Ohio Environmental Protection Agency

Modified Decision Document

For the Remediation of the Coopermill Road Dump Zanesville, Muskingum County, Ohio

Division of Environmental Response and Revitalization
Southeast District Office
January 2017

Ohio EPA's Division of Environmental Response and Revitalization (DERR) - Assessment, Cleanup & Reuse Section Remedial Response Program			Modified Decision Document for the Remediation of the Coopermill Road Dump Site Zanesville, Muskingum County, Ohio		
THE REMEDIAL RESPONSE PROCESS					
(1) Preliminary Assessment & Site Inspection	(2) Remedial Investigation & Feasibility Study	(3) Remedy Selection (Preferred Plan & Decision Document)	(4) Remedial Design	(5) Remedial Action	(6) Remedy Operation, Maintenance & Monitoring

Ohio EPA Announces Modified Decision Document

On July 1, 1991, Ohio EPA issued a Preferred Plan outlining Ohio EPA's preferred alternative to remediate contamination at the Coopermill Road Dump site. Oral and written comments on the Preferred Plan were accepted at a public meeting and during the public comment period that ran from July 1, 1991 to August 1, 1991. Based on the Preferred Plan and the consideration of public comment, Ohio EPA issued a Decision Document on December 19, 1991, identifying the selected remedial alternative for the cleanup of the contamination at the site, and providing the rationale for the selection. An order for remedial design and remedial action (RD/RA) to implement the selected remedy included in the Decision Document was entered into on May 28, 1992.

Due to increasing concentrations of volatile organic compounds (VOCs) in upgradient monitoring well M-14S, a shallow plume investigation was conducted in 2007. The results of the study demonstrated that a newly installed upgradient well, M-25S, had the highest concentrations of VOCs. A review of historical documents revealed that there was a former drum storage area located near M-25S. Because it was improperly constructed, M-25S was abandoned in May 2008 and replaced with M-25SR. VOCs were also detected in this replacement well. Soil investigations conducted in 2008 and 2010 indicated that approximately 2,400 cubic yards of soil were contaminated with VOCs. In 2012, a Focused Feasibility Study was performed to evaluate potential remedial alternatives to address the soil contamination in the former drum storage area. Treatability studies were conducted in 2013 and 2014, and a pilot study was conducted in 2014 to test a soil treatment technology. Based on an evaluation of all currently available information, Ohio EPA is issuing this Modified Decision Document identifying the modifications to the remedial alternative originally selected for the cleanup of the site, and providing the rationale for the modifications.

Ohio EPA is issuing this Modified Decision Document in a manner consistent with Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). It summarizes information found in detail in the remedial investigation/feasibility study (RI/FS) and RD/RA reports, and other documents contained in the administrative record for this site. Ohio EPA encourages the public to review these documents to gain a better understanding of the site and the activities that have been conducted at the site.

TABLE OF CONTENTS

MODIFIED DECISION DOCUMENT
Coopermill Road Dump Site
Zanesville, Muskingum County, Ohio

1.0 INTRODUCTION

Site Name and Location

The Coopermill Road Dump site is located at 1313 Coopermill Road in Zanesville, Ohio. As shown in Figure 1, the property is located north of Coopermill Road and immediately west of the City of Zanesville. From the early 1950s through 1972, the Site was used as an unregulated waste disposal and drum staging area by McGraw-Edison. The former disposal area occupies 2.975 acres of a 31.37 acre property owned by Johanna Hildenbrand. John Hildenbrand took title of the property from Margaret Harper on November 14, 1972. The title was then transferred to John's wife, Johanna Hildenbrand, on October 31, 1989. The Hildenbrands use the property for sheep farming. Buildings on the property include the Hildenbrand's home, an attached barn, and two small outbuildings, both of which are used for storage of vehicles and equipment. See Figure 2.

Statement of Purpose and Statutory Basis

This Modified Decision Document sets forth the basis for the determination to issue a modification to the Decision Document issued on December 19, 1991 for the Coopermill Road Dump site. Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establish procedures for explaining, documenting and informing the public of significant changes to the remedy that occur after a Decision Document is issued. A Modified Decision Document (termed an Explanation of Significant Differences by U.S. EPA) is required when the remedial action to be taken differs significantly from the remedy selected in the Decision Document, but does not fundamentally alter the remedy with respect to scope, performance or cost.

A modification to the remedy selected in the Decision Document is necessary because routine ground water monitoring revealed increasing concentrations of VOCs in upgradient monitoring well M-14S. While periodic increases in VOCs were observed during the 1990s, a larger, steadier increase in VOCs was observed in 2004 which prompted a series of investigations to determine the source of the increased concentrations. A shallow plume investigation was conducted to evaluate VOCs in the ground water and in Seep 1. The investigation concluded that additional monitoring wells were needed to evaluate ground water flow. An additional shallow plume investigation was conducted that consisted of installing two additional monitoring wells to evaluate ground water flow and tracer testing to evaluate the shallow ground water connection to Seep 1. The ground water results suggested the presence of an additional

source area upgradient of the landfill. A newly installed upgradient well, M-25S, had the highest concentrations of VOCs on the site. A review of historical documents revealed that there was a former drum storage area located near M-25S. Because it was improperly constructed, M-25S was abandoned in May 2008 and replaced with M-25SR. VOCs were also detected in this replacement well. Soil investigations conducted in 2008 and 2010 indicated that approximately 2,400 cubic yards of soil were contaminated with VOCs. Remediation of these soils is necessary to minimize or eliminate potential human exposure to these contaminated soils and to reduce the continued leaching of contaminants into ground water.

2.0 SUMMARY OF SITE HISTORY/CONTAMINATION/SELECTED REMEDY

Site History

Historically significant site events are summarized in Table 1 below:

Table 1 – Chronology of Significant Site Events

Date	Site Event
1951/1952	Unregulated waste disposal and drum staging activities began at the site.
1972	Waste disposal activities at the site were discontinued.
1983/1984	Under Ohio EPA oversight, McGraw-Edison sampled, overpacked and properly disposed of approximately 650 55-gallon drums of waste materials.
1985	McGraw-Edison Company was acquired by Cooper Industries, Inc.
1985/1986	Presence of contaminants in the on-site water well led the Ohio EPA and McGraw Edison to initiate a remedial investigation. An on-site domestic well was abandoned and residences along Coopermill Road were connected to the municipal water supply system.
1986-1989	Ground water investigations were conducted in a four phased approach.
April 1991	Ohio EPA approved the Remedial Investigation Report and the Feasibility Study Report.
July 1991	Ohio EPA Preferred Plan released for public review and comment.
December 1991	Decision Document issued by Ohio EPA.
May 1992	Finalized Remedial Design/ Remedial Action Orders with McGraw Edison Company, a subsidiary of Cooper Industries, Inc.
May 1992	Ohio EPA approved the Remedial Design Report.
March 1993	Ohio EPA approved the Site Remedial Design Document (Ground Water Monitoring).
July 1993	Remedial Action activities were completed and Ohio EPA approved the Construction Certification Report.
1998	The first Five Year Review of the ground water monitoring system was conducted and concluded that the system was effectively monitoring ground water conditions at the site.
2004	The second Five Year Review of the ground water monitoring system was conducted. As a result of this review, Ohio EPA requested additional investigations to evaluate VOC s in the ground water and in Seep 1.

2005	A shallow plume investigation was conducted to evaluate VOCs in the ground water and in Seep 1. The investigation concluded that additional monitoring wells were needed to evaluate ground water flow.
2007	An additional shallow plume investigation was conducted that consisted of installing two additional monitoring wells to evaluate ground water flow and tracer testing to evaluate the shallow ground water connection to Seep 1. The ground water results suggested the presence of an additional source area upgradient of the landfill.
2008	A soil investigation of the suspected upgradient source area, a former drum storage area, was conducted and showed contamination of the soils.
2009	The third Five Year Review was conducted and recommended additional soil investigation to determine the extent of VOC impacted soils in the former drum storage area.
2010	A supplemental soil investigation was conducted which confirmed contamination in the former drum storage area.
2012	A Focused Feasibility Study was conducted to evaluated remedial alternatives to address the contaminated soils and ground water in the former drum storage area.
2013	A Treatability Study was conducted to evaluate the effectiveness of in situ chemical oxidation and in-situ stabilization in reducing VOC concentrations in soils collected from the former drum storage area.
2014	The fourth Five Year Review was conducted. Remediation of the VOC impacted soil from the former drum storage area was recommended.
2014	A Pilot Study was conducted in the former drum storage area to test the effectiveness of in situ chemical oxidation and in situ stabilization.

Summary of Site Contamination

From the early 1950s through 1972, the site was used as an unregulated waste disposal and drum staging area by McGraw-Edison. In 1983-84, the majority of the waste materials were excavated, removed and disposed of in a licensed off-site disposal facility. The residual wastes were then covered and buried on the property. This waste disposal area was capped using a sloped impermeable cover with an underground seep and leachate collection system. Subsequent investigations identified the presence of trichloroethylene (TCE) and tetrachloroethene (PCE) in soil and ground water beneath the site. Neither PCE nor TCE were detected in an indoor air sample collected at the Hildenbrand residence in June 2011. In addition to the indoor air sample, two samples of soil gas from beneath the lower floor of the house (sub-slab samples) were also collected in June 2011. TCE was detected in both samples (0.24 ppbv and 0.36 ppbv) at concentrations below the screening level (13 ppbv) while PCE was detected in one sample (0.43 ppbv) at a concentration below the screening level (210 ppbv) and was not detected in the second sample.

Drums of solvents and paint wastes were reportedly stored along the fence line at the northwest corner of the site. These drums were removed and disposed of off-site between 1983 and 1984. An initial (2008) and supplemental (2010) soil investigation indicated the presence of VOCs in the soil samples located near the former drum storage area (see Figure 3). VOCs have also been detected in the shallow ground water zone (upgradient of the landfill) beneath

the site. The predominant ground water flow direction generally follows topography, which slopes primarily toward the south, southeast in the direction of Chaps Run.

The chemicals of concern (COCs) at the site are VOCs, including PCE, TCE and cis-1,2-dichloroethene (cis-1,2-DCE). Historically, several VOCs have been detected in the ground water samples collected from the site at concentrations above their maximum contaminant levels (MCLs) which are the cleanup values for COCs in ground water.

The COCs detected in the seeps associated with the site are compared to the human health non-drinking water standards specified in Ohio Administrative Code (OAC) 3745-1-34 applicable to the Ohio River drainage basin. Historically, none of the results from the seep sampling have exceeded their applicable standards. In addition, VOCs have not been detected in samples collected downgradient from Seep 1.

Summary of Selected Remedy in Decision Document

The remedy selected in the December 19, 1991 Decision Document addressed principal risks posed by the Coopermill Road Dump site, by 1) conducting a limited excavation of the landfilled area followed by off-site disposal of excavated area, 2) capping the landfilled area with a low permeability soil barrier, 3) collecting discharge from springs located at the toe of the waste area and directing flow to a discharge point along Chaps Run, 4) conducting long-term ground water monitoring, and 5) recording a land use restriction that prohibits consumptive use of ground water underlying the site and prohibits use of the area occupied by the landfill in a manner which would adversely affect the integrity of any containment system or monitoring system.

The Remedial Action Objectives (RAOs) in the Decision Document include:

- Prevent direct contact with contaminated soils,
- Prevent off-site migration of contaminated ground water above MCLs,
- Prevent migration of COCs in soils to ground water that would result in concentrations of COCs above MCLs,
- Prevent off-site discharge of surface water that exceeds National Pollutant Discharge Elimination System (NPDES) permit limits.

The low permeability cap was designed to prevent exposure to contaminated soils, promote surface runoff and reduce infiltration into the landfill. Since construction, the landfill has continued to function as designed. Land use continues to be in accordance with the land use restrictions in the Decision Document. No one extracts or uses ground water at the site and there are currently no known users of ground water downgradient of the site, since all of the residents along Coopermill Road were connected to the municipal water supply in 1985 and 1986. Based on current data, off-site monitoring wells do not have detectable concentrations of contaminants. However, contaminated surface water emanating from Seep1 is flowing off-site, but VOC levels downstream of Seep1 have historically all been below the laboratory detection limits. Furthermore, the concentrations of contaminants in Seep1 have been below their respective human health non-drinking water quality standards applicable to the Ohio River drainage basin.

3.0 BASIS FOR THE DOCUMENT

Ohio EPA issued a Decision Document for the Coopermill Road Dump site on December 19, 1991. The Decision Document included the following remedial components:

- Limited excavation in landfilled area with off-site disposal
- Installation of a low permeability soil barrier cap
- Collection of discharge from springs and directing to Chaps Run
- Implementation of long-term ground water monitoring
- Implementation of land use restrictions preventing ground water use and protecting containment and monitoring systems.

Information gained during the course of remedial activities has led Ohio EPA to review and revise the selected remedy. Routine ground water monitoring revealed increasing concentrations of VOCs in upgradient monitoring well M-14S (see Figure 4). Concentrations of total VOCs in M-14S increased from a high of 6 ug/L in 1991 to a high of 81 ug/L in 2007. A shallow plume investigation conducted in 2007 demonstrated that a newly installed upgradient well, M-25S, had the highest concentrations of VOCs. A review of historical documents revealed that there was a former drum storage area located near M-25S. Because it was improperly constructed, M-25S was abandoned in May 2008 and replaced with M-25SR. VOCs were also detected in this replacement well. Soil investigations conducted in 2008 and 2010 indicated that approximately 2,400 cubic yards of soil were contaminated with VOCs. Remediation of these soils is necessary to minimize or eliminate potential human exposure to these contaminated soils and to reduce the continued leaching of contaminants into ground water.

Cooper Industries prepared a Focused Feasibility Study (dated August 14, 2012) to evaluate eight different alternatives to address the contaminated soils in the former drum storage area. The alternatives are presented in Table 2 below:

TABLE 2 - SUMMARY OF SITE REMEDIAL ALTERNATIVES

Alternative	Description of Remedial Alternative
1	No Further Action - The NCP requires evaluation of a no action alternative to establish a baseline for the comparison of other remedial alternatives. Under this alternative, no remedial activities or monitoring are conducted at the site to prevent exposure to contaminated media.
2	Limited Action – An institutional control, such as a restrictive covenant, would be implemented to restrict the use of ground water for potable purposes and restrict the use of the property for development and agricultural purposes.
3	In-Place Capping – There would be some consolidation of soils and then capping of soils in place in former drum storage area. The cap would reduce surface water infiltration and prevent human exposure from direct contact.
4	Chemical Oxidation via In Situ Soil Mixing – The upper two feet of clean soil would be removed and stockpiled. The contaminated soils would then be treated in place with a chemical oxidant to destroy the contaminants.
5	Consolidation with On-Site Landfill and Capping – Soils from the former drum storage area would be excavated and placed on top of the existing landfill. A

	cap would then be constructed over the contaminated soils that would reduce surface infiltration and prevent human exposure from direct contact. Prior to backfilling the former drum storage area, the excavation would be flooded with chemical oxidant to expedite the clean-up of ground water.
6	Pre-Treatment, Consolidation with On-Site Landfill and Capping – Soils with elevated TCE concentrations would be treated in place with chemical oxidants. The treated and untreated soils would then be excavated and placed on the top of the existing landfill. A cap would then be constructed over the contaminated soils that would reduce surface infiltration and prevent human exposure from direct contact. Prior to backfilling the former drum storage area, the excavation would be flooded with chemical oxidant to expedite the clean-up of ground water.
7	Excavation and Off-Site Disposal – The contaminated soils in the former drum storage area would be excavated and hauled to an off-site solid waste landfill for disposal. Prior to backfilling the former drum storage area, the excavation would be flooded with chemical oxidant to expedite the clean-up of ground water. Although previous TCLP analysis demonstrates that the contaminated soil is non-hazardous, this alternative includes a contingency for handling some of the soil as hazardous waste (Alternative 7B). The contingency assumes soil with a TCE concentration greater than 10,000 ug/kg^2 (about 1,955 tons) is hazardous waste.
8	Pre-Treatment, Excavation and Off-Site Disposal – This alternative also assumes that soils with a TCE concentration greater than 10,000 ug/kg^2 are hazardous. These soils would be treated with chemical oxidants prior to excavation. The soils would then be excavated and hauled to an off-site soil waste landfill for disposal. Prior to backfilling the former drum storage area, the excavation would be flooded with chemical oxidant to expedite the clean-up of ground water.

The estimated costs of the alternatives are listed below:

• Alternative 1 (No Further Action)	no cost
• Alternative 2 (Limited Action)	$65,000
• Alternative 3 (In-Place Capping)	$218,000
• Alternative 4 (In Situ Chemical-Ox)	$562,000
• Alternative 5 (On-Site Landfill)	$511,000
• Alternative 6 (Pretreat & On-Site Landfill)	$727,000
• Alternative 7A (Off-Site Solid Waste Disposal)	$504,000
• Alternative 7B (Off-Site Solid & Hazardous Waste Disposal)	$821,000
• Alternative 8 (Pretreat & Off-Site Disposal)	$667,000

Further descriptions of the changes documented in this Modified Decision Document are provided in Section 4.0 below. The selected remedy for the Coopermill Road Dump, as revised by this Modified Decision Document, will be protective of human health and the environment, and will meet applicable or relevant and appropriate requirements (ARARs).

Because hazardous waste will remain on the site at levels that do not allow for unlimited use and unrestricted exposure, five-year reviews of the site remedy will continue to be required.

4.0 DESCRIPTION OF SIGNIFICANT CHANGES/BASIS FOR CHANGES

After evaluating the alternatives presented in the Focused Feasibility Study, Ohio EPA has determined that a modification of In Situ Chemical Oxidation, Alternative 4, is the preferred approach to address the soil contamination in the former drum storage area. Based on results of treatability studies and a pilot study, discussed below, this alternative has been modified to include in situ stabilization/solidification. This modified alternative consists of treating the contaminated soils with a chemical oxidant through soil mixing and adding a stabilization/solidification agent, such as Portland cement. The chemical oxidant will be applied to the soils, and the soils will then be mixed to ensure that the oxidant comes in contact with the contaminants which results in the destruction of the contaminants. The performance standard for the in situ stabilization/solidification treatment will be met when ground water collected from monitoring wells located downgradient of the former drum storage area but upgradient of the landfill meet MCLs in consecutive sampling events as established in the Ohio EPA approved ground water monitoring plan. Additional actions, including further chemical oxidation treatments, may be considered by Ohio EPA if future remedy reviews (*i.e.* 5-year reviews) conclude that sufficient progress towards achieving this performance standard is not being made.

In 2013 and 2014, Tetra Tech, on behalf of Cooper Industries, conducted a treatability study to evaluate the effectiveness of in situ chemical oxidation and in situ stabilization/solidification on soils collected from the site. The results demonstrate that a combination of in situ chemical oxidation and in situ stabilization/solidification would most effectively address the contaminated soils at the site. In October and November 2014, Key Environmental, on behalf of Cooper Industries, conducted a pilot test in the former drum storage area to further evaluate in situ chemical oxidation and in-situ stabilization/solidification. The stabilization/solidification component of the studies involved mixing Portland cement into the soils. The results of the pilot study confirm the effectiveness of combining in situ chemical oxidation and in situ stabilization/solidification to treat the contaminated soils in the former drum storage area.

5.0 AFFIRMATION OF STATUTORY DETERMINATIONS

Pursuant to the requirements of CERCLA, it is Ohio EPA's position that the selected remedy, as modified, remains protective of human health and the environment, complies with ARARs, and is cost effective. In addition, the modified remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

The short term risks to the community associated with the implementation of this alternative are minimal. Potential impacts include increased dust and release of vapors from soil mixing activities. These risks will be reduced by air monitoring during the remedial activity and the use of engineering controls if organic vapors exceed safe exposure levels. Short term risks to on-site workers during implementation of this alternative include construction hazards associated with soil mixing using heavy equipment and potential exposure to organic vapors during mixing and treatment at the site. The risks will be reduced by compliance with Occupational Safety and Health Administration (OSHA) regulations for construction sites and

hazardous waste sites, including the use of proper personal protective clothing. Long term risks to human health and the environment will be reduced by the destruction of the contaminants in the soil.

6.0 PUBLIC PARTICIPATION

Ohio EPA is making this Modified Decision Document available to update the public on the progress made at the site and to inform the public of the changes made to the remedy. Ohio EPA has issued this Modified Decision Document for the Coopermill Road Dump site remedial work, and is making it and supporting information available to the public at the Ohio EPA Southeast District Office and at the site information repository. Ohio EPA will ensure that a notice briefly summarizing the Modified Decision Document is published in a newspaper of local circulation. Ohio EPA will observe community reaction to the notice placed in the newspaper. If numerous questions or significant reaction from the public is forthcoming, Ohio EPA will meet with the public to discuss these changes.

Site information is available for public review at the following location:

Ohio EPA
Southeast District Office
2195 E. Front Street
Logan, Ohio 43138-8637
(740) 385-8501
8:00 a.m.- 5:00 p.m. M-F

A site information repository is also located at:

Muskingum County Library – John McIntire Library
220 North 5th Street
Zanesville, Ohio 43701
(740) 453-0391
Monday – Thursday 10 a.m. – 8 p.m.
Friday & Saturday 9:30 a.m. – 6 p.m.

DECLARATION

Ohio EPA has determined that the changes to the Coopermill Road Dump site Decision Document issued by the Director of Ohio EPA on May 28, 1992 and provided in this Modified Decision Document are significant but do not fundamentally alter the overall site remedial action with respect to scope, performance, or cost. I therefore approve the issuance of this Modified Decision Document for the Coopermill Road Dump and the changes to the remedial action stated herein.

Mike Proffitt, Chief

01/13/2017
Date

REFERENCES

The Decision Document and Amended Decision Document are based on information included in the following documents.

Remedial Investigation Report. Baker/TSA, Inc. March 1991.

Site Feasibility Report. Caswell, Eichler, and Hill, Inc. March 1991.

Site Remedial Design. Caswell, Eichler, and Hill, Inc. February 1993.

Closure of Coopermill Road Dump (Landfill Operable Unit). Cooper Industries. June 1993.

Report of Findings – Shallow Plume Investigation. Civil & Environmental Consultants. March 2006.

Revised Focused Feasibility Study – Former Drum Storage Area Soil. Tetra Tech. August 2012.

Treatability Study Report – ISCO and ISS Treatment of Impacted Soil. Tetra Tech. April 2014.

ATTACHMENTS

CONTAMINANTS OF CONCERN AND CLEAN-UP STANDARDS
FORMER DRUM STORAGE AREA
COOPERMILL ROAD LANDFILL
ZANESVILLE, OHIO

Compound	Detections	Minimum	Maximum	Average	Leach Based[1]	Direct Contact (Residential)[2]	Direct Contact (Commercial Industrial)[3]	Direct Contact (Construction)[4]
m&p-Xylene	56 of 140	12	2,375,000	129,762	191,000	370,000	370,000	370,000
Trichloroethene	56 of 164	8	2,122,400	126,462	48	65,000	150,000	560,000
o-Xylene	28 of 140	7	2,100,000	189,856	191,000	370,000	370,000	370,000
Ethylbenzene	25 of 140	8	1,050,300	142,649	16,000	230,000	230,000	230,000
Tetrachloroethene	32 of 164	7	248,000	37,811	270	17,000	53,000	220,000
1,2,4-Trimethylbenzene	11 of 140	135	244,600	50,661		85,000	120,000	35,000
1,3,5-Trimethylbenzene	9 of 140	99	92,900	22,471		69,000	95,000	200,000
1,1,1-Trichloroethane	37 of 164	5	66,920	7,307	1,300	1,300,000	1,300,000	1,300,000
cis-1,2-Dichloroethene	15 of 164	7	59,000	8,878	120	760,000	2,200,000	2,200,000
Isopropylbenzene	6 of 123	370	30,700	16,860		260,000	260,000	260,000
n-Propylbenzene	7 of 123	150	29,870	15,524				
n-Butylbenzene	7 of 123	231	25,500	5,570				
p-Isopropyltoluene	6 of 123	118	18,980	4,962				
Toluene	7 of 140	71	12,600	4,902	7,700	520,000	520,000	520,000
Naphthalene	9 of 123	127	9,190	2,447	360	69,000	150,000	84,000
sec-Butylbenzene	3 of 123	1,240	4,560	3,007				
1,1,2-Trichloroethane	12 of 164	11	4,210	794		25,000	55,000	210,000
Hexachlorbutadiene	7 of 123	143	2,940	819				
1,2,3-Trichlorobenzene	1 of 140	68	2,560	862				
1,2,4-Trichlorobenzene	5 of 140	124	1,690	741				
trans-1,2-Dichloroethene	6 of 164	16	1,200	511	400	180,000	260,000	78,000
1,1-Dichloroethene	11 of 164	12	861	256	240	410,000	610,000	180,000
Dichlorodifluoromethane	1 of 123	747	747	747		380,000	520,000	1,400,000
1,4-Dichlorobenzene	2 of 140	174	682	428		60,000	130,000	510,000
Methylene Chloride	3 of 140	6	596	206		250,000	570,000	1,500,000
1,1-Dichloropropene	1 of 123	482	482	482				
Carbon tetrachloride	3 of 164	12	474	167		5,500	8,200	24,000
Trichlorofluoromethane	1 of 123	441	441	441		1,200,000	1,600,000	1,600,000
1,1-Dichloroethane	10 of 164	6	116	50		2,000,000	2,300,000	2,300,000
Acetone	8 of 140	14	54	26		64,000,000	100,000,000	100,000,000
Chloroform	4 of 164	16	34	29		6,600	14,000	55,000

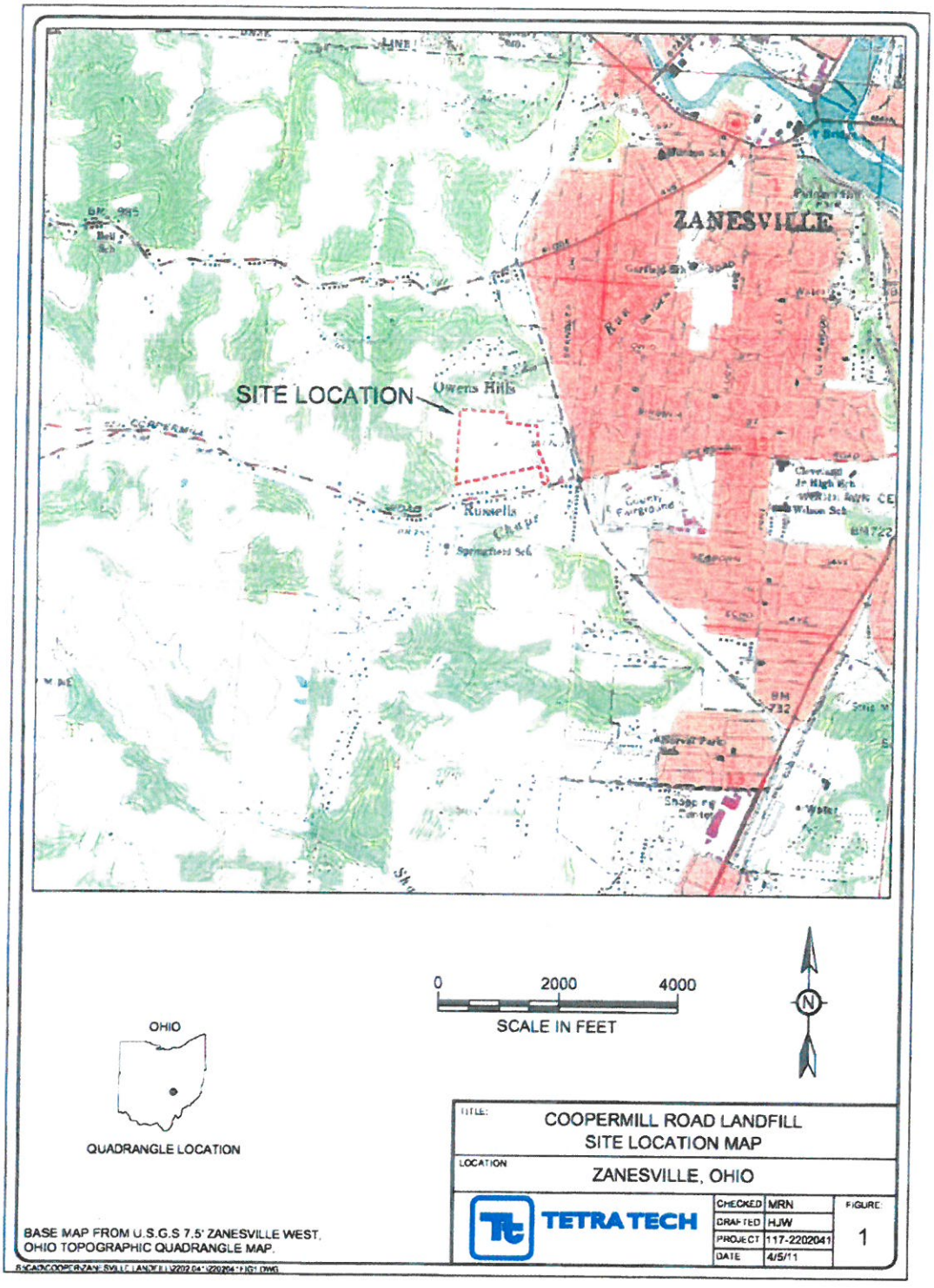
Concentrations in ug/kg

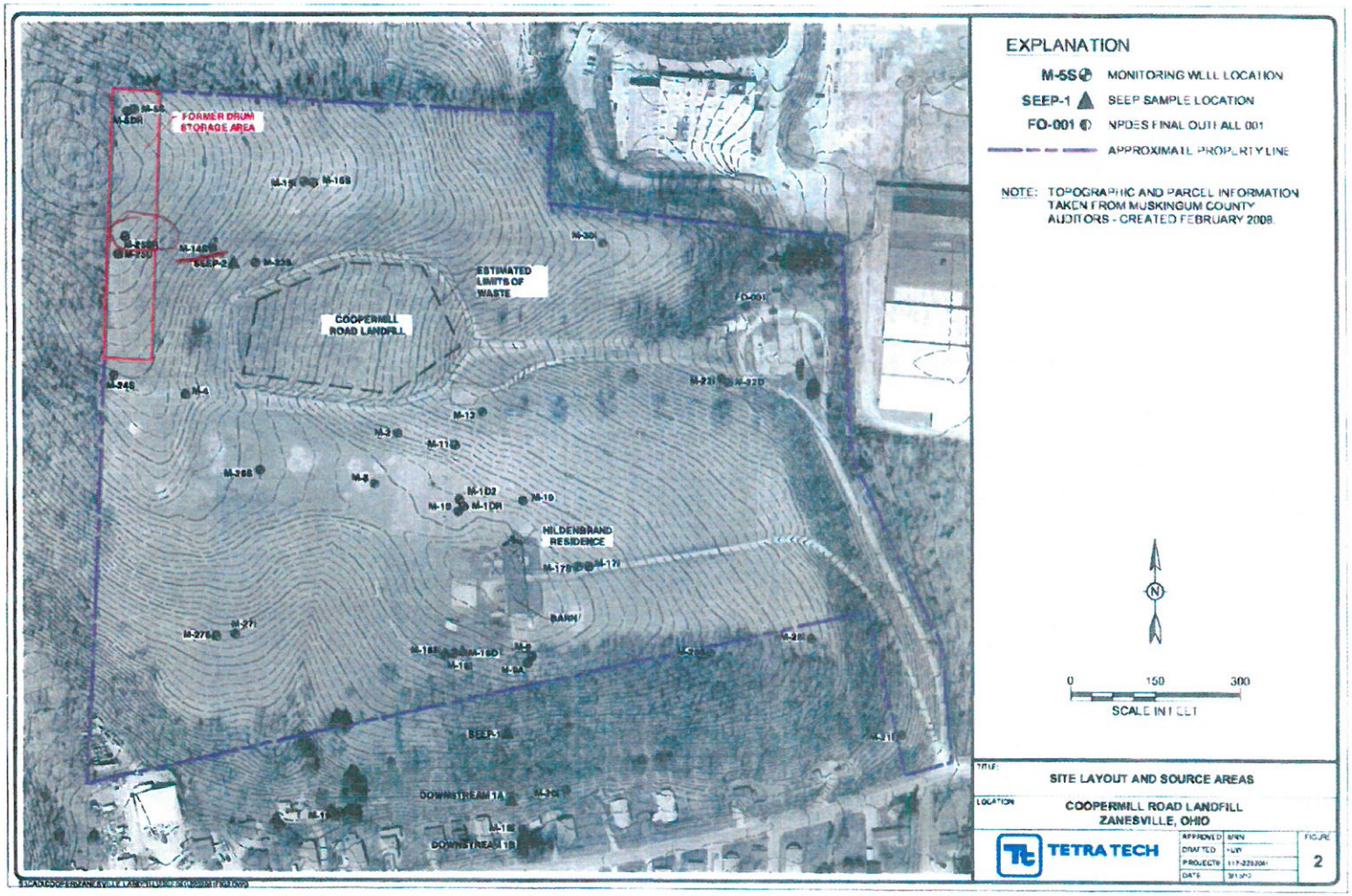
[1]Ohio EPA Soil Type III Leached-Based Soil Standard

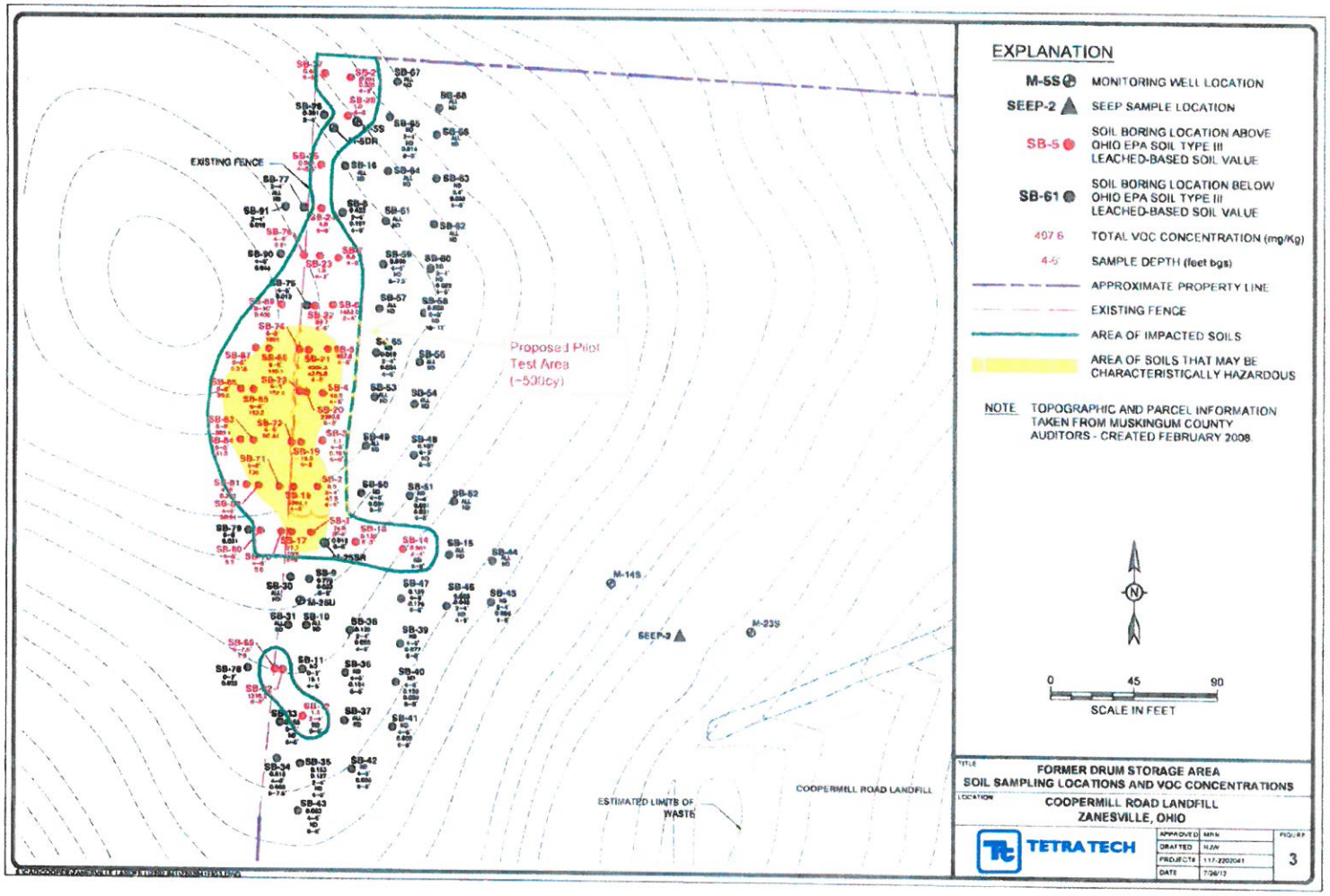
[2]OAC 3745-300-08(C)(3)b Table I: generic direct-contact soil standards, Residential Land Use Category

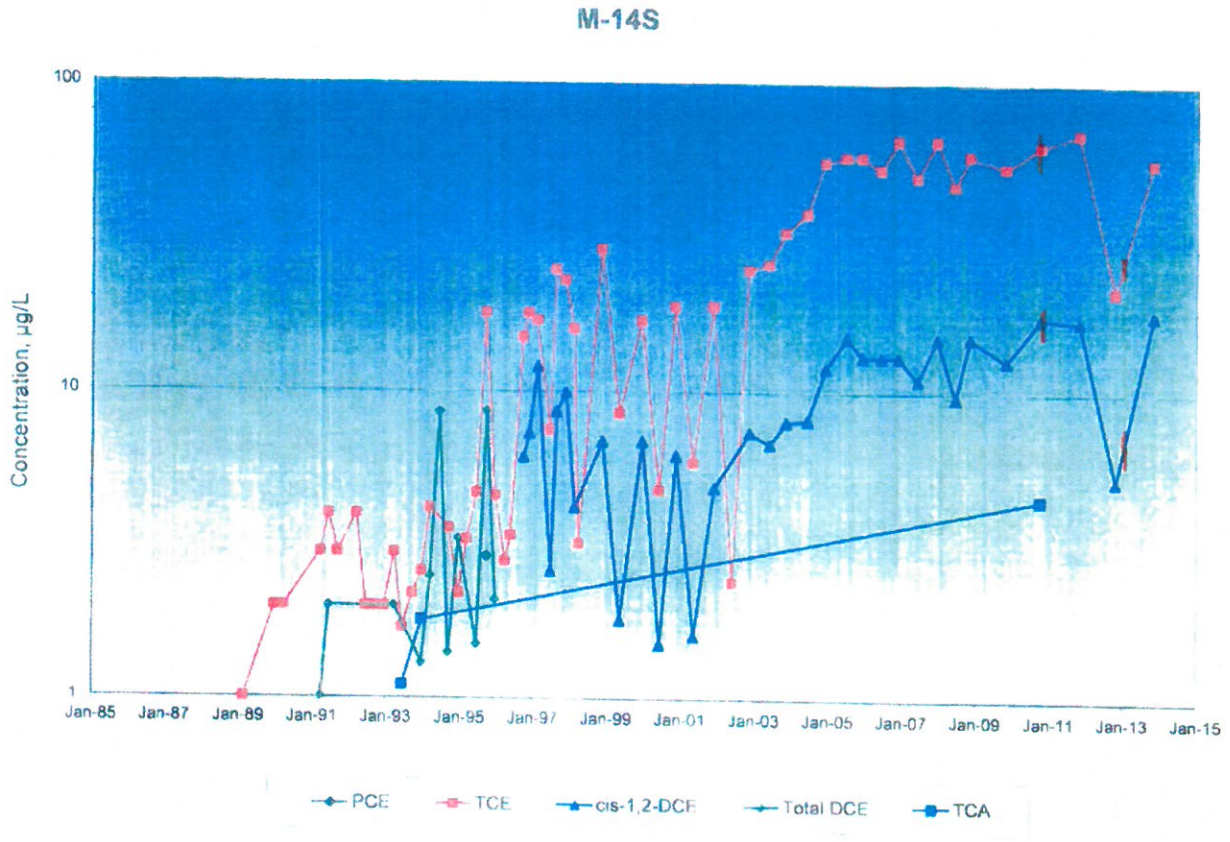
[3]OAC 3745-300-08(C)(3)c Table II: generic direct-contact soil standards, Commercial and Industrial Land Use Categories

[4]OAC 3745-300-08(C)(3)d Table III: generic direct-contact soil standards, construction and excavation activities


ZANESVILLE
SITE LOCATION
Owens Hills
Russells Chapel
0
2000
4000
SCALE IN FEET
N
OHIO
QUADRANGLE LOCATION
BASE MAP FROM U.S.G.S 7.5' ZANESVILLE WEST, OHIO TOPOGRAPHIC QUADRANGLE MAP.
TITLE:
COOPERMILL ROAD LANDFILL
SITE LOCATION MAP
LOCATION
ZANESVILLE, OHIO
TETRA TECH
CHECKED MRN
DRAFTED HJW
PROJECT 117-2202041
DATE 4/5/11
FIGURE:
1


FORMER DRUM STORAGE AREA
ESTIMATED LIMITS OF WASTE
COOPERMILL ROAD LANDFILL
HILDENBRAND RESIDENCE
BARN
SEEP-1
DOWNSTREAM 1A
DOWNSTREAM 1B
EXPLANATION
M-5S MONITORING WELL LOCATION
SEEP-1 SEEP SAMPLE LOCATION
FO-001 NPDES FINAL OUTFALL 001
APPROXIMATE PROPERTY LINE
NOTE: TOPOGRAPHIC AND PARCEL INFORMATION TAKEN FROM MUSKINGUM COUNTY AUDITORS - CREATED FEBRUARY 2008.
N
0 150 300
SCALE IN FEET
TITLE: SITE LAYOUT AND SOURCE AREAS
LOCATION COOPERMILL ROAD LANDFILL ZANESVILLE, OHIO
TETRA TECH
APPROVED MRN
DRAFTED MW
PROJECT 117-225304
DATE 3/13/10
FIGURE 2


EXPLANATION
M-5S MONITORING WELL LOCATION
SEEP-2 SEEP SAMPLE LOCATION
SB-5 SOIL BORING LOCATION ABOVE OHIO EPA SOIL TYPE III LEACHED-BASED SOIL VALUE
SB-61 SOIL BORING LOCATION BELOW OHIO EPA SOIL TYPE III LEACHED-BASED SOIL VALUE
407.6 TOTAL VOC CONCENTRATION (mg/Kg)
4-5 SAMPLE DEPTH (feet bgs)
APPROXIMATE PROPERTY LINE
EXISTING FENCE
AREA OF IMPACTED SOILS
AREA OF SOILS THAT MAY BE CHARACTERISTICALLY HAZARDOUS
NOTE TOPOGRAPHIC AND PARCEL INFORMATION TAKEN FROM MUSKINGUM COUNTY AUDITORS - CREATED FEBRUARY 2008.
N
0 45 90
SCALE IN FEET
EXISTING FENCE
Proposed Pilot Test Area (~530cy)
M-14S
M-23S
SEEP-2
ESTIMATED LIMITS OF WASTE
COOPERMILL ROAD LANDFILL
TITLE
FORMER DRUM STORAGE AREA
SOIL SAMPLING LOCATIONS AND VOC CONCENTRATIONS
LOCATION
COOPERMILL ROAD LANDFILL
ZANESVILLE, OHIO
TETRA TECH
APPROVED MRN
DRAFTED NJW
PROJECT# 117-2202041
DATE 7/26/12
FIGURE
3



Modified Decision Document

Figure 4