Record of Decision

North Sanitary Landfill (Valleycrest) Site

Montgomery County

Dayton, Ohio

United States Environmental Protection Agency
Region 5

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List of Acronyms

AOC	Area of Contamination
AR	Administrative Record
ARARs	Applicable or Relevant and Appropriate Requirements
BERA	Baseline Ecological Risk Assessment
BRA	Baseline Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	Contaminant of Concern
EPA	United States Environmental Protection Agency
FML	Flexible Membrane Liner
FS	Feasibility Study
GCL	Geosynthetic Clay Liner
HHRA	Baseline Human Health Risk Assessment
LEL	Lower Explosive Limit
LFG	Landfill Gas
MCL	Maximum Contaminant Level
Mg/kg	Milligrams Per Kilogram
Mg/l	Milligrams Per Liter
NAPL	Non Aqueous Phase Liquid
NCP	National Contingency Plan
ND	Not Detected
NPV	Net Present Value
ODH	Ohio Department of Health
Ohio EPA	Ohio Environmental Protection Agency
OPBWA	Off-Property Buried Waste Area
O&M	Operation and Maintenance
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
POC	Point of Compliance
PPB	Parts per Billion
PPM	Parts per Million
PRP	Potentially Responsible Party
RAGS	Risk Assessment Guidance for Superfund
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RME	Reasonable Maximum Exposure
ROD	Record of Decision
RSL	Regional Screening Level
SVOC	Semi-Volatile Organic Compound
TCA	1,1,1-Trichloroethane
TCE	Trichloroethylene
TCLP	Toxicity Characteristic Leaching Procedure
TSCA	Toxic Substances and Control Act
Ug/l	Microgram Per Liter
VOC	Volatile Organic Compound

Part I Declaration

This section summarizes the information presented in the Record of Decision (ROD) and includes the authorizing signature of the U.S. Environmental Protection Agency (EPA) Region 5 Director of the Superfund Division.

Site Name and Location

The North Sanitary Landfill site (site) is located in the City of Dayton, in Montgomery County, Ohio. Aliases for this site include Valleycrest Landfill and North Dayton Sanitary Landfill. The CERCLIS ID for the site is OHD980611875.

The site is located in a mixed commercial and residential area in the northeast portion of Dayton, Ohio. Residential properties border the north (Valleycrest Drive), west (Brandt Street) and south (Valley Street). Both commercial and residential properties as well as a water body border the site to the southeast. Bordering the landfill on the southwest is a railroad right-of-way, and then residences beyond. Commercial businesses are located along Brandt Pike, which is to the west of the site and Valley Street, which is on the southern border of the site.

Consistent with the National Oil and Hazardous Substances Contingency Plan (NCP), 40 C.F.R. § 300.5, the site consists of the areal extent of contamination and includes the approximately 100-acre North Sanitary Landfill property as well as the contaminated properties adjacent to the landfill.

Statement of Basis and Purpose

This decision document presents the selected remedy for the North Sanitary Landfill site, which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, 42 U.S.C. § 9601 *et seq* and, to the extent practicable, the National Oil and Hazardous Substances Contingency Plan (NCP), 40 C.F.R. Part 300. This decision is based on the Administrative Record (AR) file for this site. The AR Index identifies each of the items comprising the AR upon which the selection of the remedial action is based.

Assessment of Site

The response action selected in this ROD is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances, pollutants or contaminants from this site, which may present an imminent and substantial endangerment to public health or welfare and is based on the AR file for this site.

Description of the Selected Remedy

The selected remedy to address the contamination at the site and the associated risks to human health and the environment is Alternative 2A (Solid Waste Cap with leachate control at site perimeter) and includes installation of a landfill cap over former disposal areas 1, 2, 3 and 5 in

compliance with Ohio Administrative Code (OAC) 3745-27-08 and OAC 3745-27-11, but requires a variance from the minimum grade requirement of 5 percent, due to surface conditions at the Site. Alternative 2A also includes leachate extraction and containment and the following:

- Former disposal area 4 relocation to former disposal areas 1, 2, 3, and 5, or off-property disposal of waste if it contains Resource Conservation and Recovery Act (RCRA) characteristic waste;
- Off Property Buried Waste Area (OPBWA) waste and soil consolidation within the former landfill property boundaries;
- Non-aqueous phase liquid (NAPL) monitoring/recovery/off-property disposal at NSL-54L and NSL-55L;
- In-situ treatment of waste in former disposal area 1, located above the water table and exceeding TCLP standards, as identified on Figure 5, to meet TCLP standards (40 C.F.R. Part 261.24). Treatment of waste in former disposal area 1 will be completed in advance of final capping activities;
- Waste sampling results in former disposal area 3 indicated concentrations of lead and chromium that may exceed TCLP based on application of the twenty times rule. These wastes will be re-sampled during remedial design. RCRA characteristic waste will be removed or capped with a Subtitle C cap;
- Leachate extraction and treatment system;
- Landfill gas collection/flaring/monitoring;
- On-site management of stormwater by retention/infiltration in the existing borrow area;
- Groundwater monitoring; and
- Institutional controls, including restrictive covenants to restrict site use and prevent interference with the remedy.

Based on the information available at this time, EPA finds that Alternative 2A is protective of human health and the environment, complies with applicable or relevant and appropriate requirements (ARARs), is cost effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

Statutory Determinations

The selected remedial action attains the mandates of CERCLA section 121 and the NCP. The remedy is protective of human health and the environment under existing and anticipated future land-use scenarios, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost effective. The selected remedial action uses permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

Special Findings

Under the Toxic Substances Control Act (TSCA), EPA Region 5 finds that the site meets the standards of 40 C.F.R. § 761.50 for remediation and that the selected remedy will not pose an unreasonable risk of injury to health or the environment pursuant to 40 C.F.R. § 761.61(c).

ROD Data Certification Checklist

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record (AR) for this site.

- Contaminants of Concern (COC) and their respective concentrations. (See Section 5).
- Risk presented by the COCs. (See Section 7).
- Whether source materials constituting principal threats are found on site. (See Section 11).
- Cleanup levels established for the COCs and the basis for these levels. The risk assessment determined that concentrations in surface soils, leachate, groundwater, NAPL, and landfill gas pose unacceptable risks, requiring a remedy. The remedy will address the unacceptable risks with the construction of a landfill cap compliant with OAC 3745-27-08 and OAC 3745-27-11, installation of landfill gas and leachate collection and treatment systems, and in-situ treatment of characteristic hazardous waste VOCs in former disposal area 1.
- Current and future land use assumptions. (See Section 6).
- Potential land and groundwater use that will be available at the site as a result of the selected remedy. (See Section 6).
- Estimated capital, annual operation and maintenance (O&M), and total present worth costs; discount rate; and the number of years over which the remedy cost estimates are projected. (See Section 10).
- Key factors that led to the selection of this remedy. (See Section 12).

Support Agency Acceptance

The State of Ohio concurs with the selected remedy and its concurrence letter will be added to the AR upon receipt.

Authorizing Signature

Richard C. Karl, Director
for Superfund Division

Date 8/16/2013

Part II Decision Summary

1.0 Site Description

The site occupies more than 102 acres of land and has a variable surface topography. The former landfill property, in broad description, is bowl shaped.

The site is situated in between the City of Dayton's two major municipal well fields. The Great Miami River is located approximately 3,500 feet northwest of the site and the Mad River is located approximately 4,000 feet south of the site. Directly beneath the site is the Great Miami Buried Valley Aquifer, a federally designated sole-source aquifer that provides drinking water for approximately 487,000 people in the Greater Dayton area. (See Figures 1.1 and 1.2).

Approximately 410 people live within 0.25 miles of the site. The current zoning for the property area affected by past site operations is commercial and residential.

As outlined in the FS Addendum, EPA considers the former landfill portion of the site as two separate areas of contamination (AOC). AOC 1 consists of historic former disposal areas 1, 2, and 5, which encompass approximately 50 acres. AOC 2 includes former disposal areas 3 and 4.

2.0 Site History

The former North Sanitary/Valleycrest landfill portion of the site is owned by the Keystone Gravel Company, which operated a sand and gravel quarry on the property from the late 1930s to the 1970s. Keystone's mining operations created large depressions across the majority of the site. These unlined depressions were later used for disposal of commercial, industrial, municipal and other types of waste.

Site records indicate that industrial and municipal wastes, including oils, solvents, scrap paper, electrical transformers, asbestos containing brake grinders, and sewage was disposed of in unlined former gravel pits that pond with water and intersected the water table. Drums containing liquid and non-liquid industrial wastes were also disposed of in AOC 1.

Figure 1.3 shows the former disposal areas and the waste boundary delineation information generated during the RI. Each of the former disposal areas is described in more detail below.

2.1 History of State and Federal Investigations, Orders, Agreements and Removal Activities

State and county investigations of the site date back to the early 1970s. During a site inspection on January 29, 1974, the Miami Conservancy District observed at least 50 drums of used oil and unknown liquid chemicals in an area along the western side of Valleycrest Drive within former disposal area 5. Inspectors also observed the actual dumping of a 40-cubic yard dumpster full of drums onto the ground. Some of the drums were labeled as "polyurethane foam"; "fiberglass resin"; "clear coat vinyl lacquer"; "mold release"; "flammable cyclo-scrap"; "formaldehyde" and "hot dump."

EPA began investigating the site in 1986. Analysis of groundwater and soil samples that EPA collected revealed the presence of volatile organic compounds (VOCs), heavy metals, and polychlorinated biphenyls (PCBs). In May of 1994, EPA placed the site on the National Priorities List.. EPA then entered into a Cooperative Agreement with Ohio EPA for Ohio EPA to take on lead agency responsibilities at the site. On January 1, 1995, Ohio EPA and a group of potentially responsible parties (PRPs) entered into an agreement for the completion of the remedial investigation (RI) and feasibility study (FS) for the site. The RI/FS was conducted from 1995 to 2011.

The Valleycrest Landfill site PRP Group (VSLG) completed the first phase of the RI in 1996. Groundwater samples collected from a single well in former disposal area 5 evidenced elevated levels of benzene, vinyl chloride, trichloroethene (TCE), tetrachloroethene (PCE) and other hazardous substances.

In September of 1996, the Dayton Fire Department, EPA's HAZMAT team, and the Ohio EPA emergency response responded to an underground fire in former disposal area 1. Pursuant to the emergency clause of the 1995 agreement with the Ohio EPA, the VLSG contractors removed partially buried surface drums and associated contaminated soils. Of the drums excavated, waste from five of the drums was sampled. Analysis of the samples detected the presence of VOCs, lead, chromium and other hazardous constituents.

In 1998, EPA and the site PRP group entered into an Administrative Order on Consent to address landfill gas (LFG) migration and removal of buried containers. LFG migration was controlled by constructing a perimeter LFG collection system. The existing system consists of gas wells and header piping that is routed to an enclosed flare, where the gas is burned. This system operates on an intermittent basis and operates along a portion of the site perimeter.

Under the terms of the Administrative Order on Consent, the PRP group removed buried containers where geophysical anomalies were previously identified, within former disposal areas 1 and 5. The buried container removal action in former disposal area 5 began in November 1998, and was completed in July 2001. During that time, 26,986 container carcasses were removed and disposed off property. Impacted waste and soil encountered during the work was stockpiled on-site and eventually treated by ex-situ vapor extraction. Following treatment, material was tested using the Toxicity Characteristic Leaching Procedure (TCLP) standards (40 C.F.R. Part 261.24). Remaining material that still exhibited the toxicity characteristic for RCRA hazardous waste was disposed off property. Treated material that did not exhibit toxicity characteristics was backfilled on-site.

The buried container removal action in former disposal area 1 began in February 2002 and was completed in December 2002. During this time, 15,622 container carcasses were removed and transported for off-site hazardous waste disposal. Unlike work at former disposal area 5, impacted waste and soil encountered during the work was left in the excavated areas and successfully treated in place with in-situ vapor extraction (ISVE) technology to meet the TCLP standards. This work was completed in October 2005. In total, 42,608 buried containers were removed from the site and more than 65,000 cubic yards (cy) of impacted soil and waste material was successfully treated or disposed off-site.

In a 2000 Health Consultation, the U.S. Department of Health and Human Services found the sampling carried out by the PRPs as part of the Phase 1 Remedial Investigation underestimated the contaminant levels in former disposal area 5.

Ohio EPA approved the RI Report in June 2008 and the FS Report in April 2011.

EPA issued an FS Addendum Report in July 2012, providing additional clarification on compliance with ARARs for on-site waste disposal.

3.0 Community Participation

Throughout the RI/FS process, Ohio EPA attended periodic community meetings and participated in conference calls with the Technical Assistance Grant (TAG) group and various community members.

At the time of the removal action, EPA held public meetings on its progress. These meetings were held on December 16, 1998, February 7, 2001, December 4, 2001, February 25, 2003, and February 7, 2004. EPA also issued fact sheets describing the status of the removal actions in February 2001 and January 2003.

The proposed plan and other relevant and supporting documents for the site were made available to the public in August 2012. Copies of the all of the documents supporting the remedy outlined in the proposed plan and contained in the AR file are available to the public at the Ohio Environmental Protection Agency Southwest District Office and at the United States Environmental Protection Agency Region 5 Office. These documents are also available online at www.epa.gov/region5/cleanup/valleycrest/index.html.

A notice of the availability of these documents and the release of the Proposed Plan was published in the Dayton Daily News. A thirty-day public comment period was held from August 12, 2012 to September 11, 2012. A public meeting was held on August 17, 2012 at the Kiser School in Dayton, to present the Proposed Plan to community members. At this meeting, representatives from EPA and Ohio EPA answered questions about the remedial alternatives and problems at the site, and solicited community input on the proposed remedy. (See Part III: Responsiveness Summary)

EPA gathered information on potential future use of the property through evaluation of the Valleycrest Reuse Framework approved by the City of Dayton for the site and through the public comment period on the proposed remedy.

4.0 Scope and Role of Operable Unit

As with many Superfund sites, the problems at the site are complex. A RI/FS was performed by a group of PRPs. Activities performed included determining the nature and extent of contamination at the site and evaluating the feasibility of various remedial alternatives for site cleanup.

The major reduction in the toxicity, mobility and volume (TMV) of the majority of the principal threat waste disposed of at the former disposal areas 1 and 5 occurred during the removal action. A total of 42,608 buried container carcasses were removed for off-property treatment and disposal and 65,000 cubic yards of impacted soil and waste material was either successfully treated on-site so that it no longer exhibited characteristics of RCRA hazardous waste or disposed of off property.

The selected remedy described in this ROD addresses waste, leachate, landfill gas, NAPL, surface soil, and groundwater at former disposal areas 1, 2, 3, 4 and 5 as well as surrounding areas. These areas, which comprise the site, were determined to pose risks to human health and the environment due to direct contact and ingestion of surface soils, inhalation of ambient air via landfill gas and site waste, ingestion and inhalation of NAPL and ingestion, inhalation and direct contact with groundwater through household use.

Several low-quality, man-made wetlands exist on the site. The RI/FS Report included an assessment of the nature and origin of these wetlands that resulted in this conclusion. The selected remedy includes the filling and capping of these wetlands. In accordance with Ohio's wetland anti-degradation laws, the selected remedy includes mitigation of the detrimental effects of filling and capping wetland areas.

This ROD is the final planned response action at the site.

5.0 Site Characteristics

The site is more than 100 acres in size. As stated above, the surface topography of the site is variable due to past excavation, grading, and filling associated with historical gravel mining and landfilling operations.

5.1 Physical Characteristics

5.1.1 Site Geology

The site sits atop the Great Miami Buried Valley Aquifer, a federally-designated, sole-source drinking water aquifer composed of highly transmissive sands and gravel. Surficial soils underlying the site consist of 15-50 feet of porous and permeable sand and gravel. These sand and gravel deposits are underlain by clay-rich till of variable thickness.

5.1.2 Hydrogeological Conditions

The two primary hydrogeologic units at the site are the Upper Aquifer and Main Aquifer.

The Main Aquifer consists of the portion of the glaciofluvial sand and gravel stratigraphic unit deposited beneath the till-rich zone and the entire saturated thickness of the sand and gravel stratigraphic unit where the till-rich zone is absent. The Main Aquifer contains numerous thin discontinuous till horizons and silty units.

The Upper Aquifer (i.e., the upper sand and gravel stratigraphic unit) consists of the saturated glaciofluvial soils above a low permeability till-rich zone that separates the Upper Aquifer from the Main Aquifer. Groundwater in the Upper Aquifer flows across the site from east to west. The till-rich zone is absent in the southwest portion of the site and the Upper Aquifer is directly connected to the Main Aquifer in that area. In some areas of the site, Upper Aquifer groundwater is in direct hydraulic contact with saturated waste materials and some leachate mounding does occur, although it does not have a major effect on the overall groundwater flow direction.

5.1.3 Groundwater Flow

Groundwater in the Main Aquifer flows across the site from east to northwest toward the Great Miami River. Groundwater elevations in the Main Aquifer are typically lower than in the Upper Aquifer.

5.1.4 Surface Water Hydrology

The Great Miami River is located approximately 3,500 feet northwest of the site and the Mad River is located approximately 4,000 feet south of the site. The City of Dayton provides water to over 400,000 people from production wells in two well fields located along these rivers. A drainage study conducted during the RI concluded that surface water does not flow off the former landfill area because it is bowl-shaped. Several low-quality, man-made wetlands exist on the site.

5.2 Nature and Extent of Contamination

5.2.1 Source of Contaminants

The nature and extent of contamination at the site has been studied during several investigations conducted by EPA, U.S. Department of Health and Human Services (DHHS), Ohio EPA and the site PRPs with EPA and Ohio EPA oversight.

The risk assessments for this site compare the historical and current information available from the investigations, including the type of contamination that has been found at the site, known or suspected sources of contamination, affected media, and the extent of contamination to human health or ecologically based criteria.

This section of the ROD summarizes the historical and current information available from these investigations, including the type of contamination that has been found at the site, known or suspected sources of contamination, affected media, and the extent of contamination. The concentrations of the constituents detected in the samples were compared to human health or ecologically based criteria in the companion risk assessments.

The site consists of four contaminant sources (waste, leachate, landfill gas, and NAPL) and three affected media (groundwater, ambient air, and soil).

5.2.1.1 Waste

The estimated volume of waste at the site is approximately 2.5 million cubic yards. Waste area and volume information is shown on Figure 3.1. Waste sampling conducted during the RI identified 16 locations in AOC 1 with VOC contamination exhibiting the toxicity characteristics of RCRA hazardous waste. Eleven of these locations exceeded the TCLP standard for trichloroethylene (TCE) and are below the water table in native till beneath the former disposal area 5 removal action area. The other five locations had TCE concentrations indicating the toxicity characteristic standards for RCRA hazardous waste may be exceeded based on the application of the 20 times rule. These five locations, shown on Figure 1 of the FS Addendum, are within former disposal area 1, and located above the water table. Sampling results are available in Appendix A of the RI report.

Waste sampling results in AOC 2 indicate that these areas may contain RCRA characteristic waste. The waste sampling locations are shown in Figure 4.9 of the RI report. The contaminant concentrations that were detected at these locations are provided in Appendix A of the RI report.

RI waste sampling indicates six locations in AOC 1 that contain PCBs at concentrations above 50 parts per million (ppm) as shown on Figure 2 of the FS Addendum. Four of these locations are above the water table and two are located at depths near or below the water table.

Chemicals detected in waste material during the RI are listed below along with maximum concentrations found in sampling results:

Contaminants Detected in Waste Material

Organic Contaminants		Inorganic Contaminants	
Contaminant	**Maximum Concentration** (mg/kg)	**Contaminant**	**Maximum Concentration** (mg/kg)
1,2,4-Trimethylbenzene	76,000	Aluminum	27,000
1,3,5-Trimethylbenzene	18,000	Arsenic	37.8
1,4-Dichlorobenzene	3,300	Barium	11,400
2-Methylnaphthalene	42,000	Beryllium	27.8
4-Methylphenol	16,000	Cadmium	75.3
Acetophenone	630	Copper	4,770
Aroclor-1242 (PCB-1242)	950,000	Iron	240,000
Aroclor-1248 (PCB-1248)	69,000	Lead	12,000
Aroclor-1254 (PCB-1254)	190,000	Manganese	5,930
Aroclor-1260 (PCB-	78,000	Mercury	6.2

Organic Contaminants		Inorganic Contaminants	
1260)			
Benzene	41,000	Nickel	485
Benzo(a)anthracene	290,000	Silver	201
Benzo(a)pyrene	230,000	Thallium	10
Benzo(b)fluoranthene	260,000	Vanadium	78.4
Benzo(g,h,i)perylene	110,000	Zinc	27,600
Benzo(k)fluoranthene	120,000		
bis(2-Ethylhexyl)phthalate	170,000,000		
Butyl benzylphthalate	660,000		
Carbazole	110,000		
Chlorobenzene	61,000		
Chloroform	44		
Chrysene	260,000		
cis-1,2-Dichloroethene	1,000,000		
Cyclohexane	5,200		
Dibenz(a,h)anthracene	31,000		
Dibenzofuran	140,000		
Dieldrin	60		
Ethylbenzene	3,700,000		
Fluoranthene	870,000		
Indeno(1,2,3-cd)pyrene	110,000		
Methylene chloride	28,000		
Naphthalene	110,000		
N-Nitrosodiphenylamine	19,000		
Phenanthrene	1,000,000		
Pyrene	660,000		
Tetrachloroethene	45,000		
Toluene	2,200,000		
Trichloroethene	900,000		
Vinyl chloride	170,000		
Xylene (total)	14,000,000		

5.2.1.2 Leachate

Leachate is present in all former disposal areas except former disposal area 4. The total volume of leachate at the site is estimated to be 45 million gallons. Leachate area and volume information is shown on Figure 3.1. Chemicals, and the maximum concentrations detected in leachate at the site, are listed below:

Organic Contaminants Detected in Leachate

Contaminant	Maximum Concentration (mg/kg)	Contaminant	Maximum Concentration (ug/l)
1,1-Dichloroethane	6.8	Trichloroethene	210
1,2,4-Trimethylbenzene	250	4-Methylphenol	170
1,3,5-Trimethylbenzene	40	Acetophenone	3.9
1,4-Dichlorobenzene	15	Benzo(a)anthracene	24
2-Butanone	640	Benzo(a)pyrene	21
4-Methyl-2-Pentanone	1,600	Benzo(b)fluoranthene	26
Acetone	540	Benzo(g,h,i)perylene	10
Benzene	120	Benzo(k)fluoranthene	10
Chlorobenzene	180	bis(2-Ethylhexyl)phthalate	500
Chloroethane	520	Carbazole	12
cis-1,2-Dichloroethene	3,700	Chrysene	100
Ethylbenzene	1,100	Dibenzofuran	41
Methylene chloride	11	Fluorene	140
Tetrachloroethene	5.8	Indeno(1,2,3-cd) pyrene	9.8
Toluene	1,800	Naphthalene	170
trans-1,2-Dichloroethene	13	N-Nitrosodiphenylamine	27
Vinyl chloride	1,200	Phenanthrene	240
Xylene (total)	4,400	Pyrene	64
2-Methylnaphthalene	100	Aroclor-1232	12
Aroclor-1242	210	Aroclor-1248	3.8
Aroclor-1254	300	Aroclor-1260	1.2
4,4'-DDE	7.1	4,4'-DDT	24
beta-BHC	0.45	delta-BHC	0.8
Endrin aldehyde	5.9	Heptachlor epoxide	4.8
Toxaphene	200	Pentachlorophenol	1.8

5.2.1.3 Landfill Gas

The RI included monitoring of landfill gas for methane, carbon dioxide, oxygen, and VOCs. In all former disposal areas, except former disposal area 4, methane was detected at concentrations

above the lower explosive limit. The migration of landfill gas is presently controlled by the existing perimeter landfill gas collection system installed during the removal activities.

VOCs were detected in landfill gas in all former disposal areas, with the highest concentrations observed in former disposal areas 1 and 5. In order to evaluate the potential worst case conditions along the site perimeter and off-property, subsurface landfill gas sampling was performed at least three hours after the landfill gas abatement system had been turned off. There were 19 VOCs detected above site-specific preliminary remediation goals (SSPRGs), as established in the FS Report, in subsurface gas at the landfill boundary or at other locations. However, the VOCs drop below SSPRGs within a relatively short distance from the site.

The potential for vapor intrusion into nearby structures was investigated during the RI. Indoor air samples and subsurface gas samples were collected from 13 residences as identified by Ohio EPA. Based on the data collected, it was concluded by the Ohio Department of Health that the detected compounds appeared to be related to sources inside the homes and not outdoor ambient air or subsurface gas sources related to the site. In addition, indoor air sampled collected by EPA in 1998 from homes and businesses adjacent to the site showed no unsafe levels of methane or other site contaminants. The 1998 sampling event occurred before the interim landfill gas abatement system became operational.

The primary VOCs detected in landfill gas are listed below along with the maximum concentrations found in the sampling results:

Organic Contaminants Detected in Landfill Gas

Contaminant	Maximum Concentration (ppbv)
1,1-Dichloroethane	10,908
1,2,4-Trimethylbenzene	3,639
1,3,5-Trimethylbenzene	1,917
Benzene	5,179
Chlorobenzene	2,487
cis-1,2-Dichloroethene	3,924,722
Ethylbenzene	46,485
Methylene chloride	10,908
Tetrachloroethene	21
Toluene	303,784
Trichloroethene	1,015,331
Trichlorofluoromethane (CFC-11)	69,116
Vinyl chloride	839,992
Xylene (total)	159,435

5.2.1.4 Non-Aqueous Phase Liquid

NAPL was found in 6 wells during the RI but was only detected consistently at two locations, the southeastern part of former disposal area 1 (at leachate well NSL-55L) and in the eastern part of former disposal area 5 (at leachate well NSL-54L). The total volume of NAPL in these areas is

estimated to be 4,400 gallons. NAPL location and volume information is shown on Figure 3.1. The RI hot spot investigation concluded that because of the nature and extent of hazardous constituents in the NAPL, NAPL is a principal threat waste (source material considered to be highly toxic and/or mobile) and is contributing significantly to overall site risk. The chemicals detected in the NAPL are listed below along with the maximum concentrations found in sampling results:

Organic Contaminants Detected in NAPL

Contaminant	Maximum Concentration (ug/l)
1,1-Dichloroethane	13,160
1,2,4-Trimethylbenzene	18,000
1,3,5-Trimethylbenzene	6,030
4-Methyl-2-Pentanone (MIBK)	29,140
Acetone	48,880
Benzene	24,440
Chlorobenzene	3,572
Cyclohexane	2,790
cis-1,2-Dichloroethene	53,580
Ethylbenzene	1,222,000
Methyl cyclohexane	9,900
Toluene	799,000
Vinyl chloride	18,800
Xylene	4,794,000
2-Methylnaphthalene	187,000
Trichloroethene	639
bis(2-Ethylhexyl)phthalate	441,800
Chrysene	150,400
Fluorene	319,000
Naphthalene	188,000
Phenanthrene	333,000
Aroclor-1242	171,000
Aroclor-1248	488,800
Aroclor-1254	488,800
Aroclor-1260	263,200
4,4'-DDE	8,648
Dieldrin	1,170
Endosulfan sulfate	4,230
Endrin aldehyde	9,024
Methoxychlor	4,418

5.2.1.5 Groundwater

The RI identified site-related contaminants in groundwater at concentrations above Maximum Contaminant Levels (MCLs). Figures 3.2 and 3.3 show exceedances of MCLs at and beyond the site boundary in the Upper Aquifer and Main Aquifer, respectively. Contaminants detected in the

Upper Aquifer include vinyl chloride, TCE, arsenic, iron, nitrate, benzene, chloroethane, 4,4-DDT, beta-BHC, barium and iron, with the highest detections being TCE at 100 ppb, vinyl chloride at 52 ppb, benzene at 34 ppb, and arsenic at 75 ppb. Contaminant concentrations are lower in the Main Aquifer and include detections of arsenic, barium, benzene, vinyl chloride, nitrate and manganese.

In general, exceedances of MCLs in the Upper Aquifer and Main Aquifer are localized and do not extend beyond approximately 400 feet of the property boundary. There are no potable-use wells within the areas of groundwater contamination.

5.2.1.6 Soil

The RI determined that arsenic concentrations are above background in soil in the unfilled portion west of former disposal area 5 and in one area west of former disposal area 4. Soil in one on-site area north of former disposal area 4 is above the soil SSPRG for benzo(a)pyrene. There are no soil sampling results for the off-property buried waste area (OPBWA). However, the OPBWA is assumed to have the same degree of surface soil contamination as the eastern two thirds of the landfill property (AOC 1) and, thus, requires remedial action, as summarized in the RI/FS Report. The area of contaminated soil in the OPBWA is assumed to be the same size as the OPBWA itself, which is 1,950 ft^2 (0.04 acre) as shown on Figure 3.1.

Ohio EPA and the Ohio Department of Health (ODH) performed a radiation screening survey and assessment at the site. The screening survey identified an area in the northwest part of former disposal area 3 where above-background radiation levels occurred. Soil samples were collected in this area and analyzed for Radium-226, with detected levels ranging to 14.9 pCi/kg. The ODH concluded that the radioactive material at the site does not present a threat to the health and safety of the public under present or future conditions. However, all of the remedial alternatives being considered for the site include capping to contain the radioactive materials in former disposal area 3 and to prevent future exposure.

Sediment samples collected within the limits of former disposal areas 1, 2, and 5 had concentrations of various compounds above soil SSPRGs and background. Exceedances were observed in one or more samples for benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, butyl benzylphthalate, bis(2-ethylhexyl)phthalate, carbazole, dibenz(a,h)anthracene, naphthalene, Aroclor-1242, Aroclor-1254, Aroclor-1260, dieldrin, chromium, and manganese.

6.0 Current and Potential Future Site and Resource Use

The site is located in a mixed urban, commercial, industrial, and residential area. The site is bordered on the southeast by commercial and residential properties and Valley Pike; and on the southwest by a railroad right of way that contains a buried oil pipeline and then residences beyond. To the west, the site is bordered by Brandt Pike, several industrial facilities, and a single residence.

EPA met with the City of Dayton on several occasions, and also hosted several community meetings, to talk about future site use. This information was used by the City of Dayton to develop a reuse framework for the site, which provides recommendations for future

improvement of the site, including redevelopment of the area to the west of former disposal areas 2 and 5. This framework spells out potential future use for the site as recreational, commercial or light industrial. An environmental covenant (ERC) is in place that restricts land use and access to groundwater and allows for future development of the site property consistent with the reuse framework. The ERC will require revision to allow public access should reuse of the property occur.

The RI/FS also evaluated both current and future use of groundwater in the site area. In the vicinity of the site, the City of Dayton provides potable water. There is no current or predicted future use of groundwater within the area of the groundwater plume and any installation of potable-use water wells requires a permit from the Montgomery County Health Department. Therefore, reasonable future uses for groundwater at the site are limited to those related to site investigation, monitoring or remediation, as outlined in the existing site restrictive covenant.

7.0 Summary of Site Risks

The baseline risk assessment estimates what risks the site poses if no action were taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the ROD summarizes the results of the baseline risk assessment for this site, which is illustrated by the site conceptual site models for human health and environmental risks. (See Figures 2-9 and 2-10).

7.1 Human Health Risk Assessment

For carcinogens, risks are generally expressed as the incremental probability of an individual's developing cancer over a lifetime as a result of exposure to the carcinogen. Excess lifetime cancer risk is calculated from the following equation:

Risk = CDI x SF

where: risk = a unit less probability (e.g., 2 x 10-5) of an individual's developing cancer
CDI = chronic daily intake averaged over 70 years (mg/kg-day)
SF = slope factor, expressed as (mg/kg-day)-1.

These risks are probabilities that usually are expressed in scientific notation (e.g., 1x10-6). An excess lifetime cancer risk of 1x10-6 indicates that an individual experiencing the reasonable maximum exposure estimate has a 1 in 1,000,000 chance of developing cancer as a result of site-related exposure. This is referred to as an "excess lifetime cancer risk" because it would be in addition to the risks of cancer individuals face from other causes such as smoking or exposure to too much sun. The chance of an individual's developing cancer from all other causes has been estimated to be as high as one in three. EPA's generally acceptable risk range for site-related exposures is 10-4 to 10-6.

The potential for non-carcinogenic effects is evaluated by comparing an exposure level over a specified time period (e.g., lifetime) with a reference dose (RfD) derived for a similar exposure period. An RfD represents a level that an individual may be exposed to that is not expected to cause any deleterious effect. The ratio of exposure to toxicity is called a hazard quotient (HQ).

An HQ<1 indicates that a receptor's dose of a single contaminant is less than the RfD, and that toxic non-carcinogenic effects from that chemical are unlikely. The Hazard Index (HI) is generated by adding the HQs for all chemical(s) of concern that affect the same target organ (e.g., liver) or that act through the same mechanism of action within a medium or across all media to which a given individual may reasonably be exposed. An HI < 1 indicates that, based on the sum of all HQs from different contaminants and exposure routes, toxic non-carcinogenic effects from all contaminants are unlikely. An HI > 1 indicates that site-related exposures may present a risk to human health.

The HQ is calculated as follows:

Non-cancer HQ = CDI/RfD

where: CDI = Chronic daily intake
RfD = reference dose.

CDI and RfD are expressed in the same units and represent the same exposure period (i.e., chronic, sub-chronic, or short-term).

A baseline human health risk assessment (HHRA) evaluated risks and hazards to human health from exposure to contaminants at the site, in present and future conditions, in the context of four different areas at or near the site. The four areas include:

- The eastern two-thirds of the site (which includes former disposal areas 1, 2, and 5) as defined in the City's Valleycrest Reuse Framework
- The western third of the site (which includes former disposal areas 3 and 4) as defined in the City's site reuse plan
- Outside of the site property (referred to as off-property)
- A small area of buried waste that extends off the site property to the east onto Lots 79198 and 74637 [off-property buried waste area (OPBWA)]

For each of these areas, the HHRA conservatively evaluated potential risks and hazards to both current and reasonably anticipated potential future human receptors that may be affected by site contaminants. The results of the risk and hazard evaluations that were conducted for each receptor/pathway combination were compared to conservative limits established by EPA for protection of human health.

The HHRA identified exceedances of the risk-based limits for certain media/pathway/receptor scenarios. (See Tables 1 and 2).

Eight human receptors were evaluated: on-site trespasser (current), off-landfill property resident (current/future), utility worker (future), construction worker (future), park worker (future), recreational user (future), maintenance worker (future), and commercial worker (future). The potential future receptors were based on land uses outlined in the city of Dayton's Valleycrest Reuse Framework, which includes recreational and commercial uses. The results of the risk and hazard evaluations that were conducted for each receptor and exposure scenario were compared to conservative limits established by EPA for protection of human health.

The HHRA identified exceedances of the risk-based limits for certain media/pathway/receptor scenarios. Based on the results of the HHRA, it was concluded that exposure to waste, leachate, landfill gas, NAPL, surface soil, and groundwater at the site pose unacceptable risks to human health. The following receptors/exposures exceed a cumulative risk of 1x10(-04) (1 in 10,000 cancer risk) and/or a hazard index of 1 (Table 3):

- Current trespasser exposure to landfill gas via inhalation.
- Current resident exposure to landfill gas via inhalation of ambient air.
- Current resident exposure to surface waste and surface soil in OPBWA via ingestion and direct contact.
- Future recreational user exposure to landfill gas via inhalation and surface waste via ingestion and dermal contact.
- Future park worker exposure to landfill gas via inhalation and surface waste via ingestion and dermal contact.
- Future utility worker exposure to waste via inhalation of ambient air and NAPL via ingestion and inhalation.
- Future commercial worker exposure to LFG via inhalation, and soil via ingestion
- Future resident exposure to surface waste and surface soil in the OPBWA via ingestion and direct contact.
- Future resident exposure to groundwater (household use) via ingestion, inhalation, and direct contact.

Four contaminants pose the greatest risk to human health at the site:

Tricholorethylene (TCE): TCE was detected in waste at concentrations up to 900 ppm, in landfill gas at concentrations up to 1,000 ppm volume, in leachate up to 210 ppb, and in groundwater up to 100 ppb. TCE is a halogenated organic compound historically used as a solvent and degreaser. Exposure to this compound has been associated with deleterious health effects in humans, including anemia, skin rashes, diabetes, liver conditions, and urinary tract disorders. Based on laboratory studies, TCE is considered a probable human carcinogen.

Vinyl Chloride: Vinyl chloride was detected in waste at concentrations up to 170 ppm, in landfill gas at concentrations up to 840 ppm volume, in leachate up to 1,200 ppb, and in groundwater up to 52 ppb. Vinyl chloride is used in the manufacture of numerous products and can also form during the natural chemical breakdown of TCE. Based on laboratory studies, vinyl chloride is considered a probable human carcinogen.

Cis-1, 2-Dichloroethene (DCE): DCE was detected in waste at concentrations up to 1,000 ppm, in landfill gas at concentrations up to 3,900 ppm volume, and in leachate up to 3,700 ppb. DCE is used to produce solvents and in chemical mixtures. DCE can also form during the natural chemical breakdown of TCE. Long term exposure to DCE can cause liver, circulatory and nervous system damage. Based on laboratory studies, DCE is considered a probable human carcinogen.

Benzene: Benzene was detected in landfill gas at concentrations up to 5 ppm volume, in leachate at concentrations up to 120 ppb, and in groundwater at concentrations up to 34 ppb.

Benzene can be found in gasoline and in products such as synthetic rubber, plastics, nylon, insecticides, paints, dyes, resins-glues, furniture wax, detergents and cosmetics. Long-term exposure to benzene can affect the kidney, liver and blood systems and cause leukemia. Benzene has been determined to be carcinogenic to humans.

A summary of the receptors, pathways, and media which exceed the cumulative risk and hazard index criteria, including the cumulative risk and hazard index values and major contributing parameters and pathways, is presented in Table 1. These cancer risks and hazard levels indicate that there is significant potential risk to children and adults from exposure to contaminated media at the site. These risk estimates are based on current and future scenarios and were developed by taking into account various conservative assumptions about the frequency and duration of an individual's exposure to the contaminated media, as well as the toxicity of the various site contaminants.

7.2 Ecological Risks

A baseline ecological risk assessment (ERA) was conducted at the site, which concluded that no unacceptable ecological exposures exist, due to the previous landfilling operations. It is expected that final grading and installation of an appropriate cover system will further protect ecological receptors from contaminated media at the site.

7.2.1 Uncertainties

Because of unlimited data or data distribution, the maximum reported values for RME have been used as exposure point concentrations to estimate exposures, which is appropriate for screening purposes but will overestimate actual exposures by orders of magnitude. The use of maximum detected COPC concentrations will also lead to similar overestimates. Another factor that contributes to overestimation of risk is the assumption that the COPC concentrations remain constant through the duration of exposure. Another factor of uncertainty is the assumption that 100 percent absorption to COPCs occurs after oral ingestion or inhalation. Actual absorption rates are dependent on the COPC, which also leads to overestimation or risks.

7.3 Basis for Action

A response action at the site is warranted because, using RME assumptions, the cumulative excess lifetime carcinogenic risk to human health exceeds 1×10^{-4} for the following use scenarios: current trespasser, current and future off-property resident, future park worker, future utility worker, and future commercial worker. The response action selected in this ROD is necessary to protect the public health or welfare or the environment from the actual or threatened releases of hazardous substances, pollutants or contaminants from this site that may present an imminent and substantial endangerment to public health or welfare.

8.0 Remedial Action Objectives and ARARs

8.1 Remedial Action Objectives

Remedial action objectives (RAOs) are specific goals to protect human health and the environment and as such, provide the basis for developing cleanup options that will be protective of human health and the environment. The RAOs are based on the information gathered during the RI, EPA guidance, applicable, relevant and appropriate requirements (ARARs) for the site, and the conclusions of the HHRA, including human health and ecological risks.

Acceptable RBPRGs were calculated for each chemical of concern (COC) in each medium of concern for each pathway to be addressed within each exposure area. Tables 1 and 2 summarize the COCs, risk-based preliminary remediation goals (RBPRGs), and range of detected concentrations for each exposure area.

The RAOs address site-related receptor and pathway risks and hazards exceedances based on the results of the HHRA and development of RPBPRGs and are consistent with the NCP and EPA RI/FS guidance. The RAOs are listed below for each of the four contaminant sources (waste, NAPL, leachate, and LFG) and three affected media (OPBWA soil, groundwater, and ambient air).

8.1.1 Waste

- Prevent inhalation (via ambient air) of AOC 1 waste COCs by a future utility worker at concentrations greater than the RBPRGs
- Prevent ingestion, direct contact, and inhalation (via ambient air) of AOC 1 surface waste COCs by a future park worker, future recreational user, and current/future off-property and OPBWA resident at concentrations greater than the RBPRGs
- Prevent ingestion of AOC 2 waste COCs by a future construction worker at concentrations greater than the RBPRGs
- Prevent ingestion, direct contact, and exposure to radioactive materials in former disposal area 3 greater than the RBPRGs
- Prevent migration of site-related contaminants to groundwater that would result in exceedances of the groundwater MCLs (or site-specific background where higher) beyond the point of compliance (POC) (see Figure 4.5), or a cumulative carcinogenic risk of 10-5 or a hazard index of 1
- Reduce infiltration and formation of leachate

8.1.2 NAPL

- For AOC 1, prevent ingestion and inhalation (via ambient air) of COCs by a future utility worker at concentrations greater than the RBPRGs
- Prevent migration of site-related contaminants to groundwater that would result in exceedances of the groundwater MCLs (or site-specific background where higher) beyond the POC, or a cumulative carcinogenic risk of 10-5 or a hazard index of 1

- Reduce infiltration and formation of leachate

8.1.3 Leachate

- For AOC 1, prevent direct contact with COCs by a future utility worker at concentrations greater than the RBPRGs
- Prevent migration of site-related contaminants to groundwater that would result in exceedances of the groundwater MCLs (or site-specific background where higher) beyond the POC, or a cumulative carcinogenic risk of 10-5 or a hazard index of 1

8.1.4 Landfill Gas

- For AOC 1, prevent inhalation (via ambient air) of COCs by a future park worker, future recreational user, current trespasser, and current/future off-property and OPBWA resident at concentrations greater than the RBPRGs
- For AOC 2, prevent inhalation (via ambient air) of COCs by a future commercial worker, future maintenance/park worker, and current/future off-property resident at concentrations greater than the RBPRGs
- Prevent accumulation of explosive concentrations of LFG within structures
- Prevent migration of LFG having methane above the LEL beyond the property boundary
- Prevent inhalation of vapors in excess of RBPRGs in on-site and off-property indoor air for current and future residents, current trespassers, future utility workers, and future construction workers
- Prevent inhalation of radon from radioactive materials in former disposal area 3 in excess of RBPRGs in on-site indoor air for future utility, commercial, and construction workers, and future park workers

8.1.5 OPBWA Soil

- Prevent ingestion and direct contact of AOC 1 surface soil COCs by a future OPBWA resident at concentrations greater than the RBPRGs
- Prevent migration of site-related contaminants to groundwater that would result in exceedances of the groundwater MCLs (or site-specific background where higher) beyond the POC, or a cumulative carcinogenic risk of 10-5 or a hazard index of 1

8.1.6 Groundwater

- Prevent ingestion, direct contact, and inhalation (via ambient air) of contaminants in groundwater at concentrations greater than the MCLs (or site-specific background where higher) beyond the POC by a future resident, or an evaluation of cumulative carcinogenic risk for mixtures of contaminants will be required
- Restore contaminated groundwater to its beneficial use at and beyond the POC within a reasonable timeframe, consistent with the MCLs (or site-specific background where higher), or a cumulative carcinogenic risk of 10-5 or a hazard index of 1

8.1.7 Ambient Air

- Prevent inhalation of vapors or dust in excess of RBPRGs in ambient air

8.2 Groundwater

The EPA maximum contaminant levels (MCLs) or Ohio EPA MCLs (where more stringent) listed in Table 4 are the remediation goals for site groundwater. However, MCLs provided for individual constituents may not account for cumulative risks posed by mixtures of constituents. Completion of groundwater remedial action at the site will require an evaluation of the cumulative residual risk, which will be completed as part of the final remedial action.

8.3 Applicable or Relevant and Appropriate Requirements

EPA evaluates ARARs to determine the appropriate extent of site cleanup, scope and formulate remedial action alternatives, and govern the implementation and operation of the selected action.

The NCP at 40 C.F.R § 300.5 defines ARARs as follows:

Applicable requirements are cleanup standards, standards of control, and substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental or state environmental law, or facility siting laws, that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or any other circumstances at a CERCLA site.

Relevant and appropriate requirements are those cleanup standards, standards of control, or other substantive environmental protection requirements, criteria, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.

EPA ARAR guidelines (EPA, 1988) state that the relevance and appropriateness of a requirement is judged by combining a number of factors including characteristics of the remedial action, the hazardous substances in question, or the physical circumstances of the site with those addressed in the requirement. The origin and objective of the requirement may aid in the determination of relevance and appropriateness. A requirement judged to be relevant and appropriate must be complied with to the same degree as if it were applicable. However, more discretion may be used in the determination. Only part of the requirement may be considered relevant and appropriate and the rest dismissed if judged not to be relevant and appropriate in a given case. Once a requirement is determined to be relevant and appropriate, it must be complied with as if it were applicable.

"To Be Considered (TBC) Material"(TBCs) are non-promulgated advisories or guidance documents issued by federal or state governments. They do not have the status of ARARs but

can be considered in determining the necessary level of cleanup for the protection of human health and the environment.

Three categories of ARARs and TBCs are identified by EPA (EPA, 1988):

a) Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies used to determine acceptable concentrations of chemicals that may be found in or discharged to the environment;
b) Action-specific ARARs are usually technology- or activity-based requirements or limitations on actions or conditions involving specific substances; and
c) Location-specific ARARs restrict actions or contaminant concentrations in certain environmentally sensitive areas.

1) Chemical-specific ARARs

Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies which, when applied to site-specific conditions, result in the establishment of numerical values. These values are potential applicable standards established by EPA.

Safe Drinking Water Act

The Safe Drinking Water Act of 1974 (SDWA), regulates the quality of water collected, distributed or sold for drinking purposes. The enforceable standards under the SDWA are maximum contaminant levels (MCLs) which represent the maximum permissible level of a contaminant which is delivered to any user of a public water system.

SDWA MCLs are relevant and appropriate ARARs for the COCs in groundwater at the site. (See Table 4). However, MCLs provided for individual constituents may not account for cumulative risks posed by mixtures of constituents. Therefore, completion of groundwater remedial action at the site will require an evaluation of the cumulative residual risk, which will be completed as part of the final remedial action.

Resource Conservation and Recovery Act

RCRA regulates the management and land disposal of hazardous waste and solid waste material and the recovery of materials and energy resources from the waste stream. RCRA regulates the generation, transportation, treatment, storage and disposal of hazardous wastes, as well as solid waste disposal facilities. RCRA applies to remedial actions that include disposal, treatment, storage or transportation of regulated wastes. Remedies that include on-site disposal of hazardous wastes will be required to meet RCRA design, monitoring, performance, closure standards, and land disposal restrictions. RCRA land disposal restrictions, as described in 40 C.F.R. Part 268, are not triggered by the remedial action here because no RCRA hazardous waste in AOC 2 will be consolidated into AOC 1.

Toxic Substances Control Act

TSCA regulations address the use, cleanup, storage, and disposal of PCBs including "PCB remediation waste" placed in a land disposal facility, spilled, or otherwise released into the

environment on or after July 2, 1979, where the concentration of the spill or release was ≥ 50 ppm. EPA regulations at 40 C.F.R. § 761.3 define PCB remediation waste as "waste containing PCBs as a result of a spill, release or other unauthorized disposal....at any concentration from a source not authorized for use under TSCA.

Under 40 C.F. R. § 761.50(b)(3) PCB remediation waste is "regulated for cleanup and disposal in accordance with 40 C.F.R. § 761.61. PCB remediation waste includes "environmental media containing PCBs, such as soil." TSCA regulations found at 40 C.F.R. § 761.61(c) allows for a risk based method for cleanup of disposal of PCB remediation waste when EPA finds that the method of disposal will not pose an unreasonable risk of injury to human health and the environment.

The Clean Air Act

The Clean Air Act (CAA), with amendments through December 1991, was enacted to protect and enhance the quality of air resources to protect public health and welfare. The CAA is intended to initiate and accelerate national research and development programs to achieve the prevention and control of air pollution. Under the CAA, the Federal Agencies are to provide technical and financial assistance to state and local governments for the development and execution of their air pollution programs. The EPA is the Administrator of the Act and is given the responsibility to meet the objectives of the Act. The Act establishes emission levels for certain hazardous air pollutants that result from treatment processes.

The CAA New Source Performance Standards (OAC 3745-76-03) are applicable if air emissions from the site exceed the Nonmethane Organic Compound (NMOC) emission criteria of 50 mega grams per year (MG/yr).

2) **Action-Specific ARARs**

OAC 3745-27-08 – Sanitary Landfill Facility Construction (Waste and Infectious Waste Regulations)

Specifies the minimum requirements for soil/clay layers, granular drainage layer, geosynthetics, leachate management system, gas monitoring system, etc. Also establishes construction requirements for facilities to be located in geologically unfavorable areas. Pertains to any new solid waste disposal facility created on-site and any expansions to existing solid waste landfills. Portions also pertain to areas of contamination that are capped per solid waste rules.

OAC 3745-27-10 – Groundwater Monitoring for a Sanitary Landfill Facility (Solid Waste and Infectious Waste Regulations)

States that a ground water monitoring program must be established for all sanitary landfill facilities. The system must consist of a sufficient number of wells that are located so that samples indicate both upgradient (background) and downgradient water samples. The system must be designed per the minimum requirements specified in this rule. The sampling and analysis procedures used must comply with this rule. Procedures for assessment and correction of contamination are specified. This rule pertains to any new solid waste facility and any

expansions of existing solid waste landfills on-site. The rule may also pertain to existing areas of contamination that are capped in-place per the solid waste rules.

OAC 3745-27-11 – Final Closure of a Sanitary Landfill Facility (Solid Waste and Infectious Waste Regulations)

Requires closure of a landfill in a manner that minimizes the need for post-closure maintenance and minimizes post-closure formation and release of leachate and explosive gases to air, soil, groundwater and surface water. Specifies acceptable cap design, soil barrier layer, granular drainage layer, soil and vegetative layer. Provides for use of comparable materials to those specified. Substantive requirements pertain to any existing areas of disposal that are capped in place.

OAC 3745-27-13 – Procedure to Engage in Filling, Grading, Excavating, Building, Drilling, or Mining on Land where a Hazardous Waste Facility or Solid Waste Facility was Operated (Solid Waste and Infectious Waste Regulations)

Requires that a detailed plan be provided to describe how any proposed filling, grading, excavating, building, drilling, or mining on land where a hazardous waste facility or solid waste facility was operated will be accomplished. This information must demonstrate that the proposed activities will not create a nuisance or adversely affect the public health or the environment. Special terms to conduct such activities may be imposed. Pertains to any site at which hazardous or solid waste has been managed, either intentionally or otherwise. Does not pertain to areas that have had one-time leaks or spills.

OAC 3745-27-14 – Post Closure Care of Sanitary Landfill Facilities (Solid Waste and Infectious Waste Regulations)

Specifies the required post closure care for solid waste facilities. Includes continuing maintenance of the cap system, operation of leachate and surface water management systems, and groundwater monitoring. Substantive requirements pertain to any newly created solid waste landfills on-site, any expansions of existing solid waste landfills on-site and any existing areas of contamination that are capped per the solid waste rules.

OAC 3745-3 – Pretreatment Rules – Industrial Discharges to Publicly Owned Treatment Works

Includes requirements and standards regulating the introduction of pollutants into POTWs by industrial users. It places restrictions on discharges to POTWs that may harm treatment functions of pass through to receiving streams.

OAC 3745-15 - General Provisions For Air Pollution Control

Establishes limits below which air discharge permits are not needed and establishes scheduled maintenance and specifies when pollution source must be shut down during maintenance. It pertains to any site which utilizes or will utilize air pollution control equipment on-site. It defines air pollution nuisance as the emission or escape into the air from any source(s) of smoke,

ashes, dust, dirt, grime, acids, fumes, gases, vapors, odors and combinations of the above that endanger health, safety or welfare of the public or cause personal injury or property damage. Such nuisances are prohibited under this rule which pertains to any site which causes, or may reasonably cause, air pollution nuisances. It is considered for sites that will undergo excavation, demolition, cap installation, methane production, clearing and grubbing, water treatment, incineration and waste fuel recovery and forbids dilution or other means to conceal emissions without actual reductions. It is considered for sites with emissions to air, air stripping, incineration, soil vapor extraction etc.

OAC 3745-17 - Particulate Matter Standards

All emissions of fugitive dust shall be controlled. This pertains to sites which may have fugitive emissions (non-stack) of dust and is considered for sites that will undergo grading, loading operations, demolition, clearing and grubbing, and construction.

OAC 3745-21 - Carbon Monoxide, Ozone, Hydrocarbon Air Quality Standards, and Related Emissions Requirements

Specifies measurement methods to determine ambient air quality for the following constituents: carbon monoxide, ozone and non-methane hydrocarbons and pertains to any site which will emit carbon monoxide, ozone or non-methane hydrocarbons. It is considered for sites where treatment systems will result in air emissions and requires that any stationary source of carbon monoxide to minimize emissions by the use of best available control technologies and operating practices in accordance with best current technology be utilized. It pertains to any site that is emitting or will emit carbon monoxide and is considered for sites with incineration or fuel burning. It establishes limitations for emissions of volatile organic compounds from stationary sources and pertains to any site with treatment systems that emit volatile organic compounds, including those with thermal desorption and air stripping.

OAC 3745-36 – Permit Program Regulating Discharge of Non-domestic Wastewater into a POTW

Establishes a permit program regulating the discharge of non-domestic wastewater into a POTW to assure compliance with pretreatment standards under Chapter 3745-3 of the Administrative Code.

OAC 3745-53 (RCRA) Transporter Standards

Establishes standards which apply to persons transporting hazardous waste within the State of Ohio if the transportation requires a hazardous waste manifest under Chapter 3745-52 of the Administrative Code. This rule pertains to sites where hazardous waste will be transported off-site for treatment, storage or disposal.

OAC 3745-76-03 – Control of NMOC Emissions from Existing Landfills

Specifies requirements for control of NMOC emissions from existing landfills.

ORC 3734.02 (H) - "Digging" Where Hazardous or Solid Waste Facility was Operated (Rules for inspection and licensing of solid waste facilities)

Pertains to filling, grading, excavating, building, drilling or mining on land where hazardous waste or solid waste facility was operated is prohibited. This rule pertains to any site at which hazardous or solid waste has come to be located and certain alternatives that include excavation activities which may uncover solid and/or hazardous waste.

ORC 3734.041 – Explosive Gas Monitoring Plan for Sanitary Landfill

Requires explosive gas monitoring plans for sanitary landfills. Pertains to all sanitary landfills except for those that disposed of non-putrescible wastes.

ORC 3767.13 - Nuisances - Prohibited Acts

Prohibits noxious exhalations or smells and the obstruction of waterways which pertain to any site that may have noxious smells or may obstruct waterways.

40 C.F.R. Parts 141.60-141.62 National Primary Drinking Water Regulations – MCLs for organic and inorganic contaminants (OAC 3745-81-11,12 – MCLs for inorganics and organics)

MCLs for inorganics and organics are relevant and appropriate for this site because contaminated ground or surface water that is either being used, or has the potential for use, as a drinking water source.

40 C.F.R. Part 261 – Identification and Listing of Hazardous Waste

Specifies requirements for identification and listing of RCRA hazardous waste.

40 C.F.R. Part 262 – Standards Applicable to Generators of Hazardous Waste

Specifies requirements for generation and off-site transport of hazardous waste.

3) **Location Specific ARARs**

ORC 5301.80 to 5301.92 – Uniform Environmental Covenants Act

Contains standards for environmental covenants and may be used at sites that require institutional controls or use restrictions.

Revised Code of Ordinances Chapter 53-Water Department Regulations

Sets standards and criteria for the control of toxic or otherwise hazardous substances within specifically defined areas in and around the City's present and future wells and well fields.

ORC 6111.02-6111.027 - Water Pollution Control - Isolated Wetland

Defines regulations for filling of and mitigation for impacts to isolated wetlands.

9.0 Description of Remedial Alternatives

This section provides a narrative summary of each alternative evaluated to address the unacceptable risks calculated in the site risk assessment. CERCLA Section 121(b)(1), 42 U.S.C. § 9621(b)(1), mandates that remedial actions must be protective of human health and the environment, be cost effective, comply with ARARs, and utilize permanent solutions, alternative treatment technologies, and resource recovery alternatives to the maximum extent practicable.

Common Elements for All Alternatives

All of the alternatives, with the exception of the "No Action" alternative (Alternative 1) contain common components. These common elements include:

- Former disposal area 4 relocation to former disposal areas 1, 2, 3 and 5
- OPBWA waste and soil consolidation
- NAPL monitoring/removal/off-property disposal at monitoring wells NSL-54L and NSL-55L
- In-situ treatment of waste in former disposal area 1, located above the water table and exceeding TCLP standards, as identified on Figure 5, to meet TCLP standards (40 C.F.R. Part 261.24)
- Past waste sampling results in former disposal area 3 indicated concentrations of lead and chromium that may exceed TCLP based on application of the twenty times rule. These wastes will be re-sampled during remedial design. If results exceed TCLP standards above the water table in Area 3, a Subtitle C cap will be installed over former disposal area 3, if removal of the wastes failing TCLP is not cost effective or implementable. If removal of TCLP waste is cost effective and implementable they will be excavated and disposed of off-site at a RCRA Subtitle C facility. Re-sampling of waste in former disposal area 3 will be completed during remedial design of the remedy
- Leachate extraction
- Landfill gas collection/flaring/monitoring
- On-site management of stormwater by retention/infiltration in the existing borrow area
- Groundwater monitoring
- Institutional Controls, UECA environmental covenant

Off-property transportation of regulated wastes, whether as part of a remedial action or as generated as part of the investigation, will require use of the manifest system, a RCRA-licensed transporter and proof of acceptance at a licensed facility approved for the particular wastes.

The five remedial alternatives, which were presented and evaluated in the FS report, are as follows:

Alternative 1 – No Action

EPA includes a "No-Action" alternative as a basis for comparison to the other cleanup alternatives. The no action alternative does not include any physical remedial measures beyond the removal actions that have already been taken at the site. Because this alternative would result in contaminants remaining on-site, the site would be reviewed every five years. Since no action would be taken, this option would not protect human health and the environment from either current or future risk.

Capital Cost: $0
Estimated O&M Cost: $0

Alternative 2A – Solid Waste Cap with Leachate Control (site perimeter)

Alternative 2A includes capping of former disposal areas 1, 2, 3, and 5 using a solid waste cap. Ohio regulations at OAC 3745-27-08 provide the design parameters for the solid waste composite cap system and include a requirement that the cap system have at least a 5.0 percent grade in all areas except where surface water control structures are located. The selected remedy may include variance from the minimum grade requirement of 5 percent. Any variance will meet the substantive requirements set forth in Ohio regulations at OAC 3745-27-03.

Waste material within former disposal area 4, which is mainly comprised of foundry sand, would be relocated and used as grading fill, as long as it does not exhibit RCRA characteristics. A portion may be screened, as needed, for use as engineered sub base or bedding material for former disposal areas 1, 2, 3, and 5. It is expected that the estimated 153,708 cubic yards (cy) of waste and cover material in former disposal area 4 would produce an approximately 3 percent minimum grade. The total area to be capped in former disposal areas 1,2,3 and 5 is 69.35 acres, which will cover an estimated 2,464,997 cy of waste.

A Solid Waste cap does not comply with the ARARs for this site unless RCRA hazardous waste is identified and treated, or disposed of off-property. As identified above, RCRA characteristic VOC waste in former disposal area 1 will be treated with in-situ SVE treatment. Waste in former disposal area 3 will be resampled during design to determine if it contains RCRA characteristic metals waste. If so, this waste will be removed from the site. If removal proves to be impracticable, a Subtitle C cap will be placed over former disposal area 3.

The Solid Waste cap design would consist of (from top layer to bottom, as shown on Figure 4.2):

- 6-inch vegetated layer
- 6-inch cap protection layer (common fill)
- 18-inch soil drainage layer (granular material having minimum permeability of 10^{-3} centimeter per sec (cm/sec))
- Liner cushion layer
- Flexible membrane liner (FML, minimum 40-mil high-density polyethylene (HDPE))
- Geosynthetic clay liner (GCL) that must "be negligibly permeable to fluid migration" (OAC 3745-27-08(D)(9)(a))

- 12-inch engineered sub base (granular material)

The performance of the Solid Waste cap was evaluated using the Hydrologic Evaluation of Landfill Performance (HELP) model. The Solid Waste cap is expected to be 99.99 percent effective in reducing infiltration of precipitation (i.e., it allows infiltration of 0.00483 inches per year versus precipitation of 39.82 inches per year). Over the 69.35 acre area to be capped, that rate of infiltration equates to 9,095 gallons per year.

Alternative 2A includes a perimeter leachate extraction system (See Figure 4-4). A conceptual design of this system was included in the FS Report and included an estimate of ten leachate extraction wells pumping a combined leachate flow of 31 gpm. Extraction wells would be screened across the entire saturated thickness of waste. Restoration of contaminated groundwater, which has migrated beyond the POC, is estimated to take 3 years, as determined by groundwater modeling included in the FS Report. The exact number and locations of extraction wells and the appropriate pumping rates would be determined during remedial design.

Management of extracted leachate would include on-site pretreatment (if needed) and discharge to the City of Dayton's sanitary sewer for treatment and disposal. Such a discharge would need to comply with the City's Code of Ordinances Chapter 52 (Sewer Construction and Use; Wastewater Discharges). If the City sewer disposal option is not available, contingent disposal options, as outlined in the FS report, may include on-site pretreatment and discharge to an on-site infiltration impoundment or infiltration gallery, or transportation to an off-property commercial facility for treatment and disposal.

A conceptual design of the landfill gas collection system was included in the FS Report. The proposed LFG collection system, shown on Figure 4.4, included LFG extraction wells installed within waste, including locations in former disposal area 1, 2, 3 and 5. This collection system would replace the existing perimeter LFG system in its entirety. The exact number and locations of LFG wells and the appropriate extraction rates would be determined during remedial design.

After installation of the cap under this alternative, the site will be available for commercial/industrial use and the Valleycrest Reuse Framework may be used to help determine future use in other areas of the site. Groundwater use will be restricted under the site in accordance with the ERC, with any uses requiring advance EPA approval.

Estimated Capital Cost:	$25.5 million
Estimated O&M Cost:	$10 million
Total Present Worth Cost:	$35.6 million
Estimated Construction Time:	2 years
Estimated Groundwater Cleanup Time	3 years

Alternative 2B – Solid Waste Cap with leachate control and groundwater extraction (site perimeter)

Alternative 2B includes all of the components of Alternative 2A along with targeted groundwater extraction. The total area to be capped is 69.35 acres, which will cover an estimated 2,464,997 cy of waste. The groundwater extraction system would be installed within select portions of the

Upper Aquifer. The site-specific groundwater flow model was used in the FS to estimate the optimal placement of groundwater extraction wells that would effectively meet groundwater clean-up goals in the existing areas of non-compliance. The model estimated that a network of ten groundwater extraction wells pumping at 2 to 5 gpm each may be needed south of the landfill, for an estimated pumping rate of approximately 41 gpm. The goal and designed purpose of the proposed groundwater extraction system is to contain impacted groundwater that may exist in the Upper Aquifer inside the POC. An estimated 31 gpm leachate extraction system would address contamination in the Upper Aquifer at the northwest corner of the site. In total, the modeled leachate/groundwater extraction system would include ten leachate extraction wells and ten groundwater extraction wells pumping a combined leachate/groundwater flow of 72 gpm (37,843,200 gallons/year). Restoration of contaminated groundwater, which has migrated beyond the POC is estimated to take 2.9 years.

Extracted groundwater would be combined with the extracted leachate for management in the same manner as Alternative 2A, but would involve a much larger quantity of liquid to dispose. The exact number and locations of groundwater wells and the appropriate extraction rates would be determined during remedial design.

After installation of the cap under this alternative, the site will be available for commercial/industrial use and the Valleycrest Reuse Framework may be used to help determine future use in other areas of the site. Groundwater use will be restricted under the site in accordance with the ERC, with any uses requiring advance EPA approval.

Capital Cost:	$26.8 million
Total O&M cost:	$13.2 million
Total Present Worth Cost:	$40.1 million
Total Construction Time:	2 years
Estimated Groundwater Cleanup Time	2.5 years

Alternative 3A – Alternate Cap (non-ARAR compliant) with leachate control (site interior and perimeter)

Alternative 3A includes all of the components of Alternative 2A, but employs an alternate cap that does not meet State RCRA Subtitle C or D capping requirements and requires significantly increased leachate quantities for extraction.

The alternate cap would be used over former disposal areas 1, 2, 3, and 5 and would consist of (from top layer to bottom, see Figure 4.2):

- 6-inch vegetated layer
- 12-inch cap protection layer (common fill)
- 6-inch soil drainage layer (granular material having minimum permeability of 10-2 cm/sec)
- FML (minimum 40-mil HDPE)
- 6-inch bedding layer (granular material)

The HELP Model was used in the FS to evaluate the performance of the alternate cap, as compared to ARAR compliant capping alternatives. The alternate cap is expected to be 95.39

percent effective in reducing infiltration of precipitation (i.e., it allows infiltration of 1.83460 inches per year versus precipitation of 39.82 inches per year). The total area to be capped is 69.35 acres, which will cover an estimated 2,464,997 cy of waste. Over the 69.35-acre area to be capped, that rate of infiltration equates to 3,454,573 gallons per year.

Alternative 3A includes interior leachate extraction to pump the additional leachate generated by infiltration of precipitation through the alternate cap, and perimeter leachate extraction to create an inward hydraulic gradient at the POC in the vicinity of the two existing areas of off-property groundwater exceedances in the Upper Aquifer. The leachate extraction system was estimated to include 28 interior dual-phase (i.e., leachate and LFG) extraction wells that pump a combined rate of 6.6 gpm and nine perimeter extraction wells pumping at a combined rate of 31 gpm, for a total leachate extraction of 37.6 gpm. Restoration of contaminated groundwater, which has migrated beyond the POC, is estimated to take 3.3 years.

Management of extracted leachate would be the same as for Alternative 2A, but would involve a larger quantity of leachate to dispose (i.e., an additional 3.4 million gallons per year). The exact number and locations of groundwater wells and the appropriate extraction rates would be determined during remedial design.

After installation of the cap under this alternative, the site will be available for commercial/industrial use and the Valleycrest Reuse Framework may be used to help determine future use in other areas of the site. Groundwater use will be restricted under the site in accordance with the ERC, with any uses requiring advance EPA approval.

Capital Cost:	$18.1 million
Total O&M Cost:	$10.4 million
Total Present Worth Cost:	$28.5 million
Total Construction Time:	1.5 years
Estimated Groundwater Cleanup Time	3 years

Alternative 3B – Alternate Cap (non-ARAR compliant) with leachate and groundwater control (interior and perimeter)

Alternative 3B includes all of the components of Alternative 3A along with targeted groundwater extraction installed within select portions of the upper aquifer to remediate zones of non-compliance. The total area to be capped is 69.35 acres, which will cover an estimated 2,464,997 cy of waste.

The site-specific groundwater flow model was used to estimate the optimal placement of groundwater extraction wells that would effectively meet groundwater clean-up goals in the existing areas of non-compliance. The model estimated that a network of 10 groundwater extraction wells pumping at 2 to 5 gpm each may be needed south of the landfill, for a total groundwater pumping rate of approximately 41 gpm. The goal and designed purpose of the proposed groundwater extraction system is to contain impacted groundwater that may exist in the Upper Aquifer inside the POC, such that the flux of contaminants from the shallow zone to the deeper zone is controlled.

The 37.6 gpm leachate extraction system would address contamination in the Upper Aquifer at the northwest corner of the site. In total, the modeled leachate/groundwater extraction system includes 37 leachate extraction wells and ten groundwater extraction wells pumping a combined leachate/groundwater flow of 78.6 gpm (41,312,160 gallons/year). Restoration of contaminated groundwater which has migrated beyond the POC is estimated to take 2.9 years.

Extracted groundwater would be combined with the extracted leachate for management in the same manner as Alternative 2B, but would involve a larger quantity of leachate to dispose. The exact number and locations of groundwater wells and the appropriate extraction rates would be determined during remedial design.

After installation of the cap under this alternative, the site will be available for commercial/industrial use and the Valleycrest Reuse Framework may be used to help to determine future use in other areas of the site. Groundwater use will be restricted under the site in accordance with the ERC, with any uses requiring advance EPA approval.

Capital Cost:	$19.5 million
Total O&M Cost:	$13.6 million
Total Present Worth Cost:	$33.1 million
Total Construction time:	1.5 years
Estimated Groundwater Cleanup Time	2.5 years

10.0 Summary of Comparative Analysis of Alternatives

Section 121(b) (1) of CERCLA presents several factors that EPA is required to consider in its assessment of alternatives. Building on these specific statutory mandates, the NCP articulates nine evaluation criteria to be used in assessing the individual remedial alternatives. The purpose of this evaluation is to promote consistent identification of the relative advantages and disadvantages of each alternative, thereby guiding selection of remedies offering the most effective and efficient means of achieving site remediation goals. While all of the nine criteria are important, they are weighed differently in the decision making process depending on whether they evaluate protection of human health and the environment or compliance with federal and State requirements, standards, and criteria (threshold criteria); consider technical or economic merits (balancing criteria); or involves evaluation from the State and the public that may influence the final remedy selection (modifying criteria). Each of these nine criteria is described below. The "Detailed Analysis of Alternatives" can be found in the FS.

Threshold Criteria

Overall Protection of Human Health and the Environment addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls.

Compliance with ARARs states that Section 121(d) of CERCLA and 40 C.F.R. § 300.430(f)(1)(ii)(B)of the NCP, require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and state requirements, standards, criteria,

and limitations which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA Section 121(d)(4).

Compliance with ARARs addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes or provides a basis for invoking a waiver.

Balancing Criteria

Long Term Effectiveness and Permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once clean-up levels have been met. This criterion includes the consideration of residual risk that will remain onsite following remediation and the adequacy and reliability of controls.

Reduction of Toxicity, Mobility or Volume through Treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

Short Term Effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be achieved.

Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.

Cost includes estimates capital, annual O&M costs, and net present value of capital and O&M costs during long term monitoring.

Modifying Criteria

State Agency Acceptance considers whether the State support Agency concurs with the selected remedy for the site.
Community Acceptance addresses the public's general response to the remedial alternatives and the preferred alternative presented in the Proposed Plan.

Each of the nine evaluation criteria are discussed below for the alternatives under consideration for this final action.

10.1 Overall Protection of Human Health and the Environment

This evaluation criterion assesses whether each remedial alternative protects human health and the environment. This assessment focuses on how an alternative achieves protection over time and indicates how each source of contamination would be minimized, reduced, or controlled through treatment, engineering, or institutional controls. The evaluation of the degree of overall protection associated with each alternative is based largely on the exposure pathways and scenarios set forth in the baseline human health risk assessment.

Alternative 1 (No Action) is not protective because it does not address identified exposure pathways. Alternatives 2A and 2B are protective of all identified exposure pathways in the same manner, but 2B achieves protectiveness in a shorter time-frame. Only the 2-series alternatives achieve protection at the completion of construction and with implementation of the institutional controls, and only the 2-series alternatives are in full compliance with ARARs. The B-series alternatives (2B, 3B) achieve groundwater RAOs beyond the groundwater POC less than 6 months sooner than the A-series alternatives (2A, 3A). The 2-series alternatives (2A, 2B) have a thicker solid waste cap (3.5 to 4.0 feet thick depending on whether GCL or compacted clay is used for the clay barrier layer) than the 3-series alternate cap (2.5 feet thick) with which to prevent ingestion, direct contact, and inhalation (particulate).

10.2 Compliance with ARARs

This evaluation criterion addresses whether alternatives would meet ARARs.

The landfill design and closure scenarios provided in Alternatives 2A and 2B comply with ARARs, provided that: 1) the VOC RCRA characteristic waste in the former disposal area 1 identified in the FS Addendum, is treated to meet TCLP standards; and 2) a stability analysis is performed during the remedial design in accordance with Ohio EPA's "Geotechnical and Stability Analyses for Ohio Waste Containment Facilities (September 14, 2004) to demonstrate that the cap could be designed and constructed such that positive drainage is achieved and maintained. Assuming substantive requirements for a grade variance are met during remedial design, Alternatives 2A and 2B comply with ARARs.

The alternate cap of the 3-series alternatives does not comply with state or federal landfill design or closure requirements. Alternative 1 (no action) would not meet ARARs. Assuming substantive requirements for obtaining a grade variance are met during remedial design, Alternatives 3A and 3B would still require three NCP waivers to implement the alternate cap design and do not comply with Ohio EPA solid waste capping ARARs. The 2-series solid waste cap alternatives when combined with perimeter leachate extraction are effective at preventing exposure to PCB contamination at the site.

10.3 Long-Term Effectiveness and Permanence

The evaluation of alternatives under this criterion addresses the results of a remedial action in terms of the risk remaining at the site after response objectives have been met.

Alternative 1 (No Action) has the lowest degree of long-term effectiveness and permanence because no additional remedial action is taken to address risks. The long-term effectiveness and permanence of all of the other alternatives is dependent on the effective design, operation, maintenance, and monitoring of the waste containment systems and compliance with the institutional controls. The magnitude of residual risk associated with the untreated waste to be contained on-site is the same for all of these alternatives, and failure of the containment systems could result in unacceptable human health and ecological exposures.

All of the alternatives (except No Action) employ LFG collection to prevent migration of LFG having methane above the LEL beyond the property boundary. The 2-series Solid Waste cap is

more effective in reducing the generation of leachate due to infiltration because it includes two low permeability layers (FML and GCL) whereas the 3-series alternate cap includes one low permeability layer (FML).

The solid waste (SW) cap employed by Alternatives 2A and 2B is more effective than the alternate cap of the 3-series in reducing the generation of leachate due to infiltration because it includes two low-permeability layers (FML and GCL). The proposed alternate cap of the 3-series only includes one low permeability layer (FML). The SW cap is more reliable than the alternate cap in terms of preventing direct contact with waste because it is at least 1 foot thicker. Additionally, the alternate cap employs a 6-inch "bedding layer" beneath the FML in place of the 12-inch engineered sub-base required by the SW cap. The 12-inch engineered sub-base is required when the SW cap elects to use a GCL in place of the otherwise required 18-inch of compacted clay for the barrier layer.

The 2-series SW cap is more reliable than the alternate cap as it includes a 1.0-foot thick engineered sub base layer beneath the GCL clay barrier layer to protect both the GCL and the FML barrier layers from tears and punctures during installation and settling over time. If 1.5 feet of compacted clay is used in place of the GCL as the clay barrier layer, the compacted clay provides tear and puncture protection for the FML barrier layer immediately above it. The alternate cap design provides a 0.5-foot bedding layer of granular material, which is less protective of the FML barrier layer immediately above it than the 1.0-foot engineered sub base or 1.5 feet of compacted clay of the SW cap. The GCL/compacted clay barrier layer of the SW cap is considered "self healing" with respect to punctures and tears while the FML layer is not.

The 3-series alternatives include increased leachate pumping to compensate for the higher permeability of the alternate cap due to the thinner cap. The 3-series alternatives are less effective than the 2-series in the long term due to the higher volume of leachate to be managed and disposed, and the potential for the local POTW to restrict disposal of the extracted leachate. The modeled interior leachate extraction system adds an estimated 6.6 gpm to the volume of extracted leachate/groundwater. In the event that a permit cannot be obtained or restrictions are imposed by the local POTW and no other disposal option is available the 3-series alternatives generate a higher quantity of leachate that would require transportation by truck to an off-property disposal facility, as is outlined in the FS report.

The long-term effectiveness of the containment and treatment components of all of the alternatives is easily monitored. Evaluations of remedy performance would be included in periodic inspections, the frequency and content of which will be established during remedial design. As waste will remain on-site, all of the alternatives will require 5-year reviews to determine if the selected alternative is functioning as intended and continues to provide adequate protection.

The timeframe for achieving groundwater restoration RAOs beyond the groundwater POC is expected to be less than 3 years for all of the alternatives (except No Action). The A-series alternatives take less than 6 months longer to achieve groundwater RAOs than the B-series alternatives, but the B-series generate an additional estimated 41 gpm of extracted leachate and groundwater for off-site disposal.

Higher volumes of extracted water may pose a capacity issue with the POTW, which would potentially impact short and long term effectiveness. Any extraction system reduction or shutdown resulting from sewer incapacity may be of short duration (i.e., on the order of a few days) and therefore would not reduce the effectiveness of the remedial systems in the short-term. However, if it is shown that frequent reductions or shutdowns reduce effectiveness of the remedial systems and discharge to the POTW is no longer allowable, then it is likely on-site storage capacity will need to be provided to allow extracted leachate and groundwater to accumulate for off-property disposal, as is outlined in the FS report.

10.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

This evaluation criterion addresses the statutory requirement for selecting remedial actions that employ treatment technologies that reduce the toxicity, volume, or mobility of the hazardous constituents present in the impacted media.

With the exception of the NAPL and the sample locations above the water table to be treated in-situ with SVE, as identified above and in the FS Addendum, remaining waste on-site is considered low-level threat waste for which containment is appropriate and treatment impracticable.

All of the alternatives (except No Action) remove the principal threat NAPL for off-site treatment and disposal. All of the alternatives (except No Action) treat the contaminants in the waste stream generated by the LFG extraction system. The use of the alternate cap for Alternatives 3A and 3B increases the volume of leachate requiring management due to the increased leachate pumping needed to compensate for higher permeability of the alternate cap. All of the alternatives (except No Action) include an extraction system to collect landfill leachate and draw back contaminated groundwater that has migrated beyond the groundwater POC. The 2-series and 3-series leachate extraction systems are estimated at 31 gpm and 37.6 gpm, respectively.

The B-series alternatives include an additional estimated 41 gpm of groundwater extraction to accelerate the restoration of contaminated groundwater at the south-central portion of the site. On-site pretreatment of extracted leachate and groundwater will be provided (if needed) prior to discharge to the POTW. Thus, all alternatives provide hydraulic containment and employ treatment to reduce the toxicity, mobility, and volume of the contaminants present in the extracted leachate and groundwater. The details on the amounts of water to be extracted will be finalized during the remedial design.

Each of the alternatives also includes in-situ SVE treatment of RCRA characteristic VOC waste above the water table in former disposal area 1. TCLP sampling for metals in former disposal area 3 will be performed during design. A Subtitle C cap will be placed over former disposal area 3 if removal of TCLP failing wastes is not cost effective or implementable.

Alternative 1 (No Action) would not reduce the TMV of contaminated media through treatment.

10.5 Short-Term Effectiveness

This evaluation criterion addresses the effects of the alternatives during the construction and implementation phases (i.e., remediation risks) until the remedial action objectives are met.

All of the alternatives (except No Action) pose some risks to the community associated with the screening and consolidation of the former disposal area 4 waste, relocation of the OPBWA waste, and cap construction (e.g., dust, noise, transportation, emissions associated with excavation of waste). These risks can be readily mitigated through dust control, restricted work hours, engineering controls, compliance with United States Department of Transportation (USDOT) regulations, and air monitoring, as will be outlined in the health and safety plan for construction, as developed during the remedial design.

All of the alternatives (except No Action) pose risks to workers associated with construction (e.g., exposure to contaminated media, occupational hazards). A worker health and safety plan and personal protective equipment would be used to address risks, because construction workers may be exposed to contaminated media during waste and OPBWA soil relocation, contouring of the waste in former disposal areas 1, 2, 3, and 5 for drainage, keying-in of the cap at its perimeter, re-installation of NSL-54L and NSL-55L, SVE treatment of RCRA characteristic VOC waste in former disposal area 1, and installation of leachate/LFG extraction wells and headers. It is anticipated that these activities would occur during an overall construction period of approximately 2 years (2-series alternatives) or 1.5 years (3-series alternatives); therefore, the timeframe for achieving protection (construction completion, implementation of institutional controls) is approximately 2 years for the 2-series alternatives and 1.5 years for the 3-series alternatives.

The timeframe for achieving groundwater restoration RAOs is expected to be less than 3 years for all of the alternatives (except No Action). The A-series alternatives (2A, 3A) take less than 6 months longer to achieve groundwater RAOs than the B-series alternatives (2B, 3B).

Alternative 1 (No Action) poses no additional short-term risks to the community, workers, or the environment; however, it is not effective and would not meet the RAOs for the site. The timeframe for achieving groundwater restoration RAOs beyond the groundwater POC is expected to be less than three years for all of the alternatives (except No Action). The A-series alternatives take less than six months longer to achieve groundwater RAOs than the B-series alternatives, but the B-series generate additional estimated leachate and groundwater for extraction.

10.6 Implementability

This evaluation criterion considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

Alternative 1 (no action) is the easiest to implement because it requires no action. None of the alternatives pose any unacceptable short-term or cross-media impacts which cannot be readily mitigated through restricted work hours, engineering controls, and compliance with transportation regulations, health and safety plans, and air monitoring. None of the alternatives

require special techniques, materials, or labor to relocate waste and OPBWA soil, to construct the caps, to install the leachate and LFG extraction systems, to install the LFG flaring and monitoring system, to extract NAPL, or to expand the groundwater monitoring network as may be needed.

The in-situ SVE is easily implementable and was very effective when used in former disposal areas 1 and 5 during the prior removal action. Because these construction components are common to many remediation projects, major technical difficulties and unknowns are not expected. It is not expected that technical problems associated with implementation would lead to significant schedule delays. Manufactured materials needed for construction of all of the alternatives are readily available. The availability of soil materials for capping will depend on development activity in the area at the time of cap construction. In-situ SVE is easily implementable and was proven to be effective on site wastes during the previous removal activities.

The interior leachate extraction system used by the 3-series alternatives (3A, 3B) is estimated to add 6.6 gpm to the volume of extracted leachate and groundwater requiring management. The B-series alternatives (2B, 3B) are estimated to add another 41 gpm to the volume of extracted leachate and groundwater requiring management. Any extraction system reduction or shutdown resulting from sewer incapacity is expected to be of short duration (i.e., on the order of a few days) and therefore would not reduce the effectiveness of the remedial systems. However, if it is shown that reductions or shutdowns reduce effectiveness of the remedial systems, then it is likely that on-site storage capacity will need to be provided to allow accumulation of extracted leachate and groundwater during periods when discharge to the sanitary sewer may be restricted due to capacity.

The potential for the local POTW to put restrictions on leachate and groundwater disposal due to sewer capacity could significantly impact the implementability of all alternatives, particularly the B-series alternatives which require additional groundwater extraction and have larger discharge volumes. In the event that a permit cannot be obtained or restrictions are imposed by the local POTW and no other disposal option is available, a higher quantity of leachate would have to be transported by truck to an off-site disposal facility under the 3-series alternatives. Caps for all of the alternatives would need to meet the substantive requirements identified pursuant to OAC 3745-27-03 "Exemptions and Variances" in order to vary from the 5 percent grade required by paragraph (C)(4)(c) of OAC 3745-27-08 "Sanitary Landfill Construction". The 3-series alternatives are much less implementable than the 2-series alternatives because of significantly increased infiltration that would require extraction and management for off-site disposal.

Alternatives 3A and 3B (alternate cap) are less implementable than Alternatives 2A and 2B (SW cap) as they require three (and possibly four) NCP waivers of applicable cap construction ARARs. Ohio EPA is not supportive of the alternate cap design which has not been used previously at similar sites in Ohio.

10.7 Cost

The estimated capital, net present value (NPV) operation and maintenance (O&M), and NPV periodic costs for the remedial alternatives are as follows, using a 7% discount rate:

Remedy Costs

	Alternative 2A Solid Waste Cap	Alternative 2B Solid Waste Cap with Groundwater Extraction	Alternative 3A Alternative Solid Waste Cap	Alternative 3B Alternative Solid Waste Cap with Groundwater Extraction
Capital Cost	$25,265,654	$26,673,700.00	$17,948,240.00	$19,356,686.00
O&M Costs -NPV	$9,996,724	$13,248,885.00	$10,383,886.00	$13,636,047.00
Periodic Costs-NPV	$215,400	$241,017.00	$217,108.00	$242,725.00
Total Present Worth Cost	$35,477,378	$40,163,602.00	$28,549,234.00	$33,235,458.00

The cap construction component is more costly for the 2-series alternatives (employing the solid waste cap) than for the 3-series alternatives (employing the alternate SW cap) because the Alternate cap has no second low-permeability layer and uses less material. The B-series alternatives that employ additional leachate and groundwater extraction are more costly because of the additional cost associated with construction and operation of the additional perimeter leachate and groundwater extraction wells and the need to expand the capacity of the pretreatment system.

In the unlikely event that a permit cannot be obtained from the City to discharge extracted leachate and groundwater (pretreated if necessary) to the sanitary sewer, then contingent disposal options may include on-site pretreatment and discharge to an on-site infiltration impoundment or infiltration gallery (with agency approval), or transportation to an off-site commercial facility for treatment and disposal, as outlined in the FS Report.

10.8 State/Support Agency Acceptance

The State of Ohio supports the preferred alternative.

10.9 Community Acceptance

During the public comment period, a number of commenters expressed support for the selected Alternative 2A. A group of commenters also expressed support for a modification to Alternative 3A, which would proposed to remove the leachate extraction requirement. EPA has prepared a Responsiveness Summary that summarizes the comments and EPA's responses to those comments, which is included as Part III of this ROD.

11.0 Principal Threat Waste

EPA applies the concept of principal threat waste and low level threat waste when characterizing material that includes or contains hazardous substances, pollutants or contaminants that act as a

reservoir for migration of contamination to ground water, to surface water, to air, or acts as source for direct exposure. The principal threat waste currently at the site is the waste exhibiting the characteristics of RCRA hazardous waste, the NAPL, the PCB and VOC contaminated leachate.

12.0 Summary of the Preferred Alternative

This section describes the selected remedy and provides EPA's reasoning behind its selection. Alternatives can change or be modified if new information is made available to EPA through further investigation or research. An appropriate range of alternatives was developed based upon the initial screening of technologies, the potential for contaminants to impact the environment, and site-specific RAOs and goals.

12.1 Identification of the Selected Remedy and Summary of the Rationale for its Selection

Based on the analysis of the nine criteria conducted in the FS Report and summarized in Section 10 of this ROD, the selected remedy for the North Sanitary Landfill site is Alternative 2A (Solid Waste Cap with leachate control at site perimeter). This alternative represents the best balance of overall protectiveness, compliance with ARARs, long-term effectiveness and permanence, costs, and other criteria, including State and community acceptance.

12.2 Description of the Selected Remedy

Alternative 2A includes:

Disposal Areas 1, 2, 3, and 5 would be capped using a solid waste cap in accordance with OAC 3745-27-08 and OAC 3745-27-11 but with a variance from the minimum grade requirement of 5 percent. The total area to be capped is 69.35 acres, which will cover an estimated 2,464,997 cy of waste.

Alternative 2A also includes a perimeter leachate extraction system. Extraction wells would be screened across the entire saturated thickness of waste and would be designed to prevent leachate and shallow groundwater from migrating beyond the point of compliance. (See Figure 4.5) Restoration of contaminated groundwater which has migrated beyond the POC, is estimated to take three years, and the exact number and locations of extraction wells and the appropriate pumping rates would be determined during remedial design.

Management of extracted leachate would include on-site pretreatment (if needed) and discharge to the City of Dayton's sanitary sewer for treatment and disposal. Such a discharge would need to comply with the City's Code of Ordinances Chapter 52 (Sewer Construction and Use; Wastewater Discharges).

The proposed LFG collection system, shown on Figure 4.4, includes LFG extraction wells installed within waste in former disposal areas 1, 2, 3, and 5. This collection system would replace the existing perimeter LFG system in its entirety. The exact number and locations of LFG wells and the appropriate extraction rates would be determined during remedial design.

This alternative also includes the common elements that are described above and in the FS Report, including

- Former disposal area 4 relocation to former disposal areas 1, 2, 3, and 5, or off-site disposal of waste if it contains RCRA characteristic waste
- OPBWA waste and soil consolidation within the site property boundaries
- NAPL monitoring/recovery/off-property disposal at NSL-54L and NSL-55L
- In-situ treatment of waste in former disposal area 1, located above the water table and exceeding TCLP standards, as identified on Figure 5, to meet TCLP standards (40 C.F.R. Part 261.24). Treatment of waste in former disposal area 1 will be completed in advance of final capping activities
- Past waste sampling results in former disposal area 3 indicated concentrations of lead and chromium that may exceed TCLP based on application of the twenty times rule. These wastes will be re-sampled during remedial design. If results exceed TCLP standards above the water table in Area 3, a Subtitle C cap will be installed over former disposal area 3, if removal of the wastes failing TCLP is not cost effective or implementable. If removal of TCLP waste is cost effective and implementable they will be excavated and disposed of off-site at a RCRA Subtitle C facility. Re-sampling of waste in former disposal area 3 will be completed during remedial design of the remedy.
- Leachate extraction
- Landfill gas collection/flaring/monitoring
- On-site management of stormwater by retention/infiltration in the existing borrow area
- Groundwater monitoring
- Institutional controls, including restrictive covenants to restrict site use and prevent interference with the remedy

12.3 Summary of the Estimated Remedy Costs and Time Required for Implementation

The estimated present worth cost of the selected remedy for the Valleycrest site is approximately $35.5 million. The physical construction of the remedy and time to achieve groundwater cleanup standards is approximately 3 years.

12.4 Expected Outcomes of the Selected Remedy

The selected remedy for the Valleycrest site, Alternative 2A, will achieve the RAOs for the site. The selected remedy will be protective and is expected to attain ARARs. The selected remedy leaves some of the contaminated materials in place at the site, and requires long-term land-use restrictions on portions of the site. The site will not be available for unrestricted use and unlimited exposure at the completion of the remedial action, and institutional controls will be required. However, there may be portions of the site that are suitable for development after completion of the remedial action.

The preferred alternative provides the best balance of EPA's nine evaluation criteria and was selected over the other alternatives because it is expected to achieve substantial and long term

risk reduction through treatment of collected leachate, removal and off-site disposal of NAPL, and in-situ treatment of RCRA VOC characteristic waste above the water table in former disposal area 1. It will also prevent exposure to contaminated soils through the installation of an ARAR compliant cap, and generates significantly lower quantities of leachate and groundwater to treat and discharge than the non-ARAR compliant alternatives, which is a significant issue with respect to treatment plant capacity.

The preferred alternative also reduces risk within a reasonable timeframe and provides for long term reliability of the selected remedy.

Based on the information available at this time, EPA and the Ohio EPA believe that the preferred alternative would be protective of human health and the environment, would comply with ARARs, would be cost effective, and would utilize permanent solutions and alternative treatment technologies to the maximum extent practicable. Because it would treat or remove principal threats and RCRA characteristic waste, the remedy would meet the statutory preference for the selection of a remedy that involves treatment as a principal element.

13.0 Statutory Determinations

Under CERCLA Section 121 and the NCP, the lead Agency must select remedies that are protective of human health and the environment, attain federal and state requirements that are applicable or relevant and appropriate for this remedial action (or invoke an appropriate waiver), are cost-effective, and utilize permanent solutions to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the toxicity, mobility or volume of hazardous wastes as a principal element and a bias against off-property disposal of untreated wastes. The following sections discuss how the selected remedy addresses these statutory requirements.

13.1 Protection of Human Health or the Environment

The selected remedy will be protective of human health and the environment for the risks identified in the risk assessment. The selected remedy will provide adequate steps to reduce the mobility of the wastes by placement of an ARAR compliant cap, which will reduce infiltration through the waste materials and provide for direct contact exposure protection. The leachate extraction requirement of the selected remedy will provide adequate containment of leachate and groundwater impacted by the site and prevents any migration of contaminated groundwater past the point of compliance. The in-situ treatment of RCRA characteristic waste and the removal and off-property disposal of NAPL will reduce the toxicity, mobility and volume of contamination, which will accelerate site cleanup. The selected remedy will also be designed to remediate off-property groundwater within a reasonable timeframe to meet the groundwater performance standards. The selected remedy will not pose unacceptable short term risk during construction.

13.2 Compliance with ARARs

The selected remedy is expected to comply with the state and federal ARARs that are specific to the scope of the action. The ARARs are listed in Section 8 above. All federal and any more

stringent state ARARs identified for this action will be met. The leachate collection system component of the selected remedy will prevent any off-property migration of leachate/groundwater past the point of compliance and is expected to remediate the off-property groundwater plume and groundwater performance standards are anticipated to be met in a reasonable timeframe. The leachate collection system when combined with the ARAR compliant Subtitle D cap is equivalent to a TSCA cap because the difference in infiltration is not significant and the impacted leachate and groundwater will be contained within the point of compliance on-site. EPA Region 5 finds that the Site meets the standards of 40 C.F.R. § 761.50 for remediation and that the selected remedy will not pose an unreasonable risk of injury to health or the environment pursuant to 40 C.F.R. § 761.61(c). (See Attachment A for 40 C.F.R § 761.61(c) determination). RCRA characteristic waste in AOC 1 will be treated as part of the selected remedy. FOR AOC 2, I f the sampling performed during remedial design indicates exceedances of TCLP standards, then waste removal or installation of a RCRA hazardous waste cap will be necessary.

13.3 Cost-Effectiveness

EPA has determined that the selected remedy is cost-effective and represents a reasonable level of protectiveness for the money to be spent. In making this determination, the following definition was used: "A remedy shall be cost-effective if its costs are proportional to the overall effectiveness." (NCP, 40 C.F.R. § 300.430(f)(1)(ii)(D)). "Overall effectiveness" was evaluated by assessing three of the five balancing criteria (long term effectiveness and permanence, reduction in toxicity, mobility or volume through treatment, and short term effectiveness). Overall effectiveness was then compared to costs and the action was determined to be proportional to its costs; therefore, the remedy represents a reasonable level of protectiveness for the money spent. The estimated present worth cost of the selected remedy is $35,500,000.

13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable

This remedial action uses permanent solutions and treatment to the maximum extent practicable. The previous drum removal and treatment of drum removal residuals addressed the principal threat waste and removed it from the site or treated it in place. The collection and flaring of landfill gas will provide additional treatment of gas generated from the landfill contents and the collection and off-property disposal of principal threat NAPL waste from the site will reduce contaminant levels permanently and lead to faster overall site remediation. The in-situ treatment of RCRA characteristic VOC waste in former disposal area 1 will reduce the overall levels of contamination on site. The high volume of the remaining wastes at the site makes additional treatment impracticable. The selected solid waste cover will be designed to be permanent and long lasting and will be maintained over time to ensure long term reliability.

13.5 Preference for Treatment as a Principal Element

The selected remedy addresses the statutory preference for treatment as a principal element by collecting and treating landfill gas and by removal and off-property disposal of NAPL from the site. The previous drum removal action removed a large volume of principal threat waste from

the site. The selected remedy also contains a provision for treatment with in-situ SVE for several areas that contain VOC waste with RCRA characteristics in portions of former disposal area 1. This treatment will permanently reduce the contaminant levels in former disposal area 1. After treatment is completed in the manner described, the remaining high volume, low toxicity waste materials do not warrant additional treatment and the proposed remedy will provide adequate protection from any remaining contamination at the site.

13.6 Five Year Review Requirements

Because this remedy will result in hazardous substances, pollutants or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action to ensure that the selected remedy is, or will be, protective of human health and the environment.

14.0 Documentation of Significant Changes

The Proposed Plan for the site identified Alternative 2A as the preferred action for the site. The Proposed Plan comment period ran from August 9, 2012 to September 10, 2012. CERCLA Section 117(b) and the NCP at 40 C.F.R. § 300.430(f)(5)(iii) require an explanation of significant changes from the remedy presented in the Proposed Plan that was published for public comment.

The Proposed Plan called for excavation of waste materials that exhibited the characteristics of RCRA waste from several former disposal areas on site. The Proposed Plan also called for excavation and off-site disposal of waste materials that exceeded PCB contaminant levels of 50 ppm. Finally, the FS report included a conceptual design for the leachate collection system that focused on extraction at the site perimeter.

Upon review of all written and verbal comments submitted during the comment period, EPA has determined that the following changes to the proposed remedy are necessary.

The areas identified above that contain RCRA characteristic VOC waste that were to be removed from former disposal area 1 as part of the proposed plan will now be treated in place using SVE. The landfill gas system extraction wells contemplated in the FS report to collect and treat landfill gas can be modified to allow both collection of landfill gas and in-situ soil vapor extraction. The locations and configuration of these dual phase wells would be finalized during remedial design. The SVE would be used to treat the areas that contain RCRA characteristic waste, as outlined in the FS addendum. These areas will be treated until they are no longer RCRA characteristic. (See Appendix A)

TCLP sampling will be performed in former disposal area 3 to determine if the metals waste exceeds the toxicity characteristic standards for RCRA hazardous waste. Past waste sampling results in former disposal area 3 indicated concentrations of lead and chromium that may exceed TCLP based on application of the twenty times rule. If the sampling performed during remedial design indicates exceedances of TCLP standards, then waste removal or installation of a RCRA hazardous waste cap will be necessary. A sampling plan for former disposal area 3 sampling will be developed as part of remedial design.

The areas identified above that contain PCB waste at levels greater than 50 ppm, as described in the FS addendum, will be capped in place. The combination of the landfill capping with the leachate collection is consistent with the design standards for a TSCA chemical waste landfill and will prevent any off-property migration of any PCB contamination that may migrate into the groundwater in the future.

Finally, the FS report contains conceptual designs for the leachate/shallow groundwater collection system for the selected remedy. This conceptual design contains a number of wells located at the perimeter of the site. The final design will include an analysis for locating some of these wells within the waste materials, which could potentially accelerate the overall cleanup of the plume.

Part III Responsiveness Summary

In accordance with CERCLA Section 117, 42 U.S.C. § 9617, EPA released the proposed plan and Administrative Record (AR) on August 9, 2012 and published a notice in the Dayton Daily News. The public comment period ran through September 10, 2012, to allow interested parties to comment on the Proposed Plan for this site. EPA held a public meeting on August 17, 2012 at the Kiser School in Dayton, Ohio. Approximately 60 people attended the public meeting and hearing. Representatives from the Ohio EPA, the City of Dayton, and local media were present at the public meeting.

This Responsiveness Summary provides both a summary of the public comments EPA received regarding the Proposed Plan for the Valleycrest site and EPA's answers to those comments. EPA received written comments (via fax, regular and electronic mail) and verbal comments at the public meeting. Copies of all of the comments received (including the verbal comments contained in the transcript from the public meeting) are included in the AR for the site. EPA, in consultation with Ohio EPA, carefully considered all comment prior to selecting the remedy in this ROD. A complete copy of the Proposed Plan, AR, and other pertinent documents are available at Ohio EPA's offices located at 401 E. Fifth Street, Dayton, Ohio, and EPA Region 5, 77 West Jackson, Chicago, Illinois.

EPA received comments from the general public, representatives from the local Technical Advisory Group (TAG), the City of Dayton, and the site PRP group. For purposes of this Responsiveness Summary, the comments are summarized and similar comments may have been consolidated or grouped by issue. Comments in their entirety can be found in the AR.

Comments from the Technical Assistance Group (TAG):

<u>Comment 1</u>

A commenter indicated that a landfill gas collection system was very important to control gas emissions from the site and expressed concern that landfill gas collection would not extend to the western portion of the site. They also suggested that the remedial action objective for landfill gas be changed from preventing migration from the site to preventing migration from the former disposal areas.

Response 1

EPA agrees that it is extremely important to control any gas emissions from the site, especially after construction of the cap remedy. The selected remedy includes a collection system for landfill gas that will actively collect and treat any gas emissions and will also be designed to prevent any migration of landfill gas away from the site. This system will undergo an extensive engineering design and be monitored so that the goal of protection from exposure to landfill gas is achieved and maintained and the design will prevent all landfill gas from migrating off property. As part of the design, EPA will investigate collecting landfill gas in and near the former disposal areas.

Comment 2

A commenter indicated that removing waste below the water table would reduce the toxicity of contamination at the site.

Response 2

Removal of waste from the site, either above or below the water table, is not feasible. The drum removal removed significant amounts of contamination at the site and additional removal below the water table could potentially cause issues such as mobilizing additional contamination into the aquifer from the waste materials and causing increased risks to workers and the surrounding community by exposing the waste materials. The waste materials would have to be dewatered which would increase potential exposure issues as well as generating large volumes of wastewater for disposal. A disposal location for the removed waste materials would be inordinately difficult to find due to the large volumes involved. Finally, contaminants from the waste below the water table have already leached into the groundwater so waste removal would not decrease the contaminant levels in the groundwater. EPA believes that any contamination can be reliably contained on site with the selected technologies.

Comment 3

A commenter asked if the landfill gas collection wells could be located closer to the waste areas as opposed to the site boundary.

Response 3

The selected remedy requires investigation into the possibly moving the landfill gas wells closer to the waste areas. A different public comment suggested that these wells could not only collect landfill gas for on-site treatment but could also be used for treating some of the areas with higher concentrations of VOCs, similar to what was done as part of the removal action. The exact details on where these wells will be located will be determined during the remedial design but EPA acknowledges that locating these wells closer to the waste areas may accelerate treatment and ultimate cleanup time frames. This option was used successfully during the EPA led removal action and VOCs were successfully treated using this technology.

Comment 4

A commenter suggested that landfill gas also be collected and contained along utility lines located on site. They also suggested that methane alarms be placed in all future on-site buildings and any structures adjacent to the site.

Response 4

This option will be evaluated during the design of the landfill gas collection system. The ROD calls for containment of all landfill gas on-site for treatment but will require periodic sampling adjacent to the site based on actual landfill gas data collected during system operations. EPA will also address the issues of on-site monitoring and placement of alarm systems during the remedial design.

Comment 5

A commenter suggested that emergency power options be located on-site to prevent any performance issues caused by power outages. They also asked if the PRPs could be required to install vapor intrusion equipment in the area homes as a precaution. Finally, they asked that EPA develop the appropriate emergency response plans with coordination among local entities, like the emergency responders and the fire departments.

Response 5

This issue was raised during the removal action as a concern that the landfill gas collection system would operate continuously to provide the protection from off-property migration of the landfill gas. The system installed as a temporary measure during the removal has been in operation over 10 years with no issues related to inoperability. The temporary system will be replaced by an entirely new system as part of remedy design and construction. The system operation will include the requisite safeguards to address any power outages. Appropriate safeguards will be put in place to prevent any extended downtime for the collection system.

The homes adjacent to the site were sampled for vapor issues several times during the RI with no site related detections. During system operations, off-property vapor sampling will be collected periodically to monitor the performance of the system, and to ensure that the off-site residents are protected.

As was done during the removal activities, appropriate contingency planning will include all appropriate local organization so that all are familiar with potential remedy construction and operational issues. This contingency plan will be a required part of the remedial design of the remedy.

Comment 6

A commenter asked how the construction of the remedy would impact reuse and where buildings could be located on-site after construction.

Response 6

Appropriate considerations for potential future site reuse will be discussed and addressed to the extent practical during the site remedy design. While it is not possible to fully account for future reuse that has not been defined at present, the reuse framework will be consulted during remedy design so that any ideas presented in the framework can be fully considered in the final remedy design.

Comment 7

A commenter indicated that site runoff would have to be contained on-site because the existing storm sewer capacity in the area is insufficient to accommodate any excess runoff from the site.

Response 7

As indicated in the site Feasibility Study Report, all stormwater runoff from the site will be managed on-site. There is no plan for any off-site discharge and EPA acknowledges the limited capacity of the area storm sewers.

Comment 8

A commenter asked what size storm the stormwater capacity design would accommodate and whether this includes updated information for storm magnitude.

Response 8

The on-site stormwater capacity will be sized on a 100-year storm, which is typical for the design of stormwater retention. As the site proceeds through the remedy design phase, current and relevant information will be utilized to design the needed storage capacity.

Comment 9

A commenter asked if there would be additional backup storage capacity if runoff from storms was more than the designed collection basin could hold.

Response 9

Please see the response to comment 8. The site operation and maintenance plan will address how issues with remedy performance will be handled. If any of the site remedy components are not working as designed after construction, they will be addressed. Because waste remains on site as part of the selected remedy, EPA is required to do a full evaluation of the remedy at least every five years.

Comment 10

A commenter asked if the stormwater basin would allow groundwater to recharge in Area 2, adding to potential quantities of contaminated groundwater to be addressed by the remedy.

Response 10

The stormwater basin will be designed to collect stormwater from the site, which will then be allowed to infiltrate back into the ground. This water would be clean stormwater and would not contribute to any additional contamination of the underlying aquifer. However, the design presented in the FS Report is a conceptual design of the stormwater collection system—a detailed engineering design will be completed and all options will be explored to ensure that all stormwater is properly managed on-site without causing any additional concerns, such as increasing infiltration through waste materials. There is also a leachate/shallow groundwater collection component to the remedy that will be designed to ensure that any leachate or groundwater above cleanup standards is prevented from migrating off-property beyond the point of compliance.

Comment 11

A commenter asked if the process of basin infiltration would draw contaminants from the waste mass down into the aquifer, contributing to additional contamination issues.

Response 11

Since much of the waste mass is already located either under the water table or in a saturated state, any additional infiltration would have minimal impact on the contaminant concentrations in the aquifer. All surface water management options will be investigated during design so that the most efficient stormwater collection design can be prepared. In addition, the remedy requires leachate and shallow groundwater collection at the point of compliance, which will prevent any off-property migration of contaminated groundwater—this will be designed so that this objective is met over the short and long term.

Comment 12

A commenter asked how the groundwater flow would be reduced through the site with the implementation of the selected remedy.

Response 12

Groundwater flow will be reduced/restricted through the site in two ways. The selected remedy cap through its design and construction will reduce over 99% of the infiltration of rainwater into the waste materials. The installation and operation of the leachate/shallow groundwater collection system will prevent off-property migration of contaminated groundwater.

Comment 13

A commenter asked how groundwater would be monitored and for how long.

Response 13

Groundwater will be monitored for a minimum of thirty years at a frequency and at locations that will be contained in the site operation and maintenance plan, which is typically prepared at the end of the remedial design stage. The collected information will be used to demonstrate that the goal of containment at the site is achieved and that the off-property groundwater contamination plume is shrinking—the FS report estimates that the off-property plume will be cleaned up in approximately 3 years. Appropriate adjustments to this plan can be made throughout the O&M period to ensure that these goals are met.

Comment 14

A commenter asked how groundwater would be prevented from migrating past the point of compliance and how EPA will ensure that any exceedances are remedied.

Response 14

As described above in response 12, a leachate/shallow groundwater collection system will be required as part of the selected remedy. Extraction at additional locations or increased extraction at the existing locations can be required to ensure that the goal of complete containment continues to be met.

Comment 15

A commenter asked if removing waste from below the water table would accelerate groundwater cleanup.

Response 15

Removing waste below the water table would not accelerate groundwater cleanup because the waste is already located in the groundwater. Dewatering and removing this waste material could potentially mobilize additional contamination into the groundwater. EPA believes that the contaminated material can be reliably contained with the selected remedy.

Comment 16

A commenter asked how accurate the new Figure 4.3 in the final FS report was.

Response 16

These figures are not the final configuration of the remediation system but are conceptual designs used for cost estimation purposes. The actual design will have the appropriate documentation to properly engineer the system.

Comment 17

A commenter asked how leachate beyond the point of compliance would be dealt with.

Response 17

Leachate is located in and near the waste areas, as it is directly related to water moving through the waste areas. Contaminated water beyond the point of compliance is groundwater. Both will be remediated, as outlined in responses 12 and 14 above.

Comment 18

A commenter asked how many wells would be necessary to collect all of the leachate, how long leachate extraction would be necessary, and if there were plans to restart the system if it is shut down.

Response 18

The extraction estimates in the FS report are preliminary estimates at this point. The remedial design will specify locations and depths of the wells necessary to achieve containment at the point of compliance. The design will also investigate placement of leachate wells in or near the waste materials.

The ROD will require that the leachate/shallow groundwater will be pumped for a minimum of 30 years. EPA will use the results of the monitoring system to assess the effectiveness of the containment system and/or determine if additional action is necessary.

Prior to any shutdown of any system component of this remedy, EPA will assess the need for a restart plan, and if necessary, a plan for restart would be developed. Because waste will remain in place at the site, EPA is required, at a minimum, to perform a comprehensive review of the remedy every five years.

Comment 19

A commenter asked if final arrangements for the off-property disposal of leachate had been made.

Response 19

Preliminary discussions have been completed with the City of Dayton Water Department, the results of which are contained in the FS report. A discharge permit from the City will be required for the party that operates the system. This will occur as part of the remedial design process and this permit will be issued by the City for use by the time construction begins.

Comment 20

A commenter asked how costs for the site remedy can be finalized if these details have not been worked out.

Response 20

Costs that are represented in the ROD are estimates that are accurate within a range of +50/-30%. This means that they represent the best estimates based on conceptual designs for the remedies presented in the FS report. Once final details are presented in the remedial design and all of the engineering has been completed, actual costs are better quantified. Final costs are summarized and presented at the end of remedy construction.

Comment 21

A commenter asked if EPA has approved the design for the remedy presented in the ROD.

Response 21

EPA has not approved the remedial design that was presented conceptually in the FS that was approved by Ohio EPA. EPA will ultimately approve a design for the selected remedy.

Comment 22

A commenter asked how infiltration through the swales in the conceptual remedy design presented in the FS report would be prevented.

Response 22

The design in the FS report is a conceptual design used for cost estimation purposes. The final remedy design will include details on how stormwater will be directed away from the cap to engineered stormwater collection basins, and will be completed and approved by EPA. The design will not allow stormwater to accumulate on top of the cap to prevent excess settlement or erosion of the cap and is a normal part of engineered remedies.

Comment 23

A commenter asked if the flexible membrane liner (FML), which is one of the components of the solid waste cap, could be thicker to prevent more infiltration.

Response 23

The remedy design will look at the requirements of the solid waste cap regulations cited in this ROD and determine if it is necessary to increase the thickness of this FML layer. The FS information indicates that a reduction in infiltration of over 99% is anticipated by the current configuration—this will be confirmed during design and achieve remediation goals.

Comment 24

A commenter stated that the cap footprint in the FS report covered most of the site, which inhibits future use and asked if alternate designs were a possibility.

Response 24

EPA understands the desire for site redevelopment and is aware of the details contained in the Reuse Framework for the site. EPA will work to free up as much space as possible for potential future development during remedy design but given the size of the waste mass, this may be difficult. There are a number of Superfund sites that support surficial uses and EPA is committed to working with any interested party to ensure that future opportunities are given full consideration. However, the Agency is not aware of any current reuse interest, which has been confirmed through recent conversations with the City of Dayton.

Comment 25

A commenter asked why the City of Dayton was not getting any money from the site after remedy implementation, which they believed would prevent future use.

Response 25

EPA cannot require that any monies be set aside from site remedies or enforcement agreements to benefit any entity. EPA continues to encourage ideas for site redevelopment consistent with the redevelopment framework and long term operation and maintenance of the site remedy, but cannot require site development.

Comment 26

A commenter asked that post closure land uses must be determined as part of the ROD.

Response 26

EPA cannot make decisions on future redevelopment as part of a ROD, which details how contamination issues and risks posed by a site will be remedied. However, EPA remains committed to working with all parties to fully evaluate any redevelopment plans that may arise in the future. EPA has previously participated with the City of Dayton in reuse discussions and will continue to do so in the future.

Comment 27

A commenter asked what final decisions had been made for post closure use and whether the remedy would be designed to accommodate these end uses.

Response 27

No decisions have been made for the site post closure. If a use is identified in the future, EPA will work with all parties to ensure that it be given all opportunities for success.

Comment 28

A commenter asked if there was a requirement for the PRPs to establish a fund that would support reuse. They also offered a number of potential reuse ideas such as solar, wind power or a flower market.

Response 28

There is no requirement for the PRPs to set up such a fund. When a developer submits a plan for redevelopment, they typically include both construction and operational details as well as how the end use will not impact the site remedy. EPA then reviews this information to ensure that the site remedy is not negatively impacted—that is the extent of EPA's involvement in redevelopment planning.

EPA appreciates ideas for potential site reuse. EPA will work with all interested parties to fully evaluate any ideas that arise in the future for site redevelopment.

Comment 29

A commenter asked if groundwater flowing through the waste would become more contaminated which would increase contaminant loading to the aquifer.

Response 29

Please see response 12 above. The remedy will provide for containment of the groundwater at the point of compliance and the installed cap will restrict infiltration of rainwater into the waste by over 99%.

Comment 30

A commenter asked if design of the leachate collection system could be located nearer to the waste source areas and if the preliminary design of 10 wells was going to be the final design.

Response 30

As reflected in Section 14 of the ROD (Documentation of Significant Changes), EPA agrees with the approach of locating some of the leachate wells closer to the contaminant sources. The exact location and design of the extraction network will be finalized as part of the remedial design.

Comment 31

A commenter asked if there would be flash floods caused by large storm events after the cap was installed.

Response 31

The cap will be designed with sufficient stormwater management that will direct rainwater away from the installed cap into sufficiently sized stormwater collection areas. This design will include up to date 100 year storm data and will include measures for ongoing maintenance. As stated above, the final design will be approved by EPA before construction.

Comment 32

A commenter asked if the possible site uses would be outlined in the ROD and that the remedy should include improvements that would facilitate future uses.

Response 32

The site remedy will be designed to support the objectives of the remedial action which are to limit exposure to site waste and to address the risks that were found to be unacceptable in the site risk assessment. The ROD does not outline potential future uses—to date, no redevelopment plans have been received. EPA is committed to working with any interested party to ensure that future opportunities are given full attention.

Comment 33

A commenter asked about removing waste below the water table and if the cap could be reconfigured to allow more space for more opportunities for reuse.

Response 33

Please see response 2 above. The amount of material estimated for complete removal is over 2.6 million cubic yards, which would take approximately 7.5 years or almost 200,000 truckloads at a cost of over $450 million. The risks of removal of all the waste are significant and with the sheer volume of waste involved, finding a place to dispose of this material is not feasible. In addition, the risks associated with potential exposure to waste for workers and the surrounding community and the additional truck traffic through the neighborhood make this option infeasible. Landfill sites like this have supported a wide variety of end uses across the country and as stated above, EPA is committed to working with any interested party to ensure that future reuse opportunities are given full attention.

Comment 34

A commenter asked where the collected leachate/shallow groundwater would be disposed.

Response 34

The collected water will be disposed of through the City of Dayton's sewer network to the City wastewater treatment plant. Preliminary discussions have been completed with City staff about the volume and character of the wastewater, the details of which are reflected in the site feasibility study. During remedial design, a disposal permit from the City, whose terms will be negotiated and approved by the City in order to dispose of wastewater from the site, will be obtained. This permit will contain information on volume of water and standards for pre-treatment to allow for disposal, as well as how the water will be accepted into the City sewer system for ultimate treatment at the plant.

Comment 35

A commenter asked how the cap will be affected by drought conditions.

Response 35

Normal maintenance of installed caps includes the proper establishment of surficial vegetation necessary to protect the cap. This vegetation must be maintained regardless of weather conditions. As such, the site O&M plan will include provisions for proper maintenance, which would include any potential negative impacts from weather.

Comment 36

A commenter asked if the cap would require repair over time.

Response 36

Yes, all installed caps require repair over their operational lifespan. They are inspected on a regular basis according to the terms of the EPA approved O&M plan and any repairs necessary to maintain the cap performance are done as they are encountered to ensure long term protectiveness of the installed remedy.

Comment 37

A number of commenters asked if all of the waste, both above and below the water table, could be removed to take it to a place where it could be properly stored. The commenters indicated that this would reduce the amount of leachate generation, reduce landfill gas generation, which would reduce long term costs and speed up groundwater cleanup.

Response 37

As outlined in response 2, 15, and 33 above, total removal is not cost-effective and, based on EPA's analysis of the nine criteria, would not be the preferred approach. The proposed remedy with capping and other elements is a typical response for large landfills such as this. The risks from exposure will be addressed with capping and any impacts to groundwater will be collected and treated off-property. Landfill gas will be collected and treated, RCRA VOC characteristic

waste will be treated in place in former disposal area 1, and remaining principal threat waste at the site (NAPL) will be extracted and disposed of off-property, reducing the overall toxicity of the site wastes in a reasonable manner.

Comment 38

A commenter asked if the stormwater basin could be located in former disposal area 3, instead of taking soil from Area 4.

Response 38

Waste from former disposal area 4 will be excavated and placed elsewhere on the site to fill in low areas under the cap. This area could then be available for potential future use. Former disposal area 3 is to receive the cap remedy. EPA is committed to working with any interested party to ensure that future reuse opportunities are given full attention.

Comment 39

A commenter asked if the conceptual design in the FS report had been accepted by EPA and if this might lead to unwanted motorized activity on the site. Concerns about the washboard conceptual design were also related to potential infiltration and gas collection issues.

Response 39

As stated above, the design is conceptual and a final design will be approved by the EPA. Any remedy constructed on-site must have a security component, including a fence, which will prevent any unauthorized access.

Comment 40

A commenter expressed concern that fires and explosions will occur after the cap is installed. The commenter also asked if the homes near the site would be safe from gas migration and if monitoring devices would be placed in the basements. Finally, the commenter asked if any structures built to facilitate future redevelopment plans would include protection from the landfill gas under the cap.

Response 40

The final remedy design will include plans for landfill gas collection and treatment. The commenter is correct that the cap will contain any landfill gases currently present but the final design will include provisions for the safe collection and treatment of LFG and any migration away from the site will be prevented by the designed system. The PRPs sampled basements in homes immediately adjacent to the site during the RI/FS and no site related contamination issues were found. This issue will be revisited during design to determine if additional sampling is needed to finalize the design of the remedy. Any redevelopment plans on the site would require the appropriate safeguards for any related structures.

Comment 41

A commenter stated that the proposed plan offered no information about how the cleanup would impact future reuse of the site.

Response 41

The remedy selected in this ROD will provide protection from the environmental contamination issues at the site. The ROD also lists reasonable future land uses, which were established in the RI/FS reports. The remedy is selected to address the risks identified in the site risk assessment. At present, EPA is not aware of any plans for reuse for the site which was confirmed in talks with local officials. If plans are identified in the future, EPA will work with the parties to ensure that the opportunities are given maximum chance for success and that the protectiveness of the site remedy is maintained.

Comment 42

A commenter stated that complete removal is the only solution to the contamination issue at the site, would lead to faster groundwater cleanup, and that discharge to the area sewers was untenable due to the problems with infrastructure and capacity.

Response 42

Please see response 33 above. Preliminary discussions with the City water department indicate that the amount of leachate/shallow groundwater anticipated from the selected remedy will be manageable and will not cause any adverse impacts on the overall system.

Comment 43

Several commenters expressed support for EPA's selection of Alternative 2A wanting a cap and a new landfill gas collection system and to leave the perimeter fence remaining.

Response 43

EPA shares the same goals for the site. The remedy will include all of the components described above and the existing landfill gas system will be completely replaced. The fence will help to restrict access to the site.

Peerless Transportation comments

Comment 44

The FS addendum prepared by EPA to address RCRA and TSCA issues injected uncertainty into the decision making process, turns back the clock to the RI and FS phase. In light of the FS Addendum, the RI and FS should be reviewed to determine their adequacy in forming the basis for an appropriate remedy.

Response 44

The FS Addendum did not turn back the clock, rather its purpose, in part was to correct and clarify the ARAR discussion in the FS, which has a number of factually incorrect and legally erroneous statements.

EPA's regulations pertaining to remedy selection process (40 C.F.R. § 300.430 *Remedial Investigation/Feasibility Study and Selection of Remedy*) provide that final remediation goals be determined when the remedy is selected and that the remediation goals will be developed by considering ARARs. Therefore the identification of RCRA and TSCA during the feasibility study phase and prior to the selection of the remedy is consistent with EPA's regulations.

The inclusion of RCRA and TSCA requirements does not render the collection of information during the RI phase inadequate. EPA used the information collected during the RI phase—sampling data indicating high levels of RCRA constituents and PCBs—as the basis for concluding that RCRA and TSCA requirements are ARARs for this Site.

Comment 45

The inclusion of former disposal areas 3 and 4 in the FS Addendum is unwarranted. There is no evidence of hazardous waste disposal in former disposal areas 3 and 4. EPA's calculations for the waste removal in former disposal areas 1 and 5 are unusual and technically inappropriate. EPA should gather more information before selecting the final remedy.

Response 45

The FS Addendum applies to the entire Site which includes former disposal areas 3 and 4. The data from the remedial investigation of the Site indicates that there are high levels of RCRA constituents in the soil in former disposal area 3. Also records provided to EPA by Ohio EPA indicate that RCRA characteristic waste and TSCA regulated material was disposed of at the Site during the time period when only areas 3 and 4 were operational. Additional engineering review of the design will be completed.

The calculations presented in the FS addendum were based on data from the RI report and actual soil disposal costs from a similar site. Additional engineering review of the design will be completed subsequent to remedy negotiations so that the designed remedy provides the requisite protection from site contamination.

Finally, EPA believes that sufficient information is available to select an appropriate remedy for the site, as summarized in the AR and in this ROD.

Comment 46

The commenter disagreed with EPA's calculations for the waste removal areas that were contained in the proposed and states that additional testing must be done in order to define the costs and the scope of the excavation projects.

Response 46

The areas that are referenced for removal in the proposed plan are based on sampling results from the RI. These correspond to two foot sampling intervals from the investigation and estimate 100 foot by 100 foot volumes around the sampling exceedances. However, the remedy has changed based on public comment and now includes in-situ treatment of the RCRA characteristic VOC waste in Disposal Areas 1, 2 and 5 and for PCBs at all levels to be disposed of on-Site.

Comment 47

The commenter stated that the remedy would severely restrict future land use, which contradicts the reuse framework finalized by the City of Dayton.

Response 47

The selected remedy will address contamination issues from the Site in a way that is effective and long lasting. This remedy will be maintained so that long term protectiveness is ensured. The RD will incorporate the reuse framework to the maximum extent practicable.

Comment 48

The commenter stated that the current economic climate is not supportive of risky landfill development projects without the injection of significant governmental funding and stated that the FS report should be revisited with respect to future reuse options.

Response 48

EPA acknowledges the comment. EPA supports reuse opportunities at Superfund sites and will work with all parties to give reuse options as much chance for success as possible. However, EPA cannot advocate reuse without a plan and revenue for redevelopment. The remedy selected in this ROD will address the environmental contamination issues present at the site and any future reuse plans will be reviewed to ensure that the installed remedy continues to provide short and long term protection from the contamination, under the terms of the proposed use.

Comment 49

The commenter suggests that since the completion of the removal action, the site is relatively stable and deserves to be treated accordingly. An assessment of real risk, the cost benefit of incremental risk reductions and the long term outlook for property reuse should be given serious consideration. The commenter goes on to state that since the immediate hazards have been mitigated, the site should be monitored until a long term reuse option is received with a trust fund established for a base level of remediation.

Response 49

EPA disagrees with waiting to remediate the site until such time as an acceptable reuse option is available. This may be many years down the road or perhaps never, and leaving the site in its current state without remediation is unacceptable. The remedy proposed in this ROD addresses site risks and builds on the risk reduction of the prior removal action. The remedy will be monitored after construction to ensure that long term protectiveness is achieved but risk levels, as calculated in the site risk assessment, dictate that a remedy be put in place now to provide the requisite protection. It is simply unacceptable to leave the site as is. Finally, there is no legal mechanism to set up a trust fund for future site remediation.

Comment 50

The commenter states that ARARs should be waived in circumstances where an equivalent standard of performance can be demonstrated.

Response 50

The commenter is correct that EPA has this authority. However, the information presented in the RI/FS report does not demonstrate that an equivalent standard of performance is achieved by the non-ARAR compliant alternatives, and therefore, the ARAR waiver cannot be applied.

Comments from City of Dayton

Comment 51

The City indicated support for EPA's selection of Alternative 2A. The commenter goes on to state that there are no storm sewers adjacent to the site and that close coordination with the City is critical for any remedy with an off-property discharge component.

Response 51

EPA acknowledges the support for Alternative 2A. EPA understands the concerns of the City with respect to any discharge from the site and understands that sewer capacity is a significant issue to be resolved. EPA requested communication between the PRPs and the City during the FS process to provide initial estimates for disposal, which were factored into the FS report. EPA also understands that the City has had preliminary discussions with the PRPs about discharged water quality and any standards that would need to be met in a permit application for discharge. EPA will ensure that any coordination for the permit application be completed early in the remedy design process so that the appropriate arrangements can be made for the City to fully evaluate the application for discharge. This will include connection to area storm sewer capacity, which will be fully investigated and designed with EPA and Ohio EPA approval.

Comment 52

The City expressed concern that the conceptual design in the FS report limits the redevelopment potential at the site, citing an EPA analysis that was provided to the City in 2005 that describes a

commercial/light industrial/mixed use concept for the western third of the property. The commenter also references Agency guidance that encourages reuse plans such as the one that EPA presented to the City, be factored into remedy design.

Response 52

The conceptual plan that was presented to the City in 2005 was prepared by an EPA contractor to give ideas for future use—it was not a reuse plan. At present, through conversations with City officials, EPA is not aware of any current plans for reuse. That being said, EPA remains committed to working with interested parties to evaluate and implement reuse plans at the site, as they may arise throughout the cleanup process.

Comment 53

The City indicates that Alternative 3A would not use a landfill cap design that meets Ohio EPA's solid waste cap regulations. The commenter also notes that the significantly higher infiltration rates from Alternative 3A over Alternative 2A is inconsistent with the Ohio EPA's position contained in Agency guidance on environmental management which states the importance of preventing or minimizing generation of contaminated media and thus avoiding the need to capture, contain and manage contamination after the fact.

Response 53

EPA agrees with the entire comment and believes Alternative 2A is the best alternative to address the concerns raised by this comment.

Comment 54

The City reiterates EPA's statutory direction that states that any application for a waiver of an ARAR must be evaluated from a technology perspective rather than a risk perspective, and refers to the FS report that indicates that the Alternative 3A cap would generate approximately 400 times more leachate than Alternative 2A, another reason for the City's support for Alternative 2A.

Response 54

EPA agrees with the entire comment and believes Alternative 2A is the best alternative to address the concerns raised by this comment.

Comment 55

The City expresses concern about the estimated 10-15 year cleanup timeframe for groundwater under the modified Alternative 3A presented in the PRP position paper for the Remedy Review Board evaluation and again raises the concerns about stormwater capacity in City sewers.

Response 55

EPA agrees with the entire comment and believes Alternative 2A is the best alternative to address the concerns raised by this comment. EPA also appreciates the support for the selected remedy.

Comment 56

The City expressed concern that the longer groundwater cleanup timeframe under Alternative 3A would delay aquifer cleanup, which would have a negative impact on property values in the surrounding area.

Response 56

EPA agrees with the entire comment and believes Alternative 2A satisfies the concerns raised by this comment. EPA believes that Alternative 2A is the best alternative for site cleanup and believes that its implementation will have positive impact on the community.

Comment 57

The City indicates that although the City has not developed a detailed reuse plan for the site, it is their belief that the Alternative 2A cap will provide more structural support for a wider variety of potential reuse options that may be developed in the future and repeats their support for Alternative 2A.

Response 57

EPA agrees with the City's position and will work with interested parties towards eventual site reuse.

Comments from site PRP Group

Comment 58

The PRP group states that the site poses little risk with no current or future use of groundwater with a City ordinance in place. The PRPs also state that there is very little mounding of leachate, a significant amount of principal threat waste was removed during the drum removal activities, and landfill gas is controlled by the interim system put in place during the removal action.

Response 58

The risks associated with the site are documented in the RI/FS reports and repeated in the proposed plan. These include risks from direct contact with site contamination and potential exposure to landfill gas and exposure to contaminated groundwater. The commenter is correct that a large quantity of principal threat waste was removed during the removal but the remaining waste poses the risks outlined above. The interim landfill gas system is not complete and was put in place to control landfill gas during the drum removal. It was not designed as a permanent system and was also not designed to accompany a final site remedy. Groundwater is

contaminated above MCLs as documented in the RI/FS and the remedies in the FS report address this contamination. The selection of Alternative 2A will prevent groundwater from migrating away from the site and will also be designed to draw the plume back to the former landfill property, which according to the estimate from the FS report, will result in cleanup in approximately 3 years.

Comment 59

The PRP group recommends a modification of Alternative 3A with no perimeter leachate/shallow groundwater collection unless monitoring shows that it is needed to achieve groundwater goals in a reasonable timeframe and states that this was provided during the remedy review board stage of the site remedy.

Response 59

EPA received this concept previously when asking for comments on the remedy review board petition. This alternative was not included in the FS report and was not evaluated in the preparation of the proposed plan. However, as is stated in the proposed plan for the original Alternative 3A (and 3B), this alternative does not comply with ARARs. The arguments for equivalent performance are not valid as the alternate cap does not provide equivalent performance when compared to the ARAR compliant solid waste cap. This alternative also does not address the groundwater contamination that has migrated from the site, which does not satisfy the remedial action objective of restoring groundwater beyond the point of compliance within a reasonable timeframe.

Comment 60

The PRP group states that the FS Addendum is incorrect in stating that TSCA regulations are ARARs at the site and that the proposed plan does not state that the PCB waste was disposed of before April 18, 1978, pursuant to 40 C.F.R. § 761.50(b)(3)(i)(A), which would mean that the PRPs are not required to remediate the PCB waste because by statute, they do not pose risk.

Response 60

As is stated in the FS addendum and in this ROD, EPA has determined that TSCA is applicable to each of the proposed remedies for the site because each provides for the land disposal of PCB remediation waste. The FS Report that the PRPs prepared incorrectly omitted the TSCA risk-based disposal requirements set forth at 40 C.F.R. §761.61(c).

Comment 61

The PRP group disagrees with EPA's position that RCRA hazardous waste regulations are applicable to waste in AOC #2, and are relevant and appropriate to waste disposed in AOC #1 prior to 1980.

Response 61

As is stated in the FS addendum, EPA review of site records indicates that the former operators of the landfill accepted waste contaminated with high levels of RCRA constituents before 1980 and RCRA characteristic waste after 1980. For these reasons, EPA has determined that RCRA is an ARAR at the site.

Comment 62

The PRP group states that the costs for removal of the areas of elevated contamination identified in the proposed plan are not accurate and that EPA did not provide detailed cost information and that it was not evaluated with respect to the nine criteria.

Response 62

The cost estimates for the removal of the waste materials were presented in the FS Addendum and are based on actual soil removal costs from a comparable site. They are also based on areas identified through RI sampling as having VOC contaminant concentrations that may be considered RCRA characteristic. Removal of this material was included in the proposed plan as a common element and each of the four alternatives were fully evaluated using EPA's nine criteria. However, EPA has modified the remedy as outlined above to leave the RCRA and PCB wastes in place with treatment of the RCRA VOC waste in former disposal area 1 with leachate/landfill gas wells located in or near the waste materials. The placement of a Subtitle D cap over the PCB areas, along with leachate and groundwater collection, has been determined to satisfy the criteria for risk- based disposal.

Comment 63

The PRP group stated that they had prepared a report dated January 18, 2012, in which they prepared a response to ARAR issues for RCRA and TSCA indicating that neither were applicable at the site. The comment indicated that EPA's response to said report was incomplete.

Response 63

EPA prepared the FS addendum to fully address the ARARs issues at the site that were not included in the State approved FS report. The Agency disagrees with the positions in the January 2012 report. The FS Addendum presents the information related to RCRA and TSCA ARARs.

Comment 64

The PRP group states that the FS specifically speaks to the hazardous waste derived from remediation argument raised in the preceding comment and that Ohio EPA directed the PRPs to modify the FS report to address this issue with this language.

Response 64

None of the alternatives in the FS report provide for off-property treatment and/or disposal of ALL waste identified in the RI/FS report as exhibiting the toxicity characteristics of RCRA hazardous waste. These areas of potential RCRA characteristic waste were identified in the FS addendum. However, the remedy selected in this ROD will treat the RCRA characteristic VOC waste in former disposal area 1 in place to achieve TCLP standards, rather than disposing of this material off-site. TCLP sampling for metals in former disposal area 3 will also be performed to determine if RCRA hazardous waste is present and whether waste removal or installation of a Subtitle C cap is necessary.

Comment 65

The PRP group also refers to EPA's municipal landfill presumptive remedy guidance and its discussion of hot spots. The comment refers to the guidance for the definition of a hot spot and criteria for removal of hot spots if they measurably decrease risk at the site.

Response 65

The material identified in the FS addendum is potential RCRA characteristic waste that would be identified as a principal threat waste, which is addressed in the municipal landfill guidance as material that should be removed from the site, to the maximum extent practicable.

Comment 66

The PRPs comment that the additional waste removal contemplated in the proposed plan is not required to comply with ARARs.

Response 66

As outlined above, EPA has reevaluated the remedy with respect to removal of these areas of contamination and has revised the remedy to include in-situ treatment of the RCRA characteristic waste in former disposal area 1. The combination of that in-situ treatment, Alternative 2A's solid waste cap and the leachate/shallow groundwater collection system will satisfy the risk-based disposal requirements under the TSCA regulations for any PCB exceedances. TCLP sampling for metals in former disposal area 3 will also be performed to determine if RCRA hazardous waste is present and whether waste removal or installation of a Subtitle C cap is necessary.

Comment 67

The PRPs provided a nine criteria analysis comparing EPA's preferred remedy (Alternative 2A) and their preferred remedy (modified Alternative 3A), which shows that their proposed remedy is more appropriate for the site.

Response 67

The analysis provided by the PRPs is not accurate. As is shown above, the 3-series alternatives are not compliant with solid waste landfill regulations and as such, do not satisfy the threshold criteria of compliance with ARARs. In addition, they do not comply with the RAO of restoration of off-property groundwater in a reasonable timeframe because the modified Alternative 3A does not address the off-property groundwater contamination. This alternative does not justify a waiver of the solid waste capping regulations because it does not provide equivalent performance as explained above.

Tables

Table 1 Summary of Risk-Based Preliminary Remediation Goals and Range of Detected Concentrations of COCs by Medium - Eastern Two Thirds

TABLE 2.3

EASTERN TWO THIRDS

SUMMARY OF RISK-BASED PRELIMINARY REMEDIATION GOALS AND RANGE OF DETECTED CONCENTRATIONS OF COCs BY MEDIUM

NORTH SANITARY LANDFILL

DAYTON, OHIO

Chemical of Concern (COC)	Surface Soil Min [1] - Max [2] (mg/kg)	Surface Soil RBPRG [3] (Table B.40) (mg/kg)	Surface Soil Major Contributing Chemical [4]	Surface Waste Min [1] - Max [2] (mg/kg)	Surface Waste RBPRG [3] (Table B.38) (mg/kg)	Surface Waste Major Contributing Chemical [4]	Waste Min [1] - Max [2] (mg/kg)	Waste RBPRG [3] (Table B.39) (mg/kg)	Waste Major Contributing Chemical [4]
Volatiles									
1,1-Dichloroethane	-	-	N/A	-	-	N/A	-	-	N/A
1,2,4-Trimethylbenzene	-	-	N/A	-	-	N/A	0.00049 J - 76	1.1	H
1,3,5-Trimethylbenzene	-	-	N/A	-	-	N/A	0.00021 J - 24	0.41	H
1,4-Dichlorobenzene	-	-	N/A	-	-	N/A	0.00033 J - 6.3 J	2.9	R
Benzene	-	-	N/A	-	-	N/A	0.00028 J - 41	1.0	R/H
Chlorobenzene	-	-	N/A	-	-	N/A	0.0005 J - 61	0.70	H
cis-1,2-Dichloroethene	-	-	N/A	0.0015 J - 850	781	-	0.00036 J - 1000	2.1	H
Ethylbenzene	-	-	N/A	-	-	N/A	0.00037 - 3700	79	-
Methylene chloride	-	-	N/A	-	-	N/A	-	-	N/A
Tetrachloroethene - current	-	-	N/A	0.012 J - 13 J	0.83	-	0.00061 J - 45	0.39	R/H
Tetrachloroethene - former	-	-	N/A	0.012 J - 13 J	8.6	-	0.00061 J - 45	4.2	R/H
Toluene	-	-	N/A	-	-	N/A	0.00038 J - 1100	317	-
Trichloroethene - current	-	-	N/A	0.0028 J - 36 J	1.1	-	0.00043 J - 900	0.07	R/H
Trichloroethene - former	-	-	N/A	0.0028 J - 36 J	33	-	0.00043 J - 900	2.0	R/H
Trichlorofluoromethane (CFC-11)	-	-	N/A	-	-	N/A	-	-	N/A
Vinyl chloride	-	-	N/A	170 - 170	0.35	R	0.0015 J - 170	1.1	R/H
Xylene (total)	-	-	N/A	-	-	N/A	0.00092 J - 14000	49	H
Semi-Volatiles									
2-Methylnaphthalene	-	-	N/A	-	-	N/A	-	-	N/A
Benzo(a)anthracene	-	-	N/A	0.0093 J - 1.6 J	0.48	-	-	-	N/A
Benzo(a)pyrene	0.22 J - 0.56	0.21	-	0.012 J - 1.9 J	0.05	R	-	-	N/A
Benzo(b)fluoranthene	-	-	N/A	0.014 J - 2.5 J	0.48	-	-	-	N/A
bis(2-Ethylhexyl)phthalate	0.22 J - 440	116	-	0.054 J - 750	27	-	-	-	N/A
Dibenz(a,h)anthracene	-	-	N/A	0.032 J - 0.077 J	0.05	-	-	-	N/A
Indeno(1,2,3-cd)pyrene	-	-	N/A	0.091 J - 0.69 J	0.48	-	-	-	N/A

TABLE 2.3

EASTERN TWO THIRDS

SUMMARY OF RISK-BASED PRELIMINARY REMEDIATION GOALS AND RANGE OF DETECTED CONCENTRATIONS OF COCs BY MEDIUM

NORTH SANITARY LANDFILL

DAYTON, OHIO

Chemical of Concern (COC)	*Surface Soil*			*Surface Waste*			*Waste*		
	Min [1] - Max [2] (mg/kg)	*RBPRG [3] (Table B.40) (mg/kg)*	*Major Contributing Chemical [4]*	*Min [1] - Max [2] (mg/kg)*	*RBPRG [3] (Table B.38) (mg/kg)*	*Major Contributing Chemical [4]*	*Min [1] - Max [2] (mg/kg)*	*RBPRG [3] (Table B.39) (mg/kg)*	*Major Contributing Chemical [4]*
Metals									
Aluminum	-	-	N/A	13100 - 13100	10381	H	-	-	N/A
Arsenic	-	-	N/A	7.4 - 7.4	0.29	R	-	-	N/A
Iron	-	-	N/A	15100 - 15100	22825	-	-	-	N/A
Manganese	-	-	N/A	208 - 208	104	H	-	-	N/A
Vanadium	-	-	N/A	28.9 - 28.9	38	-	-	-	N/A
PCBs									
Aroclor-1242 (PCB-1242)	-	-	N/A	1.5 - 1.5	0.17	-	-	-	N/A
Aroclor-1248 (PCB-1248)	0.062 - 3	0.74	-	0.053 - 1.3	0.17	-	-	-	N/A
Aroclor-1254 (PCB-1254)	0.27 - 2.7	1.1	-	0.26 - 72	0.17	R/H	-	-	N/A
Aroclor-1260 (PCB-1260)	-	-	N/A	-	-	N/A	-	-	N/A

Notes:

(1) Minimum detected concentration.

(2) Maximum detected concentration.

(3) Risk-Based Preliminary Remediation Goal (RBPRG), refer to Appendix D.

(4) COC contributed to overall risk (R) or hazard index (H) in Human-Health Risk Assessment (CRA, May 2008) (i.e., individual COC risk/hazard contributed 5% or more to the cumulative risk/hazard).

J The associated value is qualified as an estimated quantity.

\- data not shown for parameters not determined to be COCs in associated medium, or COC was determined to not be a major contributing chemical.

N/A major contributing chemical designation not applicable for non-COCs.

TABLE 2.3

EASTERN TWO THIRDS

SUMMARY OF RISK-BASED PRELIMINARY REMEDIATION GOALS AND RANGE OF DETECTED CONCENTRATIONS OF COCs BY MEDIUM

NORTH SANITARY LANDFILL

DAYTON, OHIO

Chemical of Concern (COC)	Landfill Gas Min [1] - Max [2] (ppbv)	Landfill Gas RBPRG [3] (Table B.37) (ppbv)	Landfill Gas Major Contributing Chemical [4]	NAPL Min [1] - Max [2] (mg/L)	NAPL RBPRG [3] (Table B.42) (mg/L)	NAPL Major Contributing Chemical [4]	Leachate Min [1] - Max [2] (mg/L)	Leachate RBPRG [3] (Table B.41) (mg/L)	Leachate Major Contributing Chemical [4]
Volatiles									
1,1-Dichloroethane	2.45 - 10908	14563	-	-	-	N/A	-	-	N/A
1,2,4-Trimethylbenzene	14.27 - 3639	357	H	18 - 18	4.8	H	-	-	N/A
1,3,5-Trimethylbenzene	8.06 - 1917	359	H	6.03 - 6.03	4.8	H	-	-	N/A
1,4-Dichlorobenzene	-	-	N/A	-	-	N/A	-	-	N/A
Benzene	11.21 - 5179	46	R/H	0.288 J - 24.44 J	8	R/H	-	-	N/A
Chlorobenzene	5.11 - 2487 J	632	-	-	-	N/A	-	-	N/A
cis-1,2-Dichloroethene	3.79 - 3924722	2141	H	53.58 J - 53.58 J	24	H	0.00024 J - 3.7	22	-
Ethylbenzene	3.66 - 46485	11128	-	31.5 - 1222 J	329	H	-	-	N/A
Methylene chloride	2.14 - 10908	623	R	-	-	N/A	-	-	N/A
Tetrachloroethene - current	2.14 - 21	34	-	-	-	N/A	-	-	N/A
Tetrachloroethene - former	2.14 - 21	358	-	-	-	N/A	-	-	N/A
Toluene	6.72 J - 303784	133413	-	1.26 J - 799 J	1796	-	-	-	N/A
Trichloroethene - current	2.64 - 1015331	2.1	R/H	0.639 J - 0.639 J	0.69	R	-	-	N/A
Trichloroethene - former	2.64 - 1015331	137	R/H	0.639 J - 0.639 J	27	R	-	-	N/A
Trichlorofluoromethane (CFC-11)	2.14 - 69116	25567	-	-	-	N/A	-	-	N/A
Vinyl chloride	2.35 - 839992	42	R/H	18.8 J - 18.8 J	4.3	R	-	-	N/A
Xylene (total)	23.7 J - 159435	4797	H	65.7 - 4794 J	130	H	-	-	N/A
Semi-Volatiles									
2-Methylnaphthalene	-	-	N/A	112.8 J - 187 J	190	-	-	-	N/A
Benzo(a)anthracene	-	-	N/A	-	-	N/A	-	-	N/A
Benzo(a)pyrene	-	-	N/A	-	-	N/A	-	-	N/A
Benzo(b)fluoranthene	-	-	N/A	-	-	N/A	-	-	N/A
bis(2-Ethylhexyl)phthalate	-	-	N/A	-	-	N/A	-	-	N/A
Dibenz(a,h)anthracene	-	-	N/A	-	-	N/A	-	-	N/A
Indeno(1,2,3-cd)pyrene	-	-	N/A	-	-	N/A	-	-	N/A

TABLE 2.3

EASTERN TWO THIRDS

SUMMARY OF RISK-BASED PRELIMINARY REMEDIATION GOALS AND RANGE OF DETECTED CONCENTRATIONS OF COCs BY MEDIUM

NORTH SANITARY LANDFILL

DAYTON, OHIO

Chemical of Concern (COC)	*Landfill Gas*			*NAPL*			*Leachate*		
	Min [1] *- Max* [2] *(ppbv)*	*RBPRG* [3] *(Table B.37) (ppbv)*	*Major Contributing Chemical* [4]	*Min* [1] *- Max* [2] *(mg/L)*	*RBPRG* [3] *(Table B.42) (mg/L)*	*Major Contributing Chemical* [4]	*Min* [1] *- Max* [2] *(mg/L)*	*RBPRG* [3] *(Table B.41) (mg/L)*	*Major Contributing Chemical* [4]
Metals									
Aluminum	-	-	N/A	-	-	N/A	-	-	N/A
Arsenic	-	-	N/A	-	-	N/A	-	-	N/A
Iron	-	-	N/A	-	-	N/A	-	-	N/A
Manganese	-	-	N/A	-	-	N/A	-	-	N/A
Vanadium	-	-	N/A	-	-	N/A	-	-	N/A
PCBs									
Aroclor-1242 (PCB-1242)	-	-	N/A	165 - 171	2.4	R	-	-	N/A
Aroclor-1248 (PCB-1248)	-	-	N/A	488.8 - 488.8	2.4	R	-	-	N/A
Aroclor-1254 (PCB-1254)	-	-	N/A	488.8 - 488.8	0.95	R/H	0.0014 - 0.3	0.0024	H
Aroclor-1260 (PCB-1260)	-	-	N/A	263.2 - 263.2	2.4	R	-	-	N/A

Notes:

(1) Minimum detected concentration.

(2) Maximum detected concentration.

(3) Risk-Based Preliminary Remediation Goal (RBPRG), refer to Appendix D.

(4) COC contributed to overall risk (R) or hazard index (H) in Human-Health Risk Assessment (CRA, May 2008) (i.e., individual COC risk/hazard contributed 5% or more to the cumulative risk/hazard).

J The associated value is qualified as an estimated quantity.

\- data not shown for parameters not determined to be COCs in associated medium, or COC was determined to not be a major contributing chemical.

N/A major contributing chemical designation not applicable for non-COCs.

Table 2 Summary of Risk-Based Preliminary Remediation Goals and Range of Detected Concentrations of COCs by Medium-Western Third

TABLE 2.4

SUMMARY OF RISK-BASED PRELIMINARY REMEDIATION GOALS
AND RANGE OF DETECTED CONCENTRATIONS OF COCs BY MEDIUM
WESTERN THIRD
NORTH SANITARY LANDFILL
DAYTON, OHIO

Chemical of Concern (COC)	*Waste*			*Landfill Gas*		
	Min [1] *- Max* [2] *(mg/kg)*	*RBPRG* [3] *(Table B.44) (mg/kg)*	*Major Contributing Chemical* [4]	*Min* [1] *- Max* [2] *(ppbv)*	*RBPRG* [3] *(Table B.43) (ppbv)*	*Major Contributing Chemical* [4]
Volatiles						
Benzene	-	-	N/A	3.48 - 51.06	49	-
cis-1,2-Dichloroethene	-	-	N/A	2.34 - 7370 J	1353	H
Trichloroethene - current	-	-	N/A	2.76 J - 65.2 J	2.2	R
Trichloroethene - former	-	-	N/A	2.76 J - 65.2 J	145	-
Vinyl chloride	-	-	N/A	38.8 J - 2335 J	44	R
Metals						
Aluminum	293 - 22100	69767	-	-	-	N/A
Lead	0.73 J - 471	132 [5]	-	-	-	N/A
Manganese	125 J - 5930	751	H	-	-	N/A

Notes:

(1) Minimum detected concentration.

(2) Maximum detected concentration.

(3) Risk-Based Preliminary Remediation Goal (RBPRG), refer to Appendix D.

(4) COC contributed to overall risk (R) or hazard index (H) in Human-Health Risk Assessment (CRA, May 2008) (i.e., individual COC risk/hazard contributed 5% or more to the cumulative risk/hazard).

(5) For lead RBPRG refer to Table D.47.

J The associated value is qualified as an estimated quantity.

\- data not shown for parameters not determined to be COCs in associated medium, or COC was determined to not be a major contributing chemical.

N/A major contributing chemical designation not applicable for non-COCs.

Table 3 Summary of Cumulative Cancer Risks and Hazard Index Exceedances

TABLE 2.1

SITE-RELATED RECEPTOR AND PATHWAY RISKS AND HAZARDS EXCEEDANCES
NORTH SANITARY LANDFILL
DAYTON, OHIO

		Former TCE and PCE Toxicity Data [1]							Provisional TCE and PCE Toxicity Data [1]							
Exposure Area	Receptor	Cumulative Carcinogenic Risk [2]	Cumulative Non-Carcinogenic Hazard Index [2]	Medium	Major Contributing Chemical	Risk/ Hazard Quotient [3]		Major Contributing Pathway(s)	Cumulative Carcinogenic Risk [2]	Cumulative Non-Carcinogenic Hazard Index [2]	Medium	Major Contributing Chemical	Risk/ Hazard Quotient [3]		Major Contributing Pathway(s)	Comments
Eastern Two Thirds	Trespasser (Current)	2.4E-03	2.9E+02	Landfill Gas	Trichloroethene	6.4E-04	R	Inhalation (6.4E-04)	4.5E-02	2.9E+02	Landfill Gas	Trichloroethene	4.3E-02	R	Inhalation (4.3E-02)	
					Vinyl chloride	1.8E-03	R	Inhalation (1.8E-03)				Vinyl chloride	1.8E-03	R	Inhalation (1.8E-03)	
					Total	2.4E-03						Total	4.5E-02			
					cis-1,2-Dichloroethene	2.0E+02	H	Inhalation (2.0E+02)				cis-1,2-Dichloroethene	2.0E+02	H	Inhalation (2.0E+02)	
					Trichloroethene	7.5E+01	H	Inhalation (7.5E+01)				Trichloroethene	7.5E+01	H	Inhalation (7.5E+01)	
					Vinyl chloride	1.4E+01	H	Inhalation (1.4E+01)				Vinyl chloride	1.4E+01	H	Inhalation (1.4E+01)	
					Xylene (total)	1.2E+00	H	Inhalation (1.2E+00)				Xylene (total)	1.2E+00	H	Inhalation (1.2E+00)	
					Total	2.9E+02						Total	2.9E+02			
Eastern Two Thirds	Recreational Users (Future)	1.5E-02	1.5E+03	Landfill Gas	Benzene	3.5E-05	R	Inhalation (3.5E-05)	2.9E-01	1.5E+03	Landfill Gas	Benzene	3.5E-05	R	Inhalation (3.5E-05)	
					Trichloroethene	4.1E-03	R	Inhalation (4.1E-03)				Trichloroethene	2.7E-01	R	Inhalation (2.7E-01)	
					Vinyl chloride	1.1E-02	R	Inhalation (1.1E-02)				Vinyl chloride	1.1E-02	R	Inhalation (1.1E-02)	
				Surface Waste	Vinyl chloride	1.1E-05	R	Ingestion (1.1E-05)			Surface Waste	Vinyl chloride	1.1E-05	R	Ingestion (1.1E-05)	
					Aroclor-1254 (PCB-1254)	1.0E-05	R	Ingestion (6.7E-06), Dermal (3.0E-06)				Aroclor-1254 (PCB-1254)	1.0E-05	R	Ingestion (6.7E-06), Dermal (3.0E-06)	
					Total	1.5E-02						Total	2.9E-01			
				Landfill Gas	1,2,4-Trimethylbenzene	2.1E+00	H	Inhalation (2.1E+00)			Landfill Gas	1,2,4-Trimethylbenzene	2.1E+00	H	Inhalation (2.1E+00)	
					1,3,5-Trimethylbenzene	2.9E+00	H	Inhalation (2.9E+00)				1,3,5-Trimethylbenzene	2.9E+00	H	Inhalation (2.9E+00)	
					cis-1,2-Dichloroethene	9.9E+02	H	Inhalation (9.9E+02)				cis-1,2-Dichloroethene	9.9E+02	H	Inhalation (9.9E+02)	
					Trichloroethene	3.7E+02	H	Inhalation (3.7E+02)				Trichloroethene	3.7E+02	H	Inhalation (3.7E+02)	
					Vinyl chloride	6.8E+01	H	Inhalation (6.8E+01)				Vinyl chloride	6.8E+01	H	Inhalation (6.8E+01)	
					Xylene (total)	5.9E+00	H	Inhalation (5.9E+00)				Xylene (total)	5.9E+00	H	Inhalation (5.9E+00)	
				Surface Waste	Manganese	1.1E+00	H	Inhalation (1.1E+00)			Surface Waste	Manganese	1.1E+00	H	Inhalation (1.1E+00)	
					Aroclor-1254 (PCB-1254)	1.9E+00	H	Ingestion (1.4E+00), Dermal (5.4E-01)				Aroclor-1254 (PCB-1254)	1.9E+00	H	Ingestion (1.4E+00), Dermal (5.4E-01)	
					Total	1.5E+03						Total	1.5E+03			
Eastern Two Thirds	Park Worker (Future)	3.6E-02	2.7E+03	Landfill Gas	Benzene	1.3E-04	R	Inhalation (1.3E-04)	1.0E+00	2.7E+03	Landfill Gas	Benzene	1.3E-04	R	Inhalation (1.3E-04)	
					Methylene chloride	1.1E-05	R	Inhalation (1.1E-05)				Methylene chloride	1.1E-05	R	Inhalation (1.1E-05)	
					Trichloroethene	1.5E-02	R	Inhalation (1.5E-02)				Trichloroethene	9.9E-01	R	Inhalation (9.9E-01)	
					Vinyl chloride	2.1E-02	R	Inhalation (2.1E-02)				Vinyl chloride	2.1E-02	R	Inhalation (2.1E-02)	
				Surface Waste	Vinyl chloride	1.8E-06	R	Ingestion (1.8E-06)			Surface Waste	Vinyl chloride	1.8E-06	R	Ingestion (1.8E-06)	
					Benzo(a)pyrene	1.4E-06	R	Ingestion (7.3E-07), Dermal (6.3E-07)				Benzo(a)pyrene	1.4E-06	R	Ingestion (7.3E-07), Dermal (6.3E-07)	
					Arsenic	7.5E-06	R	Ingestion (5.9E-07), Inhalation (6.8E-06)				Arsenic	7.5E-06	R	Ingestion (5.9E-07), Inhalation (6.8E-06)	
					Aroclor-1254 (PCB-1254)	6.1E-06	R	Ingestion (2.2E-06), Dermal (2.0E-06), Inhalation (2.0E-06)				Aroclor-1254 (PCB-1254)	6.1E-06	R	Ingestion (2.2E-06), Dermal (2.0E-06), Inhalation (2.0E-06)	
					Total	3.6E-02						Total	1.0E+00			
				Landfill Gas	1,2,4-Trimethylbenzene	3.9E+00	H	Inhalation (3.9E+00)			Landfill Gas	1,2,4-Trimethylbenzene	3.9E+00	H	Inhalation (3.9E+00)	
					1,3,5-Trimethylbenzene	5.3E+00	H	Inhalation (5.3E+00)				1,3,5-Trimethylbenzene	5.3E+00	H	Inhalation (5.3E+00)	
					Benzene	1.5E+00	H	Inhalation (1.5E+00)				Benzene	1.5E+00	H	Inhalation (1.5E+00)	
					cis-1,2-Dichloroethene	1.8E+03	H	Inhalation (1.8E+03)				cis-1,2-Dichloroethene	1.8E+03	H	Inhalation (1.8E+03)	
					Trichloroethene	6.9E+02	H	Inhalation (6.9E+02)				Trichloroethene	6.9E+02	H	Inhalation (6.9E+02)	
					Vinyl chloride	1.3E+02	H	Inhalation (1.3E+02)				Vinyl chloride	1.3E+02	H	Inhalation (1.3E+02)	
					Xylene (total)	1.1E+01	H	Inhalation (1.1E+01)				Xylene (total)	1.1E+01	H	Inhalation (1.1E+01)	
				Surface Waste	Aluminum	1.3E+00	H	Inhalation (1.3E+00)			Surface Waste	Aluminum	1.3E+00	H	Inhalation (1.3E+00)	
					Manganese	2.0E+00	H	Inhalation (2.0E+00)				Manganese	2.0E+00	H	Inhalation (2.0E+00)	
					Total	2.7E+03						Total	2.7E+03			

TABLE 2.1

SITE-RELATED RECEPTOR AND PATHWAY RISKS AND HAZARDS EXCEEDANCES
NORTH SANITARY LANDFILL
DAYTON, OHIO

		Former TCE and PCE Toxicity Data [1]							Provisional TCE and PCE Toxicity Data [1]							
Exposure Area	Receptor	Cumulative Carcinogenic Risk [2]	Cumulative Non-Carcinogenic Hazard Index [3]	Medium	Major Contributing Chemical	Risk/ Hazard Quotient [4]		Major Contributing Pathway(s)	Cumulative Carcinogenic Risk [2]	Cumulative Non-Carcinogenic Hazard Index [3]	Medium	Major Contributing Chemical	Risk/ Hazard Quotient [4]		Major Contributing Pathway(s)	Comments
Eastern Two Thirds	Utility Worker (Future)	1.5E-04	1.9E+02	Waste	1,4-Dichlorobenzene	4.4E-06	R	Inhalation (4.4E-06)	1.3E-03	1.9E+02	Waste	1,4-Dichlorobenzene	4.4E-06	R	Inhalation (4.4E-06)	
					Benzene	1.9E-05	R	Inhalation (1.9E-05)				Benzene	1.9E-05	R	Inhalation (1.9E-05)	
					Tetrachloroethene	NE						Tetrachloroethene	6.4E-06	R	Inhalation (6.4E-06)	
					Trichloroethene	1.8E-05	R	Inhalation (1.8E-05)				Trichloroethene	1.2E-03	R	Inhalation (1.2E-03)	
					Vinyl chloride	9.8E-06	R	Inhalation (9.8E-06)				Vinyl chloride	9.8E-06	R	Inhalation (9.8E-06)	
				NAPL	Benzene	4.2E-06	R	Inhalation (4.2E-06)			NAPL	Benzene	4.2E-06	R	Inhalation (4.2E-06)	
					Trichloroethene	NE						Trichloroethene	1.3E-06	R	Inhalation (1.3E-06)	
					Vinyl chloride	2.7E-06	R	Inhalation (2.7E-06)				Vinyl chloride	2.7E-06	R	Inhalation (2.7E-06)	
					Aroclor-1242 (PCB-1242)	1.5E-05	R	Ingestion (1.5E-05)				Aroclor-1242 (PCB-1242)	1.5E-05	R	Ingestion (1.5E-05)	
					Aroclor-1248 (PCB-1248)	2.6E-05	R	Ingestion (2.6E-05)				Aroclor-1248 (PCB-1248)	2.6E-05	R	Ingestion (2.6E-05)	
					Aroclor-1254 (PCB-1254)	2.6E-05	R	Ingestion (2.6E-05)				Aroclor-1254 (PCB-1254)	2.6E-05	R	Ingestion (2.6E-05)	
					Aroclor-1260 (PCB-1260)	1.4E-05	R	Ingestion (1.4E-05)				Aroclor-1260 (PCB-1260)	1.4E-05	R	Ingestion (1.4E-05)	
					Total	1.4E-04						Total	1.3E-03			
				Waste	1,2,4-Trimethylbenzene	1.6E+01	H	Inhalation (1.6E+01)			Waste	1,2,4-Trimethylbenzene	1.6E+01	H	Inhalation (1.6E+01)	
					1,3,5-Trimethylbenzene	1.2E+01	H	Inhalation (1.2E+01)				1,3,5-Trimethylbenzene	1.2E+01	H	Inhalation (1.2E+01)	
					Benzene	5.7E+00	H	Inhalation (5.7E+00)				Benzene	5.7E+00	H	Inhalation (5.7E+00)	
					Chlorobenzene	3.0E+00	H	Inhalation (3.0E+00)				Chlorobenzene	3.0E+00	H	Inhalation (3.0E+00)	
					cis-1,2-Dichloroethene	1.7E+01	H	Inhalation (1.7E+01)				cis-1,2-Dichloroethene	1.7E+01	H	Inhalation (1.7E+01)	
					Tetrachloroethene	NE						Tetrachloroethene	2.1E+00	H	Inhalation (2.1E+00)	
					Trichloroethene	2.1E+01	H	Inhalation (2.1E+01)				Trichloroethene	2.1E+01	H	Inhalation (2.1E+01)	
					Vinyl chloride	1.5E+00	H	Inhalation (1.5E+00)				Vinyl chloride	1.5E+00	H	Inhalation (1.5E+00)	
					Xylene (total)	1.4E+01	H	Inhalation (1.4E+01)				Xylene (total)	1.4E+01	H	Inhalation (1.4E+01)	
				NAPL	1,2,4-Trimethylbenzene	3.8E+00	H	Inhalation (3.7E+00)			NAPL	1,2,4-Trimethylbenzene	3.8E+00	H	Inhalation (3.7E+00)	
					1,3,5-Trimethylbenzene	1.3E+00	H	Inhalation (1.3E+00)				1,3,5-Trimethylbenzene	1.3E+00	H	Inhalation (1.3E+00)	
					Benzene	1.3E+00	H	Inhalation (1.3E+00)				Benzene	1.3E+00	H	Inhalation (1.3E+00)	
					cis-1,2-Dichloroethene	2.1E+00	H	Inhalation (2.1E+00)				cis-1,2-Dichloroethene	2.1E+00	H	Inhalation (2.1E+00)	
					Ethylbenzene	1.6E+00	H	Inhalation (1.6E+00)				Ethylbenzene	1.6E+00	H	Inhalation (1.6E+00)	
					Xylene (total)	3.6E+01	H	Inhalation (3.6E+01)				Xylene (total)	3.6E+01	H	Inhalation (3.6E+01)	
					Aroclor-1254 (PCB-1254)	4.5E+01	H	Ingestion (4.5E+01)				Aroclor-1254 (PCB-1254)	4.5E+01	H	Ingestion (4.5E+01)	
				Leachate	Aroclor-1254	1.6E+00	H	Dermal (1.6E+00)			Leachate	Aroclor-1254	1.6E+00	H	Dermal (1.6E+00)	
					Total	1.8E+02						Total	1.9E+02			
Western Third	Commercial Worker (Future)	5.9E-05	1.6E+00	Landfill Gas	Benzene	2.0E-06	R	Inhalation (2.0E-06)	8.5E-05	1.6E+00	Landfill Gas	Benzene	2.0E-06	R	Inhalation (2.0E-06)	
					Trichloroethene	NE						Trichloroethene	2.0E-05	R	Inhalation (2.0E-05)	
					Vinyl Chloride	1.5E-05	R	Inhalation (1.5E-05)				Vinyl Chloride	1.5E-05	R	Inhalation (1.5E-05)	
				Subsurface Gas	Benzene	4.0E-06	R	Inhalation (4.0E-06)			Subsurface Gas	Benzene	4.0E-06	R	Inhalation (4.0E-06)	
					Chloroform	1.0E-06	R	Inhalation (1.0E-06)				Chloroform	1.0E-06	R	Inhalation (1.0E-06)	
					Trichloroethene	NE						Trichloroethene	4.1E-06	R	Inhalation (4.1E-06)	
				Surface Soil	Benzo(a)pyrene	2.3E-06	R	Ingestion (1.2E-06); Dermal (1.1E-06)			Surface Soil	Benzo(a)pyrene	2.3E-06	R	Ingestion (1.2E-06); Dermal (1.1E-06)	
					Dibenz(a,h)anthracene	1.3E-06	R	Ingestion (6.9E-07); Dermal (5.9E-07)				Dibenz(a,h)anthracene	1.3E-06	R	Ingestion (6.9E-07); Dermal (5.9E-07)	
					Arsenic	3.2E-05	R	Inhalation (2.3E-05)				Arsenic	3.2E-05	R	Ingestion (7.4E-06), Inhalation (2.3E-05)	
					Total	5.8E-05						Total	8.2E-05			

TABLE 2.1

SITE-RELATED RECEPTOR AND PATHWAY RISKS AND HAZARDS EXCEEDANCES
NORTH SANITARY LANDFILL
DAYTON, OHIO

		Former TCE and PCE Toxicity Data [1]							*Provisional TCE and PCE Toxicity Data* [1]							
Exposure Area	*Receptor*	*Cumulative Carcinogenic Risk* [2]	*Cumulative Non-Carcinogenic Hazard Index* [2]	*Medium*	*Major Contributing Chemical*	*Risk/ Hazard Quotient* [3]		*Major Contributing Pathway(s)*	*Cumulative Carcinogenic Risk* [2]	*Cumulative Non-Carcinogenic Hazard Index* [2]	*Medium*	*Major Contributing Chemical*	*Risk/ Hazard Quotient* [3]		*Major Contributing Pathway(s)*	*Comments*
				Landfill Gas	1,2,4-Trimethylbenzene	3.3E-02	H	Inhalation (3.3E-02)	8.5E-05	NE	Landfill Gas	1,2,4-Trimethylbenzene	3.3E-02	H	Inhalation (3.3E-02)	
					1,3,5-Trimethylbenzene	2.6E-02	H	Inhalation (2.6E-02)				1,3,5-Trimethylbenzene	2.6E-02	H	Inhalation (2.6E-02)	
					Benzene	2.5E-02	H	Inhalation (2.5E-02)				Benzene	2.5E-02	H	Inhalation (2.5E-02)	
					cis-1,2-Dichloroethene	9.2E-01	H	Inhalation (9.2E-01)				cis-1,2-Dichloroethene	9.2E-01	H	Inhalation (9.2E-01)	
					Vinyl chloride	8.9E-02	H	Inhalation (8.9E-02)				Vinyl chloride	8.9E-02	H	Inhalation (8.9E-02)	
					Xylene (total)	3.8E-02	H	Inhalation (3.8E-02)				Xylene (total)	3.8E-02	H	Inhalation (3.8E-02)	
				Subsurface Gas	1,2,4-Trimethylbenzene	1.9E-01	H	Inhalation (1.9E-01)			Subsurface Gas	1,2,4-Trimethylbenzene	1.9E-01	H	Inhalation (1.9E-01)	
					1,3,5-Trimethylbenzene	5.7E-02	H	Inhalation (5.7E-02)				1,3,5-Trimethylbenzene	5.7E-02	H	Inhalation (5.7E-02)	
					Benzene	4.9E-02	H	Inhalation (4.9E-02)				Benzene	4.9E-02	H	Inhalation (4.9E-02)	
					Xylene (total)	2.9E-02	H	Inhalation (2.9E-02)				Xylene (total)	2.9E-02	H	Inhalation (2.9E-02)	
				Surface Soil	Arsenic	5.6E-02	H	Ingestion (4.6E-02), Dermal (9.2E-03)			Surface Soil	Arsenic	5.6E-02	H	Ingestion (4.6E-02), Dermal (9.2E-03)	
					Total	1.5E+00						Total	1.5E+00			
Western Third	Recreational User (Future)	1.2E-05	NE	Landfill Gas	Trichloroethene	NE			1.4E-05	NE	Landfill Gas	Trichloroethene	1.7E-06	R	Inhalation (1.7E-06)	
					Vinyl Chloride	2.4E-06	R	Inhalation (2.4E-06)				Vinyl Chloride	2.4E-06	R	Inhalation (2.4E-06)	
				Surface Soil	Benzo(a)pyrene	8.0E-07	R	Ingestion (5.6E-07), Dermal (2.3E-07)			Surface Soil	Benzo(a)pyrene	8.0E-07	R	Ingestion (5.6E-07), Dermal (2.3E-07)	
					Dibenz(a,h)anthracene	4.5E-07	R	Ingestion (3.2E-07), Dermal (1.3E-07)				Dibenz(a,h)anthracene	4.5E-07	R	Ingestion (3.2E-07), Dermal (1.3E-07)	
					Arsenic	5.7E-06	R	Ingestion (3.4E-06), Inhalation (1.9E-06)				Arsenic	5.7E-06	R	Ingestion (3.4E-06), Inhalation (1.9E-06)	
				Sediment	Benzo(a)pyrene	6.0E-07	R	Ingestion (4.2E-07), Dermal (1.7E-07)			Sediment	Benzo(a)pyrene	6.0E-07	R	Ingestion (4.2E-07), Dermal (1.7E-07)	
					Arsenic	1.4E-06	R	Ingestion (1.3E-06), Dermal (1.2E-07)				Arsenic	1.4E-06	R	Ingestion (1.3E-06), Dermal (1.2E-07)	
					Total	1.1E-05						Total	1.3E-05			
Western Third	Maintenance/ Park Worker (Future)	1.6E-05	NE	Landfill Gas	Benzene	6.0E-07	R	Inhalation (6.0E-07)	2.4E-04	NE	Landfill Gas	Benzene	6.0E-07	R	Inhalation (6.0E-07)	
					Tetrachloroethene	NE						Tetrachloroethene	2.9E-07	R	Inhalation (2.9E-07)	
					Trichloroethene	NE						Trichloroethene	6.0E-06	R	Inhalation (6.0E-06)	
					Vinyl chloride	4.4E-06	R	Inhalation (4.4E-06)				Vinyl chloride	4.4E-06	R	Inhalation (4.4E-06)	
				Subsurface Gas	Benzene	1.2E-06	R	Inhalation (1.2E-06)			Subsurface Gas	Benzene	1.2E-06	R	Inhalation (1.2E-06)	
					Chloroform	3.0E-07	R	Inhalation (3.0E-07)				Chloroform	3.0E-07	R	Inhalation (3.0E-07)	
					Trichloroethene	NE						Trichloroethene	1.2E-06	R	Inhalation (1.2E-06)	
				Surface Soil	Benzo(a)pyrene	3.4E-07	R	Ingestion (1.8E-07); Dermal (1.6E-07)			Surface Soil	Benzo(a)pyrene	3.4E-07	R	Ingestion (1.8E-06); Dermal (1.6E-06)	
					Arsenic	8.2E-06	R	Ingestion (1.1E-06), Inhalation (6.8E-06)				Arsenic	8.2E-06	R	Ingestion (1.1E-06), Inhalation (6.8E-06)	
					Total	1.5E-05						Total	2.2E-05			
Western Third	Construction Worker (Future)	NE	3.9E+00	Waste	Manganese	3.5E+00	H	Inhalation (3.4E+00)	NE	3.9E+00	Waste	Manganese	3.5E+00	H	Inhalation (3.4E+00)	
Off Site	Resident (Current)	1.9E-02 [4]	1.5E+03 [5]	Indoor Air	Benzene	1.5E-05	R	Inhalation (1.5E-05)	3.6E-01 [4]	1.5E+03 [5]	Indoor Air	Benzene	1.5E-05	R	Inhalation (1.5E-05)	
		1.9E-02 [5]	1.5E+03 [5]		Chloroform	1.0E-05	R	Inhalation (1.0E-05)	3.6E-01 [4]	1.5E+03 [5]		Chloroform	1.0E-05	R	Inhalation (1.0E-05)	
				Eastern Two Thirds Landfill Gas	Benzene	4.4E-05	R	Inhalation (4.4E-05)			Eastern Two Thirds Landfill Gas	Benzene	4.4E-05	R	Inhalation (4.4E-05)	
				(to ambient air)	Trichloroethene	5.1E-03	R	Inhalation (5.1E-03)			(to ambient air)	Trichloroethene	3.4E-01	R	Inhalation (3.4E-01)	
					Vinyl chloride	1.4E-02	R	Inhalation (1.4E-02)				Vinyl chloride	1.4E-02	R	Inhalation (1.4E-02)	
					Total [4]	1.9E-02						Total [4]	3.6E-01			
					Total [5]	1.9E-02						Total [5]	3.6E-01			

TABLE 2.1

SITE-RELATED RECEPTOR AND PATHWAY RISKS AND HAZARDS EXCEEDANCES
NORTH SANITARY LANDFILL
DAYTON, OHIO

		Former TCE and PCE Toxicity Data [3]							Provisional TCE and PCE Toxicity Data [3]							
Exposure Area	Receptor	Cumulative Carcinogenic Risk [2]	Cumulative Non-Carcinogenic Hazard Index [2]	Medium	Major Contributing Chemical	Risk/ Hazard Quotient [5]		Major Contributing Pathway(s)	Cumulative Carcinogenic Risk [2]	Cumulative Non-Carcinogenic Hazard Index [2]	Medium	Major Contributing Chemical	Risk/ Hazard Quotient [5]		Major Contributing Pathway(s)	Comments
				Eastern Two Thirds Surface Waste (to ambient air)	Manganese	1.1E+00	H	Inhalation (1.1E+00)			Eastern Two Thirds Surface Waste (to ambient air)	Manganese	1.1E+00	H	Inhalation (1.1E+00)	
				Eastern Two Thirds Landfill Gas (to ambient air)	1,2,4-Trimethylbenzene	2.2E+00	H	Inhalation (2.2E+00)			Eastern Two Thirds Landfill Gas (to ambient air)	1,2,4-Trimethylbenzene	2.2E+00	H	Inhalation (2.2E+00)	
					1,3,5-Trimethylbenzene	3.0E+00	H	Inhalation (3.0E+00)				1,3,5-Trimethylbenzene	3.0E+00	H	Inhalation (3.0E+00)	
					cis-1,2-Dichloroethene	1.0E+03	H	Inhalation (1.0E+03)				cis-1,2-Dichloroethene	1.0E+03	H	Inhalation (1.0E+03)	
					Trichloroethene	3.9E+02	H	Inhalation (3.9E+02)				Trichloroethene	3.9E+02	H	Inhalation (3.9E+02)	
					Vinyl chloride	7.1E+01	H	Inhalation (7.1E+01)				Vinyl chloride	7.1E+01	H	Inhalation (7.1E+01)	
					Xylene (total)	6.2E+00	H	Inhalation (6.2E+00)				Xylene (total)	6.2E+00	H	Inhalation (6.2E+00)	
					Total	1.5E+03						Total	1.5E+03			
Off Site	Resident (Future)	2.0E-02 [4]	1.5E+03 [4]	Indoor Air	Benzene	1.5E-05	R	Inhalation (1.5E-05)	3.6E-01 [6]	1.5E+03 [4]	Indoor Air	Benzene	1.5E-05	R	Inhalation (1.5E-05)	As discussed in Section 6.1.3.2.4, of the RI Report this is a highly unlikely future scenario.
		2.0E-02 [5]	1.5E+03 [5]		Chloroform	1.0E-05	R	Inhalation (1.0E-05)	3.6E-01 [5]	1.5E+03 [5]		Chloroform	1.0E-05	R	Inhalation (1.0E-05)	
				Eastern Two Thirds Landfill Gas (to ambient air)	Benzene	4.4E-05	R	Inhalation (4.4E-05)			Eastern Two Thirds Landfill Gas (to ambient air)	Benzene	4.4E-05	R	Inhalation (4.4E-05)	
					Trichloroethene	5.1E-03	R	Inhalation (5.1E-03)				Trichloroethene	3.4E-01	R	Inhalation (3.4E-01)	
					Vinyl chloride	1.4E-02	R	Inhalation (1.4E-02)				Vinyl chloride	1.4E-02	R	Inhalation (1.4E-02)	
				Groundwater (Household Use)	1,4-Dichlorobenzene	1.6E-05	R	Ingestion (3.0E-06), Inhalation (1.1E-05)			Groundwater (Household Use)	1,4-Dichlorobenzene	1.6E-05	R	Ingestion (3.0E-06), Inhalation (1.1E-05)	
					Benzene	1.1E-05	R	Ingestion (3.4E-06), Inhalation (6.6E-06)				Benzene	1.1E-05	R	Ingestion (3.4E-06), Inhalation (6.6E-06)	
					Tetrachloroethene	NE						Tetrachloroethene	1.5E-05	R	Inhalation (1.4E-05)	
					Trichloroethene	NE						Trichloroethene	1.3E-04	R	Ingestion (9.8E-05), Inhalation (2.5E-05)	
					Vinyl chloride	1.0E-04	R	Ingestion (8.8E-05), Inhalation (7.6E-06)				Vinyl chloride	1.0E-04	R	Ingestion (8.8E-05), Inhalation (7.6E-06)	
					Arsenic	1.6E-04	R	Ingestion (1.6E-04)				Arsenic	1.6E-04	R	Ingestion (1.6E-04)	
					Total [6]	1.9E-02						Total [6]	3.5E-01			
					Total [5]	1.9E-02						Total [5]	3.5E-01			
				Eastern Two Thirds Surface Waste (to ambient air)	Aluminum	7.1E-01	H	Inhalation (7.1E-01)			Eastern Two Thirds Surface Waste (to ambient air)	Aluminum	7.1E-01	H	Inhalation (7.1E-01)	
					Manganese	1.1E+00	H	Inhalation (1.1E+00)				Manganese	1.1E+00	H	Inhalation (1.1E+00)	
				Eastern Two Thirds Landfill Gas (to ambient air)	1,2,4-Trimethylbenzene	2.2E+00	H	Inhalation (2.2E+00)			Eastern Two Thirds Landfill Gas (to ambient air)	1,2,4-Trimethylbenzene	2.2E+00	H	Inhalation (2.2E+00)	
					1,3,5-Trimethylbenzene	3.0E+00	H	Inhalation (3.0E+00)				1,3,5-Trimethylbenzene	3.0E+00	H	Inhalation (3.0E+00)	
					cis-1,2-Dichloroethene	1.0E+03	H	Inhalation (1.0E+03)				cis-1,2-Dichloroethene	1.0E+03	H	Inhalation (1.0E+03)	
					Trichloroethene	3.9E+02	H	Inhalation (3.9E+02)				Trichloroethene	3.9E+02	H	Inhalation (3.9E+02)	
					Vinyl chloride	7.1E+01	H	Inhalation (7.1E+01)				Vinyl chloride	7.1E+01	H	Inhalation (7.1E+01)	
					Xylene (total)	6.2E+00	H	Inhalation (6.2E+00)				Xylene (total)	6.2E+00	H	Inhalation (6.2E+00)	
				Groundwater (Household Use)	Trichloroethene	NE					Groundwater (Household Use)	Trichloroethene	1.0E+00	H	Ingestion (9.0E-01), Inhalation (1.0E-01)	
					Arsenic	1.5E+00	H	Ingestion (1.5E+00)				Arsenic	1.5E+00	H	Ingestion (1.5E+00)	
					Iron	1.0E+00	H	Ingestion (1.0E+00)				Iron	1.0E+00	H	Ingestion (1.0E+00)	
					Thallium	4.8E+00	H	Ingestion (4.8E+00)				Thallium	4.8E+00	H	Ingestion (4.8E+00)	
					Total	1.5E+03						Total	1.5E+03			

The arsenic and iron EPCs calculated for Off Site groundwater were less than the Ohio EPA-approved background concentrations for the Upper Aquifer and the Main Aquifer (see Section 6.1.5.3.3 of the RI Report for a more detailed discussion). Therefore, the cumulative risks and hazard indices for these parameters can be disregarded.

The arsenic and iron EPCs calculated for Off Site groundwater were less than the Ohio EPA-approved background concentrations for the Upper Aquifer and the Main Aquifer (see Section 6.1.5.3.3 of the RI Report for a more detailed discussion). Therefore, the cumulative risks and hazard indices for these parameters can be disregarded.

TABLE 2.1

SITE-RELATED RECEPTOR AND PATHWAY RISKS AND HAZARDS EXCEEDANCES
NORTH SANITARY LANDFILL
DAYTON, OHIO

		Former TCE and PCE Toxicity Data [1]							*Provisional TCE and PCE Toxicity Data* [1]							
Exposure Area	*Receptor*	*Cumulative Carcinogenic Risk* [2]	*Cumulative Non-Carcinogenic Hazard Index* [3]	*Medium*	*Major Contributing Chemical*	*Risk/ Hazard Quotient* [5]		*Major Contributing Pathway(s)*	*Cumulative Carcinogenic Risk* [2]	*Cumulative Non-Carcinogenic Hazard Index* [3]	*Medium*	*Major Contributing Chemical*	*Risk/ Hazard Quotient* [5]		*Major Contributing Pathway(s)*	*Comments*
Off Property Buried Waste Area	Resident (Current)	3.2E-03	2.5E+02	Eastern Two Thirds Landfill Gas (to ambient air)	Trichloroethene	7.7E-04	R	Inhalation (7.7E-04)	5.4E-02	2.5E+02	Eastern Two Thirds Landfill Gas (to ambient air)	Trichloroethene	5.1E-02	R	Inhalation (5.1E-02)	
					Vinyl chloride	2.10E-03	R	Inhalation (2.1E-03)				Vinyl chloride	2.10E-03	R	Inhalation (2.1E-03)	
				Eastern Two Thirds Surface Waste	Trichloroethene	NE					Eastern Two Thirds Surface Waste	Trichloroethene	2.5E-05	R	Ingestion (2.5E-05)	
					Vinyl chloride	1.1E-04	R	Ingestion (1.1E-04)				Vinyl chloride	1.1E-04	R	Ingestion (1.1E-04)	
					Benzo(a)pyrene	3.1E-05	R	Ingestion (2.2E-05)				Benzo(a)pyrene	3.1E-05	R	Ingestion (2.2E-05)	
					bis(2-Ethylhexyl)phthalate	2.2E-05	R	Ingestion (1.6E-05)				bis(2-Ethylhexyl)phthalate	2.2E-05	R	Ingestion (1.6E-05)	
					Arsenic	2.0E-05	R	Ingestion (1.7E-05)				Arsenic	2.0E-05	R	Ingestion (1.7E-05)	
					Aroclor-1254 (PCB-1254)	9.3E-05	R	Ingestion (6.4E-05), Dermal (2.8E-05)				Aroclor-1254 (PCB-1254)	9.3E-05	R	Ingestion (6.4E-05), Dermal (2.8E-05)	
				Eastern Two Thirds Surface Soil	Benzo(a)pyrene	6.5E-06	R	Ingestion (4.6E-06), Dermal (1.9E-06)			Eastern Two Thirds Surface Soil	Benzo(a)pyrene	6.5E-06	R	Ingestion (4.6E-06), Dermal (1.9E-06)	
					bis(2-Ethylhexyl)phthalate	1.3E-06	R	Ingestion (9.6E-07), Dermal (3.0E-07)				bis(2-Ethylhexyl)phthalate	1.3E-06	R	Ingestion (9.6E-07), Dermal (3.0E-07)	
					Aroclor-1248 (PCB-1248)	1.6E-06	R	Ingestion (1.1E-06), Dermal (4.9E-07)				Aroclor-1248 (PCB-1248)	1.6E-06	R	Ingestion (1.1E-06), Dermal (4.9E-07)	
					Aroclor-1254 (PCB-1254)	1.9E-06	R	Ingestion (1.3E-06), Dermal (5.8E-07)				Aroclor-1254 (PCB-1254)	1.9E-06	R	Ingestion (1.3E-06), Dermal (5.8E-07)	
					Total	3.2E-03						Total	5.4E-02			
				Eastern Two Thirds Landfill Gas (to ambient air)	cis-1,2-Dichloroethene	1.6E+02	H	Inhalation (1.6E+02)			Eastern Two Thirds Landfill Gas (to ambient air)	cis-1,2-Dichloroethene	1.6E+02	H	Inhalation (1.6E+02)	
					Trichloroethene	5.9E+01	H	Inhalation (5.9E+01)				Trichloroethene	5.9E+01	H	Inhalation (5.9E+01)	
					Vinyl chloride	1.1E+01	H	Inhalation (1.1E+01)				Vinyl chloride	1.1E+01	H	Inhalation (1.1E+01)	
				Eastern Two Thirds Surface Waste	Trichloroethene	1.7E+00	H	Ingestion (1.5E+00)			Eastern Two Thirds Surface Waste	Trichloroethene	1.7E+00	H	Ingestion (1.5E+00)	
					Aroclor-1254 (PCB-1254)	1.8E+01	H	Ingestion (1.3E+01), Dermal (5.1E+00)				Aroclor-1254 (PCB-1254)	1.8E+01	H	Ingestion (1.3E+01), Dermal (5.1E+00)	
					Total	2.5E+02						Total	2.5E+02			
Off Property Buried Waste Area	Resident (Future)	3.5E-03	2.6E+02	Eastern Two Thirds Landfill Gas (to ambient air)	Trichloroethene	7.7E-04	R	Inhalation (7.7E-04)	5.4E-02	2.6E+02	Eastern Two Thirds Landfill Gas (to ambient air)	Trichloroethene	5.1E-02	R	Inhalation (5.1E-02)	
					Vinyl chloride	2.10E-03	R	Inhalation (2.1E-03)				Vinyl chloride	2.10E-03	R	Inhalation (2.1E-03)	
				Eastern Two Thirds Surface Waste	Trichloroethene	NE					Eastern Two Thirds Surface Waste	Trichloroethene	2.5E-05	R	Ingestion (2.5E-05)	
					Vinyl chloride	1.1E-04	R	Ingestion (1.1E-04)				Vinyl chloride	1.1E-04	R	Ingestion (1.1E-04)	
					Benzo(a)pyrene	3.1E-05	R	Ingestion (2.2E-05)				Benzo(a)pyrene	3.1E-05	R	Ingestion (2.2E-05)	
					bis(2-Ethylhexyl)phthalate	2.2E-05	R	Ingestion (1.6E-05)				bis(2-Ethylhexyl)phthalate	2.2E-05	R	Ingestion (1.6E-05)	
					Arsenic	2.0E-05	R	Ingestion (1.7E-05)				Arsenic	2.0E-05	R	Ingestion (1.7E-05)	
					Aroclor-1254 (PCB-1254)	9.3E-05	R	Ingestion (6.4E-05), Dermal (2.8E-05)				Aroclor-1254 (PCB-1254)	9.3E-05	R	Ingestion (6.4E-05), Dermal (2.8E-05)	
				Eastern Two Thirds Surface Soil	Benzo(a)pyrene	6.5E-06	R	Ingestion (4.6E-06), Dermal (1.9E-06)			Eastern Two Thirds Surface Soil	Benzo(a)pyrene	6.5E-06	R	Ingestion (4.6E-06), Dermal (1.9E-06)	
					bis(2-Ethylhexyl)phthalate	1.3E-06	R	Ingestion (9.6E-07), Dermal (3.0E-07)				bis(2-Ethylhexyl)phthalate	1.3E-06	R	Ingestion (9.6E-07), Dermal (3.0E-07)	
					Aroclor-1248 (PCB-1248)	1.6E-06	R	Ingestion (1.1E-06), Dermal (4.9E-07)				Aroclor-1248 (PCB-1248)	1.6E-06	R	Ingestion (1.1E-06), Dermal (4.9E-07)	
					Aroclor-1254 (PCB-1254)	1.9E-06	R	Ingestion (1.3E-06), Dermal (5.8E-07)				Aroclor-1254 (PCB-1254)	1.9E-06	R	Ingestion (1.3E-06), Dermal (5.8E-07)	
				Groundwater (Household Use)	1,4-Dichlorobenzene	1.6E-05	R	Ingestion (3.0E-06), Inhalation (1.1E-05)			Groundwater (Household Use)	1,4-Dichlorobenzene	1.6E-05	R	Ingestion (3.0E-06), Inhalation (1.1E-05)	
					Benzene	1.1E-05	R	Ingestion (3.4E-06), Inhalation (6.6E-06)				Benzene	1.1E-05	R	Ingestion (3.4E-06), Inhalation (6.6E-06)	
					Tetrachloroethene	NE						Tetrachloroethene	1.5E-05	R	Ingestion (8.8E-06), Dermal (5.1E-06)	
					Trichloroethene	NE						Trichloroethene	1.3E-04	R	Ingestion (2.5E-05), Inhalation (9.8E-05)	
					Vinyl chloride	1.0E-04	R	Ingestion (8.8E-05), Inhalation (7.6E-06)				Vinyl chloride	1.0E-04	R	Ingestion (8.8E-05), Inhalation (7.6E-06)	
					Arsenic	1.6E-04	R	Ingestion (1.6E-04)				Arsenic	1.6E-04	R	Ingestion (1.6E-04)	
					Total	3.4E-03						Total	5.4E-02			

TABLE 2.1

SITE-RELATED RECEPTOR AND PATHWAY RISKS AND HAZARDS EXCEEDANCES
NORTH SANITARY LANDFILL
DAYTON, OHIO

Former TCE and PCE Toxicity Data (1)

Exposure Area	*Receptor*	*Cumulative Carcinogenic Risk* (2)	*Cumulative Non-Carcinogenic Hazard Index* (2)	*Medium*	*Major Contributing Chemical*	*Risk/ Hazard Quotient* (3)		*Major Contributing Pathway(s)*
				Eastern Two Thirds Landfill Gas	cis-1,2-Dichloroethene	1.6E+02	H	Inhalation (1.6E+02)
				(to ambient air)	Trichloroethene	5.9E+01	H	Inhalation (5.9E+01)
					Vinyl chloride	1.1E+01	H	Inhalation (1.1E+01)
				Eastern Two Thirds Surface Waste	Trichloroethene	1.7E+00	H	Ingestion (1.5E+00)
					Aroclor-1254 (PCB-1254)	1.8E+01	H	Ingestion (1.3E+01), Dermal (5.1E+00)
				Groundwater (Household Use)	Trichloroethene	NE		
					Arsenic	1.5E+00	H	Ingestion (1.5E+00)
					Iron	1.0E+00	H	Ingestion (1.0E+00)
					Thallium	4.8E+00	H	Ingestion (4.8E+00)
					Total	2.6E+02		

The arsenic and iron EPCs calculated for Off Property Buried Waste Area groundwater were less than the Ohio EPA-approved background concentrations for the Upper Aquifer and the Main Aquifer (see Section 6.1.5.3.3 of the RI Report for a more detailed discussion). Therefore, the cumulative risks and hazard indices for these parameters can be disregarded.

Provisional TCE and PCE Toxicity Data (1)

Cumulative Carcinogenic Risk (2)	*Cumulative Non-Carcinogenic Hazard Index* (2)	*Medium*	*Major Contributing Chemical*	*Risk/ Hazard Quotient* (3)		*Major Contributing Pathway(s)*	*Comments*
		Eastern Two Thirds Landfill Gas	cis-1,2-Dichloroethene	1.6E+02	H	Inhalation (1.6E+02)	
		(to ambient air)	Trichloroethene	5.9E+01	H	Inhalation (5.9E+01)	
			Vinyl chloride	1.1E+01	H	Inhalation (1.1E+01)	
		Eastern Two Thirds Surface Waste	Trichloroethene	1.7E+00	H	Ingestion (1.5E+00)	
			Aroclor-1254 (PCB-1254)	1.8E+01	H	Ingestion (1.3E+01), Dermal (5.1E+00)	
		Groundwater (Household Use)	Trichloroethene	1.0E+00	H	Ingestion (9.0E-01), Inhalation (1.0E-01)	
			Arsenic	1.5E+00	H	Ingestion (1.5E+00)	
			Iron	1.0E+00	H	Ingestion (1.0E+00)	
			Thallium	4.8E+00	H	Ingestion (4.8E+00)	
			Total	2.6E+02			

The arsenic and iron EPCs calculated for Off Property Buried Waste Area groundwater were less than the Ohio EPA-approved background concentrations for the Upper Aquifer and the Main Aquifer (see Section 6.1.5.3.3 of the RI Report for a more detailed discussion). Therefore, the cumulative risks and hazard indices for these parameters can be disregarded.

Notes:

Based on reasonable maximum exposure (RME).

NE - No exceedance.

R - Risk.

H - Hazard Index.

(1) The provisional TCE and PCE toxicity data are based on unsupported scientific evidence and therefore the former TCE and PCE toxicity data should be relied on for any conclusions.

(2) These totals are provided in the Section 9 tables of Appendices J, K, L, and M of the RI Report.

(3) The risks and hazard quotients are provided in the Section 10 tables of Appendices J, K, L, and M of the RI Report.

(4) Includes subsurface gas to indoor air but excludes measured indoor air.

(5) Includes measure indoor air but excludes subsurface gas to indoor air.

Table 4 Summary of MCLs and Range of Detected Concentrations in Perimeter and Off-Property Groundwater

TABLE 2.2

SUMMARY OF MCLs AND RANGE OF DETECTED CONCENTRATIONS IN PERIMETER AND OFF PROPERTY GROUNDWATER

NORTH SANITARY LANDFILL

DAYTON, OHIO

	Off Site Groundwater		
Parameter	*Min* [1] *- Max* [2] *(mg/L)*	*Criteria (mg/L)*	*MCL or Background*
Volatiles			
1,1,1-Trichloroethane	0.0004 J - 0.0013	0.2	MCL
1,1,2-Trichloroethane	ND	0.005	MCL
1,1-Dichloroethene	ND	0.007	MCL
1,2,4-Trichlorobenzene	ND	0.07	MCL
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0002	MCL
1,2-Dibromoethane (Ethylene Dibromide)	ND	0.00005	MCL
1,2-Dichlorobenzene	0.00021 J - 0.0022 J	0.6	MCL
1,2-Dichloroethane	0.00039 J - 0.0014	0.005	MCL
1,2-Dichloropropane	ND	0.005	MCL
1,4-Dichlorobenzene	0.00018 J - 0.0085 J	0.075	MCL
Benzene	0.00023 - 0.034	0.005	MCL
Bromodichloromethane	ND	0.08 [3]	MCL
Bromoform	ND	0.08 [3]	MCL
Carbon tetrachloride	ND	0.005	MCL
Chlorobenzene	0.00042 J - 0.026	0.1	MCL
Chloroform	0.00043 J - 0.0046	0.08 [3]	MCL
cis-1,2-Dichloroethene	0.00027 J 0.039	0.07	MCL
Dibromochloromethane	ND	0.08 [3]	MCL
Ethylbenzene	0.00031 - 0.00031	0.7	MCL
Methylene chloride	0.00045 J - 0.00074 J	0.005	MCL
Styrene	ND	0.1	MCL
Tetrachloroethene	0.00023 J - 0.0027	0.005	MCL
Toluene	0.00039 J - 0.0022	1	MCL
trans-1,2-Dichloroethene	0.00038 J - 0.0012	0.1	MCL
Trichloroethene	0.00023 J - 0.1	0.005	MCL
Vinyl chloride	0.0003 J - 0.052	0.002	MCL
Xylene (total)	0.001 - 0.002	10	MCL
Semi-Volatiles			
Atrazine	ND	0.003	MCL
Benzo(a)pyrene	ND	0.0002	MCL
bis(2-Ethylhexyl)phthalate	0.00072 - 0.0065 J	0.006	MCL
Hexachlorobenzene	ND	0.001	MCL
Hexachlorocyclopentadiene	ND	0.05	MCL
Pentachlorophenol	ND	0.001	MCL

TABLE 2.2

SUMMARY OF MCLs AND RANGE OF DETECTED CONCENTRATIONS IN PERIMETER AND OFF PROPERTY GROUNDWATER

NORTH SANITARY LANDFILL

DAYTON, OHIO

	Off Site Groundwater		
Parameter	*Min* [1] *- Max* [2] *(mg/L)*	*Criteria (mg/L)*	*MCL or Background*
Metals			
Antimony	0.0039 - 0.0039	0.006	MCL
Arsenic	0.0021 J - 0.075	0.0041(LNA)/ 0.026(UA)/ 0.011(MA)	Background
Barium	0.2 - 2.3	2.0	MCL
Beryllium	0.00063 - 0.00077	0.004	MCL
Cadmium	0.00028 - 0.00055	0.005	MCL
Chromium Total	0.016 - 0.026	0.1	MCL
Copper	ND	1.3	AL [4]
Cyanide (total)	0.013 - 0.091	0.2	MCL
Lead	0.0042 - 0.0042	0.015	AL [4]
Mercury	0.0002 - 0.0002	0.002	MCL
Selenium	ND	0.05	MCL
Thallium	0.0052 J - 0.014	0.002(LNA)/ 0.002 (UA)/ 0.0052(MA)	MCL/MCL/Background
PCBs			
Aroclor-1016 (PCB-1016)	ND	0.00005	MCL
Aroclor-1221 (PCB-1221)	ND	0.00005	MCL
Aroclor-1232 (PCB-1232)	ND	0.00005	MCL
Aroclor-1242 (PCB-1242)	ND	0.00005	MCL
Aroclor-1248 (PCB-1248)	ND	0.00005	MCL
Aroclor-1254 (PCB-1254)	ND	0.00005	MCL
Aroclor-1260 (PCB-1260)	ND	0.00005	MCL

TABLE 2.2

SUMMARY OF MCLs AND RANGE OF DETECTED CONCENTRATIONS IN PERIMETER AND OFF PROPERTY GROUNDWATER

NORTH SANITARY LANDFILL

DAYTON, OHIO

	Off Site Groundwater		
Parameter	*Min (1) - Max (2)* *(mg/L)*	*Criteria* *(mg/L)*	*MCL or Background*
Pesticides			
alpha-Chlordane	0.000052 J - 0.000052 J	0.002	MCL
Endrin	ND	0.002	MCL
Endrin aldehyde	ND	0.002	MCL
Endrin ketone	ND	0.002	MCL
gamma-BHC (Lindane)	ND	0.0002	MCL
gamma-Chlordane	ND	0.002	MCL
Heptachlor	0.00036 J - 0.00036 J	0.0004	MCL
Heptachlor epoxide	ND	0.0002	MCL
Methoxychlor	ND	0.04	MCL
Toxaphene	ND	0.003	MCL
Herbicides			
2,4,5-TP (Silvex)	ND	0.05	MCL
2,4-Dichlorophenoxyacetic acid (2,4-D)	ND	0.07	MCL
Pentachlorophenol	0.00014 - 0.00014	0.001	MCL
General Chemistry			
Nitrate	0.11 - 23.4	10	MCL
Nitrite	0.31 J - 0.31 J	1	MCL

Notes:

MCLs are shown for parameters included in the Contract Laboratory Program Target Compound and Target Analyte Lists (TCL/TAL).

Bolded parameter name indicates that the parameter was observed at a concentration exceeding the criterion at or beyond the Point of Compliance based on most recent data for each well.

ND Not Detected

LNA Local Northeast Aquifer

UA Upper Aquifer

MA Main Aquifer

J The associated value is qualified as an estimated quantity.

(1) Minimum detected concentration based on all data collected at each well.

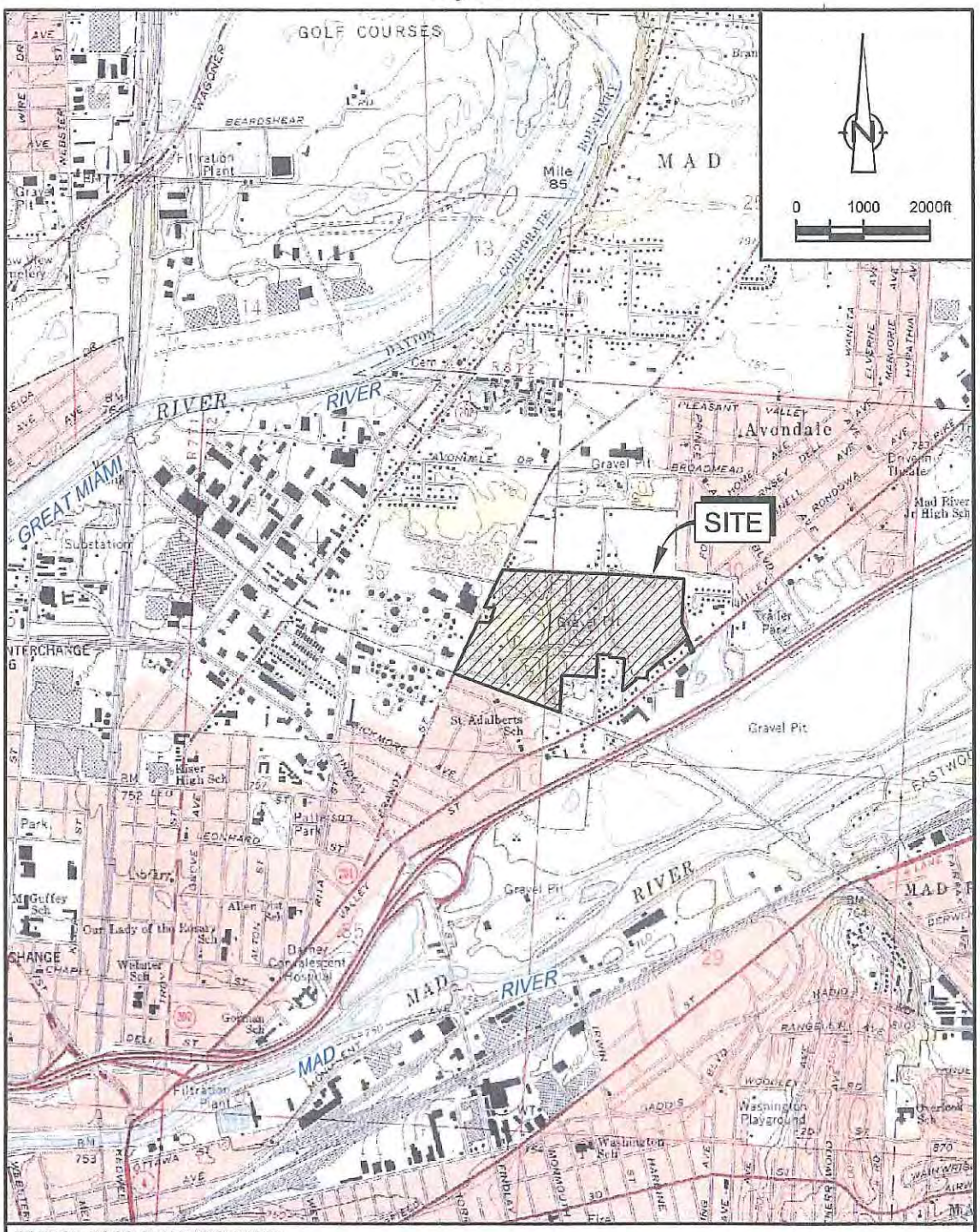
(2) Maximum detected concentration based on all data collected at each well.

(3) Final rule for Disinfectants and Disinfectants By-products: Total for trihalomethanes.

(4) Action Level

Figures

Figure 1.1



SOURCE: USGS QUADRANGLE MAP;
DAYTON NORTH, OHIO

figure 1.1

SITE LOCATION
NORTH SANITARY LANDFILL
Dayton, Ohio

16816-05(028)GN-WA001 AUG 24/2009

Figure 1.2

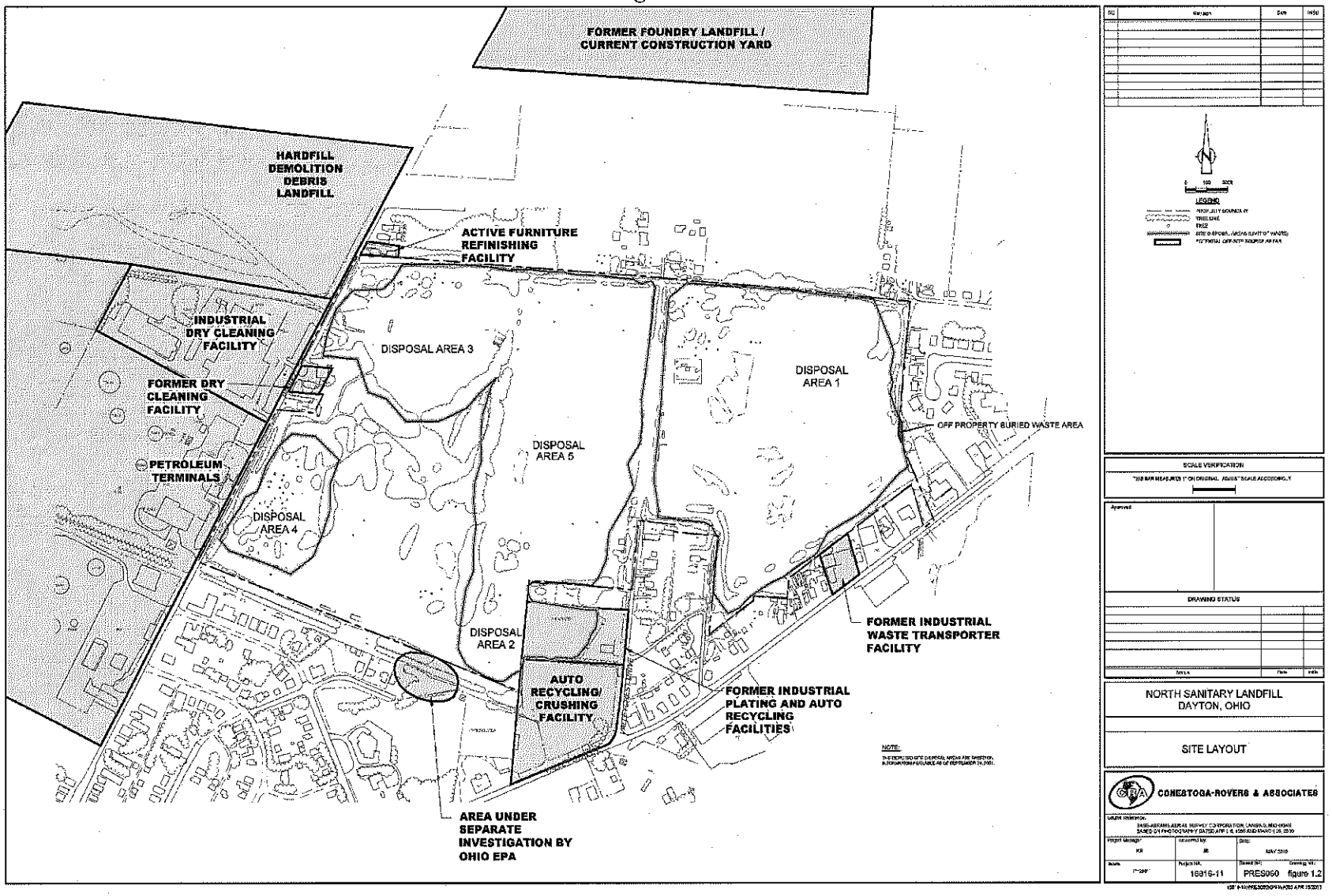

FORMER FOUNDRY LANDFILL / CURRENT CONSTRUCTION YARD
HARDFILL DEMOLITION DEBRIS LANDFILL
ACTIVE FURNITURE REFINISHING FACILITY
INDUSTRIAL DRY CLEANING FACILITY
FORMER DRY CLEANING FACILITY
PETROLEUM TERMINALS
DISPOSAL AREA 3
DISPOSAL AREA 1
DISPOSAL AREA 5
DISPOSAL AREA 4
DISPOSAL AREA 2
OFF PROPERTY BURIED WASTE AREA
FORMER INDUSTRIAL WASTE TRANSPORTER FACILITY
AUTO RECYCLING/ CRUSHING FACILITY
FORMER INDUSTRIAL PLATING AND AUTO RECYCLING FACILITIES
AREA UNDER SEPARATE INVESTIGATION BY OHIO EPA
NORTH SANITARY LANDFILL
DAYTON, OHIO
SITE LAYOUT
CONESTOGA-ROVERS & ASSOCIATES
16816-11
PRES060
figure 1.2

Figure 1.3

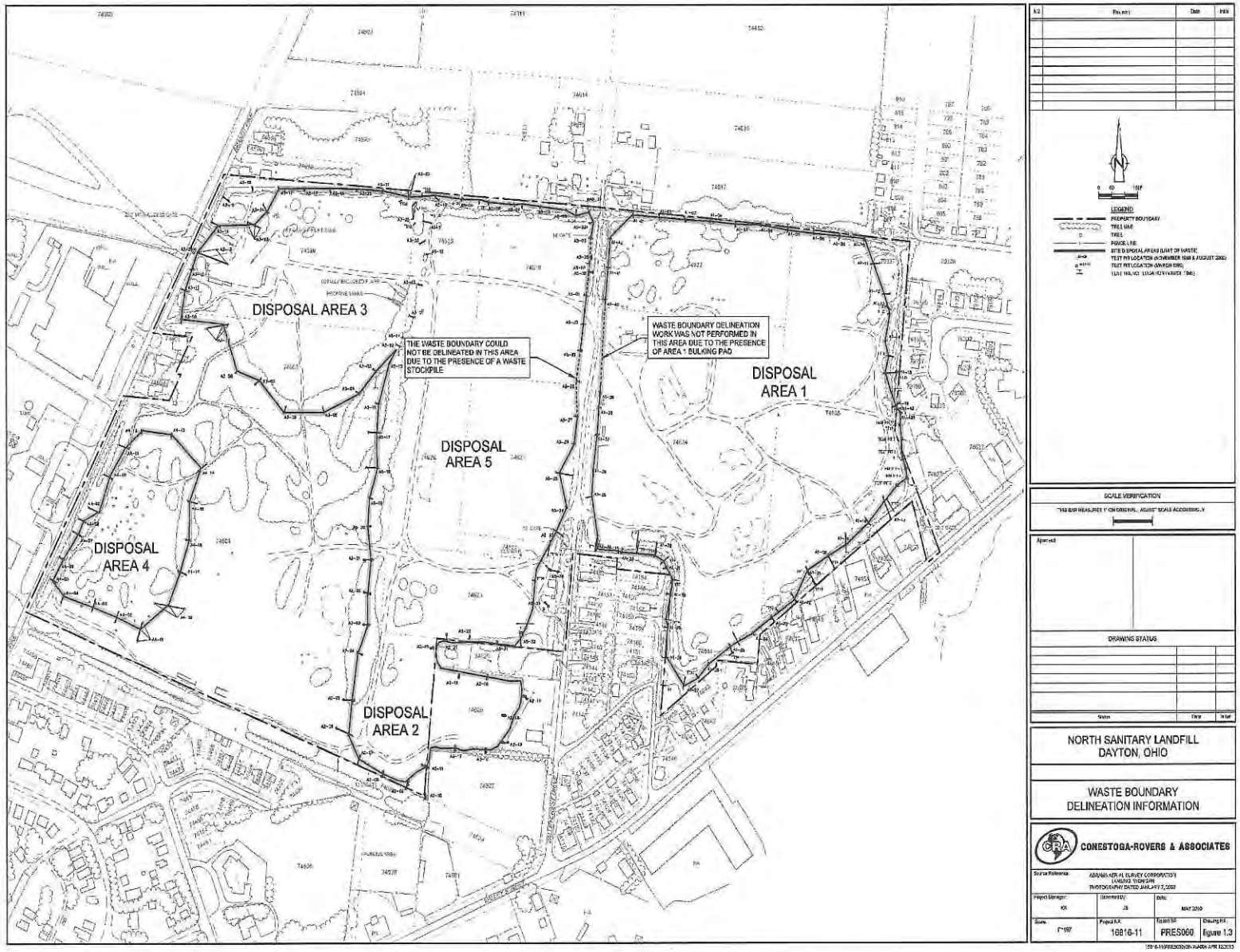
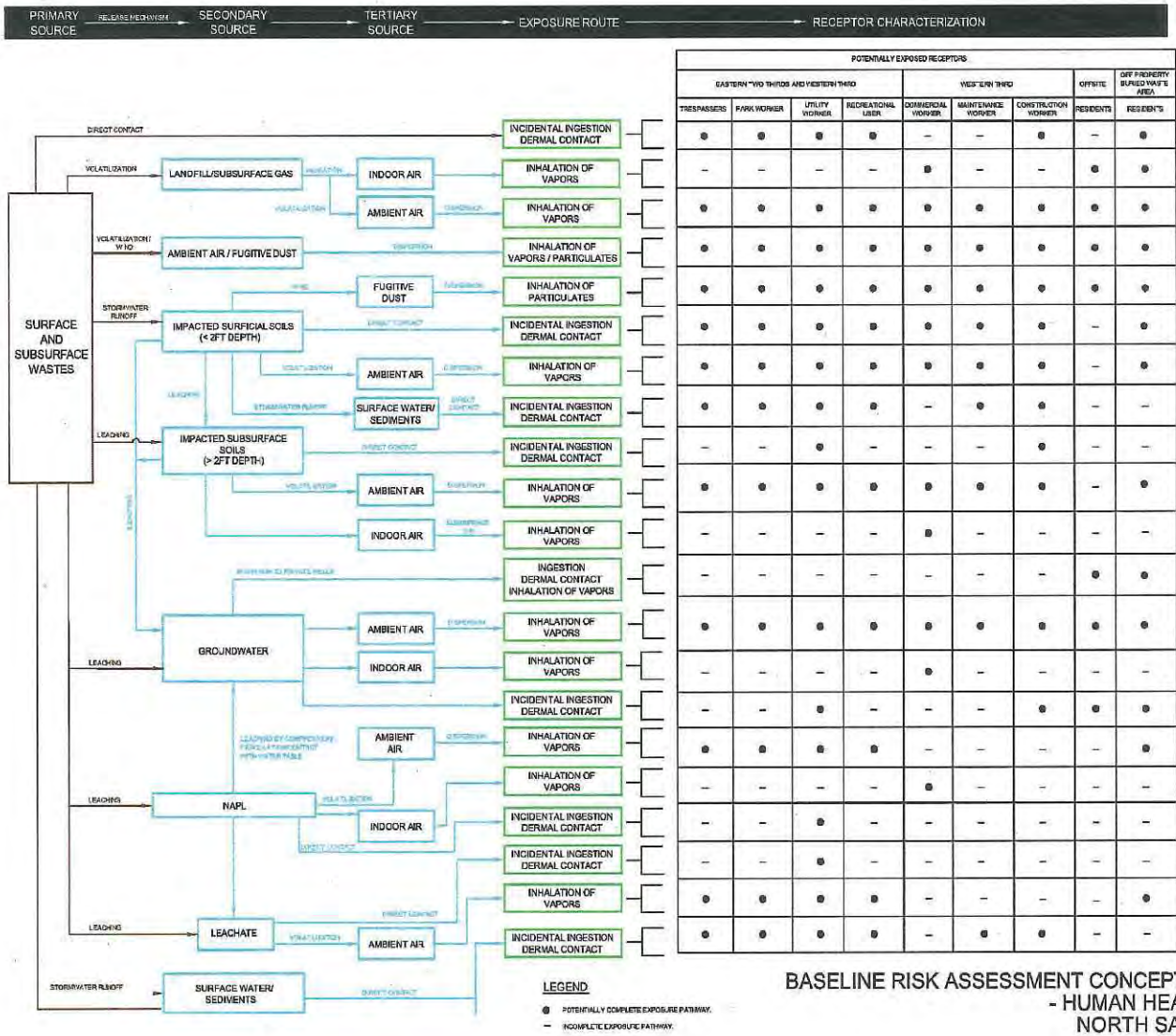

DISPOSAL AREA 3
THE WASTE BOUNDARY COULD NOT BE DELINEATED IN THIS AREA DUE TO THE PRESENCE OF A WASTE STOCKPILE
WASTE BOUNDARY DELINEATION WORK WAS NOT PERFORMED IN THIS AREA DUE TO THE PRESENCE OF AREA 1 BULKING PAD
DISPOSAL AREA 1
DISPOSAL AREA 5
DISPOSAL AREA 4
DISPOSAL AREA 2
LEGEND:
PROPERTY BOUNDARY
TREE LINE
TREE
FENCE LINE
SITE 6 DISPOSAL AREAS (LIMIT OF WASTE)
TEST PIT LOCATION (NOVEMBER 1998 & JULY 2002)
TEST PIT LOCATION (MARCH 1999)
TEST WELLS LOCATION (MARCH 1999)
SCALE VERIFICATION
Approved
DRAWING STATUS
NORTH SANITARY LANDFILL
DAYTON, OHIO
WASTE BOUNDARY
DELINEATION INFORMATION
CONESTOGA-ROVERS & ASSOCIATES
Source Reference: ABRAMS AERIAL SURVEY CORPORATION
14/08/02 1:1200 SPM
PHOTOGRAPHY DATED JANUARY 7, 2002
Project Manager: KR
Designed by: JB
Date: MAY 2010
Scale: 1"=160'
Project No.: 16816-11
Figure No.: PRES060
Drawing No.: Figure 1.3

Figure 2.9



POTENTIALLY EXPOSED RECEPTORS								
EASTERN TWO THIRDS AND WESTERN THIRD				WESTERN THIRD			OFFSITE	OFF PROPERTY BURIED WASTE AREA
TRESPASSERS	PARK WORKER	UTILITY WORKER	RECREATIONAL USER	COMMERCIAL WORKER	MAINTENANCE WORKER	CONSTRUCTION WORKER	RESIDENTS	RESIDENTS
●	●	●	●	–	–	●	–	●
–	–	–	–	●	–	–	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	–	●
●	●	●	●	●	●	●	–	●
●	●	●	●	–	●	●	–	–
–	–	●	–	–	–	●	–	–
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–	–	–	–	–	–	–	●	●
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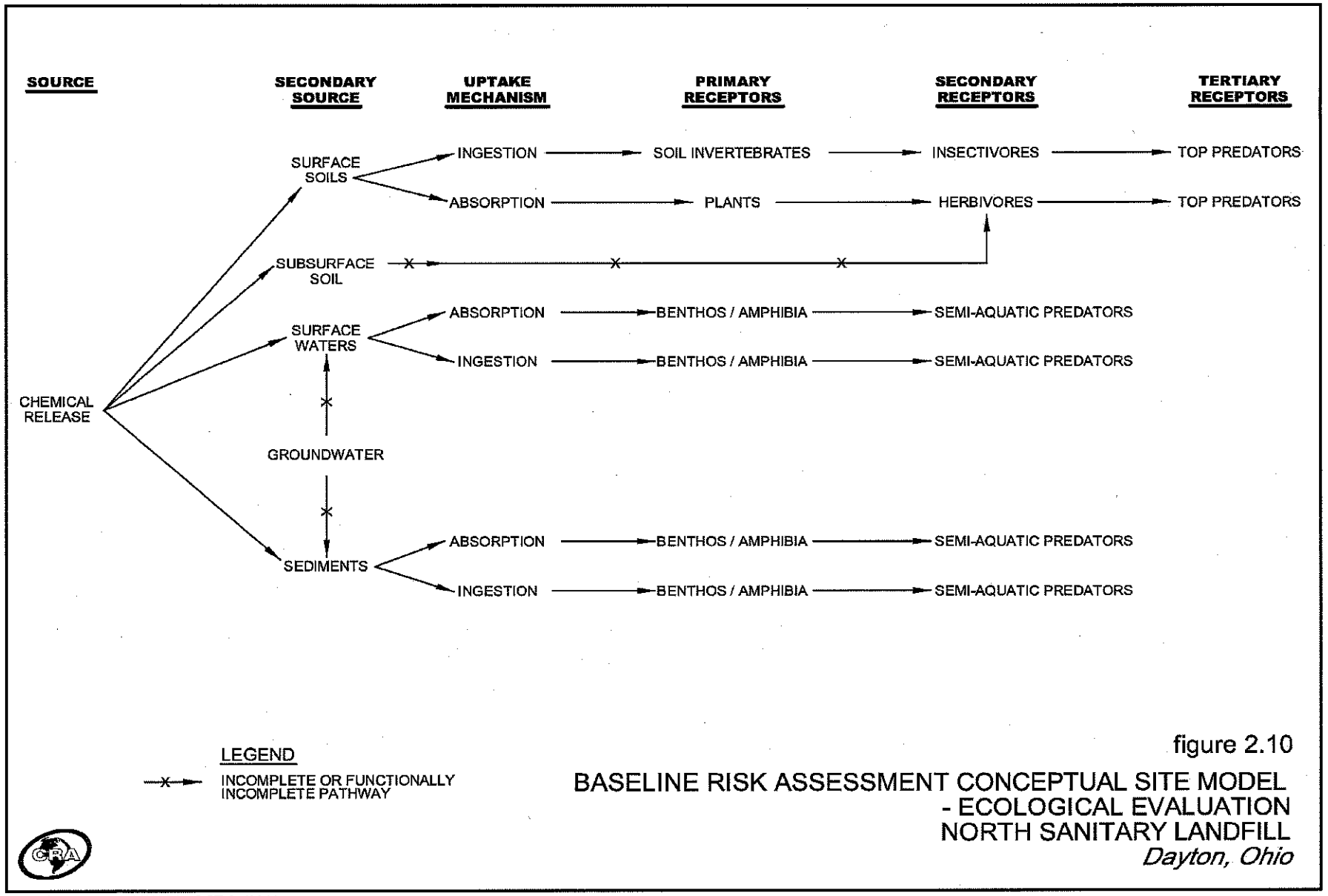
–	–	●	–	–	–	–	–	–
●	●	●	●	–	–	–	–	●
●	●	●	●	–	●	●	–	–

figure 2.9

BASELINE RISK ASSESSMENT CONCEPTUAL SITE MODEL
- HUMAN HEALTH EVALUATION
NORTH SANITARY LANDFILL
Dayton, Ohio

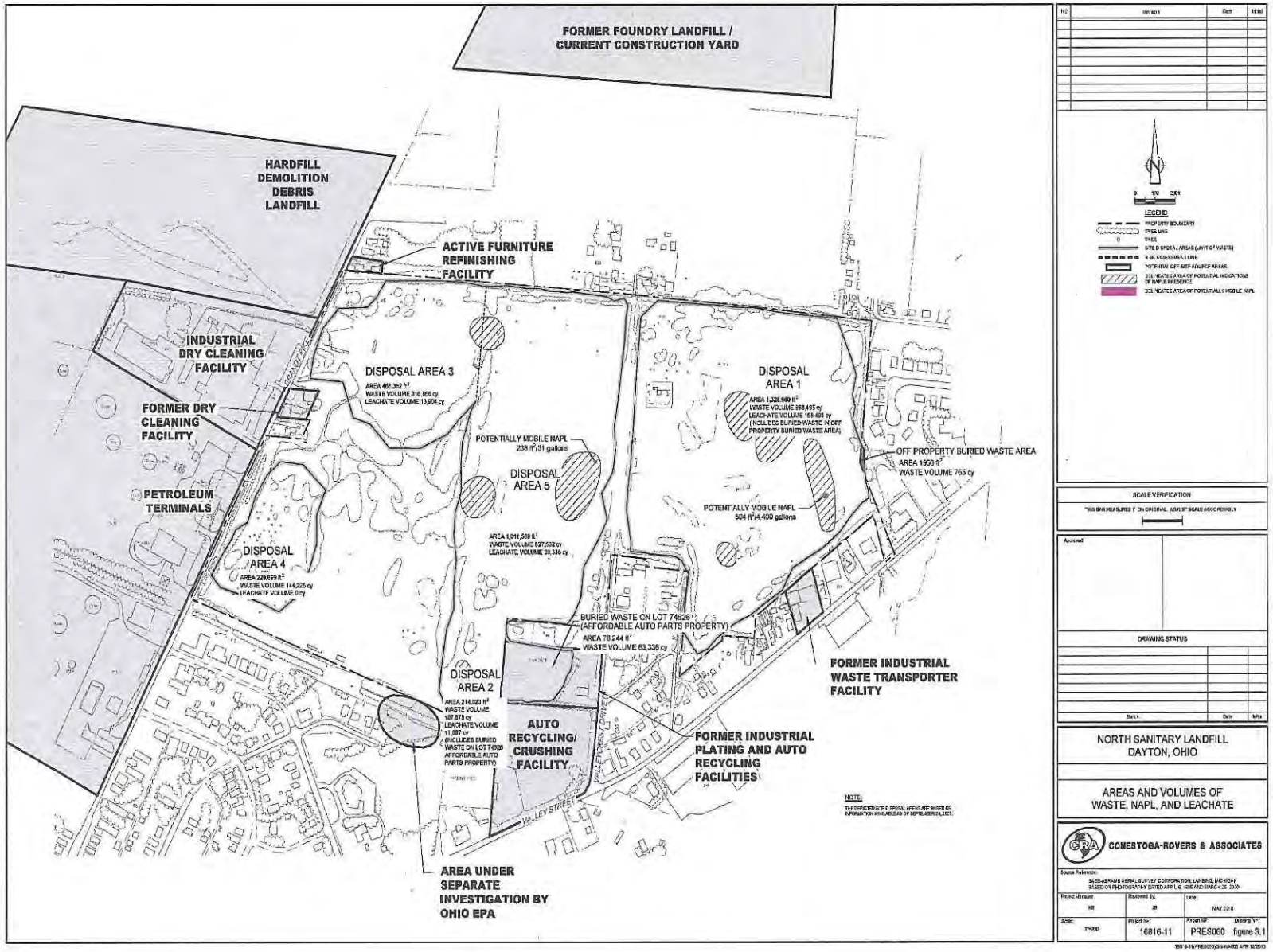
16816-05(028)GN-WA014 OCT 27/2010

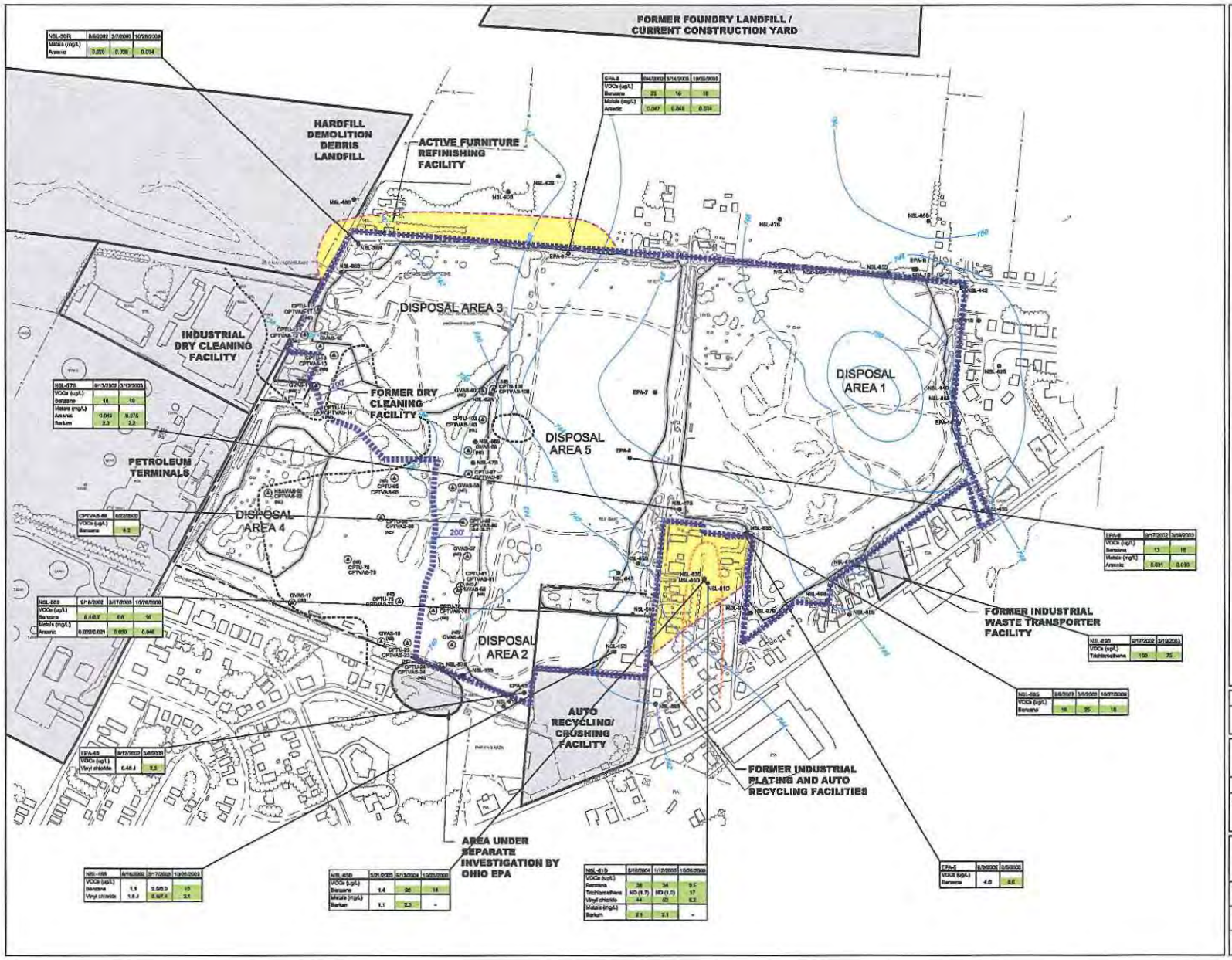
Figure 2.10



16816-05(028)GN-WA015 OCT 27/2010

Figure 3.1


FORMER FOUNDRY LANDFILL / CURRENT CONSTRUCTION YARD
HARDFILL DEMOLITION DEBRIS LANDFILL
ACTIVE FURNITURE REFINISHING FACILITY
INDUSTRIAL DRY CLEANING FACILITY
FORMER DRY CLEANING FACILITY
PETROLEUM TERMINALS
DISPOSAL AREA 3
DISPOSAL AREA 1
DISPOSAL AREA 5
DISPOSAL AREA 4
DISPOSAL AREA 2
POTENTIALLY MOBILE NAPL
OFF PROPERTY BURIED WASTE AREA
BURIED WASTE ON LOT 74526 (AFFORDABLE AUTO PARTS PROPERTY)
AUTO RECYCLING/ CRUSHING FACILITY
FORMER INDUSTRIAL WASTE TRANSPORTER FACILITY
FORMER INDUSTRIAL PLATING AND AUTO RECYCLING FACILITIES
AREA UNDER SEPARATE INVESTIGATION BY OHIO EPA
NORTH SANITARY LANDFILL
DAYTON, OHIO
AREAS AND VOLUMES OF WASTE, NAPL, AND LEACHATE
CONESTOGA-ROVERS & ASSOCIATES
16816-11
PRES060
figure 3.1



LEGEND

- PROPERTY BOUNDARY
- TREE LINE
- TREE
- FENCE LINE
- SITE DISPOSAL AREAS (LIMIT OF WASTE)
- POTENTIAL OFF-SITE SOURCE AREAS
- NSL-478 MONITORING WELL SCREENED WITHIN THE LOCAL NORTHEAST AQUIFER OR THE UPPER AQUIFER
- SELECTED PRELIMINARY INVESTIGATION UPPER AQUIFER VERTICAL AQUIFER SAMPLING LOCATION IN WESTERN PORTION OF SITE
- GROUNDWATER ELEVATION CONTOUR (FEBRUARY 2006)
- APPROXIMATE LIMIT OF TILL-RICH ZONE
- APPROXIMATE LIMIT OF TILL-RICH ZONE EXISTING AT DEEPER DEPTH
- PROPOSED GROUNDWATER POINT OF COMPLIANCE
- EXTENT OF MCL/BACKGROUND EXCEEDENCE BEYOND PROPOSED GROUNDWATER POINT OF COMPLIANCE
- SAMPLE LOCATION
- SAMPLE DATE
- RESULT
- PARAMETER
- EXCEEDANCE OF MCL/BACKGROUND
- NR 1 NOT DETECTED AT ASSOCIATED QUANTITATION LIMIT.
- J ESTIMATED VALUE.
- NC NO EXCEEDANCES OF PI DELINEATION CRITERIA.
- NS SAMPLE COULD NOT BE COLLECTED BECAUSE LIQUID WAS NOT PRESENT IN THE BORING.

Chemical	Criteria	Criteria Source
VOCs (ug/L)		
Benzene	5	MCL
Trichloroethene	5	MCL
Vinyl chloride	2	MCL
Metals (mg/L)		
Arsenic	0.025	Background UA
Barium	2	MCL

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

NORTH SANITARY LANDFILL
DAYTON, OHIO

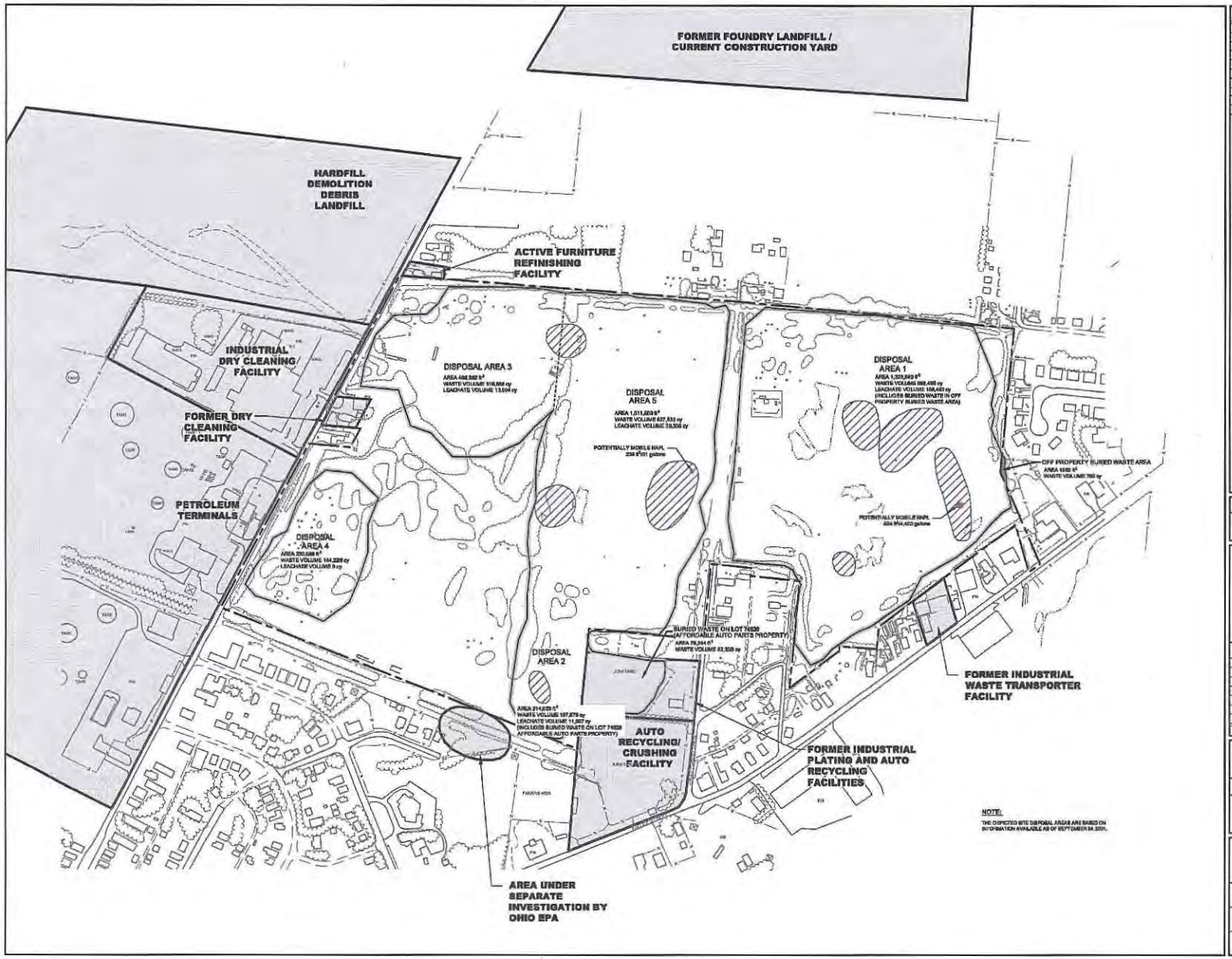
COMPARISON TO GROUNDWATER COMPLIANCE CRITERIA IN THE LOCAL NORTHEAST AQUIFER AND THE UPPER AQUIFER

CONESTOGA-ROVERS & ASSOCIATES

Source Reference: ABRAMS AERIAL SURVEY CORPORATION LANSING, MICHIGAN PHOTOGRAPHY DATED JANUARY 7, 2006

Project Manager:	Reviewed By:	Date:
SKR	JB	MAY 2010
Scale: 1"=600'	Project N°: 16816-05	Report N°: 028	Drawing N°: figure 3.2

16816-05(028)GH-WA028 MAY 13/2010



No	Revision	Date	Initial

0 100 200ft

LEGEND

- PROPERTY BOUNDARY
- TREE LINE
- TREE
- SITE DISPOSAL AREAS (LIMIT OF WASTE)
- RISK ASSESSMENT LINE
- POTENTIAL OFF-SITE SOURCE AREAS
- DELINEATED AREA OF POTENTIAL INDICATIONS OF NAPLE PRESENCE
- DELINEATED AREA OF POTENTIALLY MOBILE NAPL

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

NORTH SANITARY LANDFILL
DAYTON, OHIO

AREAS AND VOLUMES OF WASTE, NAPL, AND LEACHATE

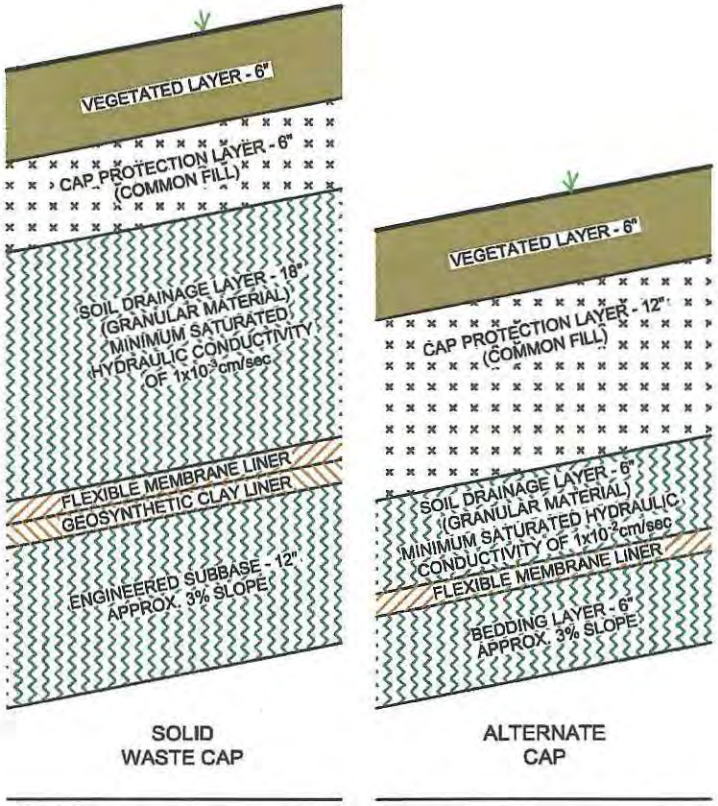
CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE: ABRAMS AERIAL SURVEY CORPORATION, LANSING, MICHIGAN
BASED ON PHOTOGRAPHY DATED APRIL 6, 1992 AND MARCH 30, 2009

Project Manager:	Reviewed By:	Date:
MR	JS	MAY 2010

Scale:	Project No:	Report No:	Drawing No:
1"=200'	16818-05	028	figure 3.1

16818-05(028)GN-WA016 MAY 13/2010



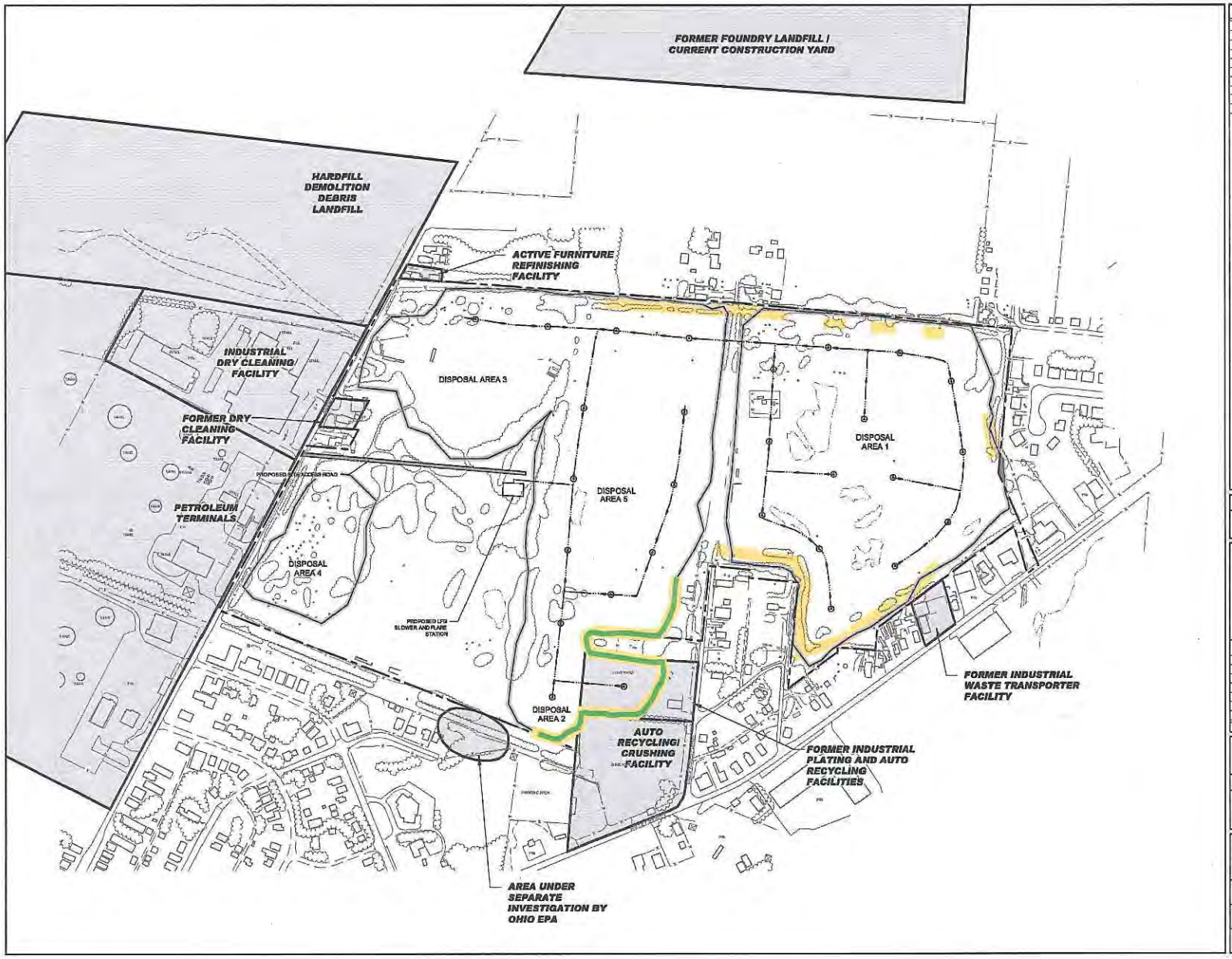
NOTES:

1. FLEXIBLE MEMBRANE LINER (FML) MUST BE A MINIMUM 40-mil HDPE. A LINER CUSHION LAYER SHALL BE PLACED ABOVE THE FML TO PROTECT AGAINST DAMAGE FROM CONSTRUCTION MATERIALS AND ACTIVITIES.
2. THE GEOSYNTHETIC CLAY LINER MUST "BE NEGLIGIBLY PERMEABLE TO FLUID MIGRATION" (OAC 3745-27-08(D)(9)(a).
3. THE SOIL DRAINAGE LAYER MUST HAVE A MINIMUM PERMEABILITY OF $1X10^{-3}$ cm/second.

figure 4.2

CAP DESIGN OPTIONS
NORTH SANITARY LANDFILL
Dayton, Ohio

16816-05(028)GN-WA019 MAR 16/2011



No	Revision	Date	Initial

0 100 200ft

LEGEND

- PROPERTY BOUNDARY
- TREE LINE
- TREE
- FENCE LINE
- SITE DISPOSAL AREAS (LIMIT OF WASTE)
- EXISTING LANDFILL GAS PHYSICAL BARRIER
- POTENTIAL OFF-SITE SOURCE AREAS
- EXTENT OF EXISTING LGAS SYSTEM
- PROPOSED LFG OR LEACHATE/LFG WELL[1]
- PROPOSED LEACHATE FORCEMAIN AND LFG HEADER, AND DIRECTION OF FLOW

NOTE:
1. THE LFG SYSTEM FOR THE 2-SERIES ALTERNATIVES WILL CONSIST OF LFG EXTRACTION WELLS, AND THE LFG SYSTEM FOR THE 3-SERIES ALTERNATIVES WILL CONSIST OF DUAL-PHASE (LEACHATE/LFG) EXTRACTION WELLS.

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

NORTH SANITARY LANDFILL
DAYTON, OHIO

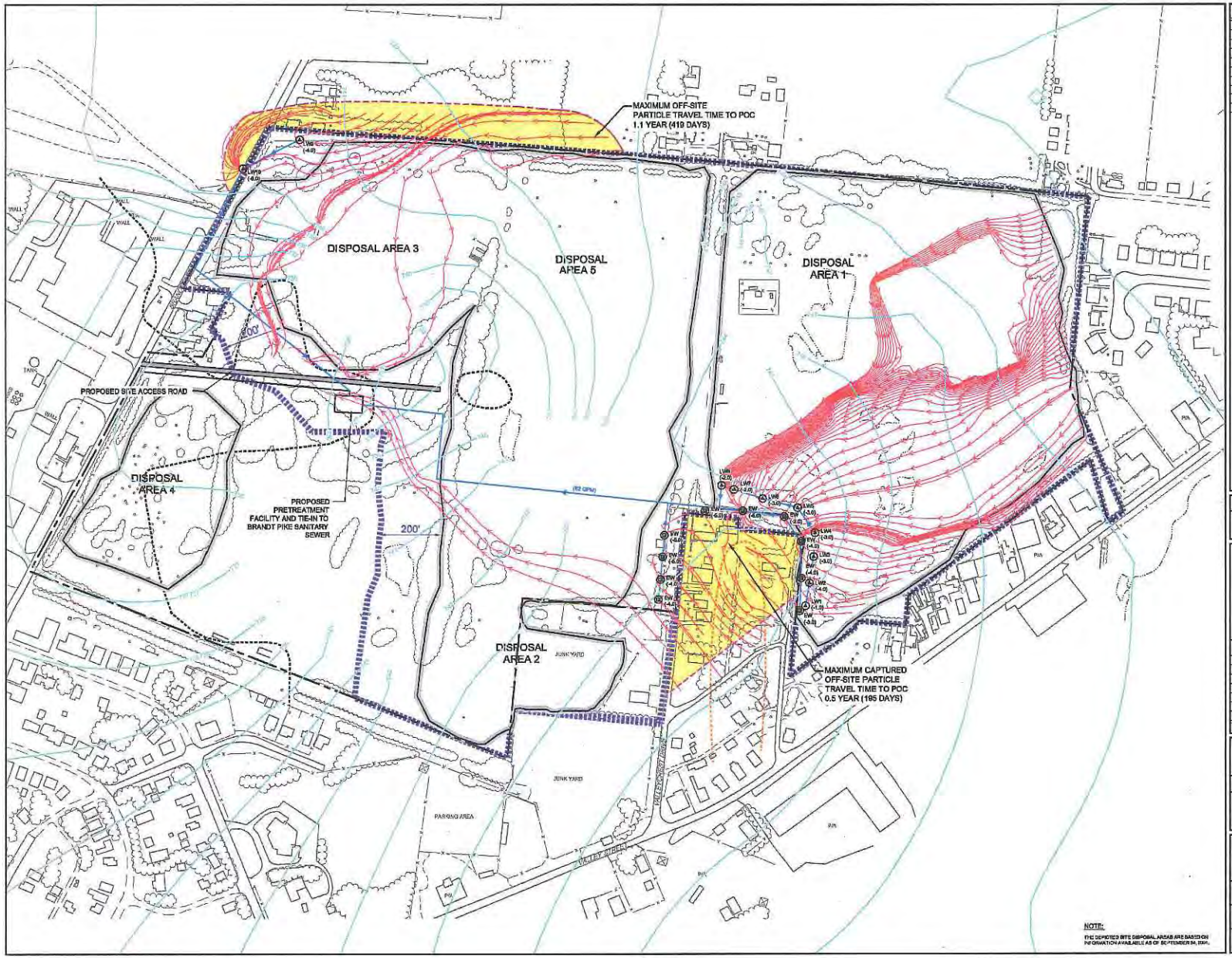
PROPOSED LANDFILL GAS COLLECTION SYSTEM CONCEPT

CONESTOGA-ROVERS & ASSOCIATES

Source Reference: ABRAMS AERIAL SURVEY CORPORATION LANSING, MICHIGAN PHOTOGRAPHY DATED JANUARY 7, 2008

Project Manager	Reviewed By	Date
IKR	JB	MARCH 2011
Scale: 1"=200'	Project No: 16816-05	Report No: 028
		Drawing No: figure 4.4

16816-05D28(GH-WA)27 MAR 17/2011



NO	Revision	Date	Initial

0 80 160ft

LEGEND

- PROPERTY BOUNDARY
- TREE LINE
- TREE
- SITE DISPOSAL AREAS (LIMIT OF WASTE)
- PROPOSED LEACHATE EXTRACTION WELL AND MODELED PUMPING RATE (GPM)
- PROPOSED GROUNDWATER EXTRACTION WELL AND MODELED PUMPING RATE (GPM)
- PROPOSED LEACHATE/GROUNDWATER FORCEMAIN AND DIRECTION OF FLOW
- SIMULATED LEACHATE/GROUNDWATER POTENTIOMETRIC CONTOUR
- SIMULATED LEACHATE/GROUNDWATER FLOW PATH
- APPROXIMATE LIMIT OF TILL-RICH ZONE
- APPROXIMATE LIMIT OF TILL-RICH ZONE EXISTING AT DEEPER DEPTH
- PROPOSED GROUNDWATER POINT OF COMPLIANCE (POC)
- EXTENT OF MCL/BACKGROUND EXCEEDANCE BEYOND PROPOSED GROUNDWATER POINT OF COMPLIANCE

MODELED EXTRACTION (GALLONS PER MINUTE)
LEACHATE - INTERIOR: 0
LEACHATE - PERIMETER: 31
GROUNDWATER: 41

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

NORTH SANITARY LANDFILL
DAYTON, OHIO

PROPOSED LEACHATE AND GROUNDWATER EXTRACTION SYSTEM CONCEPT - ALTERNATIVE 2b

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASIS-ABRAMS AERIAL SURVEY CORPORATION, LANSING, MICHIGAN
BASED ON PHOTOGRAPHY DATED APRIL 8, 1998 AND MARCH 30, 2000

Project Manager:	Reviewed By:	Date:	
BKR	JB	MARCH 2016	
Scale: 1"=187	Project N#: 16816-05	Report N#: 028	Drawing N#: figure 4.5

16816-05(028)GN-WA258 MAR 17/2016

Attachment A – TSCA 40 C.F.R. Section 761.61(c) Determination

PCB-contaminated waste at the Valleycrest site meets the definition of a PCB remediation waste under 40 C.F.R. Section 761.3 and is regulated for cleanup and disposal under 40 C.F.R. Part 761.

Under the Toxic Substances Control Act (TSCA) and 40 C.F.R. Section 761.61 (c), PCB remediation waste may be disposed of in a manner and at levels other than prescribed under sections 761.61 (a) and (b), provided that EPA determines that this alternative disposal does not result in an unreasonable risk of injury to human health or the environment.

The remedy described in the Record of Decision (ROD) for Valleycrest provides for the following containment and treatment system for the on-site disposal of PCB remediation waste:

1) A multi-layer cap system consistent with the design standards for a TSCA chemical waste landfill cap that achieves over 99% reduction in infiltration
2) A perimeter leachate collection and treatment system to contain and control any future groundwater contamination at the point of compliance
3) On-site management of stormwater by retention/infiltration in the existing borrow area
4) Institutional controls, including restrictive covenants to restrict site use and prevent interference with the remedy

The selected remedy, Alternative 2A, solid waste cap with leachate collection and off-site treatment, will prevent exposure to PCB waste materials. The leachate collection system, when combined with the ARAR-compliant Subtitle D cap, is equivalent to a TSCA cap because the difference in infiltration is not significant, the impacted leachate will be extracted, and the groundwater will be monitored.

Based on the information provided in the ROD, containing the PCB remediation waste in place will not pose an unreasonable risk of injury to human health and the environment, as long as the remedy is properly designed, constructed, and maintained over the long term.

Authorizing Signature

for Richard C. Karl, Director
Superfund Division

Date 8/16/2013

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U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

ADMINISTRATIVE RECORD
FOR
NORTH SANITARY LANDFILL SITE
(VALLEYCREST LANDFILL SITE)

DAYTON, MONTGOMERY COUNTY, OHIO

ORIGINAL
APRIL 9, 1998

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	10/31/91	Ecology and Environment, Inc.	U.S. EPA	*Expanded Site Inspection/Groundwater Pathway Assessment* for the North Sanitary Landfill Site	119
2	10/01/92	Ohio EPA	U.S. EPA	*FY'93 Superfund Cooperative Agreement* re: the North Sanitary Landfill Site	14
3	04/16/93	U.S. EPA/ OERR	U.S. EPA	*HRS Documentation Record Package* for the North Sanitary Landfill Site	53
4	01/31/95	Ohio EPA	Respondents	*Director's Final Findings & Orders* re: the North Sanitary Landfill Site	27
5	05/03/95	Ohio Department of Health and U.S. Public Health Service/ ATSDR	File	*Preliminary Public Health Assessment* for the North Sanitary Landfill Site	44
6	01/14/98	Clouse, K., Ohio EPA	El-Zein, J., U.S. EPA	Letter re: OEPA's Request for U.S. EPA Assistance at the Valleycrest Landfill Site (aka: North Sanitary Landfill) w/Attached Time-Critical Removal Action Referral Package	41
7	01/22/98	Hurdley, J., Ohio EPA	Stamp, V.; Dinsmore & Stohl	Letter re: OEPA's Position Concerning Issues at the North Sanitary Landfill Site	1

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
8	02/18/98	Kollar, K., Ohio EPA	Renninger, S., U.S. EPA	Letter re: Remedial Investigation/Removal Action Consistency at the North Sanitary Landfill Site	1
9	04/02/98	Kollar, K., Ohio EPA	Renninger, S., U.S. EPA	Letter re: Contaminated Grounwater at the Valleycrest Landfill Site	1
10	04/23/98	Renninger, S., U.S. EPA	Karl, R., U.S. EPA	*Action Memorandum*: Request for an Exemption from the $2 Million Limit for a Time-Critical Removal Action at the North Sanitary Landfill Site (PORTION OF THIS DOCUMENT HAVE BEEN REDACTED)	27

UPDATE #1
JANUARY 18, 1999

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	09/14/98	Renninger, S. U.S. EPA	Distribution List	POLREP #1 (Initial) for the Valleycrest (North Sanitary) Landfill Site	5

NOTE: THE POLLUTION REPORTS (POLREPS) WERE MISNUMBERED
POLREP #2 DOES NOT EXIST
THE POLREPS ARE NUMBERED #1, #3 AND #4

2	11/10/98	Renninger, S. U.S. EPA	Distribution List	POLREP #3 for the Valleycrest (North Sanitary) Landfill Site	5
3	12/14/98	Renninger, S. U.S. EPA	Distribution List	POLREP #4 for the Valleycrest (North Sanitary) Landfill Site	5

UPDATE #2
MARCH 19, 1999

1	03/29/99	Renninger, S., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Request for a Change of Project Scope at the North Sanitary Landfill Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED)	32

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U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

ADMINISTRATIVE RECORD
FOR
NORTH SANITARY LANDFILL
(aka *Valleycrest Landfill*)
DAYTON, MONTGOMERY COUNTY, OHIO

UPDATE #3
FEBRUARY 3, 2000

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	05/07/98	Kollar, K., Ohio EPA	Renninger, S., U.S. EPA	Letter Transmitting Ohio Administrative Code Listing Report of the Applicable or Relevant and Appropriate Requirements (ARARs) for the Valleycrest Landfill Site	18
2	07/27/98	Woodruff, K., Roy F. Weston, Inc.	Powell, G., U.S. EPA	Final Report: Geophysical Investigations at the Valleycrest Landfill Site	28
3	09/10/98	U.S. EPA	File	Administrativew Order by Consent re: the North Sanitary Landfill (a.k.a. Valleycrest Landfill) Site	34
4	10/16/98	Renninger, S., U.S. EPA	Dane, R., de maximis, inc. and J. Hayward, Conestoga-Rovers &	Fax Transmittal re: Removal Action Work Plan for Suspected Buried Container Areas for the Valleycrest Landfill Site	5
5	12/30/98	Renninger, S., U.S. EPA	Distribution List	POLREP #5 for the Valley-crest North Sanitary Land-fill Site	4
6	01/26/99	Renninger, S., U.S. EPA	Distribution List	POLREP #6 for the Valley-crest North Sanitary Land-fill Site	4
7	03/05/99	Renninger, S., U.S. EPA	Distribution List	POLREP #7 for the Valley-crest North Sanitary Land-fill Site	5
8	03/29/99	Kollar, K., Ohio EPA	Renninger, S., U.S. EPA	Letter re: Waste Pile/ Air Emission ARARs for the Valleycrest Landfill Site	3

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
9	04/06/99	Renninger, S., U.S. EPA	Dane, R., de maximis, *inc. and* J. Hayward, Conestoga-Rovers & Associates	Letter re: Extension for Completion of Work on Disposal Area 5 at the Valleycrest Landfill Site	1
10	04/07/99	Renninger, S., U.S. EPA	Distribution List	POLREP #8 for the Valley-crest (North Sanitary) Landfill Site	5
11	04/29/99	Renninger, S., U.S. EPA	Dane, R., de maximis, inc. and J. Hayward, Conestoga-Rovers & Associates	Letter re: Disposal Area 5 Removal Grids for the Valleycrest Landfill Site	2
12	05/05/99	Renninger, S., U.S. EPA	Dane, R., de maximis, inc. and J. Hayward, Conestoga-Rovers & Assocates	Fax Transmittal re: With-drawal of Extension for Completion of Work on Disposal Area 5 at the Valleycrest Landfill Site	2
13	05/20/99	Renninger, S., U.S. EPA	Distribution List	POLREP #9 for the Valley-crest (North Sanitary) Landfill Site	6
14	06/11/99	Renninger, S., U.S. EPA	Hayward, J., Conestoga-Rovers & Associates	Letter re: Schedule for Area 5 Work Activities at the North Sanitary (Valley-crest) Landfill Site	2
15	06/25/99	Renninger, S., U.S. EPA	Dane, R., de maximis, inc. and J. Hayward, Conestoga-Rovers & Associates	Letter re: Revised Schedule for Area 5 Excava-tion and Off-Site Disposal for the North Sanitary (Valleycrest) Landfill Site	2
16	07/14/99	Renninger, S., U.S. EPA	Distribution List	POLREP #10 for the Valley-crest (North Sanitary) Landfill Site	5

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
17	08/16/99	Renninger, S., U.S. EPA	Miller, M., & M. Samples; de maximis, inc. and J. Hayward, Conestoga-Rovers & Associates	Letter re: Various Issues Concerning the Current Removal Action at the Valleycrest Landfill Site	4
18	08/30/99	Renninger, S., U.S. EPA	Distribution List	POLREP #11 for the Valley-crest (North Sanitary) Landfill Site	7
19	09/27/99	Renninger, S., U.S. EPA	Miller, M. & M. Samples; de maximis, inc. and J. Hayward, Conestoga-Rovers & Associates	Letter re: Laboratory Treatability Study Work Plan for Vapor Extraction at the North Sanitary (Valleycrest) Landfill Site	~~8~~ 3
20	10/12/99	Muno, W. U.S. EPA	Miller, M., & M. Samples; de maximis, inc. and J. Hayward, Conestoga-Rovers & Associates	Letter re: Request for Waiver for Stockpiled Materials at the North Sanitary (Valleycrest) Landfill Site	4

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REMOVAL ACTION

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FOR
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(VALLEYCREST LANDFILL SITE)
DAYTON, MONTGOMERY COUNTY, OHIO

UPDATE #4
FEBRUARY 14, 2000

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	02/23/00	Renninger, S., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Determination of Threat to Public Health or Welfare or the Environment at the North Sanitary Landfill Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED)	47

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U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

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FOR
NORTH SANITARY LANDFILL SITE
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DAYTON, MONTGOMERY COUNTY, OHIO

UPDATE #4
FEBRUARY 14, 2000

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	02/23/00	Renninger, S., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum: Determination of Threat to Public Health or Welfare or the Environment at the North Sanitary Landfill Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED)	47

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U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL ACTION

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DAYTON, MONTGOMERY COUNTY, OHIO

UPDATE #5
MAY 20, 2002

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	10/00/98	Conestoga Rovers & Associates	U.S. EPA	Removal Action Work Plan for Suspected Buried Container Areas at the North Sanitary Landfill Site	620
2	01/25/00	Renninger, S., U.S. EPA	Distribution List	POLREP #12 for the Valley-crest (North Sanitary) Landfill Site	8
3	05/30/00	Renninger, S., U.S. EPA	Distribution List	POLREP #13 for the Valley-crest (North Sanitary) Landfill Site	8
4	07/20/00	SCS Engineers	U.S. EPA	Emission Compliance Test Report for the Valleycrest Landfill Site w/ Cover Letter	
5	08/11/00	Renninger, S., U.S. EPA	Distribution List	POLREP #14 for the Valley-crest (North Sanitary) Landfill Site	7
6	01/16/01	Renninger, S., U.S. EPA	Distribution List	POLREP #15 for the Valley-crest (North Sanitary) Landfill Site	9
7	08/27/01	Renninger, S., U.S. EPA	Distribution List	POLREP #16 for the Valley-crest (North Sanitary) Landfill Site	14
8	09/06/01	SCS Engineers	de maximis, inc.	Revised Phase I Workplan for a Source Emission Retest for the Landfill Gas Abatement System at the Valleycrest Landfill Site w/ Cover Letter	15
9	12/00/01	Conestoga-Rovers & Associates	U.S. EPA	Disposal Area 1 Removal Action Work Plan for the North Sanitary Landfill Site	341

EPA Region 5 Records Ctr.
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NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
10	12/00/01	SCS Engineers	U.S. EPA	Phase I Source Emission Stack Test Report for the Landfill Gas Abatement System at the Valleycrest Landfill Site	263
11	02/00/02	Conestoga-Rovers & Associates	U.S. EPA	Disposal Area 5 Stockpile Vapor Extraction Treatment Work Plan for the North Sanitary Landfill Site: Volume 1 of 2 (Text, Figures and Appendices A-E and G)	448
12	02/00/02	Conestoga-Rovers & Associates	U.S. EPA	Disposal Area 5 Stockpile Vapor Extraction Treatment Work Plan for the North Sanitary Landfill Site: Volume 2 of 2 (Appendix F)	536
13	02/21/02	Renninger, S., U.S. EPA	Distribution List	POLREP #17 (Final for Area 5) for the Valleycrest (North Sanitary) Landfill Site	10
14	02/22/02	Muno, W., U.S. EPA	Samples, M. & M. Miller, de maximis, inc.	Letter re: Request for Additional Waiver Extension for Stockpiled Materials at the North Sanitary (Valleycrest) Landfill Site	3
15	04/25/02	Renninger, S. & D. Novak, U.S. EPA	Distribution List	POLREP #1 for Area #1 at the Valleycrest (North Sanitary) Landfill Site	11

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UPDATE #6
AUGUST 10, 2012

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
1	06/28/00	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Drainage Study for the North Sanitary Landfill Site	11
2	08/00/00	Conestoga-Rovers & Associates	File	Phase II Geophysical Investigation Report for the North Sanitary Landfill Site	37
3	10/06/00	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: VLSG's Proposed Changes to RI/FS Work Plan Addendum forthe Valleycrest Landfill Site	4
4	10/16/00	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Phase II Geological Investigation Report for the Valleycrest Landfill Site	2
5	10/26/00	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: VLSG's Proposed Changes to the Addendum to the RI/FS Work Plan for the North Sanitary Landfill Site	65
6	10/31/00	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Phase II Geophysical Investigation Report and Test Pit Investigation Work Plan for the North Sanitary Landfill Site	7
7	11/14/00	Armes, W., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Memorandum re: Waste Boundary Delineation for the North Sanitary Landfill Site **(SDMS ID: 424477)**	2
8	03/02/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Proposed Adjustments to Soil Investigation Locations at the North Sanitary Landfill Site	3

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
9	03/02/01	Koller, K., Ohio EPA	Samples, M., Valleycrest Landfill Site Group	Letter re: Transmittal of Modified Test Pit Investigation Work Plan Addendum for the North Sanitary Landfill Site	11
10	03/12/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K.. Ohio EPA, J. Vanover, Tetra Tech & T. Williams, U.S. EPA	Memorandum re: Proposed Adjustment to Soil Investigation Location at the North Sanitary Landfill Site	2
11	03/14/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Responses to Ohio EPA Comments and Revised Off Site Work Plan for the Preliminary Investigation Proposed Off Site Delineation Work Plan for the North Sanitary Landfill Site	51
12	03/21/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Preliminary Investigation Off Site Work Plan Addendum for the North Sanitary Landfill Site **(SDMS ID: 424483)**	2
13	03/21/01	Kollar, K., Ohio EPA	Samples, M., Valleycrest Landfill Site Group	Letter re: Ohio EPA's Approval of Proposed Adjustments to Soil Investigation Locations at the North Sanitary Landfill Site	
14	03/28/01	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Ohio EPA Approval of Preliminary Investigation Off Site Plume Delineation Locations for the Valleycrest Landfill Site	1
15	03/29/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Adjustments to Soil Investigation Locations at the North Sanitary Landfill Site w/Attached Figure 1	2

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
16	05/15/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Responses to Ohio EPA Comments on Proposed Background Soil Sampling Locations at the North Sanitary Landfill Site	19
17	05/18/01	Kollar, K., Ohio EPA	Samples, M., Valleycrest Landfill Site Group	Letter re: Revised Off-Site Background Soil Sampling Locations at the North Sanitary Landfill Site	1
18	06/00/01	Conestoga-Rovers & Associtates	Valleycrest Landfill Site Group	Wetland Delineation for the North Sanitary Landfill Site **(SDMS ID: 424479)**	69
19	06/21/01	Richardson, I., Conestoga-Rovers & Associates	Shelton, D., USACOE/ Louisville District	Letter re: Request for Jurisdictional Determination for the North Sanitary Landfill Site	1
20	06/29/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Settlement Study Work Plan for the North Sanitary Landfill Site	1
21	07/20/01	Richardson, I., Conestoga-Rovers & Associates	Shelton, D., USACOE/ Louisville District	Letter re: Disturbance of Soils for Landfill Gas Abatement at the North Sanitary Landfill Site	2
22	07/23/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Request for USACOE Wetland Jurisdictional Dtermination for the North Sanitary Landfill Site	1
23	07/23/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Background Soil Sampling Location #7 at the North Sanitary Landfill Site	4
24	08/06/01	Kollar, K., Ohio EPA	Samples, M., Valleycrest Landfill Site Group	Letter re: Background Soil Sample #7 at the North Sanitary Landfill Site	7
25	08/14/01	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Surface Methane Monitoring for the Vallecrest Landfill	1

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
26	08/14/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Surface Methane Monitoring for the North Sanitary Landfill Site **(SDMS ID: 424475)**	2
27	08/16/01	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Surface Methane Monitoring for the Valleycrest Landfill Site	1
28	08/16/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Surface Methane Monitoring for the North Sanitary Landfill Site	1
29	08/20/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Proposed Modifications to Surface Methane Monitoring Procedure at the North Sanitary Landfill Site	2
30	08/22/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Surface Methane Monitoring for the North Sanitary Landfill Site	1
31	08/29/01	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Surface Methane Monitoring for the Vallecrest Landfill Site	1
32	08/31/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Surface Methane Monitoring for the North Sanitary Landfill Site	3
33	09/20/01	Shelton, D., USACOE/ Louisville District	Richardson, I., Conestoga-Rovers & Associates	Letter re: Jurisdictional Determination for the North Sanitary Landfill Site	2
34	09/21/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Surface Methane Monitoring for the North Sanitary Landfill Site	5
35	10/00/01	Conestoga-Rovers & Associates	Valleycrest Removal Action Coalition	Area 5 Removal Action Analytical Results Summary for the North Sanitary	310

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
	10/15/01	Lapachin, J., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Ohio EPA Approval of the Landfill Gas VOC Sampling Results for the Valleycrest Landfill Site	1
36	10/30/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Proposed Modifications to the Preliminary Investigation Additional Off Site Delineation Work Plan Addendum for the North Sanitary Landfill Site **(SDMS ID: 424487)**	5
37	11/04/01	Kollar, K., Ohio EPA	Samples, M., Valleycrest Landfill Site Group	Letter re: Ohio EPA's Approval with Conditions of the Settlement Study for the North Sanitary Landfill Group	1
38	11/14/01	Polan, B., Conestoga-Rovers & Associates	Richardson, I., Conestoga-Rovers & Associates	Memorandum re: Transmittal of Settlement Study Supporting Documentation for the North Sanitary Landfill	136
39	11/14/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter Report: Surface Water/Sediment Sampling Work Plan for the North Sanitary Landfill Site	8
40	11/20/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter Report: Results of the Soil Investigation in the Vicinity of the Former All Waste Facility, North Sanitary Landfill	140
41	11/21/01	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Proposed Modifications to the Preliminary Investigation Off Site Plume Delineation for the Valleycrest Landfill Site	2
42	11/23/01	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Surface Methane Monitoring for the Valleycrest Landfill Site	1
43	11/23/01	Kollar, K., Ohio EPA	Samples, M., de maximis,	Letter re: Landfill Gas Probe Installation Work	1

			Inc.	Plan for the Valleycrest Landfill Site

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
44	11/27/01	Kollar, K., Ohio EPA	Samples, M., Valleycrest Landfill Site Group	Letter re: Approval with Modifications of "Surface Soil Investigation Results" for the North Sanitary Landfill Site	2
45	12/06/01	Kollar, K., Ohio EPA	Samples, M., Valleycrest Landfill Site Group	Letter re: Ohio EPA's Approval of the Revised Surface Water/Sediment Sampling Work Plan for the North Sanitary Landfill Site	1
46	12/07/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter Report: Surface Soil Investigation Results for the North Sanitary Landfill Site	173
47	12/07/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Air Modeling Work Plan for the North Sanitary Landfill Site	50
48	12/07/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Landfill Gas Probe Installation Work Plan for the North Sanitary Landfill Site	135
49	12/07/01	Richardson, I., Conestoga-Rovers & Associates	Shelton, D., USACOE/ Louisville District	Letter re: Request for Jurisdictional Determination for the North Sanitary Landfill Site	2
50	12/13/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Request for Extension of Time to Submit Pre-Modeling Data Package Submittal for the North Sanitary Landfill Site	1
51	12/18/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Surface Methane Monitoring Results for the North Sanitary Landfill Site	9
52	12/21/01	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter re: Input Data for Air Emissions Modeling for the North Sanitary Landfill Site	99

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
53	01/07/02	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Surface Methane Monitoring Results for the Valleycrest Landfill Site	1
54	01/07/02	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Wetlands at the North Sanitary Landfill Site	1
55	01/08/02	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Extension of Time for Pre-Modeling Air Emission Data Submission for the Vallecrest Landfill Site	1
56	01/14/02	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Preliminary Investigation Off Site Delineation for the Vallecrest Landfill Site	3
57	01/23/02	Richardson, I., Conestoga-Rovers & Associates	Kollar, K., Ohio EPA	Letter Report: Test Pit Investigation Results at the North Sanitary Landfill Site	282
58	01/25/02	Kollar, K., Ohio EPA	Samples, M., de maximis, Inc.	Letter re: Input Data for Air Emissions Modeling Comments for the Valleycrest Landfill Site	2
59	02/07/02	Shelton, D., USACOE/ Louisville District	Richardson, I., Conestoga-Rovers & Associates	Letter re: Wetlands at the North Sanitary Landfill Site	1
60	02/14/02	Richardson, I., Conestoga-Rovers & Associates	Shelton, D., USACOE/ Louisville District	Letter re: Disturbance of Soils for Test Pit Investigation for the North Sanitary Landfill Site	2
61	02/18/02	Lapachin, J., Ohio EPA	Samples, M., Valleycrest Landfill Site Group	Letter re: Conditional Approval of Test Pit Investigation Results at the North Sanitary Landfill Site	1

NO.	DATE	AUTHOR	RECIPIENT	TITLE/DESCRIPTION	PAGES
62	02/21/02	Richardson, I., Conestoga-Rovers & Associates	Lapachin, J., Ohio EPA	Letter re: Request for USACOE Wetland Jurisdictional Determination for the North Sanitary Landfill Site	11
63	03/20/02	Richardson, I., Conestoga-Rovers & Associates	Lapachin, J., Ohio EPA	Letter Report: Test Pit Investigation Results Addendum for the North Sanitary Landfill Site	25
64	02/21/02	Richardson, I., Conestoga-Rovers & Associates	Lapachin, J., Ohio EPA	Letter re: Well Inventory for the North Sanitary Landfill Site	6
65	03/05/02	Richardson, I., Conestoga-Rovers & Associates	Queen, R., Ohio EPA	Letter re: Potential Wetlands at the North Sanitary Landfill Site	2
66	03/21/02	Lapachin, J., Ohio EPA	Samples, M., de minimis, Inc.	Letter re: Ohio EPA Approval of Well Inventory for the North Sanitary Landfill Site **(SDMS ID: 424476)**	1
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199	07/00/12	U.S. EPA	Public	Fact Sheet: EPA Proposed Cleanup Plan Includes Capping for the North Sanitary Landfill (Valleycrest Site)	8
200	07/19/12	Karl, R., U.S. EPA	Guerriero, M., U.S. EPA	Memorandum re: Risk Based Disposal of PCB Contaminated Material at the North Sanitary Landfill Site	2
201	07/30/12	U.S. EPA	File	Addendum to the Feasibility Study Report for the North Sanitary Landfill Site	10

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202	08/10/12	Guerriero, M., U.S. EPA/Land & Chemicals Division	Karl, R., U.S. EPA	Memorandum re: TSCA Program Review and Concurrence on Risk-Based Disposal of PCB-Contaminated Material at the North Sanitary (Valleycrest) Landfill Site	2
203	00/00/00	Ohio EPA	U.S. EPA	Letter re: Ohio EPA Concurrence with the Proposed Plan for the North Sanitary Landfill Site **(PENDING)**	

U.S. Environmental Protection Agency
Remedial Action

Administrative Record
For
North Sanitary (Valleycrest) Landfill
Dayton, Montgomery County, Ohio

Update 7
August 8, 2013
SEMS ID: 906398

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1	446528	-	Powers, D., Northeast Priority Board	Novak, D., U.S. EPA	Letter re: Comments on EPA Cleanup at Valleycrest Landfill	3
2	446527	7/15/11	Clements, T., City of Dayton	Novak, D., U.S. EPA	Letter re: North Sanitary Landfill (Valleycrest Landfill)	4
3	446537	8/1/12	U.S. EPA	Public	PowerPoint Presentation re: Proposed Plan - North Sanitary Landfill (Valleycrest)	34
4	446536	8/16/12	U.S. EPA	File	Transcript of Proceedings: Valleycrest Landfill Proposed Plan Public Meeting	84
5	446530	8/16/12	Weatherington-Rice, J., Bennett & Williams Environmental Consultants, Inc.	U.S. EPA	Review of EPA's Proposed Cleanup Plan for the Valleycrest Landfill	4
6	441432	8/22/12	George, E., Old North Dayton Neighborhood Association	Narsete, V., U.S. EPA	Email re: Comments for the Proposed Clean-Up Plan of the Valleycrest Landfill	3
7	441431	8/22/12	Public	U.S. EPA	Public Comment Sheets on the Proposed Cleanup Plan for the North Sanitary Landfill	5
8	446538	9/7/12	Richardson, I., Conestoga-Rovers & Associates Ltd	U.S. EPA	Valleycrest Landfill Site Group's Comments on the Proposed Plan	270

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9	446526	9/10/12	Clements, T., City of Dayton	Narsete, V., U.S. EPA	Letter re: North Sanitary Landfill (Valleycrest Landfill)	2
10	446531	9/10/12	Cole, H., and J. Weatherington-Rice, Bennett & Williams Environmental Consultants Inc.	U.S. EPA	Final Comments on EPA's Proposed Remedy for the Valleycrest Landfill	18
11	446529	9/10/12	Fry, W.R., Rendigs, Fry, Kiely & Dennis	Narsete, V., U.S. EPA	Letter re: The Peerless Transportation Company's Comments on the EPA's Proposed Cleanup at the North Sanitary Landfill	4
12	446525	9/11/12	Siegel, S., Dinsmore & Shohl	Hedman, S., U.S. EPA	Letter re: North Sanitary (aka Valleycrest) Landfill Risk-Based Determination of PCB-Impacted Material w/Attachments	35
13	446524	9/11/12	Public	Narsete, V., U.S. EPA	Email re: Valleycrest Landfill Public Comments	4