking Water Act, Act of May 1, 1984 (P.L. 206, No. 43), (35 P.S. Section 721.1 -721.17) and the regulations adopted thereunder, or affected the quality or quantity of any non-community or private water supply, the permittee shall submit a plan to the Department for its approval. The plan shall set forth the means by which the permittee will provide a permanent alternate water source of at least equal quality and quantity or restore the original source, and shall include a schedule of implementation. The plan for restoration or permanent alternate supply shall be completely implemented within sixty (60) days after the permittee receives the Department's approval.
27. Approval of any plans or facilities herein refers to functional design, but does not guarantee stability or operational efficiency. Failure of the measures and facilities herein approved to perform as intended, or as designed, or in compliance with the applicable Rules and Regulations of the Department, for any reason, shall be grounds for the revocation or suspension of this permit. Failure of the Permittee to comply with the terms of the permit or conditions, or failure of the Permittee to construct or operate the proposed facilities in conformity with the approved plans shall be grounds for the revocation or suspension of this permit.
28. Nothing in this permit shall be construed to supercede, amend, or authorize violation of, the provisions of any valid and applicable local law, ordinance, or regulation, provided that said local law, ordinance, or regulation is not preempted by the Pennsylvania Solid Waste Management Act, the Act of July 7, 1980, P.L. 380, No. 97, 35 P.S. Section 6018.101 et seq.
29. All amendments or modifications to this permit shall be issued by the Department in writing. Such amendments shall be attached hereto and shall become effective on the date specified thereupon.

THIS PERMIT IS NON-TRANSFERABLE

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL
RESOURCES BUREAU OF SOLID WASTE MANAGEMENT

FORM NO. 13-A

MODIFICATION TO SOLID WASTE DISPOSAL AND/OR PROCESSING PERMIT

Under the provisions of Act 97, the Solid Waste Management Act of July 7, 1980, Solid Waste Permit Number 100019 issued on (date original permit was issued) November 30, 1984 to (permittee.) Waste Management of Pennsylvania, Inc. (address) 1154 West 16th Street Erie, PA 16512 is hereby modified as follows:

Waste Management of Pennsylvania, Inc. is hereby authorized to expand its leachate collection system to include the installation of "fingerlines", collection lines, and conveyance lines along the eastern and northern perimeter of the River Road Landfill, as described in "River Road Landfill Request for Approval of Fingerline Connection" submitted May 31, 1985, received June 3, 1985, and shown on Todd Giddings and Associates, Inc. Drawings Sheet 5 of 6, revised 5/85, and 6 of 6 dated May 1985, received June 3, 1985.

This modification shall be attached to the existing Solid Waste Permit described above and shall become a part thereof effective on (date) September 18, 1985.

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL
RESOURCES BUREAU OF SOLID WASTE MANAGEMENT

FORM NO. 13-A

MODIFICATION TO SOLID WASTE DISPOSAL AND/OR PROCESSING PERMIT

Under the provisions of Act 97, the Solid Waste Management Act of July 7, 1980, Solid Waste Permit Number 100019 issued on (date original permit was issued) November 30, 1984 to (permittee.) Waste Management of Pennsylvania, Inc. (address) 1154 West 16th Street Erie, Pennsylvania 16512 is hereby modified as follows:

The Waste Management of Pennsylvania, Inc. is hereby authorized to accept the following generic residual waste at the River Road Landfill for disposal"

Demolition asbestos waste.

This authorization is given subject to the following conditions:

1. This is a generic permit approval for the above-described residual waste. Residual waste approved thereunder shall have characteristics generically Ohio as described in the Module No. 1 submission to the Department prepared on December 1984 and received by the Department on February 20, 1985. Approval of specific streams of the same generic category of residual waste from different generators may be granted pursuant hereto provided that the waste characteristics do not differ substantially from the waste characteristics of the generic waste category approved herein.
2. The permittee shall not accept, receive, dump, deposit, discharge, process, or dispose of the generic residual waste from any generator or source other than that specifically described in Condition #1 without obtaining prior written approval of the Department.
3. This authorization does not supersede conformance with previously approved design and operational requirements except modification(s) authorized herein.
4. This waste must be managed during disposal at the site to minimize and eliminate the potential for airborne asbestos fibers by following all mandatory asbestos handling practices and followings the disposal method as submitted on June 11, 1985.
5. The waste shall not contain or be mixed with any hazardous waste as defined in 25 Pennsylvania Code, Chapter 75.26(d) or any other permitted or unpermitted residual waste except as specifically authorized herein.

This modification shall be attached to the existing Solid Waste Permit described above and shall become a part thereof effective on (date) September 18, 1985

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL
RESOURCES BUREAU OF SOLID WASTE MANAGEMENT

FORM NO. 13-A

MODIFICATION TO SOLID WASTE DISPOSAL AND/OR PROCESSING PERMIT

Under the provisions of Act. 97, the Solid Waste Management Act of July 7, 1980, Solid Waste Permit Number 100019 issued on (date original permit was issued) November 30, 1984 to (permittee.) Waste Management of Pennsylvania, Inc. (address) 1154 West 16th Street Erie Pennsylvania 16512 is hereby modified as follows:

6. Nothing herein shall be construed to supersede, amend or authorize violation of provisions of any valid and applicable local law, ordinance, or regulation, provided that said local law, ordinance, or regulation is not preempted by the Pennsylvania Solid Waste Management Act, the Act of July 7, 1980, Act 97, 35 P.S. 6018.101, et seq.

This modification shall be attached to the existing Solid Waste Permit described above and shall become a part thereof effective on (date) September 18, 1985.

CONSENT ORDER AND AGREEMENT

NOW, THEREFORE, on this 18th day of September, 1985 after full and complete negotiations of all matters set forth this Agreement, and upon mutual exchange of covenants herein and intending to be legally bound hereby, it is agreed between the Pennsylvania Department of Environmental Resources ("Department") and Waste Management of Pennsylvania, Inc. ("WMPI") as follows:

1. WMPI is a corporation qualified to do business in the Commonwealth of Pennsylvania. WMPI owns and operates a solid waste disposal site known as the River Road Landfill in the City of Hermitage, Mercer County.

2. The Department issued a permit to operate the River Road Landfill to WMPI, Solid Waste Permit No. 100019 (the "Permit"), on November 30, 1984. Settlement of Appeal

3. WMPI filed a timely appeal of Conditions No. 6, 16 and 26 of the Permit with the Pennsylvania Environmental Hearing Board on December 24, 1984 (the "Appeal").

4. The Department and WMPI have agreed to the modification of conditions no. 16 and 26 in the form attached hereto as Exhibits "A" and "B", respectively. The Department hereby orders that the Permit be modified to substitute the wording of conditions no. 16 and 26 as set forth herein.

5. The Department has determined that WMPI is in compliance with paragraph no. 6 of the Permit.

6. WMPI and the Department have agreed to settle the Appeal in accordance with the above. Sedimentation Basin.

7. Condition No. 19 of the Permit required the construction of Sedimentation Basin B by June 1, 1985.

8. WMPI was not able to construct Sedimentation Basin B in accordance with the permitted plans because a surveying error resulted in the planned location of the sedimentation basin on property not owned by WMPI. WMPI submitted plans for the relocation of Sedimentation Basin B on its property on or about May 30, 1985, which plans were approved by the Department on or about June 21, 1985. The Basin was constructed and substantially completed on or about July 2, 1985.

9. WMPI shall, within 30 days of the date of this Consent Order and Agreement, pay the sum of \$2,000 to the Commonwealth of Pennsylvania, Solid Waste Abatement Fund by making a check payable to the Commonwealth of Pennsylvania Solid Waste Abatement Fund and sending the check to the Department of Environmental Resources, 1012 Water Street, Meadville, Pennsylvania 16335. This payment shall be in full and complete settlement of any civil penalty liability for any violation of condition no. 19 of the Permit. Terracin/Surface Water Diversion

10. By letter dated May 30, 1985, WMPI submitted a proposal to the Department for constructing a terracing surface water diversion system as an alternative to the presently permitted system, including the implementation of said plan in connection with final capping and closure of River Road Landfill.

11. By letter dated July 2, 1985, WMPI proposed the implementation of interim measures pending preparation of the final terracing/water diversion plan and approval thereof as part of WMPI's final closure plan.

12. So long as WMPI complies with the interim measures, makes timely submission of the final plans and designs for its terracing/surface water diversion proposal as set forth in its letters of May 30, 1985 and implements said plans upon approval thereof, the Department will not assert failure to implement a final terracing/surface water diversion plan as grounds for the denial of or refusal to act upon any approval requested under the Pennsylvania Solid Waste Management Act or Clean Streams Law by WMPI or any of its parent, subsidiary, or affiliated companies or divisions.

13. This Consent Order and Agreement shall have the force and effect of, and be enforceable as an Order of the Department issued pursuant to §602 of the Solid Waste Management Act of 1980, 35 P.S. §6018.602, §610 of the Clean Streams Law, 35 P.S. §691.610 and §1917-A of the Administrative Code of 1929, as amended, 71 P.S. §510-17. WMPI, recognizing its right to appeal the issuance of any such order hereby consents to the entry of this Order and knowingly waives its rights to appeal from this Order to the Environmental Hearing Board.

CONDITION 16

16. a. The permittee shall attempt to maintain the liquid/leachate level in manhole #3 at or below the elevation of the influent pipe by removing, if available 50,000 gallons per day of liquid/leachate for conveyance to the municipal sewage treatment system for treatment in accordance with the permittee's agreement with the Upper Shenango Valley Water Pollution Control Authority ("Authority").

b. Should the pumping rate of 50,000 gallons per day of liquid/leachate be inadequate to maintain the liquid/leachate elevation in manhole #3 at greater than one foot below the water elevation in well 104, the permittee shall seek approval of the Authority to increase its discharge rate so that the permittee may maintain the liquid/leachate elevation in manhole #3 at greater than one foot below the water elevation in well 104. Pending such approval, the permittee shall either store any excess leachate in a holding tank(s) on-site for eventual discharge to the sewer or pump such liquid/leachate for hauling and disposal so that the liquid/leachate elevation in manhole #3 is one foot lower than the water elevation in well 104.

c. The permittee shall measure and record the following measurements with respect to this permit condition:

(1) the daily flow from manhole #3 to the sewage system. (2) weekly elevations of the liquid/leachate levels in manhole #3 and the water level in well 104.

d. The data shall be recorded contemporaneously with the measurements, maintained at the facility for a period of one year thereafter and submitted to the department on a quarterly basis.

Exhibit "A"

In the event that the Department determines that the operation of this disposal site causes an adverse effect upon (1) the quality of any non-community or private water supply used for drinking or other personal or household purposes so as to cause such supply to exceed the maximum contaminant levels provided for under regulations adopted pursuant to the Pennsylvania Safe Drinking Water Act, Act of May 1, 1984 (P.L. 206, No. 43), (35 P.S. Section 721.1-721.17), (2) the quality of any non-community or private water supply used for other than drinking or other household purposes such as would cause such supply to adversely affect the public health in such use or (3) the quantity of any non-community or private water supply, within twenty-four (24) hours of notice of said determination to the permittee by the Department, the permittee shall replace the supply with a temporary source of water of at least equal quantity and quality. If the temporary supply is purchased from a drinking water purveyor, the purveyor shall be licensed by an in good standing with the Commonwealth of Pennsylvania. The permittee shall continue to provide the temporary supply until the quality and quantity of the affected supply has been restored to its pre-existing condition or a permanent alternate water supply is provided.

As soon as possible, but no later than thirty (30) days after the Department determines and has notified the permittee, in writing, that the permittee has affected the quality or quantity of any community drinking water supply so as to render its unsuitable for treatment for use by the public pursuant to the requirements of the Pennsylvania Safe Drinking Water Act, Act of May 1, 1984 (P.L. 206, No. 43), (35 P.S. Section 721.1-721.17) and the regulations adopted thereunder or affected the quality or quantity of any non-community or private drinking water supply as provided above, the permittee shall submit a plan to the Department for its approval. The plan shall set forth the means by which the permittee will provide a permanent alternate drinking water source of at least equal quality and quantity or restore the supply to its pre-existing condition, and shall include a schedule of implementation. The plan for restoration or permanent alternate supply shall be completely implemented after the permittee receives the Department's approval, provided that the plan be implemented by the permittee within such period of time as approved by the Department.

GENERAL

On March 1, 1983, an agreement was executed by Waste Management of Pennsylvania, Inc. (WMI) and the Upper Shenango Valley Water Pollution Control Authority (USVWPCA) granting permission to discharge leachate from River Road Landfill into the Authority's main interceptor system. This document and related agreements are included in this report as Appendix C. As required by these documents, leachate quality and quantity are monitored at River Road Landfill on a quarterly basis.

LEACHATE QUALITY MONITORING

A manhole (MH-2)- has been installed adjacent to the sewer interceptor manhole (MH-1) for the purpose of obtaining leachate quality samples (see sheet 2 of 3). The leachate grab samples are collected on a quarterly basis by WMI personnel trained in proper sampling procedures. The samples are promptly analyzed, by a certified laboratory, for the parameters listed in the aforementioned documents. A report of the analyses is submitted to the USVWPCA within thirty days of the end of that particular quarter.

LEACHATE QUANTITY MONITORING

In accordance with the documents included in Appendix C, total daily flow of leachate discharged to the USVWPCA system is limited to 50,000 gallons. This requirement, therefore, necessitates constant monitoring of discharge quantity.

All leachate collected at manhole No. 3 flows by means of a 12 inch diameter PVC gravity drain pipe into lift station No. 1. Dual submersible pumps, equipped with check valves to prevent backflow, have been installed to pump the leachate to the USVWPCA interceptor sewer. AN E & H magnetic flowmeter has been installed in-line and produces two output signals to the adjacent pump control building.

The first is a 24 volt pulsed signal adjusted to provide one pulse per gallon. This signal is received by a Honeywell 620-15 industrial programmable controller and is stored in an ASCII module, an accumulator. The controller will automatically shut the pumps off when the total number of gallons pumped reaches 50,000 in one day. The pumps are not permitted to operate until the internal time clock reaches 12:00 midnight. At that point, the data is stored in a daily file and the controller resets to zero gallons. If the number of gallons pumped in the 24 hour period does not reach 50,000, the total daily flow is still recorded in a file and the system is automatically reset to zero gallons.

The controller can store a maximum of sixty files which are accessible by a computer/printer system. The computer system can be connected directly into the controller or it can access the information from a remote location by way of the installed telephone modem.

The second signal produced by the flowmeter is a 4-20 mA signal. This signal is received by a Honeywell seven day circular chart recorder/controller which serves a back-up system.

Daily/monthly leachate quantity reports will be generated by Lake View Landfill personnel and submitted to the USVWPCA as required. Following are the equipment specifications for the flow control system.

APPENDIX E

POST CLOSURE

GROUNDWATER MONITORING PROGRAM

FOR

RIVER ROAD LANDFILL

September 30, 1987

GENERAL INFORMATION

Waste Management of Pennsylvania, Inc. (WMI) proposes the following post closure groundwater monitoring program for River Road Landfill through May 1998. WMI will sample, on a quarterly basis, monitoring wells 101, 102A, 103A, 104, 104A, 105 and 106. Monitoring well locations are shown on the enclosed sheet 1 of 3. Waste Management Policy, in accordance with Pennsylvania Department of Environmental Resources (PA DER) regulations, governs all groundwater monitoring programs and includes the following subjects: field measurements, methods of sample collection, preservation and shipment of samples and chain of custody control. The monitoring program will be executed by WMI personnel trained in proper sampling procedures. Contract sampling crews will be used as a backup to WMI sampling teams. All samples will be sent to DER approved analytical laboratories and a copy of the results will be submitted to the PA DER, Bureau of Solid Waste Management. A list of the analytical parameters monitored along with a schedule of the sampling frequency are shown on the following page.

REFERENCES

The post closure groundwater monitoring program is based on the findings of several reports commissioned by WMI. They are "Hydrogeologic Investigation of River Road Landfill, Hermitage Township, Mercer County, PA.," by Todd Giddings and Associates, dated September 5, 1980; "Hydrogeologic Investigation For River Road Landfill," by Dames and Moore, dated October 24, 1986; and, "Environmental Monitoring Plan for River Road Landfill," by Dames and Moore, dated October 17, 1986.

ADDITIONAL INFORMATION

Also included in this appendix is lithologic data, well construction details and analytical water chemistry results for the monitoring well network at the River Road Landfill site. This information immediately follows the analytical parameters/sampling frequency page. As documented by Michael J. Hess of Dames and Moore, monitoring well B106 was decommissioned, in accordance with PA DER specifications, on August 10, 1987.

RIVER ROAD LANDFILL

PROPOSED POST-CLOSURE GROUNDWATER MONITORING PROGRAM

THROUGH MAY, 1998

	QUARTERLY* ANNUAL (NOV)	SEMI- (MAY)	ANNUAL (FEB/AUG)
PH	X	X	X SPECIFIC CONDUCTANCE
X	X	X TOTAL ORGANIC CARBON X	X X
TOTAL ORGANIC HALOGEN	X X	X CHEMICAL OXYGEN DEMAND	
X	X X TOTAL DISSOLVED SOLIDS	X	X
X			
CHLORIDE		+	X FLUORIDE X
IRON		+	X MANGANESE +
X SODIUM		+ X COPPER	
X			
ZINC			X ARSENIC X
BARIUM			X CADMIUM X
CHROMIUM			X LEAD X
MERCURY			X SELENIUM X
SILVER			X SULFATE X
NITRATES			X PHENOL X VOA
+	+	+ AMMONIA +	+ PCB
+ + STATIC WATER LEVEL	X	X	X

X = Required by Pennsylvania Department of Environmental Resource + = Voluntary Supplement * = Starts first quarter 1988 or upon PA DER approval of Post Closure Plan

Note: Use PA DER 22D/22E report forms and note on the form whether it is quarterly, semi-annual or annual report.

-
-
-
-
-
-
-
-

Initial Annual Analysis Reports

APPENDIX F
GAS MONITORING PROGRAM

FOR

RIVER ROAD LANDFILL

HERMITAGE, PENNSYLVANIA

April 9, 1986

Prepared By: Landfill Gass Management Group
Environmental Management Department
Waste Management, Inc. 3003 Butterfield
Road Oak Brook, IL 60521

Revision 2: June 11, 1986 Revision 3:
September 30, 1987

GENERAL

The objective of a landfill gas monitoring program is to evaluate on an ongoing basis, the presence or the potential for: 1) Off-site landfill gas migration, and 2) Accumulation of landfill gas within buildings and structures on or adjacent to the landfill property.

MONITORING

On a quarterly basis the percent combustible gas shall be measured at thirteen (13) bar-hole probe locations and within buildings and structures as detailed below and illustrated on the "Leachate Collection System," sheet two (2) of three (3), enclosed herein.

Bar-hole probe locations B-1 thru B-13 are located as shown to monitor the gas conditions at the site boundaries. Structure sampling shall be conducted at locations S-1 and S-2 where potential exists for accumulation of gas within confined areas (i.e. floor drains, cracks in foundations, conduits entering through the foundations, etc.).

SAMPLING PROCEDURES

Instrumentation

For landfill gas sampling, a dual range combustible gas detector should be used to determine concentrations as percent methane by volume. Detector limits should be 0-5% and 0-100% methane by volume with detection methods equivalent to the Gas-TECH NP204, catalytic and thermal conductivity detectors respectively, (see appendix attachment I).

Structure and Confined Space Sampling

Affix to the intake of the detector an extension hose and ridged (fiberglass or metal) thirty (30) inch long probe and adjust the meter for operation as per manufacturer's specifications. Insert the ridged probe into the area to be sampled; i.e. confined areas where gas may accumulate such as crawl spaces, underground utility conduits entering the building, floor cracks, drains, etc.

With the instrument in the high (H) range, squeeze the aspirator bulb slowly and release several times noting the highest reading obtained. If the concentration is less than five (5) percent methane by volume purge the detector and repeat the procedure in the low (L) range. Record data obtained on the attached monitoring report form.

Bar-Hole Probe Monitoring

Affix to the intake of the detector an extension hose and thirty (30) inch long ridged (fiberglass or metal) probe. Utilizing a bar-hole punch, insert the punch-rod into the ground to minimum depth of thirty-six (36) inches. After adjusting the detector as per manufacturer's specifications, remove the punch-rod and insert the ridged probe without delay. With the detector in the high (H) range, squeeze the aspirator bulb slowly several times noting the highest reading obtained. If the concentration is less than five (5) percent methane by volume, purge the detector and repeat the procedure in the low (L) range. Record data obtained on the attached monitoring report form.

MONITORING SUGGESTIONS

If a series of probe locations all give readings of less than 5 percent volume by volume, it is unnecessary to go through the H range step each time. However, be aware of the instrument's limitations when sampling gas concentrations above the L range detection limits. (for the Gas-TECH NP204, see instrument manual section VI C., rich mixtures).

When bar-hole probe monitoring, a metal probe with an open end and side perforations will minimize the amount of clogging and cleaning required to perform numerous probe monitorings in succession.

When structure sampling, a fiberglass probe with a single end opening will enable monitoring of a precise location.

Calibrate the detector prior to every quarterly monitoring.

ANALYST QUALIFICATION

Personnel performing the above monitoring should be familiar with the sampling procedures and proper use of the combustible gas detector. To obtain consistency of data, it is preferred to have the same analyst perform all monitoring.

REPORT

In addition to regional distribution, a copy of all monitoring results will be sent to:

Kris Alzheimer Waste Management, Inc.
946 Farnsworth Avenue Bordentown, NJ 085505
609/298-9063