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June 1991

Superfund Record of Decision:

Strasburg Landfill, PA

50272-101

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Strasburg Landfill, PA
Second Remedial Action

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Washington, D.C. 20460

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14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

The 22-acre Strasburg Landfill site is an inactive landfill located within a 220-acre tract of land in Newlin and West Bradford Townships, Chester County, Pennsylvania. The site is characterized by hills draining toward Brandywine Creek and its floodplain, which forms the southern and western site boundaries. The nearest wetland is the Briar Run watershed located 600 feet east/southeast of the site. The 201 single-family residences that surround the site use ground water as a source of drinking water. Before landfilling operations began in 1973, the site was used as farmland. From 1978 to 1983, the landfill accepted industrial and heavy metal wastes and sludges. State investigations in 1979 determined that landfill operations had resulted in excessive siltation of Briar Run. In 1980, the State permanently prohibited the landfill from receiving industrial waste. In 1983, the owners were cited for violations, which they failed to correct, and the State ordered the landfill closed. Closure involved constructing a PVC cover and soil and vegetation layer. Subsequent studies detected VOCs in both onsite monitoring wells and offsite residential wells. The State initiated an interim action to control the leachate, which included collection and offsite treatment of leachate at a nearby municipal sewage plant and installing

(See Attached Page)

17. Document Analysis a. Descriptors

Record of Decision - Strasburg Landfill, PA
Second Remedial Action
Contaminated Media: debris, gw
Key Contaminants: VOCs (benzene, PCE, TCE, toluene), metals (arsenic, chromium)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 58
	20. Security Class (This Page) None	22. Price

(See ANSI-Z39.18) *See Instructions on Reverse*

OPTIONAL FORM 272 (4-77)
(Formerly NTIS-35)
Department of Commerce

EPA/ROD/R03-91/116
Strasburg Landfill, PA
Second Remedial Action

Abstract (Continued)

diversions to halt leachate flow. A 1989 Record of Decision (ROD) addressed contaminated residential wells and exposure pathways, and provided an interim remedy to limit site access. The purpose of this ROD is to limit direct contact and exposure to contaminants using site access restrictions, and to reduce further degradation of the landfill cover. Remediation of the landfill will be addressed in a future ROD. The primary contaminants of concern affecting this site are VOCs including benzene, PCE, TCE, and toluene; and metals including arsenic and chromium.

The selected interim remedial action for this site includes implementing site access restrictions including fencing that will encompass the immediate landfill area, access roads, the sediment pond, air stripping building, and monitoring wells; and maintaining the fence and the existing cap. The estimated total present worth cost for this remedial action is $823,020, which includes an annual O&M cost of $55,405.

PERFORMANCE STANDARDS OR GOALS: Not applicable.

RECORD OF DECISION
Strasburg Landfill

DECLARATION

SITE NAME AND LOCATION

Strasburg Landfill
Newlin Township, Chester County, Pennsylvania

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Strasburg Landfill in Newlin Township, Pennsylvania, which 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) 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. The information supporting this remedial action decision is contained in the Administrative Record for this site.

The Commonwealth of Pennsylvania agrees with the selected interim remedy.

ASSESSMENT OF THE SITE

Pursuant to duly delegated authority, I hereby determine, pursuant to Section 106 of CERCLA, 42 U.S.C. Section 9606, that actual or threatened releases of hazardous substances from this site, as discussed in the Summary of Site Risks in this document, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

This Operable Unit is the second of three Operable Units for the site. The remedy for the first Operable Unit consisted of construction of a leachate collection and treatment system and the installation of filtration systems on two home drinking well systems. The first Operable Unit addressed the principal exposure pathway, and as a result the two affected homes were supplied with filtration systems and the landfill leachate was diverted from a direct discharge to Briar Run and into a collection and treatment system.

Since the time of the first Record of Decision (Operable Unit 1) the amount of unauthorized recreational activity and vandalism on the landfill appears to have increased and damage to the cap and to the leachate collection and treatment system has been observed. This second Operable Unit consists of construction of approximately 7500 linear feet of chain link security fencing around the immediate perimeter of the landfill portion of the site. This action addresses the limitation of access to the landfill area and will result in reducing public exposure to hazardous chemicals that are present on the surface of the landfill, as well as reducing damage to the landfill cap.

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. This remedy utilizes permanent solutions and alternative treatment (or resource recovery) technology to the maximum extent practicable for this site. However, because treatment of the principal threats of the site was not contained within the limited scope of this interim action, this remedy does not satisfy the statutory preference for treatment as a principal element.

Because this remedy will result in hazardous substances remaining onsite above health-based levels, a review will be conducted within five years after commencement of remedial action and every five years thereafter, as required by Section 121 (c) of CERCLA, 42 U.S.C. § 9621(c), to ensure that the remedy continues to provide adequate protection of human health and the environment.

William Rosenworth

Edwin B. Erickson
for Regional Administrator
Region III

6-25-91
Date

STRASBURG LANDFILL
Decision Summary for the Record of Decision

1. Site Name, Location, and Description

The Strasburg Landfill is a 22-acre inactive facility located within a 220-acre tract of land south and slightly east of Strasburg Road in both Newlin and West Bradford Townships, Chester County, Pennsylvania. The coordinates of the site are North 39° 56' 35" latitude and West 75° 46'18" longitude. The entrance to the landfill is on Strasburg Road and is controlled by a locked gate. The gate, however, is across the road entrance only and access to the site is essentially unrestricted (Fig 1).

The topography of the area is characterized by a combination of steep and gentle hills. All the land in the area is sloped towards, and drains to, the Brandywine Creek which forms the southern and western boundaries of the site area.

The highest elevation of hills south of the site in Newlin Township approaches 550 feet above mean sea level (MSL). The landfill itself resembles a steep hill. The peak elevation of the landfill, from ground control survey, is 474 feet above MSL. The south and east sides of the landfill have a much steeper slope than the north and western sides. The slope along the eastern side is approximately 60 degrees in some locations. Surface drainage from the site flows to the south and southwest toward the Brandywine Creek and to the east and southeast toward Briar Run which flows into the Brandywine.

The elevation of the Brandywine Creek floodplain to the south is approximately 250 feet above MSL. There are no wetlands either on the landfill, or within 300 feet of the landfill in any direction (Fig 2). The nearest wetland is the Briar Run watershed which is approximately 600 feet east and southeast of the landfill.

Land use in the area is primarily suburban residential, with some residual agricultural areas. There are 201 single family residences within a one mile radius of the site. All the drinking water to these residences is supplied from groundwater. Most of the homes are served by private home wells. There is a private water company, approximately one mile east and slightly north of the landfill, that provides drinking water from deep wells to several residences radiating away from the site area.

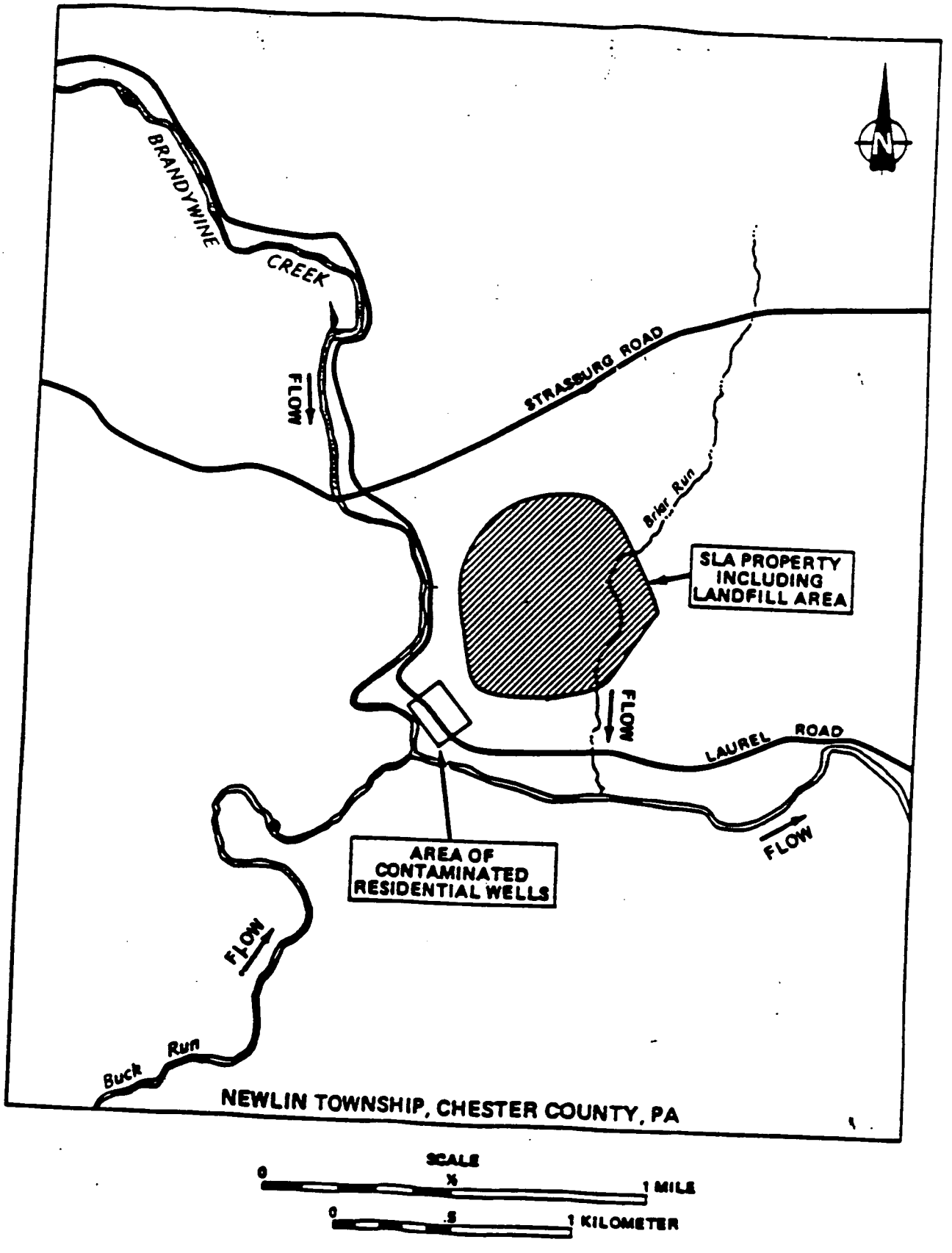


Figure 1 SITE LOCATION MAP

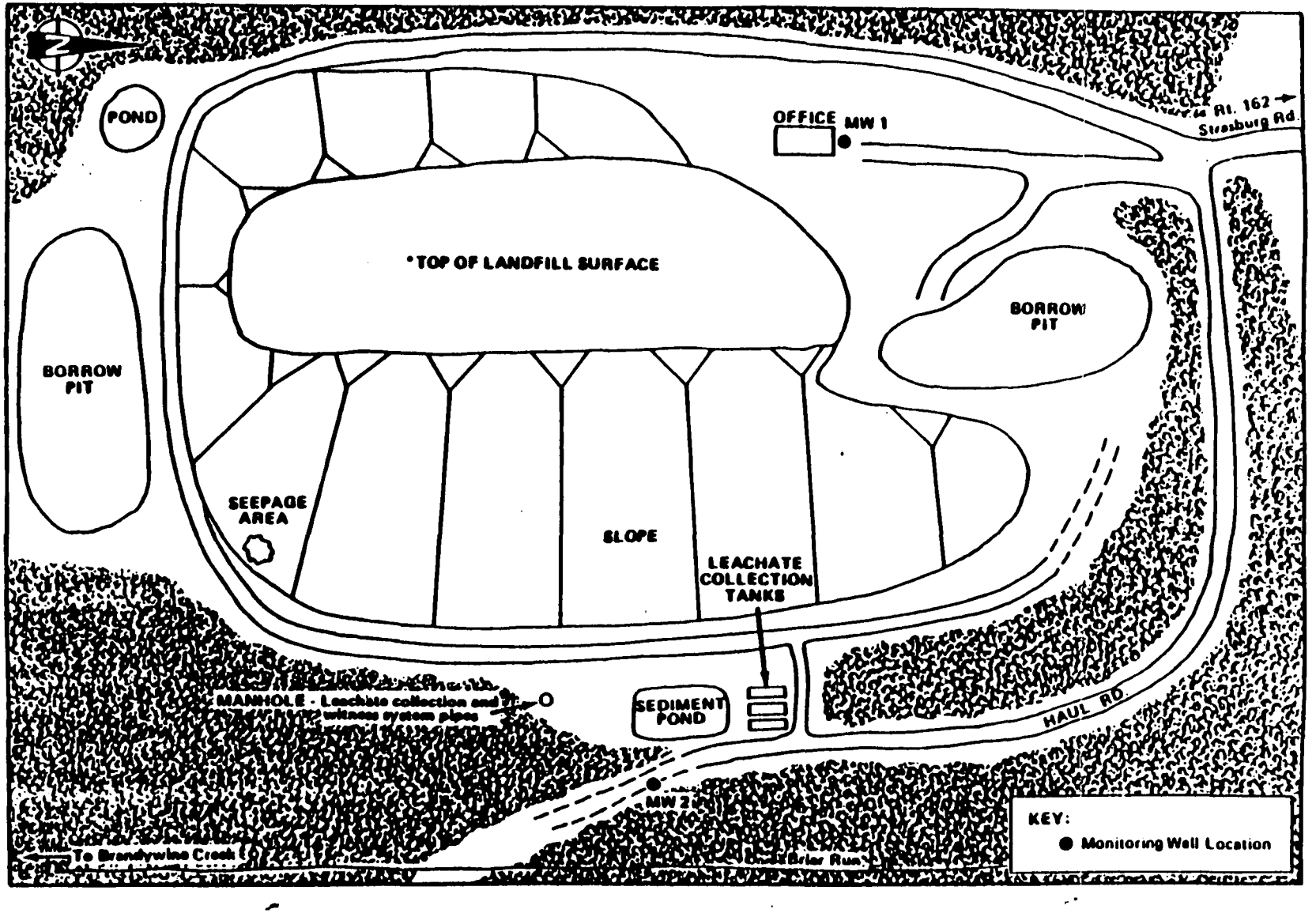


Figure 2 SCHEMATIC SITE MAP OF STRASBURG LANDFILL

According to the closure plan, the landfill was closed by covering the fill material with two feet of soil, a poly vinyl chloride (PVC) cover, and an additional two feet of soil and vegetation. Grasses are growing on approximately 70% of the landfill cap. The remaining areas are barren because of one or more of the following reasons: poor quality of the soils, the steepness of the slopes, exposure of the PVC cover, or leachate seeps. One of the primary purposes of this Record of Decision is to reduce further degradation of the landfill cover and resulting environmental impacts.

2. Site History and Enforcement Activities

According to EPA's records, prior to 1973, some of the property was used for farming and a large portion of the property was undeveloped.

Strasburg Associates (SA) was formed in September 1973 and purchased the property in December 1973. In August 1975, SA received a Pennsylvania Department of Environmental Resources (PADER) permit to accept municipal wastes at the 22-acre facility.

From 1976 through 1978, opening of the 22-acre facility was delayed by issues between SA and the West Bradford Township concerning:

o Use of residentially zoned roads;

o Proposed sale of the landfill to Strasburg Landfill Associates (SLA); and

o Permitting of a proposed 200-acre facility expansion.

In May 1978, SLA was formed. In August 1978, SLA acquired the landfill from SA. In October 1978, SLA applied to PADER for a proposed 200-acre landfill expansion.

In February 1979, the 22-acre landfill was opened. In the spring of 1979, new PADER permits were granted to SLA to receive certain industrial and heavy metal wastes. By December 1979, more than 1,000 cubic yards of PVC wastes, 2,052 cubic yards of industrial wastes and sludges, and 35,000 gallons of heavy metal sludge had been accepted at the landfill.

In December 1979, PADER charged SLA with excessive siltation of Briar Run. Also, PADER prohibited SLA from accepting additional PVC waste for disposal. In August 1980, PADER permanently prohibited the landfill from receiving industrial wastes.

In April 1983, PADER conducted an unannounced inspection at the landfill and found four major operating violations: improper run-off control, slopes in excess of allowed limits, failure to cover compacted wastes, and inadequate sedimentation and erosion control. PADER issued a notice of violation that required the landfill owners to correct the violations within 30 days. The violations were not corrected within that time frame; therefore, PADER suspended the landfill operating permit and ordered the landfill closed. The landfill expansion plans were shelved.

As part of the closure plan, the landfill was regraded, covered with 2 feet of soil, and topped with a PVC cover. Another 2 feet of soil was placed on the PVC cover and vegetation planted. The leachate collection and storage system were also installed as part of the closure plan.

In August 1983, volatile organic contaminants (see Tables 1 and 2) were detected in an on-site monitoring well, M-2, and in the landfill witness system drain pipe. In September 1983, volatile organic contaminants (see Table 1) were detected in Briar Run east of the landfill. PADER required SLA to conduct a periodic monitoring program and a hydrogeologic study. In October 1983, volatile organic contaminants, in excess of drinking water standards, (see Table 3) were detected in an off-site residential drinking water well southwest of the landfill.

In February 1984, SLA installed four monitoring wells (M-2A, M-2B, M-2C, and M-5) and began a sampling and analysis program (see Table 2). SLA submitted the hydrogeologic investigation to PADER in July 1984.

In July 1984, the hydrogeologic/engineering report evaluating the extent of groundwater contamination was completed. The six corrective measures delineated in the report included:

- o Extending the PVC liner;
- o Installing new leachate collector drains;
- o Installing a 15 - mil PVC membrane cap;
- o Regrading soil to attain 2-1/2:1 or 3:1 final outslopes;
- o Revegetating the sides and the top of the landfill; and
- o Regrading soil to divert surface water away from the fill.

Implementation of these measures was never completed. Additionally, the eastern side of the landfill is very steep (estimated 60% slope) in areas, and erosion is occurring such that the original PVC liner is exposed and torn in numerous locations. Vegetation is non-existent or extremely sparse over approximately 1/3 of the landfill.

PADER has conducted periodic monitoring of residential drinking water wells, on-site monitoring wells, sediment pond outfall, leachate seeps, and Briar Run from September 1983 to the present (see Appendix A of the Remedial Investigation (RI): Summary of PADER Residential Well Sampling). The monitoring program results showed two residential wells southwest of the landfill contaminated with volatile organics. In August 1983, PADER analyses of water from well M2 and of leachate from the witness drain revealed organic and inorganic contamination (see Table 1). In September 1983, analyses of water samples collected from

Table 1

SUMMARY OF ANALYTICAL RESULTS FOR SAMPLES
COLLECTED FROM WELL M2 AND
WITNESS DRAIN PIPE,
PADER, AUGUST 1, 1983
(ug/L)

Compound	Witness Drain Pipe	Well M2
Chloroethane	27	7
Chloroethene	126	8
1,2-Dichloroethene	11	-
1,1-Dichloroethene	109	16
1,2-Dichloroethene	140	3
1,1-Dichloroethene	-	10
1,1,1-Trichloroethane	6	47
Trichloroethene	9	3
Tetrachloroethane	-	14
Chloromethane	2	2
Dichloromethane	86	3
Dichlorofluoromethane	-	Trace
Trichlorofluoromethane	Trace	9
Benzene	34	2
Toluene	76	Trace
Ethyl benzene	12	-
Chlorobenzene	4	-

Table 2

SUMMARY OF ANALYTICAL RESULTS FOR SAMPLES
COLLECTED FROM WELL M2, THE WITNESS DRAIN PIPE,
AND BRIAR RUN,
PADER, SEPTEMBER 6, 1983
(ug/L)

Compound	Well M2	Witness Drain Pipe	Briar Run
Chloroethane	8.7	6.7	-
Chloroethene	18	Estimate 180	2.2
1,2-Dichloroethene	1.2	13	-
1,1-Dichloroethene	22	Estimate 150	1.5
1,2-Dichloroethene	9	100	1.7
1,1-Dichloroethene	8.4	2.1	-
1,1,1-Trichloroethane	65	16	1.5
Trichloroethene	4.1	2.4	Trace
Tetrachloroethane	18	5.8	Trace
Chloromethane	-	-	-
Dichloromethane	4.6	34	-
Dichlorofluoromethane	Trace	-	-
Trichlorofluoromethane	3.7	-	-
Benzene	6.2	47	1.0
Toluene	1.0	97	1.0
Ethyl benzene	-	19	-
Chlorobenzene	-	3.8	-

Table 3

ANALYTICAL RESULTS OF THE SAMPLES
COLLECTED FROM AN OFF-SITE
RESIDENTIAL WELL
PADER, OCTOBER 14, 1983
(ug/L)

Compound	Residential Well
Chloroethane	-
Chloroethene	0.9
1,2-Dichloroethene	-
1,1-Dichloroethene	7.8
1,2-Dichloroethene	3.4
1,1-Dichloroethene	-
1,1,1-Trichloroethane	3.3
Trichloroethene	5.8
Tetrachloroethane	9
Chloromethane	-
Dichloromethane	8.5
Dichlorofluoromethane	Trace
Trichlorofluoromethane	-
Benzene	-
Toluene	-
Ethyl benzene	-
Chlorobenzene	-

well M2, the witness drain, and Briar Run (see Table 2) revealed significant levels of organic chemicals.

A Hazard Ranking System (HRS) scoring package was prepared by EPA for the Strasburg Landfill site in April 1987, receiving a score of 30.71. The site was proposed for inclusion on the National Priorities List (NPL) in update number 7, released in June 1988. The Strasburg Landfill was added to the NPL in March 1989.

As a result of the leachate, coming from the landfill, flowing directly into Briar Run, and the failure of the operator to take any corrective actions, PADER initiated an action to collect this leachate and haul it, for treatment, to a nearby municipal sewage treatment plant. Prior to the installation of the leachate collection system, surface water runoff and leachate from the landfill were directed into the unlined sediment ponds located southwest and east of the landfill. EPA has seen evidence of many different groups of people utilizing the property, and specifically the landfill for various recreational activities. These include the following:

- o people using horses whose tracks are seen adjacent to, and on the lower slopes of the landfill, local residents indicate that there is both random horseback riding and also organized fox hunts involving large numbers of riders and accompanying hounds;
- o hikers, who occasionally build campfires on the slopes and top of the landfill;
- o vandals who have attempted to dismantle parts of the leachate treatment system;
- o joggers; and most particularly,
- o riders of motorcycles and "all terrain vehicles" (ATVs) whose tire tracks are wearing grooves into the sides of the landfill.

EPA's concern for both the health of these people and the integrity and security of the existing cap and leachate systems leads EPA to propose an action to minimize or eliminate the potential exposures to contaminants on the site.

3. Highlights of Community Participation

The current Proposed Plan for the Strasburg Landfill site was released for public comment on **April 18, 1991.** A draft RI and FFS, summarized in the Proposed Plan, were also made available for public comment. These two documents, with other site related documents, were made available to the public in both the administrative record and an information repository maintained at the EPA Docket Room in Region III and at the **Coatesville Area Public Library.** The notice of availability for these two documents was published in the Daily Local News on April 18, 1991. In accordance with CERCLA Sections 113 (k)(2)(B)(i-v) and 117, a public comment period was held from April 18, 1991 to May 18, 1991. In addition, a public meeting was held on **April 30, 1991 at the Unionville Presbyterian Church.** At this meeting, representatives from EPA **and PADER** answered questions about problems at the site and the remedial alternatives under consideration. A response to the comments received during this period is included in the Responsiveness Summary, which is part of this ROD.

This decision document presents the selected remedial action for the Strasburg Landfill site, in Newlin and West Bradford Townships, Pennsylvania, chosen in accordance with CERCLA, as amended by SARA, and to the extent practicable, the National Contingency Plan. The decision for this site is based on the administrative record.

4. Scope and Role of Operable Unit (OU 2) or Response Action Within Site Strategy

As with many Superfund sites, the problems at the Strasburg Landfill site are complex. As a result, EPA has organized the remedial work into three separate planned actions.

This ROD addresses the second planned remedial action at the site. The first planned action (OU 1) addressed contaminated residential wells and leachate releases into surface water ways and ground water near the landfill. Under this first action, leachate is now collected, treated, and discharged on site. OU 1 has been fully implemented. A future action (OU 3) will address the landfill itself, the condition of the existing containment system (i.e. the cap), additional leachate issues, and potential groundwater impacts.

This remedial action (OU 2) for restricted access, as summarized in the proposed plan, addresses a principal threat at the site of direct contact contamination posed by the leachate seeps on the landfill. This remedy will minimize or eliminate the exposure pathways of people coming into contact with these substances, for example, by slipping and falling or by having these materials splashed up on them. In addition it has a significant secondary impact to reduce traffic on the landfill cap which is already inadequate and deteriorating. Further deterioration will allow more water to infiltrate, causing more leachate.

A draft remedial investigation is completed and is contained in the public record as support for this second action. A Focused Feasibility Study (FFS) is also contained in the public record as support for OU 2. The RI and the Feasibility Study for the third planned action were finalized in June, 1991.

5. Summary of Site Characteristics

In August 1975, PADER granted SA a permit to operate a 22 acre landfill. The opening was delayed until February 1979 because of local concerns over the use of residentially zoned roads, the proposed sale of the landfill to SLA and permitting of a proposed 200 acre expansion.

In the Spring of 1979 new PADER permits were granted to receive certain industrial wastes. By July 1979, SLA was accepting sewage treatment plant sludge and PVC manufacturing wastes. In December 1979, PADER prohibited the disposal of certain industrial wastes because the waste characteristics did not match those on the approved waste disposal application module. Also in December 1979, PADER fined SLA for improper surface run-off and sediment control. PADER temporarily suspended industrial waste disposal at the site in March 1980, and permanently prohibited industrial waste disposal in August 1980. Between January and June 1981, PADER cited SLA for operational problems (dust control, daily cover, and litter control) at the landfill.

PADER conducted periodic inspections, both announced and unannounced, during the landfill operation. During an unannounced inspection in April 1983, PADER found four major operating violations: improper run-off control; slopes in excess of allowed limits; failure to cover compacted waste; and inadequate sedimentation and erosion control. PADER issued SLA a notice of violation and required that the violations be corrected within 30 days. The violations were not corrected within the specified time. In May 1983, PADER suspended the landfill operating permit and ordered the landfill closed. SLA closed the landfill in May 1983, by providing a final soil cover, a PVC cover, stabilized the site with an additional layer of soil, planted vegetation, and installed a leachate storage tank system. PADER also issued an order requiring SLA to remove collected leachate for off-site treatment and disposal.

During sampling by PADER in October 1983, volatile organic compounds were detected in off-site residential drinking water wells. Based on their findings, PADER implemented a periodic monitoring program of the residential drinking water wells.

In August 1986, EPA prepared an HRS package to determine the Strasburg Landfill site eligibility for proposal to the NPL. The Strasburg Landfill was proposed to the NPL on Update #7, in May 1988. Since that time, EPA has continued to conduct a potentially responsible party (PRP) search.

Nature and Extent of Contamination

This section will focus on the contaminants that may pose hazards, through inhalation and direct contact, to the public health due to the release of leachate from seep areas located throughout the landfill area but most notably on the southeast corner and eastern side of the landfill. Leachate streams flow from landfills which have been improperly capped or where the landfill cap has been somehow compromised. Leachate, as used in this document, refers to the liquid and semi-liquid substances particularly hazardous chemicals that seep from the ground surface of the landfill, either onto other ground surface areas, ground or surface waters.

While EPA and PADER have observed contamination from the site in other areas, such as groundwater, the focus of this interim action remedy is the surface areas of the landfill and the immediate surrounding areas.

Leachate Seep

There are a number of leachate streams evident on all but the small northern slope of the landfill. The largest and most notable leachate streams are located on the eastern and southeastern portions of the landfill. Data are available on landfill leachate collected from a manhole near the sediment pond and a seep located between the sediment pond and Briar Run Creek. Recent analytical results for samples of these materials are given in Table 4. These materials are presumably derived from the same general source as the liquid from the other seeps at the southeast corner of the landfill and may exhibit similar contamination patterns.

The liquid discharging from some of the southeast seeps flow overland and eventually discharge directly to Briar Run or flow in a northeasterly direction to be collected and treated in the leachate collection system (OU 1), or to a drainage ditch that empties into the sedimentation pond immediately east of the landfill. During heavy rains, the sedimentation pond (prior to the implementation of OU 1) used to overflow and discharge via an overflow stack running eastward from the pond through the woods and into Briar Run, which in turn flows into Brandywine Creek. Liquid discharged from the some of the southeast seeps also may migrate to groundwater via infiltration at various points along the overland flow pathway. Groundwater movement in the area is mainly via fractures in the Peters Creek Schist Formation.

Potential pathways of exposure to the leachate seep material include the following:

- Direct contact (including dermal and oral exposure) with the seep material by members of the general population (adults and children) who might enter the site for miscellaneous recreational purposes; for example, children playing in the area;

- Inhalation of volatile organics, emitted from the leachate and soils along the overland flow pathway, by representatives of the general population that may come into close proximity to the seeps or their overland flow pathways; and

- Dermal, oral, and inhalation exposure to contaminants that might reach Briar Run or the Brandywine Creek. This is a concern for members of the general population using the Brandywine for recreational purposes such as canoeing, tubing, swimming, bathing, wading, fishing, or as a drinking water source.

Table 4

SUMMARY OF ANALYTICAL RESULTS FOR
SEEP AND LANDFILL LEACHATE SAMPLES
(ug/L)

Compound	Seep East of Sediment Pond	Landfill Leachate
Vinyl Chloride	10	20
1,1-Dichloroethane	30	--
trans-1,2-Dichloroethylene	1.0	--
1,2-Dichloroethane	4.3	--
1,2-Dichloropropane	2.9	--
Trichloroethylene	3.4	--
Benzene	2.2	10
Toluene	8.4	280
Chlorobenzene	26	15
Xylenes	2.0	Est. 950
cis-1,2-Dichloroethylene	35.0	13
1,4-Dichlorobenzene	7.8	Est. 50
1,2-Dichlorobenzene	1.0	--
Chloroethane	--	12
Ethylbenzene	--	130

Source: PADER, March 9, 1988.

Table 5

LIST OF CONTAMINANTS FOUND IN
RESIDENTIAL DRINKING WATER WELLS
(ug/L)

Compound	Maximum Detected Contaminant Concentration Levels	Maximum Allowable Contaminant Levels (MCLs)
Benzene	3.4	5
Chlorobenzene	1.4	100
Chloroform	1.7	-
1,1-Dichloroethane	16.0	-
1,2-Dichloroethane	1.3	5
cis-1,2-Dichloroethylene	413.9	7
1,2-Dichloropropane	1.2	5
1,1,1-Trichloroethane	2.5	200
Trichloroethylene	35.8	5
1,1,2,2-Tetrachloroethylene	3.5	5
Vinyl chloride	2.5	2

Source: PADER 1987-1988.

The leachate has also infiltrated the ground and reached the groundwater that is used as a water supply source by 203 residences in the vicinity of the landfill.

Public Health Evaluation

The contaminants in the landfill leachate and seeps (Table 4) and in the residential water supplies of the affected homes (Table 5) consist of a variety of hazardous volatile organic compounds. This section provides a summary of the potential risks to human health from these contaminants in the absence of any remedial action.

It should again be noted, that, although we have taken time to evaluate risks posed by the site contaminants, the stability and integrity of the existing cap is a significant concern to be addressed by this remedial action. Further degradation of the cap may lead to increased leachate production, greater number of seeps and more potential exposure risks. Additionally, the security of the existing collection and treatment system is impacted by trespassers and vandals. Failure of this system could cause large releases of contaminated water directly to Briar Run and then to the Brandywine Creek. Lastly, the trespassers have started small fires on the site which, so far, have been controlled. The landfill, however, emits methane gas which can ignite. There is a possibility of a landfill fire fueled by methane, if the trespassers light their fires in a methane rich area.

6. Summary of Site Risks

The Strasburg Landfill is an open 22 acre landfill located on an open 220 acre tract of land. The only access restriction is a locked gate across the main access road.

There is much evidence of on-site recreational activities. "Dirtbike" and "All Terrain Vehicle" (ATV) tracks crisscross the property and are especially prevalent on the landfill. Evidence of recent campfires is also seen on the landfill, as are horseshoe prints, shotgun shells, and clay pigeons. The neighborhood around the landfill is relatively stable in terms of development; however, similar areas, in locales as close as four miles away are experiencing a considerable amount of development of single family housing. It is expected that this type of development will, in a reasonably short time, occur in this area. At the time the site was first visited by EPA, private surveyors, apparently contracted by the owners, were on the property working on a plan to develop part of the property for executive homes. While this action immediately ceased, additional development in the area may bring more people, particularly children, into contact with the landfill.

The exposure pathways that appear to have the greatest potential to produce adverse human health effects at Strasburg Landfill are:

- Migration of volatile contaminants via soil gas to the air in the vicinity of the landfill, where they could be inhaled by site visitors;

- Migration of contaminants within landfill leachate to the ground surface in seep areas and the sediment pond, where site visitors could be accidentally exposed to the contaminants through direct dermal contact, incidental ingestion, and inhalation of volatiles emanating from the leachate.

The pathways were quantitatively evaluated in the Risk Assessment section of the draft Strasburg Landfill Remedial Investigation report. Although the groundwater pathway was found to pose the greatest potential risks of the three pathways, the impact of groundwater on people has been addressed in past actions at the site. The final RI/FS for this site will also consider and address, as appropriate, remedial alternatives for groundwater. Control of site access does not affect this pathway. Therefore, in the Focused Feasibility Study, groundwater was not considered further. Using site contaminant concentrations presented in the tables above, a reasonable maximum exposure (RME)

estimate was developed based on estimated frequency and exposure duration that the receptor population (site visitor) is likely to experience. Various physiological parameters (e.g., breathing rate, ingestion rate, body weight, etc.) were incorporated to obtain an estimate of the lifetime average daily dose of a contaminant. For the inhalation pathway, site visitors come in contact with volatile contaminants on site by inhalation only. For the accidental contact pathway, site visitors could be exposed to contaminants by direct dermal contact, incidental ingestion, and by inhalation of vapors from leachate.

A brief review of the key parameters for the two pathways follows:

For the inhalation pathway: Since site visitors evidently walk, jog, and ride horses, motorcycles or ATV's on site, an inhalation rate corresponding to light to moderate activity was used. The exposure time, the expected duration of a site visit, was assumed to be one hour per day. The exposure frequency, the number of days per year during which site visits might occur, was assumed to be 100 days/year. Averaging time, the period over which the estimated exposure is averaged, was taken as 30 years for noncarcinogens (90 percentile for time spent at one residence) and 70 years for carcinogens, corresponding to the carcinogenic potency slope factors which are based on lifetime exposures.

For the accidental contact pathway, two exposure scenarios were evaluated in the risk assessment. The first exposure scenario involved a site visitor and accidental contact with the seep material by partial or total emersion. The second exposure scenario involved accidental contact with the seep material by having the seep material splashed on a site visitor after riding a motorcycle, ATV, or horse through a leachate seep. Dermal absorption of contaminants depends on the dermal permeability constant of the specific chemical compound. Since specific data for this constant were not available for most chemicals found in the seep areas, constants for organic compounds were assumed and chosen to reflect an inverse relationship to the octanol/water partitioning coefficient for that compound.

For the first exposure scenario, skin surface area was taken as equivalent to the area of the arms, legs, hands, and feet that would likely come into contact with seep water or sediment. The exposure frequency for the first accidental contact exposure scenario was assumed to be four times per year, because of the accidental nature of the exposure.

For the second exposure scenario, skin surface area was taken as equivalent to the area of the hands, and one half the area of the arms and legs. The exposure frequency was assumed to be 50 times per year.

Exposure time for each accidental exposure scenario was assumed to be one hour, the estimated time for a site visitor to return home and remove wet clothing. Incidental ingestion by hand-to-mouth contact was included in each accidental contact exposure scenario and was taken as 100 mg/day based on EPA guidance. Inhalation rates for the accidental contact exposure scenarios were the same as used for the inhalation pathway, other values were also the same.

Using the estimates of a lifetime average daily dose of a particular chemical under the RME scenario and assumed values for key parameters, risks posed by the chemical contaminants are then evaluated. Noncarcinogenic risks are assessed by calculating a hazard index, the ratio of estimated average daily dose to the reference dose, which is considered an allowable daily intake. A hazard index greater than 1.0 indicates that adverse effects may be possible. A hazard index value less than 1.0 indicates that adverse effects would not be expected. For carcinogenic compounds, a linearized multistage model is used to estimate the carcinogenic potency slope factor. The lifetime average daily dose is multiplied by the low-dose slope factor for each route of exposure to a particular compound; carcinogenic risk is then estimated by adding the risks due to oral, dermal, and inhalation routes.

The remedial investigation was designed to characterize the nature, extent, and limits of contamination originating at the Strasburg Landfill. The possible source areas were identified based on a review of past activities at the site and previous sampling activities. All of the potential source areas and migration pathways were investigated using various field techniques and by collection and laboratory analysis of samples. In this way, the nature of the contamination was characterized and its extent defined. Given the information available about the site, it seems unlikely that any significant source areas or migration pathways were overlooked. Since samples were collected from a variety of media encompassing all of the likely source areas and migration pathways, and samples from most of the media except soil gas were analyzed for the full Target Compound List (TCL) plus any non-TCL organics that were found, it is also unlikely that any significant contaminants would have been missed.

EPA has recently adopted a policy that acceptable exposures to known or suspected carcinogens are generally

those that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6}. In addition, EPA will use the 10^{-6} risk level as the point of departure for determining remediation goals for NPL sites. For systemic toxicants (noncarcinogens) EPA defines acceptable exposure levels as those to which the human population, including sensitive subgroups, may be exposed without adverse effects during a lifetime or part of a lifetime, incorporating an adequate margin of safety (EPA 1990). This acceptable exposure level corresponds to hazard index of 1. If the hazard index is less than 1, no adverse effects would be expected. If the hazard index is greater than 1, adverse effects could be possible.

Based on the human health risk assessment presented in the Draft Strasburg Landfill Remedial Investigation report, estimate hazard indices for systemic toxicants did not exceed 1 (the largest was 0.15) for any the pathways. Therefore, the remainder of this discussion focuses on the sources of the potential cancer risks.

The magnitude of the potential cancer risks posed by site contaminants are summarized in Table 8. Estimates of reasonable maximum exposure and risks potential residential receptors are based on 30-year exposures, since that is the 90th percentile amount of time an individual lives at a single residence (EPA 1989b).

Table 6

CONTAMINANT CONCENTRATIONS IN WATER AND SEDIMENT IN SEEP AREAS USED FOR EVALUATING ACCIDENTAL CONTACT WITH THESE AREAS

UCL* Concentration = Upper 95th % Confidence Limit on Arithmetic Mean

Chemical	(µg/kg-soil	µg/L-water)
ORGANICS (µg/kg-soil; µg/L-water)		
Benzene		6.1
bis(2-Ethylhexyl)phthalate		280
Chlorobenzene		20.8
Chloroethane		4.85
1,2-Dichlorobenzene		3.98
1,4-Dichlorobenzene		16
1,1-Dichloroethane		24.8
1,2-Dichloroethane		2.94
1,2-Dichloroethene		22.2
1,2-Dichloropropane		4.43
Ethylbenzene		39.5
Naphthalene		38.9
Toluene		1.4
Trichloroethene		4.97
Vinyl chloride		19.1
Xylenes		104
INORGANICS (mg/kg-soil; mg/L-water)		
Antimony		15.6
Arsenic		15.9
Barium		257
Beryllium		1.31
Chromium		66.9
Mercury		.000475
Nickel		20.6

Table 7

STRASBURG LANDFILL
SUMMARY OF CONTAMINANTS FOUND IN SOIL GAS AND AMBIENT AIR

COMPOUND	AMBIENT AIR Concentration Range/Detection Frequency (ppb)	SOIL GAS Concentration Range/Detection Frequency (ppb)	FLUX BOXES Concentration Range/Detection Frequency (ppb)
Benzene	24/91 3 - 150	2 - 10,000 0/10	9/10 --
Dibromomethane	0/91 4 - 224	-- 0/10	6/10 --
1,1-Dichloroethene	40/91 2 - 840	17 - 1,700 0/10	5/10 --
1,2-Dichloroethene	0/91 2 - 11,000	-- 2/10	7/10 0.08 - 0.64
Dichlorotetrafluoroethane	N/A --	-- 3/10	N/A 0.03 - 0.06
Ethylbenzene	N/A --	-- 1/10	N/A 0.29
Tetrachloroethene	17/91 1 - 567	10 - 4,400 1/10	7/10 0.09
Toluene	N/A --	-- 1/10	N/A 1.53
Trichloroethene	30/91 3 - 84	80 - 5,400 1/10	3/10 0.14
Trichlorofluoromethane	N/A --	-- 3/10	N/A 0.46 - 1.65
1,3,5-Trimethylbenzene	N/A --	-- 1/10	N/A 0.04
Vinyl Chloride	44/91 1 - 129	60 - 11,000 1/10	6/10 0.48
m/p-Xylene	N/A --	-- 3/10	N/A 0.23 - 0.57
o-Xylene	N/A --	-- 2/10	N/A 0.10 - 0.18

N/A: Not analyzed.

Table 8

SUMMARY OF ESTIMATED EXCESS LIFETIME CANCER RISKS TO STRASBURG LANDFILL SITE VISITORS

Pathway	Case	Receptors: Adults 30-Year Exposure	Receptors: Children 1 - 6 Years	Receptors: Children 6 - 12 Years	Receptors: Children 12 - 18 Years	Receptors: Child/Adult 1 - 31 Years	Composite Risk Contributions by Exposure Route	Risk Contributions by Chemical
Inhalation of Airborne Contaminants	RME to Site Visitors	5.6×10^{-7} (1%)	--	2.5×10^{-7}	1.3×10^{-7}	6.4×10^{-7} (1%)	Inhalation - 100%	VC - 51% 1,1-DCE - 44% Benzene - 4% TCE - 3%
Accidental Contact with Seep Areas 8%	RME	5.4×10^{-6} 8%	--	2.0×10^{-6}	1.2×10^{-6}	6.5×10^{-6} 8%	Dermal - 50% Ingestion - 7% Inhalation - 44%	Arsenic - 80% VC - 9% Beryllium - 1,1-DCA - 2% BEHP - 1%
Total Risks to Site Visitors	RME	6.0×10^{-6}	--	2.3×10^{-6}	1.3×10^{-6}	7.1×10^{-6}		

Key:

RME = Reasonable Maximum Exposure
PCE = Tetrachloroethene
TCE = Trichloroethene
VC = Vinyl chloride
BEHP = Bis(2-ethylhexyl)phthalate
1,1-DCA = 1,1-Dichloroethane
1,2-DCA = 1,2-Dichloroethane
1,1-DCE = 1,1-Dichloroethene
1,2-DCP = 1,2-Dichloropropane

Among 30-year residents, the greatest exposure and risks would accrue to an individual living at a residence from birth through early adulthood, since children tend to experience greater exposure than adults in the same setting. This occurs for two main reasons: children engage in more exploratory behavior than adults, thereby increasing their potential contact with contaminants, and children have greater ingestion-rate-, inhalation-rate-, and skin-area- to body-weight ratios than adults, thus increasing the intensity of their exposure in a given situation. For these reasons, potential risks to a composite child/adult receptor, age 1 to 31 years, were estimated by summing risks for age groups explicitly evaluated.

For on-site air exposure and accidental contact with seep areas, the risk for children 6 to 12 years old and 12 - to 18 years old, were combined with adult risks representing 18 years of exposure to complete the 30-year exposure period. Children 1 to 6 years old would be unlikely to wander onto the landfill unaccompanied by an adult; thus, omission of the age group from these pathways would be unlikely to affect the estimated composite risks. Using the risk estimates for the composite child/adult population, the most sensitive population, as shown in Table 8, the magnitude of potential cancer risks to site visitors posed by site contaminants was estimated to be 6.5×10^{-6} for accidental contact with seep areas and 6.4×10^{-7} for inhalation of airborne contaminants. The excess lifetime cancer risk for a site visitor exposed for 30 years to the site contaminants in the air and seep areas is 7.1×10^{-6}.

This means that an individual visiting the site for the recreational purposes described (walking, jogging riding horses, ATVs or motorcycles) has a little more than one chance in a million of developing a cancer that otherwise would not have developed. This is the health risk that would be prevented by eliminating visitor access to the site.

Also shown in Table 8 are the risk contributions attributable to the different chemical contaminants and to the different routes of exposure. For the inhalation pathway, all of the exposure is attributed to inhalation with the greatest risk posed by vinyl chloride (51%) followed by 1,1-dichloroethene. For the accidental contact pathway, half of the exposure is attributed to dermal route, 44% to inhalation, and the remainder to ingestion; most of the risk (80%) is attributed to arsenic exposure.

Cancer potency factors (CPFs) have been developed by EPA's Carcinogenic Assessment Group for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. CPFs, which are expressed in units of $(mg/kg\text{-}day)^{-1}$, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to provide an upper-bound estimate of the excess lifetime cancer risk associated with exposure at that intake level. The term "upper bound" reflects the conservative estimate of the risks calculated from the CPF. Use of this approach makes underestimation of the actual cancer risk highly unlikely. Cancer potency factors are derived from the results of human epidemiological studies or chronic animal bioassays to which animal-to-human extrapolation and uncertainty factors have been applied.

Reference doses (RfDs) have been developed by EPA for indicating the potential for adverse health effects from exposure to chemicals exhibiting noncarcinogenic effects. RfDs, which are expressed in units of mg/kg-day, are estimates of lifetime daily exposure levels for humans, including sensitive individuals, that is not likely to be without an appreciable risk of adverse health effects. Estimated intakes of chemicals from environmental media (e.g., the amount of a chemical ingested from contaminated drinking water) can be compared to the RfD. RfDs are derived from human epidemiological studies or animal studies to which uncertainty factors have been applied (e.g., to account for the use of animal data to predict effects on humans). These uncertainty factors help ensure that the RfDs will not underestimate the potential for adverse noncarcinogenic effects to occur.

Excess lifetime cancer risks are determined by multiplying the intake level with the cancer potency factor. These risks are probabilities that are generally expressed in scientific notation (e.g., $1x10^{-6}$). An excess lifetime cancer risk of $1x10^{-6}$ indicates that, as a plausible upper bound, an individual has a one in one million chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year lifetime under the specific exposure conditions at a site.

Potential concern for noncarcinogenic effects of a single contaminant in a single medium is expressed as the hazard quotient (HQ) (or the ratio of the estimated intake derived from the contaminant concentration in a given medium to the contaminant's reference dose). By adding the HQs for all contaminants within a medium or across all media to which a given population may reasonably be exposed, the Hazard Index (HI) can be generated. The HI provides a useful reference point for gauging the potential

significance of multiple contaminant exposures within a single medium or across media.

As discussed above, the incremental cancer risk, using all these conservative assumption factors is 7.1×10^{-6}. While this [risk] is within the 10^{-6} to 10^{-4} risk range that EPA uses to initiate remedial action, it is above the 10^{-6} "starting point" the EPA uses as a baseline for decisions.

When this is considered along with the threat of continuing degradation of the cap due to ATV and other traffic, we are making the following statement: Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

7. Description of Alternatives

The intent of this interim action is to reduce the health risk to people through inhalation and direct contact that utilize the landfill site for recreational activities such as motorcycle or all terrain vehicle riding, walking, jogging, or hunting. The health risk will also be reduced by providing protection for the existing cap. Furthermore, health risks will be minimized by maintaining the integrity of the existing cap. This means preventing people from wearing "tire track" grooves in the existing cap or using the landfill as a location for bonfires, shot gun shooting and other recreational activities. The objective will be met by restricting access to the immediate landfill area.

The following alternatives which were identified and evaluated in the FFS, will be developed and discussed using the following sequence: identification of remedial action objectives; identification, effectiveness, implementability, costs. Note: the costs presented in this decision document are different than those presented in the FFS. The cost figures have been revised to reflect the fact that costs associated with operation and maintenance of the leachate collection system are not included in this OU 2 remedy. These costs were originally included in the FFS (see Documentation of Significant Changes).

Alternative 1: No Action

Pursuant to the NCP, this alternative was developed to provide a baseline to which the other remedial alternatives can be compared. This alternative involves taking no action at the site to restrict access. In 1989, the EPA issued the first Record of Decision for this site which called for collection and treatment of leachate emanating from the landfill. This action continues to be implemented. A true "no action" as described in CERCLA, would imply shutting down this system, something, EPA would not consider at this time because of the adverse health risks associated with this action. The "no action" alternative considered under this study is actually a "no further action" and includes, as part of the costs, maintenance of the landfill cap. This on-going cost is also included in the other alternatives described below. Under this alternative, action would only occur in a reactive manner to either continual repair damage to the landfill areas by the grooving or tracking in the existing landfill or, potentially, extinguishing landfill fires.

Effectiveness

Since no "further" action would be taken to restrict access to the landfill area, not only would the current human health risks remain, but risks would expect to markedly increase as the grooving began to cut through the PVC cap and expose more of the hazardous substances buried there.

Implementability

No action is probably easier to implement than some of the alternatives listed below. However, as the incidence of site traffic increases, the amount of landfill and cap repair will also have to increase, and there is the real potential that maintenance costs could become very high.

Costs

The costs to date are approximately $500 for the existing signs, projected annual operation and maintenance for the cap (O & M) costs of $54,964 which includes $1,800 for an annual inspection and $52,914 for mowing, revegation, erosion control, drainage and freeze-thaw damage repair. This cost does not take into account the cost of controlling and extinguishing a landfill fire, which is a real concern based on the current uses of the landfill. The present worth cost estimate for this alternative is $682,550. The costs for 5-year site reviews are included in the Operation and Maintenance (O & M) and present worth costs for this alternative. (Note: 5 year reviews are required by CERCLA whenever hazardous wastes are left on site.)

Alternative 2: Additional Warning Signs

This alternative includes procuring either readily available or custom-made signs, and posting these signs at likely points of entry on to the landfill property. This alternative was not considered as a "stand alone" alternative, but rather something that would be considered in addition to one of the other considered options. The reason for no further consideration is that EPA has already posted 12 signs around the property at all probable site access points and it appears that they have been largely ignored.

Effectiveness

There are twelve signs posted by EPA around the property at all of the likely points of entry. Signs are often effective in warning people of the real and potential dangers associated with places and situations. In this

case, it appears that the present signs have been ineffective in preventing trespass or in decreasing any of the recreational activities on the site.

Implementability

Signs are readily available in either standard or custom made versions. Posting of additional signs would be easily accomplished both around the landfill and at other locations around the property.

Costs

The cost of additional signs for this site has been estimated to be $500 per year (replacement costs). O & M costs associated with replacing signs destroyed or damaged due to weathering or vandalism is estimated at $250. per year. The estimated time to purchase and install addition signs is one month. The present worth estimate for this alternative (by itself, no 5-year site reviews) is $3,602.

Alternative 3: Security Fence

This alternative includes the installation of a metal fence, chain link, eight feet high, topped with barbed wire. The fence would encompass the immediate landfill area including most of the access road on the east, south, and west sides of the landfill, the sediment pond, air stripping building, and monitoring well 3I. Four gates with locks would be installed to allow authorized personnel to enter other parts of the property to perform site related activities. Access would also be given to emergency vehicles and police. Maintenance of the fence and the existing cap is included in this alternative.

Effectiveness

Access controls such as fences are widely used at many types of hazardous activity sites, including construction sites, industrial facilities, and waste disposal sites. Security fences provide effective barriers in preventing unauthorized personnel and various types of animals from accessing the site. Furthermore, even if a fence is breached (i.e., cut), the fence line defines a visible boundary line beyond which it is clear to the public that further trespass is not permitted.

Implementability

Security fencing is a common and widely used technology to restrict access to specific areas. Equipment and skilled workers are readily available to implement this technology. Since the only remedial action involved with this alternative is the installation of a fence, protection of workers and the community from exposure to contaminated materials during remediation is not a major consideration since this action will not require contact with the leachate substance. A fence, even of this magnitude, could be installed in approximately five weeks, once a field crew and equipment are mobilized.

Costs

Capital cost for the installation of approximately 7500 linear feet of eight foot high security fence with four lockable gates and warning signs is approximately $135,500. The annual O & M costs associated with this alternative is projected at $55,405 of which $8,000 is projected for actual fence maintenance, and the remainder ($47,155) for the existing cap and additional warning signs($250). The present worth estimate for this alternative is $823,020 and includes the costs of 5-year site reviews.

Alternative 4: Security Fence With Remote Sensing Capabilities

This alternative is similar, in terms of size and scope, to alternative 3. However, in addition to the security fence, electronics would be added to detect where and when the fence was being compromised. In the event such a breaching was effected, a signal would be sent either to the local or state police office notifying these officials that such an event had occurred. Maintenance of the fence, in addition to the electronic sensing system(s), is included in this alternative.

Maintenance of the existing cap and the installation of additional warning signs is also included in this alternative.

Effectiveness

All of the effectiveness of the fence listed in alternative 3 (above) would be incorporated in this alternative. In addition, this alternative would be more effective in that there would be a quick alarm in the event a fence intrusion was sensed. There are two concerns with sensing devices; first, a number of sensing devices would be activated in the event an animal ran into the fence, or a tree branch fell onto the fence. In addition, responders,

such as local or state police, to the alarm may have difficulty in accessing parts of the property where a fence would be located.

Implementability

Security fences with remote sensing are widely used at various types of locations. As with "unsensed" fences, equipment and skilled workers are readily available to implement this technology.

As with alternative 3, the only remedial action involved with this alternative is the installation of a fence, protection of workers and the community from exposure to contaminated materials during remediation is not a major consideration. However, since this alternative calls for a response (to the alarm) by enforcement officials, and some response intrusion onto the landfill is expected to be made, on occasion, by these enforcement individuals, hazardous waste training will have to be provided in terms of personnel protection. The estimated time for installation of a fence with remote sensing capabilities is eight weeks.

Costs

Costs for implementation of this alternative are projected to be 37% higher than those for alternative 3. This cost increase is all for the addition of the remote sensing and alarm features. Therefore, the capital cost for this alternative is projected to be $185,500. The annual O & M costs associated with this alternative is projected to be $65,405 and is based on a $10,000 annual increase over alternative 3 for O & M of the remote sensing system. As with alternative 3, the remainder of the O & M costs are dedicated to the maintenance of the landfill cap and the additional warning signs.

The total estimated present worth of this alternative is $997,110 and includes the cost for 5-year site reviews.

Alternative 5: 24 hr. On-Site Security Guard

This alternative would involve bringing someone on-site on a permanent basis to serve as a sentry to keep trespassers from accessing the landfill area. A command post, or sentry station would have to be erected on the property along with the appropriate utility connections. Under this alternative O & M of the landfill cap would continue.

Effectiveness

Security Guards have been shown to be very effective in numerous situations. On-site presence is usually an effective deterrent, especially to acts of theft and vandalism. Unlike electronic systems, guards are able to distinguish between natural events, such as deer movement, and unauthorized trespass. In addition, guards (and guardposts) are visually less obtrusive than security fences. However, it is difficult to get around on the landfill because of the steep terrain and the poor condition of the roads. Because of the topography of the landfill area, no more than 20% of the landfill area is visible from any one location. Since the guard would need some sort of vehicle to patrol the site, it is anticipated that this guard vehicle would add to the destruction of the existing cap.

Implementability

Security Guards are commonly used to screen and restrict access to specific controlled areas. A number of local companies providing skilled guards are available. There are hazardous materials on the landfill, and the guard would be in relatively close contact with these substances. The guards would have to receive training in personnel protection and be included in a medical monitoring program. The estimated time to erect a sentry post with utilities and obtain qualified guards is eight weeks.

Costs

Capital costs would involve construction of a sentry post with utilities, which are projected at $30,000. Annual O & M costs would include the security guard labor ($87,600) along with utilities for the sentry post. O & M costs for the landfill cap ($54,964) and warning signs would also continue. Total annual O & M costs are projected to be $144,314. Total present worth of this alternative is estimated to be $1,821,292 and includes costs for 5-year site reviews.

8. Summary of Comparative Analysis of Alternatives

An analysis was performed on all of the alternatives using the nine criteria specified in the NCP in order to select a remedy for OU 2. An explanation of the nine criteria is attached as Exhibit A. These nine criteria are organized according to the group below:

THRESHOLD CRITERIA

Overall protection of human health and the environment
Compliance with applicable or relevant and appropriate requirements (ARARs)

PRIMARY BALANCING CRITERIA

Long-term effectiveness
Reduction of toxicity, mobility, or volume through treatment
Short-term effectiveness
Implementability
Cost

MODIFYING CRITERIA

Community acceptance
State acceptance

These evaluation criteria relate directly to requirements in Section 121 of CERCLA, 42 U.S.C. Section 9621, which determine the overall feasibility and acceptability of the remedy.

Threshold criteria must be satisfied in order for a remedy to be eligible for selection. Primary balancing criteria are used to weigh major trade-offs between remedies. State and community acceptance are modifying criteria formally taken into account after public comment is received on the Proposed Plan.

The following is a summary of the comparison of each of the alternative's strengths and weaknesses with respect to the nine criteria.

Overall Protection of Human Health and Environment

All of the alternatives evaluated for this remedy are considered to prevent contact with contaminated surface soil and leachate, thereby limiting human exposure and reducing future risks. Alternatives 3 and 4 provide the maximum protection in that they provide a physical barrier to the leachate seeps. Alternative 1 provides very little protection, and Alternative 5 is only somewhat protective

since it is impossible for a Security Guard to view the entire site from any one vantage point.

Compliance with ARARs

CERCLA requires that remedial actions meet applicable or relevant and appropriate requirements (ARARs) of other federal and state environmental laws. These laws may include, but are not limited to : the Toxic Substances Control Act, the Clean Water Act, the Safe Drinking Water Act, and the Resource Conservation and Recovery Act.

A "legally applicable" requirement is one which would legally apply to the response action if that action were not taken pursuant to Sections 104, 106, or 122 of CERCLA. A "relevant and appropriate" requirement is one that, while not "applicable", is designed to apply to problems sufficiently similar that their application is appropriate.

The purpose of this ROD is to provide access control as an interim action. Under the NCP, an alternative that does not meet an ARAR may be selected where the alternative is an interim measure, as here, and will become part of a total remedial action that will attain the ARAR. Therefore, this interim action is not required to specifically address ARARs for such media as groundwater, air, or soil, since those will be addressed in the next OU.

With respect to this interim action, PADER has, however, cited their Municipal Waste Management Regulations, specifically Section 277.212, as being relevant and appropriate for this type of action. That Section (which applies to Construction/Demolition Waste Landfills) provides for access control in the nature of a gate, fence, and an attendant for operating landfills. PADER has further clarified this citation as only applying to the portions regarding a gate and fence and not for having an attendant on duty. In as much as these regulations pertain to active landfills, EPA disagrees that these regulations are relevant and appropriate. Under the National Contingency Plan, this action is being undertaken to reduce the human health risk from both the physical and chemical hazards of being on the closed landfill and to minimize further damage to the existing closed landfill cap. This situation does not involve an active operating landfill, where much more stringent controls are required.

Even if the Municipal Waste regulations cited were ARARs, which they are not, a waiver of those ARARs would be justified under Section 121 of CERCLA because the State has

not consistently applied (or demonstrated the intention to consistently apply) this regulation in similar circumstances. That is, PADER has not consistently required fences (or attendants) at closed, inactive landfills such as this site. Not withstanding the above, EPA has addressed PADER's concerns regarding access control, in the form of a fence, by the interim action addressed in this ROD.

Long-Term Effectiveness and Permanence

The access controls are effective as long as they are enforced by EPA, or State and/or local authorities. Because this is an interim remedial action, these measures are not intended to be permanent, but only to prevent exposure during selection and implementation of the final remedial measures. The selected alternative may become permanent, if it is selected as part of the final remedy.

The fence alternatives should remain effective as long as the fence structures are maintained, although it is expected that, over time, the remote sensing units as discussed in Alternative 4 would experience a number of electrical problems during to the variations in weather conditions. One concern with the security guard option would be that, over time, the guard traversing over the landfill would tend to accelerate the degradation of the cap. The "no action" alternative would result in a significant shortening of the limited usefulness of the existing cap.

It is anticipated, however, that the selected alternative would continue to be implemented as long as the current site conditions persist.

Reduction of Toxicity,Mobility, or Volume Through Treatment

In as much as this is a interim measure for site access control, no "treatment" is proposed as part of any of the alternatives. Over time, contaminant levels in the present areas of contamination may gradually decrease through natural dilution, although the current extent of surface and ground water contamination may spread into uncontaminated areas.

Toxicity, as it applies to trespassers coming into contact with the leachate substances, will be reduced as all of the alternatives, except alternative 1, look to reduce the instances of direct contact. The fence alternatives,

both with, and without remote sensing, perform best in achieving this goal. The physical barrier will immediately eliminate contact with the contaminants in the leachate. The security guard is less effective since a security can only see a small part of the site from any one point.

Short-Term Effectiveness

Since the only remedial action involved with any of the proposed alternatives is light construction (either for a fence or a sentry post) off of the landfill, protection of workers and the community from exposure to contaminated materials during remedial actions is not a major consideration. Any of the alternatives can be completed within six weeks once a field crew and equipment are mobilized on site. One disadvantage of an on-site security guard is that the guard will be exposed on a daily basis to the leachate contaminants, whereas, fences minimize the need for on-site security presence.

Implementability

All of the remedies evaluated for this Decision have been proven reliable and are readily available. Security fences are one of the most commonly implemented security access controls in the world. Because of the length of the fence and the vegetated state of the property, remote sensing units, as discussed in Alternative 4, would probably require more maintenance than would be expected in a more developed area. In addition, the remote sensing units would have to be selected to sense only human intrusions. All of the access controls will be implemented within the central area of the property and will not impact any of the existing public access roads in the area. Adequate equipment and personnel are available to construct any of the remedies from a number of sources located within a few miles of the site.

With regard to permits, no permits would be required to implement any of the alternatives.

Cost

Estimated Costs for the various alternatives are presented in the table below:

Estimated Remedial Action Costs
(in Dollars)

Alternative	Capital	O & M	PresentWorth(Tot.Prs.Wt.)
1. No Action	$500.	$54,964.	$682,050.($682,550)
2. Additional Signs	$500.	$250.	$3,102.($3,602)
3. Security Fence	$135,500.	$55,405.	$687,520.($823,020)
4. Scrty. Fence w/ Remote Sensing	$185,500.	$65,405.	$811,610.($997,110)
5. Security Guard	$30,000.	$134,705.	$1,790,792.($1,821,292)

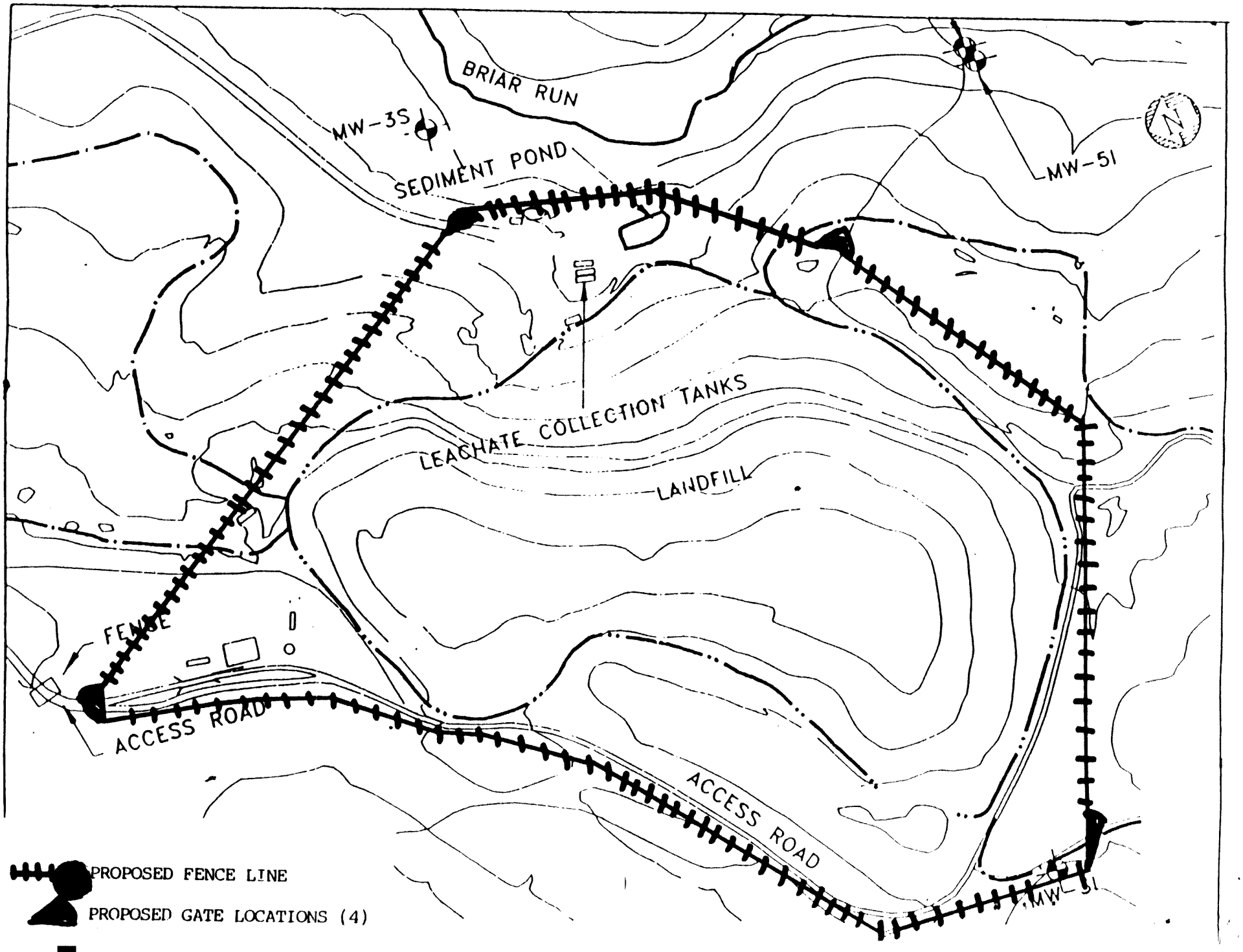
Based on the above cost comparison, the present worth cost of installing a fence is less than one percent more than no action. Based on the considerations discussed under the other criteria, EPA concludes that the installation of the fence identified in Alternative 3 is cost effective and considerably less expensive than either the fence with remote sensing capabilities or the security guard option.

State Acceptance

The Commonwealth of Pennsylvania agrees with the selected interim remedy.

Community Acceptance

Community Acceptance is assessed in the attached Responsiveness Summary. In general, the resident community is very much concerned over the continued, and increasing recreational use of this abandoned property. The community also agrees that security access controls (such as a fence or security guards) are needed to restrict access to the landfill area. Furthermore, there is general community agreement that Alternative 3 is both practical and will restrict access to at least some of the trespassers. There is concern by both the resident community and the responsible parties that the fence will be vandalized and recreational activities will continue on the property. If this happens EPA will work to target individuals or groups of individuals to educate them as to the hazards associated with this site, and, as needed, look to incorporate parts of some of the other alternatives, including additional signs.


BRIAR RUN
MW-3S
SEDIMENT POND
MW-51
LEACHATE COLLECTION TANKS
LANDFILL
FENCE
ACCESS ROAD
ACCESS ROAD
MW-51
PROPOSED FENCE LINE
PROPOSED GATE LOCATIONS (4)

9. Selected Remedy

EPA expects to issue a proposal for the final remedial action for the full site, including potential remedial alternatives, by the fall of 1991. While additional information is collected and analyzed, however, the potential risk to exposure to contaminated surface soil and leachate remains and it is necessary to protect human health and the environment while further information for OU 3 is collected and analyzed. Therefore, to eliminate the potential for exposure to contaminants from the site, EPA has selected this access control action as an interim remedial action.

The remedy selected is alternative 3, described above, which calls for the installation of a security fence around the perimeter of the landfill. As described in the proposed plan, this fence will consist of cyclone wire fencing to a height of eight feet and a top barrier of three strands of barbed wire (or the like.) The specifics of this fence, including the gauging of the support piping, the location and widths of the gates etc., will be developed during the remedial design phase of this remedy.

The site access restrictions are necessary to prevent current access to the site by trespassers, particularly children who live near the site. EPA has observed that the incidence of trespassing has increased significantly in the past six months. During the public meeting to discuss this remedy, there was general and unanimous agreement by the public in attendance, that trespassing is a serious problem at this site, especially on the portion of the site containing the landfill. The levels of volatile organic compounds and heavy metals identified as present on the landfill pose an unacceptable risk to such trespassers. Additionally, worsening of the site conditions occur when vehicular or equestrian traffic destroys the sparse soil cover and (already torn) liner on top of the landfill.

In addition, in response to the comments raised by the public, EPA will look to do the following:

1) Conduct an education session at local schools,
2) Speak to some nearby residents who have been identified as frequenting the site for recreational purposes,
3) Discuss the issue of trespass enforcement with the personnel in the local State Police barracks.

The total Capital cost for the security fence and additional signs is estimated at $135,500., the total on-going annual O & M costs for this alternative is $55,405.,

of which approximately $8,000. is estimated for actual fence maintenance. The estimated present worth of this alternative is $823,020.

During the public comment period, a number of residents and potentially responsible parties expressed doubt that the fence would serve as a suitable deterrent to keep trespassers out. In the event that the fence is not successful in restricting access to trespassers, EPA, in consultation with PADER, will evaluate some of the other alternatives, such as posting an on-site security person during periods of increased trespassing activity as may occur on week ends or during hunting seasons.

If implementation of the selected remedy demonstrates, in corroboration with physical and chemical evidence, that it will not be possible to meet the interim remediation goals for this action, and it is thus technically impracticable (either technically infeasible or unreliable) to achieve and maintain the security access controls throughout the landfill area, the EPA, in consultation with the Commonwealth of Pennsylvania, would intend to amend this ROD or issue an Explanation of Significant Differences to inform the public of alternative access controls.

10. Statutory Determinations

The selected remedy is protective of human health and the environment as required by Section 121 of CERCLA. Potential risks from exposure to contaminated surface soil and leachate are prevented by the installation of physical barriers that restrict access to the landfill area.

The selected remedy is the most cost-effective interim action approach available to protect human health and the environment. The selected remedy uses security access control to eliminate the potential for direct (inhalation and immediate contact) human exposure to contaminated surface soil and landfill leachate. The selected remedy is also protective of the existing cap and the leachate collection and treatment system, which was installed as part of OU 1.

The five-year review required by Section 121 of CERCLA is applicable to the selected remedy. This review will be conducted in conjunction with the other remedial actions developed and specified for this site.

Protection of Human Health and the Environment.

The security access control proposed prevents contact with contaminated surface soil and landfill leachate, thereby limiting human exposure and reducing potential future risks below the level of concern.

The installation of the fence will not pose a significant health problem to the workers, nor will it enhance, or otherwise promote air or groundwater contamination.

Compliance with Applicable or Relevant and Appropriate Requirements.

As stated above there are no ARARs, criteria, or guidance that apply to this type of security access control at a closed landfill facility. The PADER does have a requirement for active landfills, PA Section 273.212, that they be enclosed by a fence. While this is not an ARAR for this site for the same reasons presented with respect to the Pennsylvania Municipal Waste Management Regulation discussed in Section 8. above this action will satisfy that requirement of Section 273.212 for a fence.

Cost-Effectiveness.

The selected remedy affords overall protectiveness proportionate to its costs. Fences have shown, if only through their universal application, that they are an economical and effective means to restrict access onto a specific area.

Utilization of Permanent Solutions and Alternative Treatment (or resource recovery) Technologies to the Maximum Extent Practicable (MEP).

The selected remedy utilizes a permanent solution to the maximum extent practicable. EPA has used treatment for past remedies at this site and intends to implement further treatment technologies (again, as practicable) for future actions at this site.

As an interim action, a security fence is most effective as a quick, short time implementation remedy. It is both relatively inexpensive and technologically simple to construct and provides the best balance of trade-offs among the alternatives with respect to the pertinent evaluation criteria, given the limited scope of this action. It is expected that in the long term it will be effective in keeping a high percentage of trespassers out of the landfill portion of the property, even if the fence line is breached. In as much as the security fence is effective in keeping these people from the landfill area, it will be effective in reducing the toxilogical impacts of direct contact with the effects of hazardous wastes present in the leachate seeps. It will also be protective of both the landfill cap (from grooving and campfires) and the leachate collection and treatment system (from vandalism). Furthermore, the fence and signs satisfy the restrictions raised and requested by the community during the public meeting regarding landfill control.

Of the criteria discussed above, the most decisive factor was the ready implementablity of this remedy along with its relatively low cost.

Preference for Treatment as a Principal Element.

The selected remedy does not utilize any treatment. As an interim action, access to the area of soil contamination and landfill leachate will be eliminated to all but trained, authorized, remedial personnel. The principal treat of direct contact exposure, especially to children trespassing on the site, will be eliminated.

The preference for treatment as a principal element will be addressed by EPA in the final decision document (OU 3) for the site.

There were several factors for selecting Alternative 3. It is cost effective, it is protective of human health, the landfill cap, and the leachate collection system. Alternative 3 is also easily and quickly implementable. No unacceptable short term risks or cross media impacts will be caused by implementation of this remedy.

11. Documentation of Significant Changes

While it is not felt to be highly significant, the selected remedy, as well as the other alternatives considered, differ in one respect from the description of the remedy in the proposed plan and the FFS. The proposed plan and the FFS included costs and O & M for the leachate collection and treatment system. Upon further review, it was decided that the costs associated with these elements were better addressed (and had been addressed) under the remedy for OU 1.

RESPONSIVENESS SUMMARY FOR STRASBURG LANDFILL SITE

A. OVERVIEW

At the time of the public comment period which ran from April 18, 1991 to May 18, 1991, EPA had already selected a preferred interim access control for the Strasburg Landfill. EPA's recommended alternative was the erection of an eight foot high security fence around the circumference of the landfill portion of this property, a linear distance of approximately 7,500 feet. Judging from the comments from the public and the Commonwealth of Pennsylvania, there is strong support for limiting access to the landfill area.

In response to the proposed plan and the documents contained in the administrative record developed for this interim remedy, the EPA received only two written comments(received from two potentially responsible parties (PRPs). The issues raised in these letters are addressed below:

B. Summary of Written Comments Received During the Public Comment Period

Comment: The risk estimate is low enough that no action needs to be taken.

Response: The risk estimate developed as a result of the sampling conducted on the site showed that the exposure risk for on site exposure was 7.1×10^{-6}. EPA believes that this risk is sufficient to warrant this remedial action. Furthermore, the action is consistent with the guidance regarding remedy selection as contained in Section 300.430 of the NCP. In addition to the risk, EPA believes that this interim action is warranted based on the observed incidences of vandalism at the leachate collection system and degradation to the existing cap caused by unauthorized recreational activities on the landfill.

Comment: The exposure calculation is too high.

Response: The exposure calculation used by EPA is very conservative. It was based on an individual utilizing the site an average of 1.5 times per week. While EPA feels that the actual frequency of exposure will be somewhat seasonal-dependent, the seasons in which the frequencies are likely to be the highest are those where the trespassers will have the maximum amount of dermal exposure, i.e., the late spring, summer, early fall seasons. Furthermore, discussions with bikers who have frequented the site indicate that they do not wear

any sort of protective gear. Usual dress for these events is short pants, optional T shirt, and sneakers.

The total number of trespassers is unquantified; however, observations and comments from the public would place the number of the various recreational users of the site well up in the hundreds (joggers, hunters, "camp-fire makers", dirt bike riders, horse back riders).

The exposure limit of 30 years is realistic because people will continue to frequent the site if left unrestricted and, furthermore, EPA has not as yet determined a course of action for further remedial action at the site.

The commenter also pointed out that the leachate area is only a single 20 X 20 foot area. In fact, as satellite photos (interpreted) have shown, there are numerous (over a dozen) locations around the landfill where leachate is coming out of the landfill.

Comment: Fencing the site is ineffective in keeping people from the landfill property and also a three foot cyclone fence and signs would be just as effective as an eight foot security fence.

Response: The fence will be constructed in a location which will not be visible from nearby Strasburg Road and a determined individual will be able to compromise the security of the fence without a considerable amount of planning and effort. This, however, is the nature of fences. It is hoped that this fence will remain as intact as the fence has around the command post which was built for the first remedial action. Even in the event that the fence is cut or otherwise breached, the majority of the fence will remain intact and will serve as an access deterrent to the majority of trespassers and also will stand as a statement by EPA that access to this area is meant to be restricted.

A three foot fence was not considered effective because even a child could lift a dirt bike over such a low barrier. Furthermore, EPA's experience has shown that trespassers sometimes use these low barriers to create ramps for further recreational enjoyment. Also, the commenter suggested that coils of razor wire be installed around hot spots. EPA feels that the risk of children riding dirt bikes on the landfill and falling into razor wire is unacceptable.

It is not clear that this commenter is aware that signs are currently posted around the property. These signs are posted at all of the normal egress routes onto the property and clearly indicate that hazardous wastes are present on the site. While these signs have been clearly posted, it is apparent that they have ignored by the trespassers. EPA will, however, look to post additional signs on the fence of the landfill.

Comment: The most appropriate course of action would be to address only the "hot spot" areas on the landfill.

Response: In the time that EPA has overseen the remediation of this landfill, a number of additional leachate seeps have emerged. Since new seeps appear on occasion, and there is also some visual evidence that there are some intermittent seeps, it would be inappropriate to address only existing "hot spot" areas. There is no good evidence to even identify areas of the landfill where one could project seeps likely to occur.

Comment: The costs of the proposed remedies should be shared by all of the responsible parties, including generators, transporters, and disposers.

Response: This comment goes to the issue of enforcement and not to the specific remedy proposed, which is the subject of this Responsiveness Summary.

As part of this written comment, commentary was also provided regarding the draft Remedial Investigation (RI) report, parts of which were used for this decision to support the risk assessment. These comments, with EPA's responses, are:

1. EPA should identify OSHA, NIOSH and ACGIH limits for vinyl chloride.

Response: The cumulative risks associated with the chemicals determined present at this site are discussed in detail in Section 5, Human Health Risk Assessment, of the draft report.

2. Zarzicki's septic tank should be considered as a source of contamination for his drinking water well.

Response: EPA considered this possibility; however, the contaminants at monitoring wells nearer to the landfill show higher levels of the same contaminants, and these contaminants are not those typically associated with septic tank operation.

3. EPA should have used independent validation for their data analysis.

Response: Within EPA Region 3, separate offices are used to collect the data and perform data validation.

4. The RI should clarify the use of an asphalt primary liner.

Response: The purpose of this RI was to determine the nature and extent of contamination. Facts concerning the subject liner will be evaluated during the design phase of the remedy dealing with those aspects and is not of concern with regard to this selected remedy.

5. A water balance needs to be performed to determine if infiltration is excessive.

Response: This comment is acknowledged; however, it is felt to not be of concern with regard to this selected interim remedy. This comment will be reviewed in regard to finalizing the RI document in connection with the next operable unit.

6. Other data more recent than 7-8 year old data should be used to support remedy decisions.

Response: The underlying implication of this assertion is wrong. Data from sampling as recent as December 1990 was considered in developing this remedy.

7. EPA should point out that landfill design was compatible with Diamond Shamrock's PVC waste.

Response: The high levels of PVC measured in the soil gases makes it clear that PVC is escaping through the PRP designed and constructed cap.

8. All known users and generators should be listed in Table 1-4.

Response: The users and generators listed are presented to typify those who used this landfill. EPA is continuing to develop information with regard to the complete list of potentially responsible parties for this site.

9. Problems associated with analytic interpretations regarding vinyl chloride determinations should be explained in the report.

Response: EPA has considered and adapted this recommendation; the data used in the risk assessment was appropriately qualified. This information along with the appropriate qualifiers is contained in Volume II of the Remedial Investigation. None of the data qualified as "R" was used in the risk assessment.

10. PVC Wastes were adequately described in the approved module.

Response: This comment is acknowledged; however, the PVC wastes are not affected by this selected interim remedy. This comment will be reviewed in regard to finalizing the RI document in connection with the next operable unit.

11. Requests that a statement be included that PADER should not have allowed broken shale to be placed on top of the liner.

Response: EPA disagrees with this comment at this time.

12. Requests that the following information be obtained before an interim remedy is installed:

a) methane and total gas generation rate;
b) landfill gas pressure;
c) waste elevations;
d) liner elevations (multiple);
e) leachate collection elevations (multiple);
f) groundwater elevations in and directly adjacent to the landfill.

Response: This comment is acknowledged; however, none of these issues are affected by the interim remedy. This comment will be reviewed prior to finalizing the RI in connection with the next operable unit.

13. Tables in the report should be revised to reflect elevation levels.

Response: This comment is acknowledged, however, it is not related to this selected interim remedy. This comment will be reviewed prior to finalizing this document in connection with the next operable unit.

14. Requests the report to state that vinyl chloride is present due only to the degradation of other solvents.

Response: EPA disagrees with this conclusion and will not include such a statement in this report. There are several different routes through which vinyl chloride was deposited at the site, including, for example, direct deposit of "off-spec" vinyl chloride product by manufacturers.

15. Requested a clarification of the bioassay results.

Response: This comment is acknowledged; however, it is not relevant to this selected interim remedy. This comment will be reviewed prior to finalizing the RI document in connection with the next operable unit.

16. There is no basis to suspect any "separate phase dense chlorinated organics were associated with the waste [Diamond Shamrock] PVC".

Response: EPA agrees with this comment.

17. Requested that the RI be amended to include a statement that the landfill was inappropriately located over an intermittent stream and should never have been allowed to operate by PADER.

Response: EPA has no evidence to substantiate this allegation; consequently no such statement will be included. Furthermore, this comment has no bearing on the selected remedy or data supporting it.

18. Requested that the site be reconsidered as two separate sites and then each site should be separately evaluated for inclusion on the NPL.

Response: EPA has already concluded its evaluation on this matter and is satisfied that the site has been appropriately identified and scored. EPA disagrees that this proposed approach is more protective.

Comment: Parties representing the Newlin Corporation and the Somerset Strippers of Virginia assert that they were not involved in the operation of the landfill.

Response: EPA does not agree with this assertion and will not include such a statement in the report.

C. Comments Raised During The Public Meeting:

During the public meeting, which was held on April 30, 1991 a number of comments were raised. All of these comments were raised by the residents who live in the vicinity of the landfill. These comments are summarized below:

Comment: There are concerns that a fence, being located in a remote area will only be cut and recreation will continue on the landfill.

Response: There is the possibility of the fence being cut, however, EPA feels that the mere presence of the fence will keep out a large majority of the trespassers; and, through scheduled maintenance, the fence will be repaired on a routine basis thereby limiting, even further access to the landfill.

Comment: The fence should contain some remote sensing capabilities

Response: After a few comments, the public agreed that, even if an alarm is set off, given the terrain of the landfill, it is difficult for enforcement officials to adequately respond to the landfill and, ultimately, there are no advantages to a remote sensing fence over a standard fence at this location.

Comment: Additional signs with stronger warnings should be posted on the fence.

Response: EPA had proposed additional signs as an "add on" alternative. Based on the community concerns EPA has added additional signs as part of the selected remedy.

Comment: EPA needs to do a better job communicating the risks associated with the landfill to both some of the trespassers and to the State Police.

Response: EPA has responded to this request by going out and meeting with some of the people who were identified as using the site for recreation and has also scheduled a meeting with the State Police to discuss site security.

D. Concerns Raised by the Pennsylvania Department of Environmental Resources (PADER)

In addition to a number of general Applicable or Relevant and Appropriate Regulations (ARARs) for site remediation, the PADER cited several action-specific ARARs for the Strasburg Landfill. These comments (with response by EPA) are as follows:

1) EPA should consider PA Municipal Waste Regulation Section 277.212 regarding site access control.

   Response: EPA and PADER are in agreement that access needs to be restricted to the landfill area. EPA disagrees that this regulation is relevant and appropriate for this site. The Regulation cited is for an active landfill whereas this site is a closed landfill. PADER does not routinely require fencing of closed landfills nor do they routinely require an attendant to be on duty. The fence which was selected as the remedy in this Decision will satisfy the PADER regulatory requirements for closed landfills with regard to the access control.

2) EPA should include a sketch with the proposed location of the map.

   Response: EPA has included a sketch of the fence line in the ROD.

3) A copy of the Risk Assessment needs to be provided to PADER for this interim remedy.

Response: The Risk Assessment was included with the finalized Focused Feasibility Study (FFS) which was sent to PADER.

4) EPA needs to be more specific with regard to the specifications for the fence.

Response: The specifics of the fence will be included at the design stage of this project and PADER will have an opportunity at that time to provide additional input.

E. Remaining Concerns

The main issue the public focused upon was that since the landfill was located on a remote portion of the property that the proposed fence would be vandalized so that access could be gained to the landfill area. This (vandalism) has occurred at other sites administered by EPA. In light of this experience, part of the O & M costs projected for this remedial action is for repair of fence cutting and gate vandalism. In the event that the vandalism continues and the O & M shows to be ineffective, EPA will then, in that light and in the light of the remedial status of the landfill at that time, evaluate some of the other alternatives reviewed in this action, such as remote sensing devices, and on-site security guards.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428
215-832-6012

June 28, 1991

Mr. Edwin B. Erickson
Regional Administrator
U.S. Environmental Protection Agency
841 Chestnut Building
Philadelphia, PA 19107

Re: Letter of Concurrence
Strasburg Landfill
Superfund Site
Newlin Township, Chester County
Interim Record of Decision
Operable Unit #2, Site Access Control

Dear Mr. Erickson:

The Interim Record of Decision, concerning a specific action to be taken at the Strasburg Landfill Superfund Site, has been reviewed by the Department.

The major components of the selected remedy for the Site Access Control Operable Unit #2 include:

* Construction of a fence around the landfill perimeter. The fence will enclose leachate seeps, contaminated soils, an air stripper for leachate treatment, and a soil borrow area.

* Construction of four gates to permit access by trained authorized personnel.

I hereby concur with the EPA's proposed action, with the following conditions:

* The Pennsylvania ARARs for a fence or barrier to control access, as specified by 25 Pa Code Sections 273.212 (a)(b)(c) and 277.212 (a)(b)(c), will be adhered to.

* It is understood that EPA is not waiving Pennsylvania ARARs for this final remedy at this time.

* The Department will be given the opportunity to evaluate appropriate remedial alternatives to insure compliance with Pennsylvania ARARs and to concur with future decisions related to the design of the remedial action.

* EPA will assure that the Department is provided an opportunity to fully participate in any negotiations with responsible parties.

* The Department's position is that its design standards are ARARs pursuant to CERCLA Section 121 as amended by SARA, and will reserve our right to enforce those design standards.

* The Department will reserve the right and responsibility to take independent enforcement actions pursuant to State law.

* This concurrence with the selected remedial action is not intended to provide any assurance pursuant to CERCLA Section 104 (c)(3) as amended by SARA.

Thank you for the opportunity to concur with this EPA Record of Decision.

If you have any additional questions in this matter, feel free to contact me.

Very truly yours,

Leon T. Gonshor
Regional Director

cc: Office of Environmental Protection
Mr. Snyder
Ms. Hoffman
Mr. Lynn
Mr. Danyliw
Mr. Cole
Mr. Gelburd
Mr. Olewiler
Re (G) LB819