

Five-Year Review Report

Second Five-Year Review Report

Blosenski Landfill
Superfund Site
West Caln Township
Chester County, Pennsylvania

September 2008

Prepared By:

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Region III
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List of Acronyms

AO	Administrative Order
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
MCL	Maximum Contaminant Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
OU	Operable Unit
PADEP	Pennsylvania Department of Environmental Protection
PCBs	Polychlorinated Biphenyls
ppb	part per billion
ppm	part per million
PRP	Potentially Responsible Parties
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SARA	Superfund Amendments and Reauthorization Act of 1986
SDWA	Safe Drinking Water Act
UAO	Unilateral Administrative Order
VOC	Volatile Organic Compounds

Executive Summary

The selected remedy for the Blosenski Landfill Superfund Site required work to be performed in four separate phases, or operable units. The operable units are as follows:

- OU1 - provision of a public water supply line;
- OU2 - excavation and removal of buried drums from the Site;
- OU3 - installation of monitoring wells, extraction and treatment of groundwater;
- OU4 - construction of an impervious cap over the entire landfill area

These remedial action elements have proven effective in reducing the risk of direct contact exposure to the groundwater and soil contamination and controlling the migration of contaminants from the Site. During the Site inspection it was noted that the landfill cap was intact and well vegetated and the slopes showed no signs of erosion. Statistical analyses of the ground water monitoring data indicate that concentrations of organic contamination are decreasing over time. EPA believes that these decreases are due to the remedial actions; i.e. the drum excavation and removal, the groundwater extraction and treatment system, and the landfill cap. The Site achieved construction completion with the signing of the Preliminary Close-Out Report on September 18, 1998. The trigger for this review was the issuance of the first five year review.

This second Five-Year Review for the Blosenski Landfill finds that the remedy was implemented in accordance with the requirements of the Record of Decision, as amended by the 1991 Explanation of Significant Differences.

The remedial actions at OU1 and OU2 are protective. A waterline (OU1) has been installed to prevent exposure to contaminated groundwater, and drum removal activities (OU2) eliminated the immediate threats posed by these wastes.

The remedial actions associated with OU3, extraction and treatment of contaminated groundwater, and OU4, landfill cap, are expected to achieve protectiveness in the long term, but a protectiveness determination for both of these operable units is being deferred at this time. The protectiveness determination is being deferred until the following issues are addressed: 1) vapor intrusion; 2) 1,4-dioxane; 3) landfill gas; 4) institutional controls; 5) change in performance standards not documented adequately; and 6) reporting limit for pentachlorophenol. The following actions need to be taken: 1) vapor intrusion evaluation; 2) sample collection for 1,4-dioxane; 3) chemical-specific landfill gas sampling; 4) establishment of appropriate institutional controls; 5) modify the decision document to change the performance standards; 6) revise the analytical method for pentachlorophenol. It is expected that these actions will take approximately two years to implement at which time a protectiveness determination will be made.

Government Performance and Results Act (GPRA) Measure Review

As part of this Five-Year Review, the GPRA measures have also been reviewed. The GPRA Measures and their status are provided as follows:

Environmental Indicators

Human Health: Current Human Exposure Controlled and Protective Remedy In-Place
Groundwater Migration: Groundwater Migration Under Control

As a result of this Five-Year Review, EPA plans to change the Human Health Environmental Indicator to: Insufficient Data to Determine Human Exposure Control Status (HEID)

Sitewide RAU

The Site is not Site-Wide Ready for Anticipated Use (SWRAU) but is expected to achieve SWRAU on September 30, 2010.

Based on the projected date for implementation of institutional controls, the planned date for achieving SWRAU will be changed to December 2011.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name: Blosenski Landfill Superfund Site		
EPA ID: PAD 980508816		
EPA Region III	State: Pennsylvania	City/County: West Caln Township/ Chester County
SITE STATUS		
NPL status: <input checked="" type="checkbox"/> Final <input type="checkbox"/> Deleted <input type="checkbox"/> Other (specify)		
Remediation status (choose all that apply): Under Construction <input type="checkbox"/> Operating <input checked="" type="checkbox"/> Complete		
Multiple OUs?* <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	Construction completion date: 09 /18 /1998	
Has Site been put into reuse? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
REVIEW STATUS		
Lead agency: <input checked="" type="checkbox"/> EPA <input type="checkbox"/> State <input type="checkbox"/> Tribe <input type="checkbox"/> Other Federal Agency		
Author name: Timothy M. Gallagher		
Author title: Remedial Project Manager	Author Affiliation: U.S. EPA Region 3	
Review period: 12/13/2007 to 9/2008		
Date(s) of Site inspection: 4/2/2008, 4/10/2008		
Type of review: <input type="checkbox"/> Post-SARA <input checked="" type="checkbox"/> Pre-SARA <input type="checkbox"/> NPL-Removal only <input type="checkbox"/> Non-NPL Remedial Action Site <input type="checkbox"/> NPL State/Tribe-lead		
Review number: <input type="checkbox"/> 1 (first) <input checked="" type="checkbox"/> 2 (second) <input type="checkbox"/> 3 (third) <input type="checkbox"/> Other		
Triggering action: Previous Five-Year Review Report		
Triggering action date: 09/30/2003		
Due date (five years after triggering action date): 09/30/2008		

* "OU" refers to operable unit.

Five-Year Review Summary Form, cont'd.

Issues:

1. Evaluation of potential vapor intrusion pathways.
2. Evaluation of the presence of 1,4-dioxane in the groundwater.
3. Landfill gas emissions.
4. Institutional controls not established.
5. A change in the groundwater performance standards was not documented adequately.
6. The reporting limit is above the regulatory limit for pentachlorophenol.

Recommendations and Follow-up Actions:

1. Perform a vapor intrusion evaluation.
2. Perform groundwater sampling for 1,4-dioxane.
3. Perform chemical-specific sampling of landfill gas to evaluate risk and explosive hazard.
4. Modify remedy to address institutional controls.
5. Modify the decision documents to reflect the appropriate groundwater performance standards.
6. Revise the analytical method for pentachlorophenol.

Protectiveness Statement:

This second Five-Year Review for the Blosenski Landfill finds that the remedy was implemented in accordance with the requirements of the Record of Decision, as amended by the 1991 Explanation of Significant Differences.

The remedial actions at OU1 and OU2 are protective. A waterline (OU1) has been installed to prevent exposure to contaminated groundwater, and drum removal activities (OU2) eliminated the immediate threats posed by these wastes.

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I. INTRODUCTION

The purpose of the Five-Year Review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in Five-Year Review reports. In addition, Five-Year Review reports identify issues found during the review, if any, and identify recommendations to address them.

The U.S. Environmental Protection Agency (the "Agency" or "EPA") is preparing this Five-Year Review report pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) §121 and the National Contingency Plan (NCP). CERCLA §121 states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the Site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such Site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.

The agency interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the Site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

The statutory requirement to conduct a Five-Year Review in CERCLA §121 applies to remedial actions selected after the effective date of the Superfund Amendments and Reauthorization Act (SARA), October 17, 1986. The Blosenski Landfill Record of Decision (ROD) was signed on September 29, 1986, which predates the SARA. For Sites where a statutory review is not specifically required, reviews may be conducted as a matter of policy for any of the following type actions:

I. A pre-SARA remedial action that leaves hazardous substances, pollutants, or contaminants above limits that allow for unlimited use or unrestricted exposure.

II. A pre-or post-SARA remedial action that, upon completion, will not leave hazardous substances, pollutants, or contaminants above levels that allow for unlimited use or unrestricted exposure, but will take longer than five years to complete, i.e. achieve the

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cleanup levels that allow for unlimited use and unrestricted exposure.

III. A removal action for a Site on the NPL that leaves hazardous substances, pollutants, or contaminants on-Site above levels that allow for unlimited use and unrestricted exposure, and where no remedial action has or will take place.

The pre-SARA remedial action described above (item I) corresponds to the remedy implemented at the Blosenski Landfill Site; therefore EPA Region III has conducted this Five-Year Review of the remedy as a matter of policy because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure.

This review was conducted by the Remedial Project Manager (RPM) for the entire Site from December 2007 through September 2008. This report documents the results of the review.

This is the second Five-Year Review for the Blosenski Site. The triggering action for this review was the issuance of the first Five-Year Review in 2003.

II. SITE CHRONOLOGY

Table 1 - Chronology of Site Events

Event	Date
Site served as local dump for area residents	1950s to 1971
The Site was purchased by Joseph M. Blosenski, Jr. and was operated as a dump for various construction and hazardous chemical wastes from local industries	1971 to Approximately 1982
EPA first visits the Site, conducts a limited removal action and proposes Site to the NPL	Approximately 1980-1982
Final Listing on EPA's National Priorities List	September 8, 1983
Record of Decision signed	September 29, 1986
Water Line (OU 1) is completed (fund lead)	December 20, 1990
Unilateral Administrative Order (UAO) is issued for OU 2, Drum Removal	December 31, 1990
ESD issued for incineration and disposal of excavated drums and associated contaminated soils	June 14, 1991
Drum Removal Remedial Action completion	March 22, 1993
Unilateral Administrative Order (UAO) for Remedial Design/Remedial Action of OUs 3 and 4 is issued	December 22, 1993
Consent Decree with Potentially Responsible Parties is signed for past costs and completion of OUs 3 and 4	September 8, 1995
OU 4 Multi-layer Cap construction completed	September 29, 1997
OU 3 Groundwater extraction and treatment system installation complete	September 16, 1998
Pre-final inspection of all Remedial Actions	September 4, 1998
Preliminary Close Out Report signed	September 18, 1998
O & M Plan approved by EPA	December 18, 1998
First 5-YR Review signed	September 30, 2003
GW extraction and treatment system shutdown/rebound test	December 2004–April 2006

III. BACKGROUND

Physical Characteristics

The Blosenski Landfill Site is located on 13.6 acres in West Caln Township, Chester County, Pennsylvania (Figure 1). At the time the ROD was written, the Site was surrounded by farms and woods. However, over the past 23 years, the area surrounding the Site has primarily been developed into single family residences with approximately 600 people living within 1/4 mile of the Site. The closest residence to the Site is approximately 200 feet west of the Site entrance. Many of the homes (approximately 50) forming the northern boundaries of the Site are still served by individual wells. The majority of the new residences are served by public water.

The Site is located on top of fractured bedrock (the Chickies Formation, which is prevalent throughout the area), along the hydraulic divide between the Delaware River Basin (southeastern portion of the Site) and the Susquehanna River Basin (northern and western back 2/3 of Site). Groundwater flow patterns mirror the Basin divides.

A perennial, unnamed tributary of Indian Spring Run flows approximately 500 feet southwest of the Site. This tributary runs about two miles to the west before joining Indian Spring Run. Indian Spring Run joins Pequea Creek about 3.5 miles west of the Site. Pequea Creek eventually flows into the Susquehanna River, approximately 30 miles southwest of the Site.

Land and Resource Use

The Site operated as a landfill for the disposal of municipal and industrial wastes from sometime in the 1950s until 1982. Solvents, paints, leaking drums and tank truck contents were dumped randomly into the unlined landfill. The landfill was ordered to cease operation by the Chester County Health Department in 1971. In response to citizen concerns, regulatory actions were taken against the facility.

Land use in the area surrounding the Site is mixed agricultural/residential. There are two auto repair/service stations located within 100 yards of the Site. The nearest residences

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are located approximately 200 feet from the Site. While there is some agricultural land use located within ½ mile of the Site, the majority of the surrounding land has been utilized for residential development.

History of Contamination

Beginning sometime in the 1950s the Site was reportedly operated by Perry Phillips as a landfill for the disposal of municipal and industrial wastes. The Site was purchased by Mr. Joseph M. Blosenski, Jr. in 1971. From that time until the early 1980s the Site was used for dumping both industrial and municipal wastes along with construction debris. Wastes dumped at the Site included drummed industrial materials, tank truckloads of industrial liquids and sludges, and municipal and commercial refuse. Materials reported to have been disposed of on-Site include organic and inorganic solvents, industrial strength acids (i.e. battery acids), caustics, paints, inks, automotive anti-freeze, undercoating materials, wastewater treatment sludges, cans of joint cement/sealer, demolition and construction wastes, wallboard and plaster, concrete block, paper, scrap plastics, open and leaking drums, and leaking tank trucks.

Initial Response

As a result of a request by the Commonwealth of Pennsylvania concerning leaking tank trucks and leaking drummed wastes present on the property, EPA first visited the Site in 1982 and performed a limited removal action that consisted of draining and disposal of the tank trucks and their contents and disposal of the leaking drums of waste material. The Site was proposed to the National Priorities List (NPL) on December 30, 1982 and listed on the NPL on September 8, 1983.

Subsequent to the listing and the removal actions, EPA performed a Remedial Investigation (RI) and a Feasibility Study (FS). These were both completed in September, 1986. The Record of Decision for the Site was signed on September 29, 1986.

Basis for Taking Remedial Action

Organic and inorganic chemical substances were detected in the various waste, air, surface and subsurface soil, groundwater, sediment, and surface water samples collected at the Site. The apparent source of contamination in the area is the waste buried and dumped on the soil at the Site.

The major exposure pathway and subsequent health risk at the Site is the ingestion and domestic use of contaminated groundwater. The major contaminants detected in the monitoring wells and residential wells were VOCs.

The RI identified and evaluated Site-related contaminants, their potential migration routes, and exposure pathways for human and ecological receptors. The following lists of contaminants are taken from the RI and are reflective of conditions at the time the RI was written.

Hazardous substances that have been released at the Site in each media include:

Surface Water and Sediment

Surface water samples collected from the stream and the stream bed contained the following volatiles: 2-butanone, 1,1-dichloroethane, chloroform, 1,2-dichloroethene, vinyl chloride, trichloroethene

Surface and Sub-Surface Soil

Surface and Sub-Surface Soil sampling detected the following volatile organics, semi-volatile organics, and inorganics: benzene, 2-hexanone, toluene, bis (2-ethylhexyl) phthalate, ethylbenzene, toxaphene, xylenes, 1,2,4-trichlorobenzene, 1,1,1-trichloroethane, 1,3-dichlorobenzene, 1,2-dichloroethene, bis (2-chloroisopropyl)ether, tetrachloroethene, 2,4-dinitrotoluene, trichloroethene, arsenic, cadmium, acetone, mercury, 2-butanone, lead, 4-methyl-2-pentanone, chromium, phthalate esters, phenols, naphthalene, PAHs, isophorone, 3,3-dichlorobenzidine, 1,4-dichlorobenzidine, 1,1 dichloroethane, PCBs, diethyl-phthalate, dibenzofuran, N-nitrosodimethylamine, benzoic acid, chloroethane

Groundwater

EPA detected concentrations of the following chemicals in the groundwater: 4-methyl-2-pentanone, benzene, toluene, 2-butanone, 1,2-dichloroethene, ethylbenzene, xylenes, chlorobenzene, 1,1,1-trichloroethane, 1,2-dichloroethane, chloroethane, tetrachloroethene, trichloroethene, 1,1-dichloroethene, 1,2-dichloroethene, vinyl chloride, chloroform, acetone.

IV. REMEDIAL ACTIONS

Remedy Selection

The Blosenski Site ROD was signed on September 29, 1986. The selected remedy was to be performed in four separate “phases”, later renamed “Operable Units”:

Operable Unit 1 - Installation of a public water supply line.

Initially, it was expected that 12 residences would require connection to the new public water supply line. This number was later expanded to 77 residences based on monitoring and residential well sampling results. The capacity in the existing system was increased in 1999 when upgrades to the waterline and the nearby pumping station (located at the intersection of Ash Road and Route 340) were completed. This public water supply line is now owned and operated by Aqua Pennsylvania, formerly known as the Philadelphia Suburban Water Company.

Operable Unit 2 – Drum Excavation

Excavation and removal of buried drums from areas identified during the Remedial Investigation. Over 800 drums were removed from the Site in 1992. During the landfill re-grading activities (Operable Unit 4, described below), an additional 500 buried drums were discovered, excavated and removed from the Site in 1995.

An Explanation of Significant Differences (ESD) was issued on June 14, 1991. The ROD anticipated that the excavated drums and contaminated material in intimate contact with the drums would be disposed of in a RCRA-approved landfill. Subsequent to the 1986

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ROD and pursuant to the Hazardous and Solid Waste Amendments of 1984 which amended RCRA, EPA promulgated regulations restricting the land disposal of hazardous wastes. EPA determined that the option of disposal of the materials in a RCRA land disposal facility, including a RCRA landfill, as set forth in the ROD, was not appropriate, and that such materials, to the extent they contain or are mixed with land disposal restricted hazardous wastes for which treatment standards are based on incineration, must be managed accordingly (i.e. incineration).

Operable Unit 3 – Groundwater

A comprehensive study, which included pump testing and the installation of additional monitoring wells, of the groundwater under and around the Site was performed in 1996-1997. Based on the findings of this study, a source reduction program, consisting of the installation of a groundwater extraction and treatment system for contaminated groundwater, was constructed in 1998 and continues to operate at the Site. The ROD specified periodic post-construction monitoring of the ground and surface water for indication of continued contamination.

Table 7 from the 1986 ROD includes a list of Alternate Concentration Levels (ACLs) that were developed by the EPA for groundwater. The groundwater criteria were established to protect human health, aquatic life and wildlife. The ACLs were to be reevaluated during design as additional sampling data became available from the pre-design studies.

In December 1993, a Unilateral Administrative Order (UAO) for Remedial Design and Remedial Action was issued. Within the UAO, the cleanup standards for groundwater were revised from those included in Table 7 of the 1986 ROD to the Maximum Contaminant Levels (MCLs) listed within Subpart G of 40 CFR Part 141 and referenced as “Exhibit 3 - Performance Standards for Phase 3: Remedial Design and Action – Groundwater Pumping and Treatment”. The UAO ordered the respondents to meet the performance standards listed in Exhibit 3. Groundwater extraction and treatment were to continue until the concentration level for each contaminant listed in Subpart G of 40 CFR Part 141 was below the specified MCL for public drinking water supplies. The MCLs were also referenced as the performance

standards in a September 1995 Consent Decree. Contaminants listed in Exhibit 3 and their associated MCL:

Table 2 – Groundwater Performance Standards (partial list)

<u>Contaminant</u>	<u>MCL (mg/l)</u>
Benzene	0.005
Toluene	1.0
Chlorobenzene	0.100
Vinyl chloride	0.002
Chloroform	0.08 (total trihalomethanes)
1,2 Dichloroethane	0.005
Acetone*	0.1
Xylene	10.0
Cadmium	0.005
Chromium (total)	0.1

*There is no MCL for Acetone listed in Subpart G of 40 CFR Part 141

Operable Unit 4 - Landfill

The 1986 Record of Decision required the installation of a low permeability cover on the landfill in accordance with the requirements of RCRA. The December 1993 Administrative Order for Remedial Design and Remedial Action included, within Exhibit 3, a list of the Performance Standards for the former landfill area of the Site:

1. Installation of a landfill cap system, over the entire landfill portion of the Site, in accordance with the RCRA requirements.
2. Vegetation of the landfill cap that shall act as an effective and permanent cover capable of stabilizing the soil surface from erosion.
3. Installation of a landfill gas venting and monitoring system on the cap surface to minimize the potential for off-Site migration of landfill gases.

Remedy Implementation

The Remedial Action for this Site was performed in four operable units:

Operable Unit 1 - Installation of a public water supply line

Under an agreement with the EPA, the Coatesville Water Authority began construction of the Phase 1 remedy on March 31, 1987 and completed construction on December 20, 1990. The work consisted of the following activities:

- Installation of a waterline from the Coatesville Water Company (now Aqua Pennsylvania) to the area of the Site (a distance of approximately 8 miles).
- Construction of a new pumping station at the intersection of Rt. 340 and Ash Road.
- Connection of 77 residences to the new waterline.

In 1999, upgrades to the water distribution and the pumping station were performed by Philadelphia Suburban Water Company (now Aqua Pennsylvania). This upgrade was not part of the selected remedy for the Site.

Operable Unit 2 – Drum Excavation

Work on the Phase 2 remedy commenced on September 30, 1991 and was completed on March 22 1993. This work was performed by a group of PRPs under a Unilateral Administrative Order (UAO), issued on December 31, 1990, and consisted of the following activities:

- Division of the Site into large areas for trenching.
- Construction of a staging pad for storage and sorting of excavated drum wastes.
- Trenching, excavation, and over-packing of drummed wastes. Over 800 drums were removed from the Site in 1992 and, during the 1995 regrading activities for the landfill, an additional 500 buried drums were discovered, excavated and removed.
- Shipment of the wastes off-Site to appropriate disposal facilities.

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Operable Unit 3 - Groundwater

Construction of the remedy for Phase 3 commenced on June 30, 1997 and was completed on September 16, 1998. This work was performed by the PRPs under a Consent Decree (CD), signed on September 8, 1995. The CD superseded a December 1993 UAO, and required the contractor to implement a source reduction program, in accordance with the ROD involving the design, construction, operation and maintenance of a system for pumping and treating contaminated groundwater until such a time as the performance standards are met.

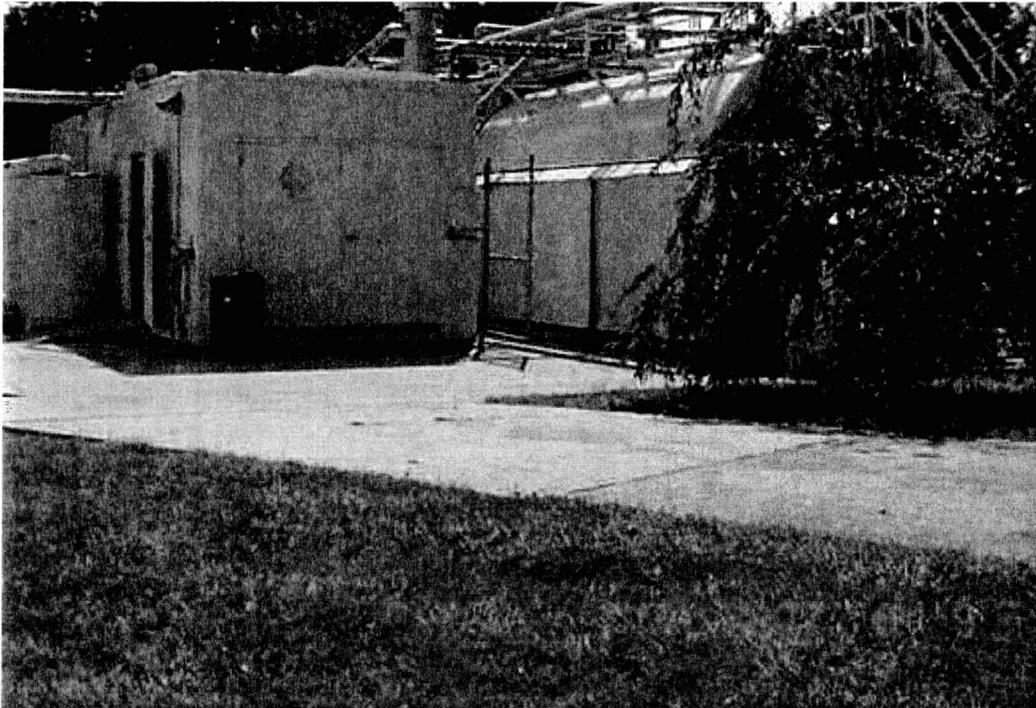


Figure 1: Groundwater Treatment Plant

Operable Unit 4 - Landfill

The design and construction of the Phase 4 remedy commenced on March 30, 1995 and was completed on September 29, 1997. The initial design work was performed by the PRPs under the December 1993 UAO that consisted of the following activities:

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- Construction of a multi-layer cap system consisting of an engineered fill subgrade layer, a 40-mil high density polyethylene liner barrier layer, a geocomposite drainage layer and a three-foot vegetative soil layer.
- Installation of a passive gas collection/venting system consisting of gravel-filled trenches leading to vent pipes to relieve gas that might build up beneath the liner.
- Construction of a series of berms and spillways and a storm retention basin to collect excess surface water runoff from the multi-layer cap and other developed areas and direct it to the Indian Spring Run tributary. Outlet structures, such as gabion downchutes, were installed to transmit concentrated flows to the tributary.

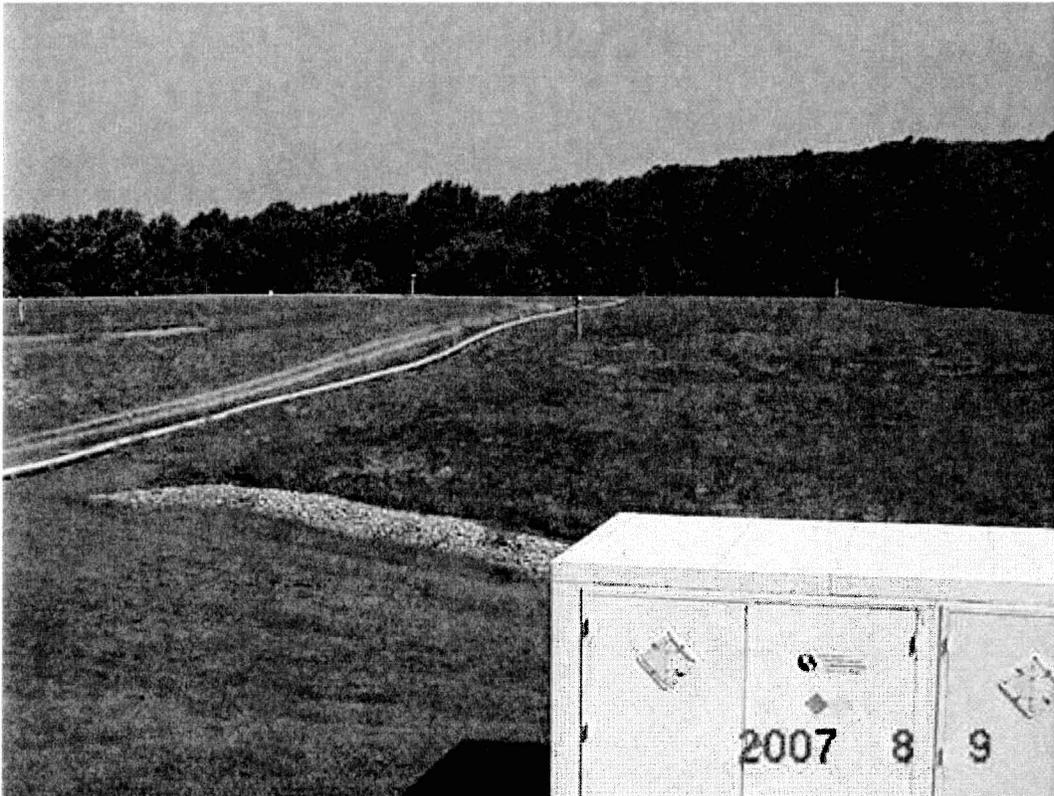


Figure 2: View, looking NW, of the landfill area. Note the landfill gas vent risers.

The 1993 Order was superseded by the September 8, 1995 Consent Decree that listed the performance standards for the landfill cap system. The performance standards addressed the cap system design, the cap vegetation, and the landfill gas venting and monitoring system.

The Site achieved construction completion status when the Preliminary Close-Out

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Report was signed on September 18, 1998. When groundwater cleanup levels have been attained, EPA will issue a Final Close-Out Report.

System Operation/Operation and Maintenance

Operation and Maintenance (O & M) activities have been performed by the PRPs since the Remedial Action was completed in September 1998. The primary activity has been the extraction and treatment of contaminated ground water from the Site and discharge of the treated groundwater to the headwaters of Indian Spring Run. The discharge has been in continuous compliance with the National Pollutant Discharge Elimination System (NPDES) discharge limitations since the treatment system start-up. To date, the Groundwater Treatment Plant (GWTP) (Figure 1) has treated over 92 million gallons of contaminated ground water. Other activities associated with the Site O & M include the following:

- Visual inspection of the landfill cap (Figure 2) with regard to vegetative cover, settlement, stability, and erosive activity. The cap surface is mowed twice/year.
- Landfill gas vent inspection, repair and quarterly monitoring.
- Groundwater monitoring and data collection/reporting.
- Routine maintenance of extraction well pumps, piping and GWTP equipment.

According to de maximis, the contractor for the settling defendants, O&M costs (Table 3) include: cap and drainage structure maintenance, sampling and monitoring efforts, supply of treatment media, disposal of spent treatment media, monitoring well maintenance, and GWTP operations.

Table 3 – Annual System Operation and Maintenance (O & M) Costs

Dates		Total Cost Rounded to the Nearest \$1,000.00
From	To	
January 2003	December 2003	\$282,000.00

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January 2004	December 2004	\$527,000.00
January 2005	December 2005	\$182,000.00 *
January 2006	December 2006	\$412,000.00
January 2007	December 2007	\$321,000.00

*The GWTP was shut down during all of 2005.

V. PROGRESS SINCE THE LAST FIVE-YEAR REVIEW

The Site has remained in compliance with the terms of the selected remedy. There have been some modifications to both the groundwater treatment system and the groundwater monitoring program since the previous Five-Year Review was performed:

- The groundwater recovery system was shut down on December 28, 2004 to study/observe the affect to the contamination levels within the monitoring wells.
- The groundwater recovery system was re-started on April 12, 2006.
- MW-8D was added as an extraction well in April 2006.
- Installation of a new monitoring well, MW-29D, to monitor the bedrock zone downgradient of the landfill in February 2005.
- A residential well sampling program was implemented in 2007 to identify those residential wells that were appropriate to sample. Sampling of six properties on Coffroath Road, located north northwest of the Site, was performed in December 2007.

The previous Five-Year Review did not identify any issues requiring corrective action. The protectiveness determination stated: "Because the remedial action at all OUs are protective, the Site is protective of human health and the environment."

VI. FIVE-YEAR REVIEW PROCESS

Administrative Components

Both the Pennsylvania Department of Environmental Protection (PADEP) and the

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Potentially Responsible Parties (PRP) contractor, de maximis inc., were notified of the initiation of the Five-Year Review by letter in December 2007. The Five-Year Review team was led by Mr. Timothy M. Gallagher, the Remedial Project Manager (RPM) for the EPA and included members from the technical advisory staff with expertise in hydrology and risk assessment. Mr. Geoffrey Siebel, de maximis inc., assisted in the review.

The RPM established the review schedule, the components of which included the following:

- Community involvement
- Document review
- Data review
- Site inspection
- Five-Year Review report development and review

Community Involvement

Notice of this Five-Year Review and solicitation of comments was posted in the local newspaper, The Daily Local News, on April 20, 2008, by EPA Community Involvement Coordinator, Ms. Carrie Deitzel (Attachment 5).

Following signature of this Five-Year Review Report a notice will be sent to a local newspaper announcing that the Five-Year Review Report for the Blosenski Landfill Site is complete. The results of the review and the report will be made available to the public at the West Caln Township Building. Gary Dunlap, a West Caln Township official, was interviewed by Tim Gallagher on April 7, 2008, regarding the Site. Mr. Dunlap stated that the township had no current issues with the Site.

Document Review

This Five-Year Review consisted of a review of relevant documents including the ROD, the 1990 and 1993 UAOs, 1995 Consent Decree, O & M records, surface discharge data, and groundwater monitoring data. Attachment 1 lists the documents reviewed during

the preparation of this report.

Data Review

Groundwater Monitoring

The OU-3 groundwater monitoring program included a baseline sampling event conducted in July and August 1998 prior to the groundwater extraction and treatment system start-up. The first quarterly sampling event was conducted following the first full quarter of groundwater extraction and treatment operation, in January 1999. Initial sampling events consisted of sampling 15 monitoring wells and three extraction wells. Within the first two years of operation there was a significant decrease in contaminant concentrations in the majority of the monitoring wells.

The current groundwater/surface water monitoring plan identifies twenty-four wells/locations (Attachment 3) that are included in the sampling program. These wells have been grouped and termed as either “Indicator Wells” (MW 3-1, MW 3-D, MW 29-D, EW-1, EW-5 and the Hoffman Well) or “Perimeter Wells” (MW 2-1, MW 2-D, MW 4-1, MW 5-1, MW 6-1, MW 7-1, MW 7D, MW 8-1, MW 8-D, MW 9-1, MW 9-2, MW 10-1, MW 10-2, MW 13-1, MW 15-D, MW 22-1, MW 24-1, MW 28-D and SW-2 (surface water sample)).

Groundwater samples are analyzed for VOCs using USEPA SW846 Method 8260 or USEPA Method 524.2 and manganese using USEPA SW846 Method 6010. Samples from wells that have reported elevated VOC concentrations (i.e. > 100 ug/l total VOCs) during the previous two sampling events are analyzed using USEPA SW846 Method 8260.

Water samples were collected from 20 of the 24 sampling locations during the most recent (2007) annual groundwater sampling event. Samples were not collected from four of the wells due to low water conditions (MW 2-D and MW 3-1) or “dry” conditions (MW 9-2 and MW 10-2). VOC sample results from eight of the twenty wells (MW 2-1, MW 4-1, MW 7-1, MW 7-D, MW 9-1, MW 10-1, MW 28-D, and EW-5) contained levels below their respective MCLs for all compounds. Sample results from the remaining twelve wells reported VOC concentrations above the MCL for one or more of the following compounds in

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2007: vinyl chloride, 1,1-dichloroethene (1,1-DCE), 1,2-dichloroethane (1,2-DCA), trichloroethene (TCE), benzene, 1,1,1-trichloroethane (1,1,1-TCA), and *cis*-1,2-dichloroethene (*cis*-1,2-DCE).

Table 4 compares the baseline sampling concentrations to the most recent sampling results for five of the Site COCs.

Table 4 – Baseline Sample Concentrations vs. Most Recent Sample Results for Compounds with the Majority of MCL Exceedances

Parameter	Vinyl Chloride	Benzene	TCE	1,1-DCE	<i>cis</i> -1,2-DCE
Regulatory Limit (MCL) (ppb)	2.0	5.0	5.0	7.0	70
MW 2-1					
7/22/1998 *	<0.5	4.2	1.0	<0.5	1.6
12/11/2007**	<0.5	<0.5	<0.5	<0.5	<0.5
MW 2-D					
7/23/1998	49	42	57	32	390
5/17/2005	14	21	16	21	170
MW 3-1					
7/21/1998	520	6,200	270	<25	3,200
11/7/2005	1	32	1	<0.5	2.8
MW 3-D					
8/10/1998	62	910	73	16	380
12/11/2007	19	57	38	15	170
MW 4-1					
7/22/1998	<0.5	<0.5	79	<0.5	14
12/11/2007	<0.5	<0.5	0.7	<0.5	<0.5
MW 5-1					
7/21/1998	<5.0	<5.0	90	<5.0	34
12/10/2007	2.3	<0.5	12	0.7	20
MW 6-1					
7/21/1998	44	55	820	6	240
12/12/2007	10	<5.0	8	<5.0	31
MW 8-1					
7/22/1998	56	230	110	9.0	220
12/12/2007	23	2.4	5.1	0.6	29

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MW 8-D					
7/23/1998	6.2	0.9	7.3	1.3	38
12/12/2007	6.8	<0.5	6.5	0.8	29
MW 10-1					
7/22/1998	22	33	<5.0	<5.0	64
12/12/2007	<0.5	0.5	<0.5	<0.5	1.7
MW 15-1					
7/22/1998	3.3	2.8	0.7	<0.5	7.3
7/6/2000	1.4	2.1	1	0.6	6.5
MW 15-D					
7/22/1998	<5.0	6.0	28	7	53
12/12/2007	<0.5	<0.5	7.2	1.1	11
MW 22-1					
7/24/1998	<0.5	<0.5	40	1	5.6
12/12/2007	0.6	<0.5	13	<0.5	2.7
MW 24-1					
7/23/1998	<0.5	0.7	12	1.5	14
12/10/2007	<0.5	<0.5	5.3	<0.5	11
MW 29-D					
3/31/2005	<0.5	<0.5	8.5	3.2	18
12/10/2007	<0.5	<0.5	0.8	3.6	20

* Date presents the baseline sampling event concentrations (dates vary).

** Date presents the most recent sampling concentrations (dates vary).

The Mann-Kendall test for trend evaluation was applied to select monitoring wells using the data collected from July 1998 through December 2007. This test evaluates data to determine decreasing or increasing VOC trends, and the associated significance, based on the number of measurements and the number of positive and negative differences between measurements. The evaluation assumed a 95 % confidence interval, and the significant trend is based on the 95 % confidence interval.

The Mann-Kendall trend analysis indicates that all of the Indicator Wells sampled show significant decreasing trends in total VOC concentrations and statistically significantly decreasing VOC concentration trends were identified in the three original extraction wells (EW-1, EW-5, and the Hoffman well). With the exception of MW 8-1 and MW 8-D, all of the Perimeter Wells sampled show significant decreasing trends in total VOC concentrations.

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A total of six residential water supply wells were sampled in December 2007. These wells are all located in the downgradient groundwater flow direction from the Site and are all located on Coffroath Road. Residential well samples were analyzed for field parameters (i.e. pH, conductivity, and temperature), VOCs (USEPA Method 524.2), and phenols (USEPA Method 8270C). According to the sampling results, no VOCs were detected above their respective MCL. No phenols were detected above their respective reporting limits. However, the regulatory limit for pentachlorophenol (1 ug/l) is less than its associated reporting limit (14 ug/l). Of all the analyzed parameters that have an associated MCL, pentachlorophenol is the only compound with a reporting limit that is higher than the MCL.

Surface Water Data

The surface water sampling location (SW-2) is an intermittent spring located northwest of the Site in the vicinity of Coffroath Road. Samples have not been collected at this location since May 2005 because of very low to no-flow conditions at the spring. Since sampling at this location began in 1999 only TCE and *cis*-1,2-DCE have been present above their reporting limits (See Table 5).

Table 5 – Most Recent Sampling Results at SW-2 (TCE and *cis*-1,2-DCE only)

Parameter	11/4/03	5/12/04	11/24/04	3/30/05	5/17/05
TCE	<5.0	<5.0	2.1	4.8	5.8
<i>cis</i> -1,2-DCE	<5.0	10	5.4	14	18

The GWTP discharges to the receiving stream are sampled and analyzed on a monthly basis. The discharge remains in compliance for the parameters set forth in the NPDES discharge equivalent permit.

Air Monitoring Data

Landfill gas monitoring data is collected from a total of twenty-five locations (TP-1 through TP-13, GP-1 through GP-10, one stormwater vault and an ambient sample) (Attachment 4). Landfill gas is monitored for % methane, % carbon dioxide, % oxygen and % (Lower Explosive Limit) LEL with a Lantec 90 device. Total VOCs are monitored with a Photo-ionization Detector (PID) device.

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Recent monitoring results from the landfill vents yielded samples from vents TP4, GP3a and GP4 with methane results well above the LEL of 5 % (See Table 6). These vents are all located on the south edge of the landfill within approximately 1/8 mile of the nearest residences.

Table 6 – Landfill Gas Vent Monitoring Data

Location	Depth (ft)	% CH ₄	% CO ₂	% O ₂	% LEL	PID (ppm)
TP 4	9.83	6.4	8.0	15.1	130	0
GP 3a	5	52.0	18.9	0.8	1040	12.8*
GP 4	20	45.4	27.3	19.6	906	0.0

* PID result of November 7, 2007

Site Inspection

A preliminary Site inspection was conducted by the RPM, Tim Gallagher, on April 2, 2008. A second inspection of the Site was conducted on April 10, 2008. The April 10th inspection was attended by Tim Gallagher, Mr. Mark Conaron, PADEP, Mr. Geoffrey Siebel, Site manager for de maximis, inc., Ms. Debra Town, Chester County Health Department (CCHD), Mr. William Conrad, CCHD, treatment system O&M operators, Mr. Dan Bigler, Bigler Associates, Inc. (BAI) and Mr. Jason Kiernan, BAI, and groundwater sampling contractor, Mr. Doug Spicuzza, Cummings Riter.

The purpose of the inspections was to assess the protectiveness of the remedy, including the integrity of the multi-layer cap, the integrity of the monitoring wells and gas vents, and the operation of the groundwater collection and treatment system.

No significant issues were identified regarding the multilayer cap, vegetative cover, monitoring wells, gas vents, or the groundwater collection and treatment system. Ms. Town requested a copy of the most current Site performance standards. These were provided by the RPM, via facsimile, during the week of April 14, 2008.

At the time of the inspection, the groundwater treatment system was operating and discharging treated water, the landfill grass coverage appeared to be in good condition (cap is

maintained twice/year), the landfill gas vents appeared to be in good working condition, the above-ground conveyance pipeline (Figure 3) appeared to be in good condition and the gate around the landfill appeared to be sound. (See the attached Site Inspection Checklist.)

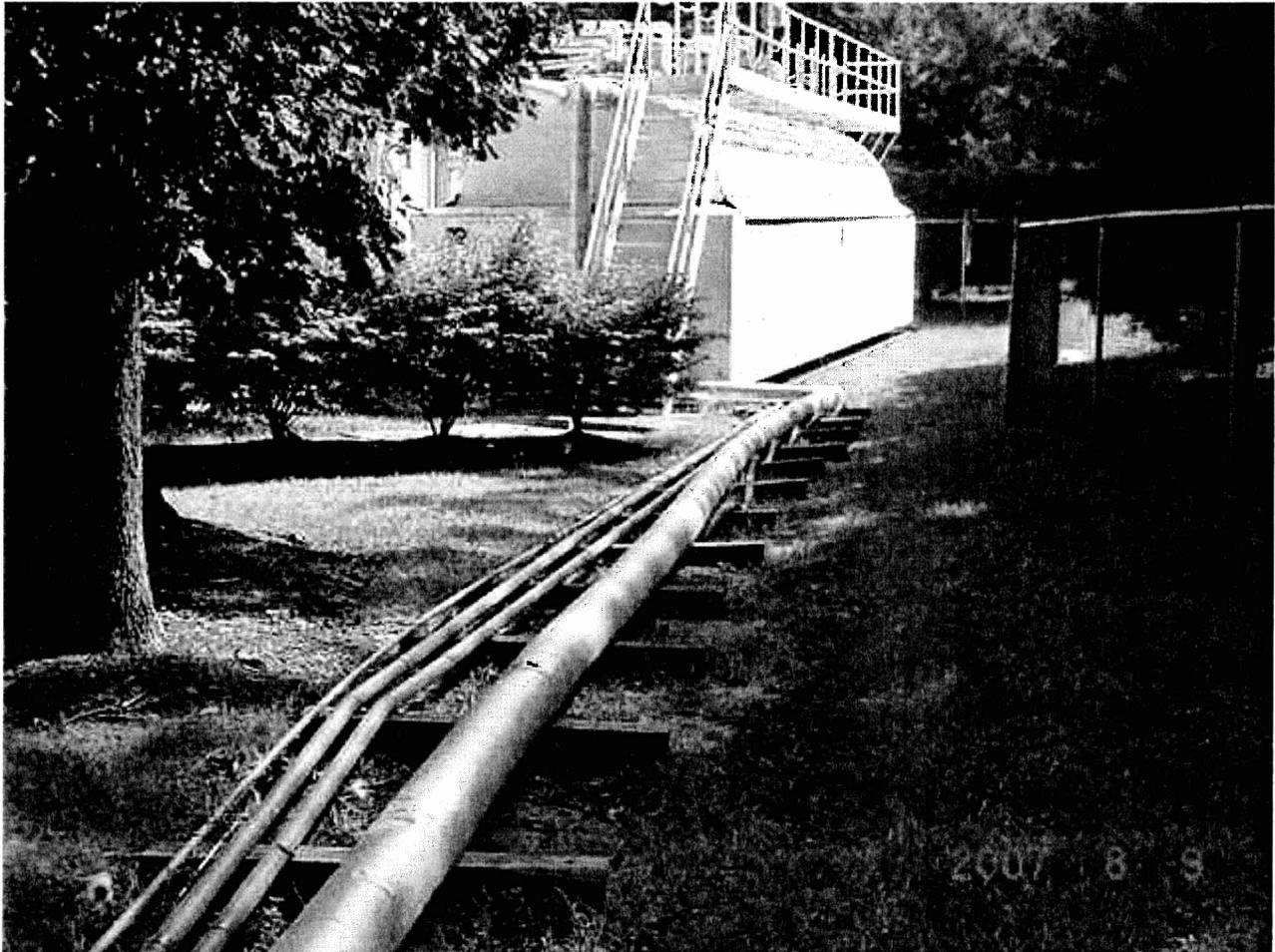


Figure 3 - Groundwater Extraction System Aboveground Insulated Pipeline.

VII. TECHNICAL ASSESSMENT

Question A: Is the remedy functioning as intended by the decision documents?

Based on a review of the decision documents, the administrative order, the consent decree, surface water data, groundwater data, sediment and gas monitoring results, landfill inspection results and the semi-annual Site inspections, the remedy appears to be functioning as intended by the ROD. The installation of the public water supply line (OU-1) served to

eliminate the risks associated with the use of contaminated groundwater by local residents.

The removal of the drums from within the landfill effectively removes a contamination source. The construction and operation of the groundwater extraction and treatment system acts to remove contaminants from the groundwater and was intended to reduce the potential health risk to a 10^{-6} unit cancer risk or less. The landfill cap prevents direct contact with, or ingestion of contaminants in soil, and has achieved the objective to minimize the migration of contaminants to groundwater.

It has also been noted that a change to the groundwater cleanup standards, from those standards listed in the 1986 ROD to those performance standards listed in the 1993 Order, was never properly documented.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and performance standards used at the time of the remedy selection still valid?

Changes in Standards and TBCs

Have standards identified in the ROD been revised, and does this call into question the protectiveness of the remedy? Do newly promulgated standards call into question the protectiveness of the remedy? Have TBCs used in selecting cleanup levels at the Site changed, and could this affect the protectiveness of the remedy?

Groundwater standards which were referenced as Alternate Concentration Levels (ACLS) were established in the 1986 ROD, Table 7. However, the ROD also stated: "Based on the findings of the pre-design study, a source reduction program will be implemented involving pumping and treating of contaminated ground water that exceeds Alternate Concentration Levels (ACLs) . . . During this initial period, the ground water pumping and treatment program will be evaluated . . . These ACLs will be reevaluated during design to ensure technical feasibility and protection of human health and the environment."

A 1993 Administrative Order revised the performance standards to the Maximum Contaminant Levels listed in Subpart G of 40 CFR Part 141. Subpart G includes a more comprehensive list of chemicals than the 13 chemicals originally listed in the ROD. The

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Administrative Order lists a subset of chemical MCLs as an example; that subset represents current MCLs also, with two exceptions: acetone, listed in the Order at 0.1 mg/L, does not have an MCL under Subpart G; and chloroform, listed at "0.0" mg/L, appears to be a typo; the current MCL for total trihalomethanes (which includes chloroform) is 0.08 mg/L.

The protectiveness of the performance standards is addressed below, under "Changes in Toxicity and Other Contaminant Characteristics."

Changes in Exposure Pathways

Has land use or expected land use on or near the Site changed?

At the time that the ROD was being prepared the land use on or near the Site was mostly agricultural or wooded. The residential use of nearby property has greatly increased, and the use of local land for agriculture has decreased. Nearby residents were considered at the time of the ROD. Therefore, the number of receptors has increased, but the general type of exposure has not.

Have human health or ecological routes of exposure or receptors been newly identified or changed in a way that could affect the protectiveness of the remedy? Are there newly identified contaminants or contaminant sources? Are there unanticipated toxic byproducts of the remedy not previously addressed by the decision documents? Have physical Site conditions or the understanding of these conditions changed in a way that could affect the protectiveness of the remedy?

At the time the Site was identified and evaluated for a remedy, the major pathway of concern was potable use of local groundwater. Most local users have been placed on public water; a water line was part of the OU1 remedy. However, there are currently several residential wells in use that appear to be downgradient of the landfill. Six local wells were sampled in December 2007; contamination was not observed in these wells.

The major new pathway of concern is vapor intrusion into buildings and homes. Because contamination of local groundwater persists and there are residences located in the downgradient groundwater direction that use local water, an assessment of potential vapor

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intrusion is recommended.

Another issue is that of 1,4-dioxane, which is currently not included in the groundwater analyte list. EPA has recently become aware that Sites with VOC contamination may contain this solvent stabilizer as well. The VOC most closely associated with 1,4-dioxane is 1,1,1-trichloroethane (1,1,1-TCA). The Blosenski ROD lists 1,1,1-TCA as a Site contaminant. 1,1,1-TCA has been historically detected at concentrations up to 430 ppb. This can be of concern since, unlike the VOCs, 1,4-dioxane is not removed from the extracted groundwater by the existing groundwater remediation system which includes; air stripping and carbon filtration. Given the history of solvents at this Site and the finding of 1,1,1-TCA, some samples should be collected to verify the presence or absence of 1,4-dioxane.

Groundwater chemicals, for which there were no ROD standards, that exceed Region III screening levels include manganese, chloroethane, tetrachloroethene, and 1,4-dichlorobenzene. However, the volatile chemicals would be expected to be addressed by the existing groundwater remedy, which addresses other VOCs. The manganese may be naturally occurring. Or, if present as a result of the VOC contamination, would be expected to return to natural levels when the VOCs have been remediated.

Recent monitoring results from the landfill vents yielded 3 sample locations (TP4, GP3a, and GP4) with methane levels above the LEL of 5%. Because of the potential explosive hazard, this area should be investigated further. Residences near these locations should be monitored for methane.

The vents also release VOCs, which are monitored in total ppm. For example, the November 2007 monitoring report yielded up to 12.8 ppm total VOCs. However, it is not possible to translate total VOCs into risk, because risk is chemical-specific. Therefore, it is recommended that chemical-specific sampling be performed to ensure that any VOC emissions into the air are below levels of concern.

In summary, vapor intrusion and vent emissions should be assessed to determine both the current and future protectiveness. The presence or absence of 1,4-dioxane should be assessed for future protectiveness.

Changes in Toxicity and Other Contaminant Characteristics

Have toxicity factors for contaminants of concern at the Site changed in a way that could affect the protectiveness of the remedy? Have other contaminant characteristics changed in a way that could affect the protectiveness of the remedy?

The ROD was issued in 1986. The 1991 ESD changed only the method of drum/waste/soil disposal, and did not reevaluate any risks. Therefore, the Site risk assessment (then called an endangerment assessment) was performed before EPA's Risk Assessment Guidance for Superfund, and all subsequent risk guidance that is used today, were issued. Therefore, there have been significant changes in risk assessment guidance, in exposure assumptions, and in toxicity factors.

However, the remedies specified and implemented; OU-1 (alternate water supply), OU-2 (excavation and removal of buried contaminants), and OU-4 (multimedia cap), would still be protective. These remedies involve both the elimination of the exposure pathway and removal of the contaminants from the area altogether.

The OU-3 remedy (groundwater extraction and treatment), remains protective as long as the groundwater standards are protective and as long as the treatment addresses all Site-related chemicals.

Therefore, in assessing the protectiveness of the remedy, two questions can be asked:

1) Are the current performance standards protective? and 2) Are the current groundwater concentrations protective?

To answer the first question, a risk assessment could be performed using the chemicals that have performance standards, to demonstrate what the risk would be at the performance standard. However, given the broad nature of the current performance standards (MCLs listed in 40 CFR 141 Subpart G), which includes many chemicals not detected at the Blosenski Site, this would likely overestimate risk. Furthermore, since the groundwater concentrations still exceed performance standards, a final determination as to whether the performance standards are protective is premature. Current toxicity values may change again in the coming years, and protectiveness is best assessed at the time when it is believed that

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groundwater cleanup has been achieved. For these reasons, groundwater risk will be evaluated when it is believed that the groundwater clean-up standards have been achieved, to ensure protectiveness. In the interim, with respect to the second question listed above, contaminated groundwater is not being used and is not expected to be used for potable purposes. Local residential wells are being monitored, and those wells sampled in late 2007 did not contain chemicals above the MCLs.

In summary, direct contact with groundwater is not expected to pose unacceptable risks under current conditions (i.e., exposure is currently being prevented). Concentrations of contaminants in some of the groundwater monitoring wells still have not met performance standards and would not be suitable for potable use at this time. Sampled residential wells currently show no levels of concern. Groundwater sampling is recommended to determine if 1,4-dioxane is present in groundwater. When groundwater performance standards are met, a full-scan analysis and assessment will be recommended to ensure that no remaining chemicals pose unacceptable risks.

Changes in Risk Assessment Methods

Have standardized risk assessment methodologies changed in a way that could affect the protectiveness of the remedy?

There have been significant changes in EPA's risk assessment guidance since the original risk assessment was performed. The basic guidance that EPA now uses was issued after the ROD. An evaluation of groundwater in light of updated risk guidance was discussed above.

Expected Progress Towards Meeting Performance Standards

Is the remedy progressing as expected?

In general, it appears that the remedy is progressing as expected. However, data gaps remain with respect to vapor intrusion, pentachlorophenol analysis, landfill gas emissions, and 1,4-dioxane. These issues were all described in more detail above, along with

recommendations to clarify the progress of the remedy.

Question C: Has any other information come to light that calls into question the protectiveness of the remedy?

Since the previous Five-Year Review, vapor intrusion (VI) has become a new pathway that is being evaluated for Sites that have VOC contamination either in the soil or groundwater. Vapor intrusion was not a pathway considered at the time of the ROD in 1986. Vapor intrusion is the movement of VOCs from contaminated groundwater or soil into existing buildings, or the potential migration of VOCs into future buildings overlaying or near contaminated groundwater or soil. There are still levels of VOCs within the shallow groundwater zone that warrant further VI evaluation.

Now that the potential significance of the VI pathway is understood, a VI evaluation should be performed for the Site. Buildings to the south and north of the Site property line should be evaluated for VI. It is expected that the PRP would develop a work plan to perform the appropriate VI sampling. This has yet to be discussed with the PRP.

Institutional controls (ICs) have also become an issue that is now being evaluated at Superfund Sites. In 1986, when the ROD for Blosenski was issued, ICs were not considered as components of remedies. As a result, the remedy described in the ROD did not include ICs. In order to address this, ICs will need to be evaluated and implemented in order to protect the remedy and prevent exposure.

The regulatory limit for pentachlorophenol (1 ug/l) is lower than the reporting limit (14 ug/l) that the PRP is currently utilizing. A more appropriate analytical method should be used.

Technical Assessment Summary

According to the data reviewed and the Site inspection results, the selected remedy appears to be functioning as intended. There are a number of issues (Table 7) however, that may require attention; 1) because a contaminated groundwater plume remains at the Site, a vapor intrusion evaluation needs to be performed: 2) sampling is required to determine

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whether or not 1,4-dioxane is present within the Site groundwater; 3) landfill gas sampling needs to be performed; 4) Institutional Controls have not yet been established at the Site; 5) a change in the groundwater cleanup standards was not adequately documented; and 6) the reporting limit for pentachlorophenol is higher than the regulatory limit.

The approved Operation and Maintenance Plan appears to be effective in maintaining all the elements of the selected remedy. There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy.

VIII. ISSUES

TABLE 7 – ISSUES

Issue	Affects Current Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
1. Vapor Intrusion	Y	Y
2. 1, 4-dioxane	Y	Y
3. Landfill gas emissions	Y	Y
4. No established Institutional Controls	N	Y
5. Change in Performance Standards not documented adequately	N	Y
6. Reporting limit above regulatory limit for pentachlorophenol	N	Y

IX. RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Table 8 – Recommendations and Follow-Up Actions

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
1. Vapor Intrusion	Perform a vapor intrusion evaluation	PRP	EPA/PADEP	12/2009	Y	Y
2. 1,4-dioxane	Perform groundwater sampling for 1,4 dioxane	PRP	EPA/PADEP	6/2009	Y	Y
3. Landfill gas emissions	Perform chemical- specific sampling of landfill gases to evaluate risk and explosive hazard	PRP	EPA/PADEP	9/2009	Y	Y
4. Institutional Controls not established	Modify remedy to address ICs	EPA	EPA	6/2010	N	Y
	Implement ICs	EPA, PRP, PADEP	EPA	12/2011	N	Y
5. Change in Performance Standards not documented adequately	Modify the decision documents to reflect the appropriate groundwater Performance Standards	EPA	EPA	6/2010	N	Y
6. Reporting limit above regulatory limit for penta- chlorophenol	Revise the analytical method to allow for reporting down to the regulatory limit	PRP	EPA/PADEP	3/2009	N	Y

X. PROTECTIVENESS STATEMENT

This second Five-Year Review for the Blosenski Landfill finds that the remedy was implemented in accordance with the requirements of the Record of Decision, as amended by the 1991 Explanation of Significant Differences.

The remedial actions at OU1 and OU2 are protective. A waterline (OU1) has been installed to prevent exposure to contaminated groundwater, and drum removal activities (OU2) eliminated the immediate threats posed by these wastes.

The remedial actions associated with OU3, extraction and treatment of contaminated groundwater, and OU4, landfill cap, are expected to achieve protectiveness in the long term, but a protectiveness determination for both of these operable units is being deferred at this time. The protectiveness determination is being deferred until the following issues are addressed: 1) vapor intrusion; 2) 1,4-dioxane; 3) landfill gas; 4) institutional controls; 5) change in performance standards not documented adequately; and 6) reporting limit for pentachlorophenol. The following actions need to be taken: 1) vapor intrusion evaluation; 2) sample collection for 1,4-dioxane; 3) chemical-specific landfill gas sampling; 4) establishment of appropriate institutional controls; 5) modify the decision document to change the performance standards; 6) revise the analytical method for pentachlorophenol. It is expected that these actions will take approximately two years to implement at which time a protectiveness determination will be made.

XI. NEXT REVIEW

Once the issues identified above are addressed, an addendum to this five-year review will be provided with a final protectiveness determination. The next Five-Year Review will be completed no later than five years from the signature date of this Five-Year Review.

ATTACHMENTS

- Attachment 1 - List of Documents Reviewed
- Attachment 2 - Site Location Map
- Attachment 3 – Monitoring Well Location Map
- Attachment 4 - Landfill Gas Vents and Monitoring Probe Locations
- Attachment 5 - Daily Local News Tear Sheet
- Attachment 6 – Five-Year Review Site Inspection Checklist

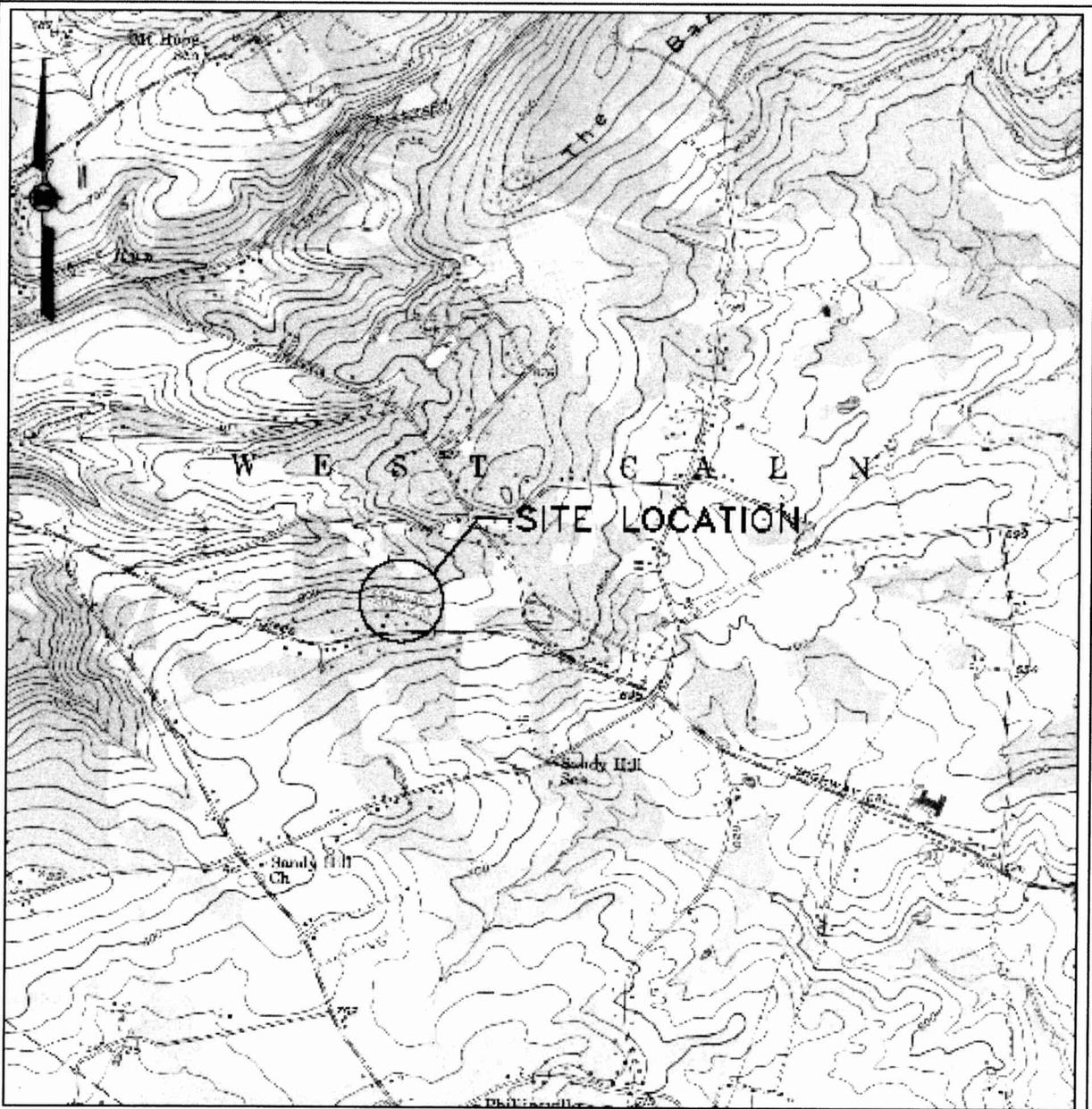
Blosenski Landfill
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Attachment 1 - List of Documents Reviewed

- September 1986 Record of Decision
- September 1986 RI/FS
- December 1990 Unilateral Administrative Order
- December 1993 Unilateral Administrative Order
- September 1995 Consent Decree for Remedial Design and Remedial Action - Civil Action no. 93-CV-1976 and its exhibits
- Groundwater Recovery System Performance Monitoring Plan (Cummings/Ritter, June 19, 1998)
- Quarterly Progress Report – October 1 to December 31, 2007
- Letter Report – Quarterly Groundwater Monitoring Event, February 6, 2006
- Letter Report – Quarterly Groundwater Monitoring Event – June 12, 2006
- Groundwater and Surface Water Monitoring Plan, December 3, 2007
- Previous Five Year Review Report
- 2007 Annual Monitoring Report, Operable Unit 3

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 Second Five-Year Review

DRAWING NUMBER 97236A4



QUADRANGLE LOCATION

REFERENCE:
 7.5-MIN. TOPOGRAPHIC QUADRANGLE;
 HDNEY BRDOK, PENNSYLVANIA
 DATED 1966, PHOTOREVISED 1983

FIGURE 1
SITE LOCATION MAP
 BLOSENSKI LANDFILL SUPERFUND SITE
 CHESTER COUNTY, PENNSYLVANIA
 PREPARED FOR
 BLOSENSKI PERFORMING PARTIES



DRAWING NUMBER
97236A4

REVISION	DATE	DESCRIPTION

DRAWN BY: T.E. McKee	DATE: 8-8-98
CHECKED BY: W.A. Slaughter	DATE: 8-18-98
APPROVED BY: W.C. Smith	DATE: 8-18-98