Second Five-Year Review Report
McGraw-Edison Superfund Site
City of Centerville
Appanoose County, Iowa

July 2014

Region 7
United States Environmental Protection Agency
Lenexa, Kansas

Approved by:

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Superfund Division Director
U.S. EPA, Region 7

7-24-14
Date:

Table of Contents

Figures

Attachments

List of Abbreviations

ARAR	applicable or relevant and appropriate requirement
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Difference
FYR	five-year review
HHRA	human health risk assessment
ICs	institutional controls
IDNR	Iowa Department of Natural Resources
IRPB	iron reactive permeable barrier
ISS	in situ soil stabilization
MCL	maximum contaminant level
MNA	monitored natural attenuation
NCP	National Contingency Plan
OU	operable unit
ORP	oxidation-reduction potential
ppb	parts per billion
ppm	parts per million
RAO	remedial action objective
RI/FS	remedial investigation/feasibility study
RSL	regional screening level
ROD	Record of Decision
SVE	soil vapor extraction
TCE	trichloroethene
1,2-DCE	1,2-dichloroethene
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
$\mu g/m^3$	micrograms per meter cubed
VI	vapor intrusion
VOCs	volatile organic compounds

Executive Summary

This is the second Five-Year Review Report for the McGraw-Edison Site (Site) located in Centerville, Iowa. The purpose of this report is to review information to determine if the remedy selected by the U.S. Environmental Protection Agency, pursuant to the authority of the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9601 et seq., is and will continue to be protective of human health and the environment. The triggering action for this FYR was the signing of the previous FYR Report on July 27, 2009.

The Site is located approximately 1.5 miles southeast of downtown Centerville in Appanoose County, Iowa near the intersection of Dewey Road and Iowa Highway 5. The Site is in an area of mixed use consisting of single-family residential units, light manufacturing and retail shops. The contamination at the Site is attributed to the manufacturing of toasters and toaster ovens which included metal plating and wastewater treatment from 1966 to 1978. The solvent trichloroethene (TCE) was used in the manufacturing building to clean the metal plating equipment.

One operable unit (OU) is designated for this Site which includes soil and groundwater. The 1993 Record of Decision (ROD) selected treatment of TCE contaminated source area soils with Soil Vapor Extraction (SVE) and conventional pumping and treating of contaminated groundwater. The EPA issued an Explanation of Significant Difference (ESD) on the 1993 ROD in June 1994 and again in June 1996. The 1994 ESD selected dual phase vacuum groundwater removal as an alternative to conventional pumping. SVE would be used to extract volatile organic compounds from the soils in the source area. The 1996 ESD increased the action level of TCE in soils from 200 to 750 parts per billion. The EPA issued a ROD Amendment in July 1999 to change the preferred remedy for groundwater. The revised alternative added remediating groundwater with an Iron Reactive Permeable Barrier (IRPB) and Natural Attenuation. A contingent remedy in the 1999 ROD Amendment included a second, downgradient IRBP wall. All systems are currently operating at the Site and institutional controls in the form of deed restrictions are in place on the McGraw-Edison property.

The remedial systems were installed as designed but were determined not to be adequate for source area reduction or plume control. The IRPB seems to have reached its useful life and is ineffective at treating the groundwater plume to achieve maximum contaminant levels. The SVE system is operating but data indicates that it is unable to fully address the remaining source area.

A focused remedial investigation/feasibility study (RI/FS) is currently underway to evaluate alternative approaches to address residual source material and groundwater contamination.

This five-year review found that a protectiveness determination of the remedy at OU1 cannot be made at this time until additional information is obtained with respect to the vapor intrusion (VI) pathway. To make a protectiveness determination, multiple rounds of indoor air and sub-slab soil gas samples shall be collected at the residential location overlying the plume and evaluated to determine whether a vapor intrusion mitigation system may be necessary. It is expected the VI investigation may be implemented within 12 months at which time a protectiveness determination will be made.

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site Name: McGraw-Edison Superfund Site		
EPA ID: IAD981711989		
Region: 7	**State:** IA	**City/County:** Centerville/Appanoose

SITE STATUS	
NPL Status: Non-NPL	
Multiple OUs? No	**Has the site achieved construction completion?** Yes

REVIEW STATUS
Lead agency: EPA
Author name (Federal or State Project Manager): Owens Hull
Author affiliation: EPA Region 7
Review period: August 2008 – June 2014
Date of site inspection: April 22, 2014
Type of review: Statutory
Review number: 2
Triggering action date: July 27, 2009
Due date *(five years after triggering action date)*: July 27, 2014

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
NA
Issues and Recommendations Identified in the Five-Year Review:

OU(s): OU1	**Issue Category: Changed Site Conditions**			
	Issue: The vapor intrusion pathway has not been eliminated as a potential complete exposure pathway.			
	Recommendation: Collect multiple rounds of indoor air and sub-slab soil gas samples at the residential location overlying the plume and evaluate the data to determine whether a vapor intrusion mitigation system may be necessary.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	9/30/15

Issues and Recommendations Identified in the Five-Year Review:

OU(s): OU1	**Issue Category: Remedy Performance**			
	Issue: The current SVE system cannot effectively treat the remaining source area.			
	Recommendation: Conduct a pilot study implementing in situ soil stabilization (ISS) using Portland cement to evaluate the effectiveness at reducing contaminant concentrations in the source area.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	6/30/16

Five-Year Review Summary Form (continued)

Issues and Recommendations Identified in the Five-Year Review:				
OU(s): OU1	**Issue Category: Remedy Performance**			
	Issue: The IRPB is not effectively treating groundwater emanating from the source area and may have reached its effective useful life.			
	Recommendation: Evaluate the need for additional remedial actions to address contaminated groundwater following source area pilot study/contaminant reduction.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Implementing Party**	**Oversight Party**	**Milestone Date**
No	Yes	PRP	EPA	6/30/17

Protectiveness Statement(s)		
Operable Unit: OU1	*Protectiveness Determination:* Protectiveness Deferred	*Addendum Due Date (if applicable): 6/30/16*

Protectiveness Statement:
A protectiveness determination of the remedy at OU1 cannot be made at this time until additional information is obtained with respect to the vapor intrusion pathway. To make a protectiveness determination, multiple rounds of indoor air and sub-slab soil gas samples shall be collected at the residential location overlying the plume and evaluated to determine whether a vapor intrusion mitigation system may be necessary. It is expected the vapor intrusion investigation may be implemented within 12 months at which time a protectiveness determination will be made.

SECOND FIVE-YEAR REVIEW REPORT

MCGRAW-EDISON SUPERFUND SITE

1.0 INTRODUCTION

The purpose of a five-year review is to evaluate the implementation and performance of a remedy to determine if the remedy will continue to be protective of human health and the environment. The methods, findings and conclusions of reviews are documented in FYR reports. In addition, FYR reports identify issues found during the review, if any, and recommendations to address them.

The U.S. Environmental Protection Agency is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act Section 121(c) and the National Contingency Plan. CERCLA § 121(c) states:

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

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

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

The EPA Region 7 conducted the FYR and prepared this report regarding the remedy implemented at the McGraw-Edison Superfund Site in Centerville, Appanoose County, Iowa. The EPA is the lead agency for the Site. The review was conducted for the period of August 2009 through June 2014.

This report documents the findings of the second FYR for the Site. The triggering action for this statutory review is the previous FYR, which was signed on July 27, 2009. This FYR is required because hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure. The Site consists of one operable unit which is addressed in this FYR report.

2.0 SITE CHRONOLOGY

A chronology of significant site events and dates is included in Table 1.

Table 1: Chronology of Site Events

Event	Date
Site Operations	1966-1978
Site Discovery	Jan 1987
Administrative Order on Consent	Nov 1988
Site Remediation Report (Initial Removal Action)	Oct 1989
Site Entered into Registry	April 1990
Cooper Industries Phase I Removal Action	May 1989 – July 1990
Administrative Order on Consent for Phase II Removal and Groundwater RI/FS	Sept 1990
Soil Removal Action Report (Second Removal Action)	July 1991
Groundwater RI/FS Approved by EPA	July 1993
Public Meeting for Proposed Plan	Aug 1993
ROD	Sept 24, 1993
Unilateral Administration Order for RD and RA	March 30, 1994
Hazard Ranking System Report	April 1994
ROD Explanation of Significant Differences	June 1994
ROD Explanation of Significant Differences	June 1996
Proposed Plan to Remediate Groundwater with IRPB and Natural Attenuation	April 1999
ROD Amendment for Groundwater Remediation	July 1999
Post ROD Supplemental Feasibility Study Approved by EPA	April 1999
100% Remedial Design for Enhanced Soil Vapor Extraction Approval	May 1999
100% Remedial Design for Iron Reactive Permeable Barrier and Natural Attenuation Approval	August 1999
Construction Complete Report for IRPB	May 2000
Construction Complete Report and O&M Manual for SVE system	May 2000
Preliminary Close-out Report for SVE system; IRPB, and MNA	July 2004
First Five-Year Review Report U.S. Army Corps of Engineers for EPA	July 2009
Focused Remedial Investigation Report	July 2011
Focused Feasibility Study Report	April 2012
Treatability Study Report	January 2014

3.0 BACKGROUND

3.1 Physical Characteristics

The McGraw-Edison Superfund Site occupies about 14 acres in Appanoose County, Iowa, located approximately 1.5 miles southeast of downtown Centerville and about 90 miles southeast of Des Moines. Centerville is a community of approximately 6,000 residents. Figure 1 shows the location of the Site. Figure 2 shows a map of the groundwater elevations across the Site.

The Site is situated on a local topographic high area. Storm water from the Site is discharged to drainage ditches from drainage features located near the northeast and southwest property corners. Surface water exiting the Site from the northeast corner upgradient of the Site flows eastward toward Hickory creek and the Chariton River (approximate distance of 3 miles); surface water leaving the Site through the southwest culvert eventually flows into the upper and lower Centerville reservoirs located approximately one mile west, which are used for the city's public water supply.

3.2 Hydrology, Geology and Hydrogeology

The Site is underlain by Quaternary glacial drift of the Kansan, and probably the Nebraskan glacial stages. The drift consists primarily of thick sheets of stiff to hard, calcareous, over consolidated, sandy, unsorted lodgment till with predominantly silty clay to clayey silt matrix. Weathering of a portion of the drift has resulted in oxidized and leached horizons.

Soil at the Site consists of glacial till with interbedded sand layers. Three till units were documented during the 2011 Focused Remedial Investigation, identified from bottom to top: Till Unit 1, Till Unit 2, and Till Unit 3. The till units are interbedded with four sand units, from bottom to top: the Lower Sand, Channel Sand, Intermediate Sand, and Upper Sand.

Till Unit 3 is the uppermost unit at the Site, and is present from ground surface to a depth between 25 and 30 feet below ground surface (bgs). This unit consists of silty clay with varying amounts of sand and gravel, and is classified as highly plastic clay with plasticity decreasing with depth. Yellow-brown mottles become more predominant with depth, and the matrix changes to a yellowish-brown. Iron and manganese concretions are common in the upper 10 feet. Sand sized particles are nearly absent at the surface and increase slightly with depth.

Below Till Unit 3 is the Upper Sand Unit. This unit is limited in areal extent and appears to form a lens within Till Unit 3. It is encountered at 20 to 30 feet bgs, and ranges up to 10 feet thick. This unit is composed of orange to yellowish-brown to light gray silty sand ranging from fine to medium coarse. A silty clay unit (part of Till Unit 3) is located between the Upper and Intermediate Sand Units. The Upper Sand Unit is apparently absent on the west and northwest portions of the Site.

As described above, the Intermediate Sand Unit is separated from the Upper Sand by a thin layer of silty clay (part of Till Unit 3). The Intermediate Sand is encountered at depths of approximately 36 to 40 feet bgs, and is 5 to 10 feet thick. The unit is present beneath the entire

Site, and is yellowish-brown, medium dense sand to silty sand, and is usually saturated. In portions of the Site, the Upper Sand and Intermediate Sand are not separated by silty clay.

The Channel Sand appears to be a former glacial outwash channel and lies below the units described above. The Channel Sand is separated from the Intermediate Sand by a thin clay layer in some parts of the Site. At other locations, the Intermediate Sand lies directly over the Channel Sand.

Groundwater occurs at a depth of approximately 30 feet bgs across the Site. Groundwater flow is generally toward the east and southeasterly direction. Vertical groundwater gradients are downward.

Beneath and adjacent to the southeast part of the manufacturing building, a shallow perched water unit (1 to 3 feet deep) is present above the permanent water table. Soil vapor extraction Area B is in this area and the dual extraction wells remove an average of 300 gallons of perched water per day as part of extraction operations.

3.3 Land and Resource Use

The Site is in an area of mixed use consisting of single-family residential units, light manufacturing and retail shops. The facility was constructed in 1965 for the Appanoose County Industrial Development Agency which was leased to the McGraw-Edison Company from 1966 to 1978. McGraw-Edison used the property to manufacture toasters and toaster ovens, which included metal plating and wastewater treatment from 1966 to 1978. Peabody International Corporation occupied the Site from 1978 until 1986. During this time, the buildings were used for the storage of grains or finished goods. Cooper Industries acquired McGraw-Edison from Peabody in September 1990. In 2003, Cooper Industries donated the property to the City of Centerville and leases back approximately 25,000 square feet for operation of the SVE system. In 2007, the City of Centerville sold all of the former McGraw-Edison property to Centerville Holdings, L.L.C. of which Lyle Cowan is the General Manager. The northern portion of the facility is used as a warehouse and the southern portion is used as a wood working operation. The surrounding land use is mixed agricultural, industrial and residential. Surface drainage from the Site flows into the Centerville Reservoir located about one mile west of the Site. The Centerville water supply is drawn from this reservoir. It is anticipated that land use in the surrounding area will remain similar to current uses. A well survey conducted for the first FYR identified 216 wells within a one-mile radius of the Site, two of which were contaminated with trichloroethene (TCE) from the Site but were immediately provided with public water supply in 1988. The groundwater beneath the Site is not currently used as a drinking water source. The residents near the Site are connected to a public water supply provided by the Rathbun Regional Water Association.

3.4 History of Contamination

From 1966 to 1978, McGraw-Edison manufactured toasters and toaster ovens, which included metal plating and a wastewater treatment system. Hazardous wastes were left in the plating area and throughout the wastewater treatment system when operations ceased in 1978. The solvent

TCE was used in the manufacturing building to clean the metal plating equipment. The TCE was stored in a 5,000 gallon above ground tank on the south side of the manufacturing building. The treated wastewater was discharged to the Centerville sanitary sewer system. The plating solids were discharged to on-site drying beds located on the west side of the wastewater treatment building. Peabody International Corporation occupied the Site from 1978 until 1986. During this time, the buildings were used for the storage of grains or finished goods. Cooper Industries acquired McGraw-Edison from Peabody in September 1990.

Hazardous wastes have been disposed of at the Site, posing a significant threat to the environment. The primary public health concern is for exposure to contaminated groundwater used for drinking water. Two private residential wells near the facility were discovered to be contaminated with TCE. In 1988, the residents were connected to the public water supply. Surface water in the drainage ditch next to Highway 5 on the southwest corner of the Site, has shown TCE contamination in the past.

3.5 Initial Response

The EPA is the lead agency for the Site. The EPA issued a Consent Agreement and Consent Order in 1988 for Site cleanup and investigation. Soil was contaminated with heavy metals at several locations on the Site which included chromium, nickel, copper, zinc and lead. Contaminated soil was removed during the 1989 Phase I and Phase II Removal Actions. From May 1989 to July 1990, Cooper Industries' conducted a Phase I Removal Action. This included the stabilization and removal of lagoon sludges, the removal of contaminated equipment and soil, the decontamination of concrete floors and the back filling of excavated areas with clean soils. During the Phase I Removal Action, additional areas of sludge contamination were discovered. In July 1990, the EPA conditionally approved a Phase II Soil Removal Action work plan. In September 1990, the EPA issued another Administrative Order on Consent to conduct a Phase II Removal Action and a Remedial Investigation/Feasibility Study for the groundwater. The Phase II removal action included the removal of the additional sludge, further cleaning of concrete floors, de-commissioning of tanks and the removal of soils contaminated with TCE and other volatile organic compounds (VOCs).

3.6 Basis for Taking Action

The 1993 Record of Decision states, "Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this ROD, present a current or potential threat to public health, welfare, or the environment." The primary public health concern is for exposure to contaminated drinking water through potential migration of TCE and its degradation product 1,2-dichloroethylene (1,2-DCE) into the surrounding groundwater which had been used as a drinking water source. Ecological risks were not considered as part of the initial assessment.

4.0 REMEDIAL ACTIONS

4.1 Remedy Objectives

The ROD for the McGraw-Edison Site was signed on September 24, 1993. Remedial Action Objectives (RAOs) were developed as a result of data collected during the RI to aid in the development and screening of remedial alternatives to be considered for the ROD. The RAOs for McGraw-Edison were selected to remediate contaminated groundwater and provide source control for contaminated soils.

The RAOs for groundwater are to prevent exposure of human receptors to groundwater having a total excess cancer risk of greater than $1x10^{-4}$ to $1x10^{-6}$ and to prevent off-site migration of groundwater having a total excess cancer risk of greater than $1x10^{-4}$ to $1x10^{-6}$. These RAOs are expected to be met by meeting a cleanup level of 5 parts per billion (ppb) TCE to be protective of human health and the environment. This cleanup goal also complies with the drinking water maximum contaminant level (MCL) for that contaminant.

The RAOs for soil are to prevent exposure of human receptors to soil having a total excess cancer risk of greater than $1x10^{-4}$ to $1x10^{-6}$ and to prevent further contamination to groundwater by reducing the leaching potential of contaminant source area soils. The RAOs for soil are expected to be met by a cleanup level of 750 ppb for TCE, which has been detected at levels up to 5,000 ppb in the soils.
Cleanup to the 750 ppb level for TCE should be adequate to protect human health and the environment. The cleanup level for TCE in soil was calculated as the residual concentration in soil which would not adversely affect groundwater (to concentrations above 5 ppb) through continual leaching.

4.2 Remedy Selection

The selected remedy in the 1993 ROD consists of the following:

Soil Contamination

- Construct an asphalt cap over the soils where TCE contamination has been detected at depth;
- Install soil vents and air inlet wells to improve the circulation of air through the subsurface soils;
- Connect the soil vents and air inlet wells to a vacuum system to remove the TCE-contaminated vapors from the subsurface soils; and
- Monitor the effectiveness of the system.

Groundwater Contamination

- Install extraction wells in the contaminated groundwater zones;
- Extract the groundwater;
- Treat the groundwater using ultraviolet oxidation technology;
- Discharge the treated water to the surface or to the publicly owned treatment works; and
- Monitor semi-annually the effectiveness of the groundwater treatment system.

The EPA issued an Explanation of Significant Difference on the ROD in June 1994 and again in June 1996. The 1994 ESD selected dual phase vacuum groundwater removal as an alternative to conventional pumping. A determination cited in the January 1995 Treatability Study Report concluded ultraviolet oxidation would not be successful due the groundwater properties (high calcium, turbidity, etc.) at the Site. SVE would be used to extract VOCs from the soils in the source area. The 1996 ESD increased the action level of TCE in soils from 200 to 750 ppb. The EPA issued a ROD Amendment in July 1999 to change the preferred remedy to address the contaminated groundwater. The revised alternative consisted of remediating the groundwater with an Iron Reactive Permeable Barrier and Natural Attenuation. The Groundwater Post-ROD Supplemental Feasibility Study was approved by the EPA in April 1999.

4.3 Remedy Implementation

SVE System

The SVE system construction was completed in early 2000 and consisted of nine pairs of fracture enhanced extraction points (Figure 3). Each SVE pair included a shallow extraction point ("A" designation) and a deep extraction point. The average depth of the shallow points is six feet bgs, and the depth of the deep points ranges from 19.5 to 24.5 feet bgs. Horizontal hydro-fracturing was performed using 12,111 gallons of a sand/gel mixture to enhance air flow in the soil. The SVE system design and as-built cross-sections are provided in Attachment 4. Initial startup of the SVE system was on January 10, 2000.

One component of the remedy was never implemented. An asphalt cover should have been installed over areas where TCE contamination was detected at depth in the soil. Its purpose was to prevent short-circuiting of the SVE system. This component was not installed due to the main source of contaminants being under the footprint of the building that is capped with concrete and covered by a building.

Iron Reactive Permeable Barrier

The IRPB construction was completed in June 1999 by injecting zero valent iron through well heads spaced 15 feet apart (Figure 4). Hydro-fracturing was performed on the upper and intermediate sands and channel sands. The IRPB was completed with a reported average thickness of three inches and a length of approximately 240 feet. The height of the IRPB ranged from approximately 20 feet to 43 feet bgs. A second IRPB (designated as a contingent remedy) has not been installed within the downgradient portion of the groundwater plume.

4.4 Operational and Maintenance

SVE System

After startup, the system achieved flow rates that exceeded the design specifications. Based on the initial system sampling conducted one week after startup, the calculated mass removal of TCE was 11.3 pounds per day. The system ran through September 2002 with only minor shutdowns due to power outages. Individual extraction points were occasionally shutdown due to water accumulating in those points. The main system continued to run, and the points containing water were drained and brought back on line.

In September 2002, the SVE system was shut down for 1.5 months for repairs and preventative maintenance. As a result of the maintenance, vacuum and air flow were increased by approximately nine percent. The calculated TCE extraction rates also showed an increase in January 2003. Following the July 2003 sampling, a pulsed schedule for operation was proposed to examine the effects on TCE removal rates. The pulsed operation included an eight month schedule, which encompassed two cycles of shutting down the system for a one month period, then operating the system for a three month period. The pulsed system operation began in December 2003, and included two system sampling events. The results showed the pulsed system operation did not significantly increase TCE removal rates.

Operations continued until a formal shutdown request was submitted to the EPA on October 14, 2004. The EPA responded to the request in a letter dated January 28, 2005. The EPA letter requested collection of laboratory samples from each SVE point to compare with the historical calculated extraction results. The samples were collected on March 4, 2005, and the results were reported to the EPA in a letter dated April 28, 2005. The EPA responded to the shutdown request in a letter dated December 7, 2005. The letter rejected the request to completely shut down the system, but stated that focused operation of the system in areas in excess of the action level 2.471 parts per million (ppm) by volume of TCE in gas and 750 ppb in soil would be acceptable. Subsequently, the SVE system was re-started on January 2, 2006 with extraction on points 3A, 4, 5A, 6, 6A, 7A, 8, 8A and 9A. With extraction on a reduced number of points, excessive strain was put on the system vacuum pump from the reduced intake volume, and the pump began running at temperatures higher than the manufacturer's specifications. A small volume of additional air intake was required to alleviate the overheating problem. Small quantities of air were bled into the system from SVE points 1A, 2A, 3, 4A, 7 and 9 to ensure the system operated properly. The quantity of additional air was kept at a minimum to focus the SVE on the points that have not yet met the action level.

The system was shutdown down on July 30, 2007 as a result of operational difficulties that could not be diagnosed in the field. The system was within approximately 800 hours of the manufacturer recommended 30,000 hour maintenance, so the system was dismantled and taken to a manufacturer-certified facility to perform the repairs and maintenance. The SVE system was reinstalled on October 4, 2007, after being shut down for two months. Upon startup, electrical problems associated with the system's control panel resulted in sporadic operation. The panel was repaired and the system was fully functional as of the end of October 2007.

Again on April 5, 2008, the system was shut down as a result of operational difficulties that could not be diagnosed in the field. The system was dismantled and taken to a manufacturer-certified facility to perform the repairs. The SVE system was reinstalled on July 29, 2008. Upon startup, electrical problems associated with the system's automated dewatering pump resulted in sporadic operation. The electrical system was repaired and the SVE system was fully functional at the beginning of September 2008.

In July 2011, the blower developed electrical and mechanical problems. After several attempts at repair it was decided that the unit was not worth repair costs. A rebuilt replacement blower and new knock-out tank were installed and the system was made fully functional by December 2011 and has run without incident since then.

5.0 PROGRESS SINCE THE LAST FIVE-YEAR REVIEW

The protectiveness statement in the first FYR issued in 2009 (EPA, 2009) stated "The remedy at OU1 currently protects human health and the environment because all known exposure pathways have been eliminated and the systems were installed as designed. However, in order for the remedy to continue to be protective in the long-term, the suspected remaining source area of contamination should be further investigated and perhaps more aggressively remediated; additional assessment should be conducted to re-define the extent of horizontal migration and determine the need for the second IRBP; the need for institutional controls (ICs) should be evaluated for downgradient properties overlying the plume, and groundwater monitoring should be continued to measure the performance of the remedy until RAOs have been attained to ensure long-term protectiveness."

Table 2 – Status of Recommendations from the 2009 FYR

Issues from Previous FYR	Recommendations	Implementing Party	Milestone Date	Action Taken and Outcome	Date of Action
No well restrictions or groundwater use controls in contaminated or potentially contaminated areas off-site	Evaluate the need for ICs for downgradient properties overlying the plume	EPA and IDNR	9/30/2010	No ICs or Environmental Covenants have been placed on properties overlying the plume	None
Downgradient extent of plume not fully delineated and determine need for second IRPB	Gain access from downgradient property owners and investigate and monitor the full extent of contamination plume and utilize information to determine if a second IRPB is needed	PRP	9/30/2010	Access was granted from the property owners and additional investigation was conducted	7/12/2011
Vapor intrusion pathway not evaluated	Preform a preliminary screening of the vapor intrusion pathway	PRP	9/30/2010	Indoor air samples were collected in the manufacturing building and indoor air and sub-slab soil gas samples were collected from one residential location overlying the plume	9/12/2010
Remaining source area not delineated and ineffectively treated	Investigate the remaining source area and determine the best method to address it	PRP	9/30/2010	Additional investigation activities were conducted as part of a Focused RI/FS	7/12/2011
Asphalt cover not installed over source area	Evaluate the benefit of installing the asphalt cover over the source area to optimize the remedial effectiveness	PRP	9/30/2010	No asphalt cap was installed based on the plan to conduct an ISS pilot study at the source area	None

The status of these five recommendations from the 2009 FYR are updated below.

5.1 Work Completed at the Site During the Review Period

5.1.1 Institutional Controls for Downgradient Properties

The first Five-Year Review Report raised concern that the downgradient limits of the plume were not well defined and that it was possible that the plume had migrated beyond monitoring well GW-3 (Figure 5). The report also noted that the downgradient property owners had not provided Cooper Industries access to perform investigations and determine the limits of the plume and that if the downgradient property owners continued to resist access to perform

investigations and installation of wells that allow full delineation and monitoring of the plume, institutional controls (ICs) should be considered to restrict installation of drinking water wells by current or future property owners.

As part of the Focused RI described below, access was given to collect grab groundwater samples from temporary wells installed downgradient of well GW-3. Grab groundwater samples were collected from four temporary Geoprobe wells in 2010. No VOCs were detected in any of the grab groundwater samples downgradient of GW-3. However, TCE was detected at 689 micrograms per liter (µg/L) at GW-3 in January 2013 indicating the groundwater plume is not fully delineated. The properties along Dewey Road and the surrounding Centerville area is serviced with municipal water by the Rathbun Regional Water Association which gets its water from Lake Rathbun. Therefore, ICs for the downgradient properties are not necessary.

5.1.2 Focused Remedial Investigation

In correspondence dated March 23, 2010 the EPA requested that a Focused RI be conducted based on increasing TCE concentrations near the source area and western and southeastern edges of the groundwater plume and that targeted soil and groundwater action levels had not been achieved by the implemented remedies since becoming operational in 2000. The EPA also requested that a vapor intrusion evaluation be conducted. Sampling and Analysis Plans and Quality Assurance Project Plans dated June 24, 2010 were approved by the EPA in correspondence dated September 2, 2010. The work completed included:

Focused RI Activities

- Collection and analysis of soil samples from five (5) boreholes in SVE Areas A and B for soil cleanup verification;
- Collection and analysis of soil and perched groundwater samples from twelve (12) boreholes in the source area;
- Collection and analysis of groundwater samples from 15 frac wells installed along the IRPB;
- Collection and analysis of grab groundwater samples from 13 temporary wells located in the downgradient plume;

VI Sampling

- Collection and analysis of indoor air samples from 4 locations inside the manufacturing building;
- Collection and analysis of indoor air samples from 2 locations inside the residence at 22310 Dewey Road;
- Collection and analysis of a sub-slab soil gas sample from 1 location beneath the residence at 22310 Dewey Road.

The following conclusions were made based on the routine monitoring and RI activities conducted at the Site:

SVE System Operation (2013)

- In 2013, the SVE system removed 135 pounds of TCE; 3 pounds from Area A and 132 pounds from Area B.
- Since January 2000, the SVE system has removed a calculated total of 4,075 pounds of TCE; 586 pounds from Area A and 3,489 pounds from Area B.
- The calculated TCE extraction rates have decreased 98.5% since system start up in January, 2000 (11.3 lbs/day to 0.17 lbs/day).
- The TCE extraction rates from individual points continue to be limited, with the majority of the TCE recovered from SVE Area B at points 5/5A and 6/6A.

Routine Groundwater Monitoring (2013)

- The direction of groundwater flow is toward the east with a southeasterly component which is consistent with historical data (Figure 2).
- In the source area, TCE concentrations have decreased significantly in MW-3A as a result of the SVE operation in SVE Area B. TCE concentrations in MW-7A, which is located between SVE Areas A and B, have increased over the last five years.
- MW-2, located within the shallow perched water unit at the source area near the SVE system, has had TCE concentrations ranging from 252,000 µg/L (2013) to 860,000 µg/L (2012) over the last five years.
- Downgradient of the IRPB, VOCs in GW-2 have been non-detectable since 2003. TCE and DCE concentrations in EW-1 have decreased steadily since 2008 to levels below drinking water standards. GW-1R VOC concentrations have fluctuated over time and recently have shown an increase in TCE concentrations over the last couple of years.
- Within the downgradient plume, TCE concentrations in WT-18 have shown an increase in concentration over the last couple of years. TCE was detected at 88 µg/L in 2009 and 898 µg/L in 2013. TCE concentrations within GW-3 have ranged between 403 µg/L (Dec, 2011) and 1,320 µg/L (Jun, 2011) over the last five years.

Soil Cleanup Verification (2010)

- Soil cleanup verification sampling conducted in 2010 (Figure 6) in SVE Area A indicates TCE concentrations still exceed the 750 micrograms per kilogram (µg/kg) standard between SVE-1 and SVE-2 at a depth of 12.5 to 17.5 feet bgs (11,000 – 60,800 µg/kg). Between SVE-3 and SVE-4 the TCE concentration is slightly above the standard at a depth of 12.5 feet bgs (800 µg/kg).
- Soil cleanup verification sampling in SVE Area B indicates TCE concentrations exceed the cleanup standard in soil at a depth of 7.5 to 22.5 feet bgs (3,750 – 264,000 µg/kg) at either end of the area and at 12.5 to 17.5 feet bgs (3,860 – 135,000 µg/kg) in the middle of the area.

Source Area Delineation (2010)

- Additional soil sampling conducted in the source area beyond the SVE Area defined the approximate limits of soil containing TCE above the cleanup standard of 750 µg/kg. The area of impacted soil straddles the southern wall in the southeast corner of the

manufacturing building and extends approximately 100 feet further west than the western end of SVE Area B beneath the building as shown on Figure 6.

- Additional perched water sampling conducted in the source area defined the limits of perched water containing elevated levels of TCE. The area of impacted perched water straddles the southern wall in the southeast corner of the manufacturing building and extends approximately 100 feet further northwest than the western end of SVE Area B. A lobe of impacted water also extends approximately 100 feet south of the building wall as shown on Figure 7.

IRPB Sampling (2010)

- The field parameters show reduced conditions with average dissolved oxygen of 0.4 ppm and oxidation-reduction potential (ORP) of -238. TCE concentrations ranged from non-detectable to up to 599 µg/L with the highest TCE concentrations occurring in the northern-most two wells. Grab groundwater samples from north and south of the IRPB contained TCE concentrations of 368 µg/L and 24.7 µg/L, respectively, indicating that the length of the IRPB does not extend across the entire width of the plume (Figure 4).

Downgradient Plume Delineation (2010)

- No VOCs were detected in grab groundwater samples north, east or south of MW-4 (GP-21, GP-22 and GP-23). The sample west of MW-4 at GP-20 contained 12,000 µg/L of TCE. Samples further west at GP-37 and MW-6 contained much lower TCE concentrations of 23 and 2.6 µg/L, respectively. These results suggest an isolated TCE hotspot centered at GP-20 just west of MW-4 (Figure 5).
- No VOCs were detected in any of the grab groundwater samples downgradient of GW-3. However, TCE was detected at 689 µg/L at GW-3 in January 2014 indicating the groundwater plume is not fully delineated.

VI Sampling (2010)

- In the manufacturing building, five compounds were detected in one or more indoor air samples at concentrations above the industrial air Residential Screening Level (RSL), however, none of the compounds are related to the chlorinated solvent VOCs in the groundwater plume beneath the Site. The facility uses solvents in its repair operations for cleaning and painting.
- In the residential building overlying the downgradient plume no VOCs were detected in indoor air samples above the RSLs.
- Beneath the residential building three compounds were detected in one or both of the sub-slab soil gas samples at concentrations above the residential sub-slab soil gas RSL, however, none of the compounds are related to the chlorinated solvent VOCs in the groundwater plume beneath the Site.

In correspondence dated August 30, 2011 the EPA approved the Focused RI Report. Recommendations in the Focused RI Report included the installation of three additional groundwater monitoring wells which was implemented in September 2011: MW-25 was installed in the vicinity of GP-20 to monitor the TCE hot spot identified at that location; MW-24 was

installed north and east of GP-32 to delineate the extent of the plume extending around the north end of the IRPB; and MW-26 was installed east of GW-3 along Dewey Road to confirm the limited migration at the plume front.

5.1.3 Feasibility Study

Based on the results of a July 2011 Focused RI report the EPA requested that a Focused FS report be prepared evaluating remedial alternatives addressing TCE contamination within the source area and the groundwater plume.

The alternatives evaluated under the updated Focused FS included:

- N-1: No Action
- S-1: Soil Vapor Extraction
- S-2: Soil Excavation and On-Site Treatment with Indirect Heat Volatilization
- S-3: In Situ Mechanical Mixing with Chemical Agent
- GW-1: Groundwater Recovery and Treatment
- GW-2: In Situ Bioremediation
- GW-3: In Situ Chemical Oxidation and Monitored Natural Attenuation (MNA)

Based on the results of the Focused FS, the EPA recommended that a pilot test be conducted for alternative S-3 (in situ mechanical mixing with chemical agent). Prior to conducting a field pilot test, bench scale treatability testing was conducted to evaluate chemical agents for this alternative. The results of the testing found that in situ soil stabilization (ISS) using Portland cement provided the best results for the Site.

6.0 FIVE-YEAR REVIEW PROCESS

6.1 Administrative Components

The EPA Region 7 initiated the FYR in 2013 and scheduled its completion for July 2014. The second FYR team included Owens Hull, the EPA Region 7 Remedial Project Manager, in cooperation with Region 7 hydrogeologist, human health risk assessor and ecological risk assessor. Dan Cook of Iowa Department of Natural Resources (IDNR), Nelson Olavarria of Cooper Industries, LLC and Mike Noel of Tetra Tech, Inc. assisted in the completion of the FYR. The FYR includes community notification, document review, interviews with plant personnel, a site inspection, review of Applicable and Relevant or Appropriate Requirements (ARARs) and monitoring data evaluation.

6.2 Community Involvement

The community was notified by the agency via public notice published on April 3, 2014, in the Daily Iowegian to announce the start of the FYR for the Site and to provide contact information if there were any questions or concerns regarding the Site. The public display ad is available in Attachment 3.

6.3 Document Review

This FYR consisted of a review of relevant documents included in the first FYR report in addition to semiannual progress reports submitted by Cooper Industries, LLC since the last FYR. Other documents that have been reviewed include the Focused RI Report, the Focused FS Report and the Treatability Study Report.

6.4 Data Review

Section 5.1.2 details the Focused RI activities conducted since the last FYR which includes a review of all available data. Numerous historical reports were reviewed to conduct this FYR. The data package from the January 2014 sampling event provided the most recent analytical results from all wells in the groundwater monitoring network, trend-graphs for key monitoring wells, and the contractor's conclusions and recommendations regarding the remedial systems and downgradient contamination. See Attachment 1 for historical SVE sampling results, groundwater sampling results and trend plots.

Table 3 – TCE Results for the Last Five Years for each Routine Monitoring Well

Well Number	TCE Concentration (µg/L)								
	Dec-2009	Jun-2010	Dec-2010	Jun-2011	Dec-2011	Jun-2012	Dec-2012	Jun-2013	Jan-2014
GW-1R	269	37.2	52	95	157	675	611	972	1270
GW-2	<1.0	<1.0	<1.0	<1.0	1.3	1.9	NS	NS	NS
MW-3A	74.3	5.8	45	6.9	40.7	85	140	82.2	150
EW-1	14.1	9.3	3.8	3.4	1.4	2.3	1.2	1.3	0.77J
MW-6	3.2	2.4	2.6	1.6	2.5	2.4	1.7	1.6	1.5
MW-7	14	15.5	43.3	<1.0	7.2	16.6	14.2	9.6	8.1
MW-7A	522	921	1630	1080	2080	1330	750	834	1440
MW-8	12.1	8.3	9.4	8.3	6.7	9.0	11.6	8.1	11.9
MW-8A	<1.0	<1.0	2.3	<1.0	135	2.7	235	7.8	152
MW-19WT	26.8	28.3	29.9	16.7	29.5	22.9	21.5	20.1	18.5
MW-20WT	43.4	8.5	394	202	349	90.1	82.1	111	NS
MW-22WT	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-23WT	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-21	NS	NS	42.5	<1.0	1.5	<1.0	<1.0	<1.0	<1.0
MW-24	*	*	*	*	1.5	<1.0	<1.0	2.6	<1.0
MW-25	*	*	*	*	2440	4810	2880	6410	2410
MW-26	*	*	*	*	<1.0	<1.0	<1.0	<1.0	<1.0
WT-18	88.2	66.4	104	79.6	210	338	606	898	1470
BD-18	<1.0	NS	NS	NS	<1.0	<1.0	1.1	0.92J	<1.0
GW-3	899	813	1290	1320	403	1200	802	1180	689
GW-4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	<1.0
MW-2	NS	592000	297000	654000	357000	860000	402000	252000	293000

NS – Not Sampled
J – Estimated concentration
µg/L – micrograms per liter
* MW not constructed at time of sample collection

Groundwater data above confirm the results of the RI. Wells near the source area have elevated TCE concentrations indicating that residual source material exists. Some groundwater wells downgradient of the IRPB have increasing TCE concentrations indicating the IRPB has reached its useful life and may not be addressing the entire plume. Both of these results indicate that the

plume is not stable and is not shrinking. It is recommended that additional groundwater monitoring wells or samples be collected to delineate the plume.

Groundwater monitoring data indicate that some compounds that were not previously considered in the original ROD may need groundwater cleanup levels. The groundwater data collected from several groundwater probe locations and MW-2 during the focused RI indicate several exceedances of the MCLs for the contaminants cis-1,2-dichloroethene, trans-1,2-dichloroethene and vinyl chloride.

6.5 Site Inspection

A site visit was conducted on April 22, 2014. Attendees at the site visit included the following:

- Owens Hull, EPA Region 7 – Regional Project Manager
- Mike Noel, Tetra Tech, Inc. – Consultant to Cooper Industries, LLC
- Virgil and Mike Bain, Midwest Environmental Services Inc. – SVE System Operators
- Lyle Cowan – Centerville Holdings, LLC – General Manager

6.6 Interviews

During the FYR visit to the Site on April 22, 2014, all parties discussed the current status of the remedial actions. Everyone agreed additional work is necessary based on the continued presence of TCE in the source area and downgradient plume. The site inspection form is included in Attachment 2.

6.7 Institutional Controls

ICs are applied by deed restrictions on the property. See Attachment 6 for the Notice of Lease and Property Restrictions.

7.0 TECHNICAL ASSESSMENT

7.1 Question A: Is the remedy functioning as intended by the decision documents? No.

The operating remedial actions were constructed as designed. However, achieving RAOs in the time frame originally projected did not occur. The SVE system is not efficiently addressing the source area of contamination. This may be the result of a continuing source area present in the saturated soil associated with the perched water zone. Changes in the water table may be contributing to recontamination of the vadose zone. The southern leg of the system has reached asymptotic contaminant concentrations above the target action levels as evidenced by the SVE system sampling data and data collected to support the RI. The IRPB wall initially provided benefit as evidenced by TCE reductions in groundwater downgradient of the wall. However, groundwater data show some increasing TCE trends downgradient of the wall which indicates the wall has reached equilibrium and its effective design life.

Based on the increasing TCE concentrations in groundwater, a Focused RI/FS was conducted as recommended in the 2009 FYR for both soil and groundwater to determine an alternate approach

to addressing the remaining residual contamination. Soil data indicates that residual source material remains in the vadose zone and the saturated zones located near the perched water table. A focused FS was conducted to evaluate technologies that can address these continuing source areas.

Groundwater samples collected during the RI indicate that an apparent "hot spot" exists in the area of well MW-4 on the eastern portion of the Site. TCE concentrations in MW-4 over the past three years have ranged from 162 µg/L to the most recent detection in January 2014 of 7,870 µg/L. Concentrations in MW-4 have been increasing in recent years. The distal portion of the plume is not adequately delineated. In 2010, direct push technology was used to collect grab samples downgradient of well GW-3. No VOCs were detected at that time. The plume is not stable or shrinking. Additional wells or periodic grab samples should be collected to adequately monitor these areas.

Remedial Action Performance

SVE System

The SVE system was installed in 1999 and became operational in January 2000. The system consists of two legs designated as Area A (north) and Area B (south), with each extraction point represented by "shallow" and "deep" wells. The wellheads are equipped with dual-phase pumps capable of extracting liquid in addition to soil vapor.

In accordance with the 1999 Soil Cleanup Verification Plan, borings were installed in 2010 in Area A for cleanup verification and in Area B for evaluating cleanup progress. Soil sampling in SVE Area A indicated TCE concentrations exceeded the 750 µg/kg standard between SVE-1 and SVE-2 at a depth of 12.5 to 17.5 feet bgs. Between SVE-3 and SVE-4 the TCE concentration was slightly above the standard at a depth of 12.5 feet bgs. Soil sampling in SVE Area B indicated TCE concentrations exceeded the cleanup standard in soil at a depth of 7.5 to 22.5 feet bgs at either end of the area and at 12.5 to 17.5 feet bgs in the middle of the area.

Additional 2010 soil sampling conducted in the source area beyond the SVE Area defined the approximate limits of soil containing TCE above the cleanup standard of 750 µg/kg. The area of impacted soil straddles the southern wall in the southeast corner of the manufacturing building and extends approximately 100 feet further west than the western end of SVE Area B. Additional perched water sampling conducted in the source area defined the limits of perched water containing elevated levels of TCE. The area of impacted perched water straddles the southern wall in the southeast corner of the manufacturing building and extends approximately 100 feet further northwest than the western end of SVE Area B. A lobe of impacted water also extends approximately 100 feet south of the building wall.

Tetra Tech estimated approximately 4,075 pounds of VOCs have been removed by the SVE system through January 2014; however, TCE concentrations are still present in both areas precluding achievement of the action level (750 µg/kg).

Iron Reactive Permeable Barrier (IRPB)

The IRPB was installed in 1999 and became operational in early 2000. The IRPB was constructed via a sophisticated downhole emplacement of zero valent iron across the downgradient edge of the source zone, and was designed as a flow-through system. Available data indicates that the IRPB may have been successful initially, but not to the level expected.

The IRPB appears to be approaching the end of its effectiveness due to further permeability reduction since startup. Mounding of groundwater upgradient of the IRPB indicates that the permeability of the system is lower, at least over portions of the IRPB, than the sandy outwash deposits that carry most of the dissolved TCE from the source area. Where portions of the IRPB are less permeable than the native outwash deposits, groundwater is forced to find an alternate flow pathway. The new pathways could be around one or both ends of the subsurface structure as well as over the top of the IRPB due to groundwater mounding up-gradient of the structure.

To help evaluate the IRPB performance, groundwater samples were collected in 2010 from wells used to construct the IRPB. The IRPB was constructed using 16 (F-1 to F-16) vertical hydrofracturing wells to inject iron. The field parameters from the samples show reduced conditions with average dissolved oxygen of 0.4 ppm and ORP of -238. TCE concentrations ranged from non-detectable up to 599 µg/L with the highest TCE concentrations occurring in the northern-most two wells. Grab groundwater samples from north and south of the IRPB contained TCE concentrations of 368 µg/L and 24.7 µg/L, respectively, indicating potential plume pathways around both ends of the IRPB.

The MNA remedy for the plume downgradient of the IRPB depends primarily on adsorption and dispersion and some biodegradation. Historical analytical results confirm limited biodegradation is occurring in the downgradient plume based on the presence of some TCE daughter products (DCE and Vinyl Chloride) in sample analyses. Increasing TCE concentration trends occurring in downgradient wells GW-1R and WT-18 may be due to a continued mass flux of TCE migrating from the source area combined with reduction in effectiveness of the IRPB wall.

- Monitoring well GW-3 is located southeast of the Site on Dewey Road and is the most downgradient well that contains detectable VOCs. The groundwater flow direction from GW-3 is to the east/southeast. Groundwater samples from monitoring wells to the west and northeast of GW-3 (GW-4 and MW-23WT) contain no detectable VOCs indicating the plume is less than 250 feet wide. To evaluate the nature and extent of the TCE plume at and beyond GW-3 grab groundwater samples were collected from four temporary Geoprobe wells in 2010. No VOCs were detected in any of the grab groundwater samples collected downgradient of GW-3. However, TCE was detected at 689 µg/L at GW-3 in January 2014 indicating the groundwater plume is not fully delineated.

Institutional Controls

ICs in the form of deed restrictions are in place on the McGraw-Edison property. The deed restriction prevents disturbance of the ongoing remedial actions and limits future land use. The deed restriction also prevents the use of contaminated groundwater underneath the Site. The

properties downgradient of the Site do not have ICs. They are connected to the public water supply and it was determined that ICs were not needed.

7.2 Question B: Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of remedy selection still valid? Yes.

Changes in Standards and TBCs

- *Have there been changes to risk-based cleanup levels or standards identified as Applicable or Relevant and Appropriate Requirements in the ROD that call into question the protectiveness of the remedy?*

  There have been no changes to risk-based cleanup levels or standards, or ARARs that would call into question the protectiveness of the remedy.

  Monitoring data indicate that some compounds that were not previously considered in the original ROD may need groundwater cleanup levels.

- *Are there newly promulgated standards that call into question the protectiveness of the remedy?*

  No, there are no newly promulgated standards that would call into question the protectiveness of the remedy.

- *Have TBCs used in selecting cleanup levels at the Site changed in a way that could affect the protectiveness of the remedy?*

  The EPA is not aware of changes to any TBCs used in selecting cleanup levels that could affect the protectiveness of the remedy.

Changes in Exposure Pathways

- *Has land use or expected land use on or near the Site changed (e.g., industrial to residential, commercial to residential)?*

  The current on-site land use has not changed since the 1993 human health risk assessment (HHRA) and remains light industrial and residential. Commercial development has occurred over the FYR period to the south of the Site, south of Dewey Road. Provided that a remedy is selected to address the source area and the current groundwater plume does not expand, the commercial development should not be impacted.

- *Have any human health or ecological routes of exposure or receptors changed or been newly identified (e.g., dermal contact where none previously existed, new populations or species identified on site or near the site) that could affect the protectiveness of the remedy?*

  When the HHRA was completed as part of the 1993 RI, little was known about the VI pathway, which involves the inhalation of volatiles that vaporize indoors from underlying sources of contaminated groundwater. Since the HHRA was completed, more information has come to light and the pathway was recommended for assessment in the first FYR in 2009.

  Indoor air sampling to address the VI pathway was initiated in September 2010 at the manufacturing building and a residential location overlying the plume. Indoor air samples were collected at four locations within the manufacturing building to evaluate the potential for VI from the underlying groundwater contaminant plume. While thirty compounds were detected in the indoor air samples, ten of the same compounds were also detected in outdoor air samples. Five compounds were detected above the EPA RSLs (benzene, ethylbenzene, naphthalene, methylene chloride and tetrachloroethene). While those compounds were detected, they were not related to the chlorinated solvents detected in the groundwater plume.

  Indoor air and sub-slab soil gas samples were collected from one residential location overlying the plume. Twelve compounds were detected in the indoor air and sub-slab soil gas samples, those detected were not site-related and did not exceed the residential air RSLs for those compounds.

  While the completed sampling did not indicate compounds from the Site were vaporizing into the manufacturing building or the residential location, the amount of the sampling is insufficient to draw conclusions. The EPA recommends collecting at least four quarters of indoor air sampling to evaluate temporal variability to better assess the VI pathway.

- *Are there newly identified contaminants or contaminant sources?*

  The extent of the contamination still does not appear fully defined for this Site. A new contaminant source "hot spot" was indicated in the Focused RI Report near GP-20 location, to the east of the manufacturing building. In addition, high concentrations of VOCs were detected in the perched water near the original source. Any new remedies selected will need to address all known potential source areas and the groundwater plume.

- *Are there unanticipated byproducts of the remedy not previously addressed by the decision documents (e.g., byproducts not evaluated at the time of remedy selection)?*

  The groundwater monitoring data indicate that several wells have exceedances of the MCLs for cis-1,2-dichloroethene of 70 µg/L at locations GW-1R, GP-5, GP-6, GP-7, GP-8, GP-11, GP-12, GP-14, GP-16, GP-19 and MW-2. Trans-1,2-dichloroethene was

detected above the MCL of 100 µg/L at GP-16 and MW-2. Vinyl chloride was detected above the MCL of 2 µg/L at GP-5, GP-6, GP-7, GP-8, GP-11, GP-12, GP-13, GP-14, GP-16, GP-19 and MW-2. The EPA recommends the MCLs for these compounds be added to the existing cleanup levels for groundwater.

- *Have physical Site conditions or the understanding of these conditions changed in a way that could affect the protectiveness of the remedy?*

  The EPA is not aware of any changes in Site conditions.

Changes in Toxicity and Other Contaminant Characteristics

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

  The toxicity information for TCE has changed since the last FYR was issued in 2009. The inhalation route of exposure through VI was not evaluated in the last review. The current residential air RSL for TCE is 0.43 micrograms per meter cubed ($\mu g/m^3$) based on $1x10^{-6}$ cancer risk level, and the industrial worker RSL for TCE is 3 $\mu g/m^3$ based on a $1x10^{-6}$ cancer risk level (EPA, 2013). This change in toxicity will be considered when additional VI sampling is conducted.

- *Have other contaminant characteristics changed in a way that could affect protectiveness of the remedy?*

  The EPA is not aware of any changes to contaminant characteristics.

Vapor Intrusion Pathway

- *Are the COCs of sufficient volatility and toxicity to warrant a VI investigation?*

  There are VOCs of sufficient volatility and toxicity that have been detected in groundwater at this Site.

- *Has a VI investigation been conducted at this Site?*

  One VI sampling event was conducted at the facility and a downgradient residence. Typically, four rounds of samples are collected to adequately evaluate the temporal variability associated with this pathway. Additional sub-slab, indoor air and ambient air samples should be collected at the residence overlying the plume.

- *Is the VI pathway complete? If complete, has the VI concern been adequately mitigated to ensure protectiveness?*

  Sub-slab samples were not collected at the facility; however, source area groundwater concentrations at well MW-2 are 293,000 µg/L (January 2014) for TCE. Based on this

concentration, the Vapor Intrusion Screening Level calculator indicates the potential for pathway completion. This COC was detected at lower levels in indoor air sample IA-04 collected at the facility.

Whereas sub-slab, indoor air and outdoor ambient samples were collected at/near the residence; one sampling event is not adequate to evaluate the VI pathway. Over the FYR period, concentrations of TCE in monitoring wells near the residence were as high as 898 µg/L. This represents a continuing potential for indoor air concerns.

Expected Progress Toward Meeting RAOs

- *Is the remedy progressing as expected?*

The operating remedial actions were constructed as designed. However, achieving RAOs with the current technologies is not anticipated in timeframes envisioned in the ROD.

7.3 Question C: Has any other information come to light that could call into question the protectiveness of the remedy? No.

- *Have newly found ecological risks been found?*

The metal concentrations (chromium, copper, lead, nickel and zinc) in the soil, sediment and surface water on-site remain elevated, especially when compared to more up-to-date ecological screening levels [Probable Effect Concentrations for sediment, (McDonald et al., 2000)], and EPA's Eco-Soil Screening Levels for soil (EPA, 2003). However, these elevated metal concentrations are not likely to pose a significant ecological risk due to the limited extent of functional habitat at the Site.

- *Are there impacts from natural disasters (e.g., a 100-year flood)?*

The EPA is not aware of any natural disasters that have occurred at the Site.

- *Has any other information come to light which could affect the protectiveness of the remedy?*

The EPA is not aware of any other information which has come to light that could affect the protectiveness of the remedy.

7.4 Technical Assessment Summary

The operating remedial actions at the McGraw-Edison Site were constructed as designed. However, achieving RAOs with the current technologies in the time frame originally projected will not occur. Based on the review, additional VI sampling is warranted to ensure the VI pathway is not complete. The SVE system has removed considerable TCE mass from the soil but has reached an asymptotic state, projected to be the result of a remaining source area south of the building the system cannot efficiently address. A Focused FS was conducted to evaluate more

aggressive alternatives for the soil. Bench testing of in situ chemical oxidation and ISS has found that ISS may be the best alternative going forward. Addressing this area is critical to making continued progress towards meeting the objectives of the remedy, both for the soil and groundwater media.

The IRPB wall appears to have provided some level of benefit initially, but the wall has reached equilibrium and is approaching its useful design life. Groundwater mounding behind the wall suggests some areas of the wall are less permeable than the surrounding aquifer-bearing media as evidenced by mounding behind the wall. The possibility contaminated groundwater is bypassing the wall was confirmed in the Focused RI.

The IRPB component of the remedy is combined with a MNA component for the plume downgradient of the wall. The MNA remedy for the plume downgradient of the IRPB depends primarily on adsorption and dispersion and some biodegradation. A contingency in the ROD to install a second IRPB wall if MNA is not occurring at a reasonable rate has not been exercised. Historical analytical results confirm limited biodegradation is occurring in the downgradient plume based on the presence of some TCE daughter products (DCE and Vinyl Chloride) in sample analyses. A Focused FS was conducted to evaluate more aggressive alternatives for the groundwater including pump and treat, bioremediation and chemical oxidation. By comparison, the pump and treat alternative was as protective and effective as the other alternatives but at a much lower capital cost and with the lowest net present value of the three alternatives.

ICs are in place for the on-site property in the form of deed restrictions. The deed restriction precludes the installation of water wells and does not allow the site to be developed for any public use including but not limited to residential, day care, health care or public or private school facilities. However, ICs were not identified for downgradient properties overlying the plume.

8.0 ISSUES

Table 4 summarizes the current issues for the McGraw-Edison Site.

Table 4. Current Issues for the McGraw-Edison Site

Issue	Affects Current Protectiveness (Yes or No)	Affects Future Protectiveness (Yes or No)
The vapor intrusion pathway has not been eliminated as a potential complete exposure pathway.	No	Yes
The current SVE system cannot effectively treat the remaining source area.	No	Yes
The IRPB is not effectively treating groundwater emanating from the source area and may have reached its effective useful life.	No	Yes

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Table 5 provides recommendations to address the current issues at the McGraw-Edison Site.

Table 5. Recommendations to Address Current Issues at the McGraw-Edison Site

Issue	Recommendations/ Follow-Up Actions	Implementing Party	Oversight Agency	Milestone Date	Affects Protectiveness (Yes or No)	
					Current	Future
The vapor intrusion pathway has not been eliminated as a potential complete exposure pathway.	Collect multiple rounds of indoor air and sub-slab soil gas samples at the residential location overlying the plume and evaluate the data to determine whether a vapor intrusion mitigation system may be necessary.	PRP	EPA	9/30/2015	No	Yes
The current SVE system cannot effectively treat the remaining source area.	Conduct a pilot study implementing in situ soil stabilization (ISS) using Portland cement to evaluate the effectiveness at reducing contaminant concentrations in the source area.	PRP	EPA	6/30/2016	No	Yes
The IRPB is not effectively treating groundwater emanating from the source area and may have reached its effective useful life.	Evaluate the need for additional remedial actions to address contaminated groundwater following source area pilot study/contaminant reduction.	PRP	EPA	6/30/2017	No	Yes

10.0 PROTECTIVENESS STATEMENT

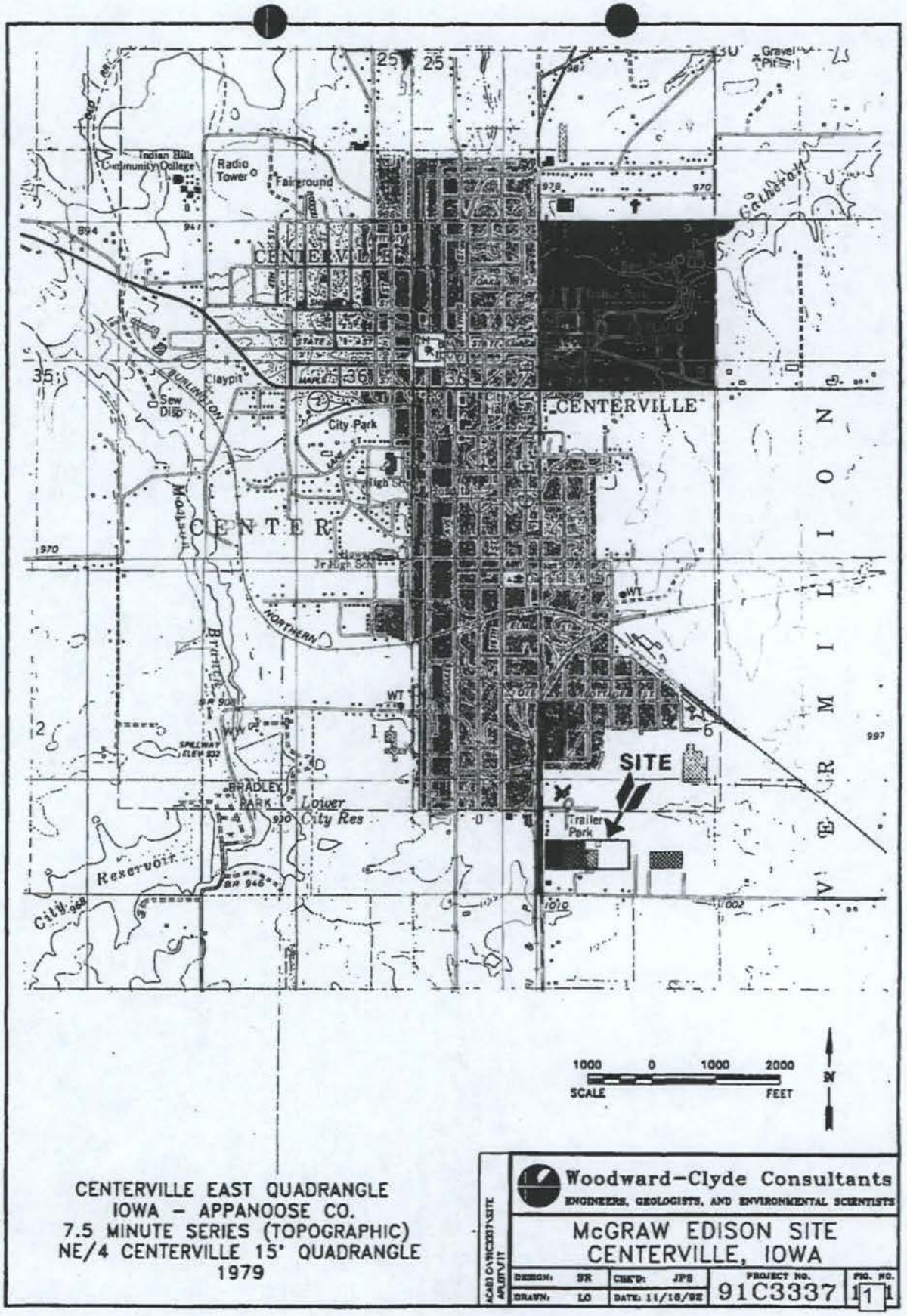
OU1

A protectiveness determination of the remedy at OU1 cannot be made at this time until additional information is obtained with respect to the VI pathway. To make a protectiveness determination, multiple rounds of indoor air and sub-slab soil gas samples shall be collected at the residential location overlying the plume and evaluated to determine whether a VI mitigation system may be necessary. It is expected the VI investigation may be implemented within 12 months at which time a protectiveness determination will be made.

11.0 NEXT REVIEW

This is a statutory review Site that requires ongoing FYRs as long as waste is left on-site that does not allow for unrestricted use and unlimited exposure. The next FYR for the McGraw-Edison Superfund Site will be due within five years of the signature date of this FYR Report.

Figures

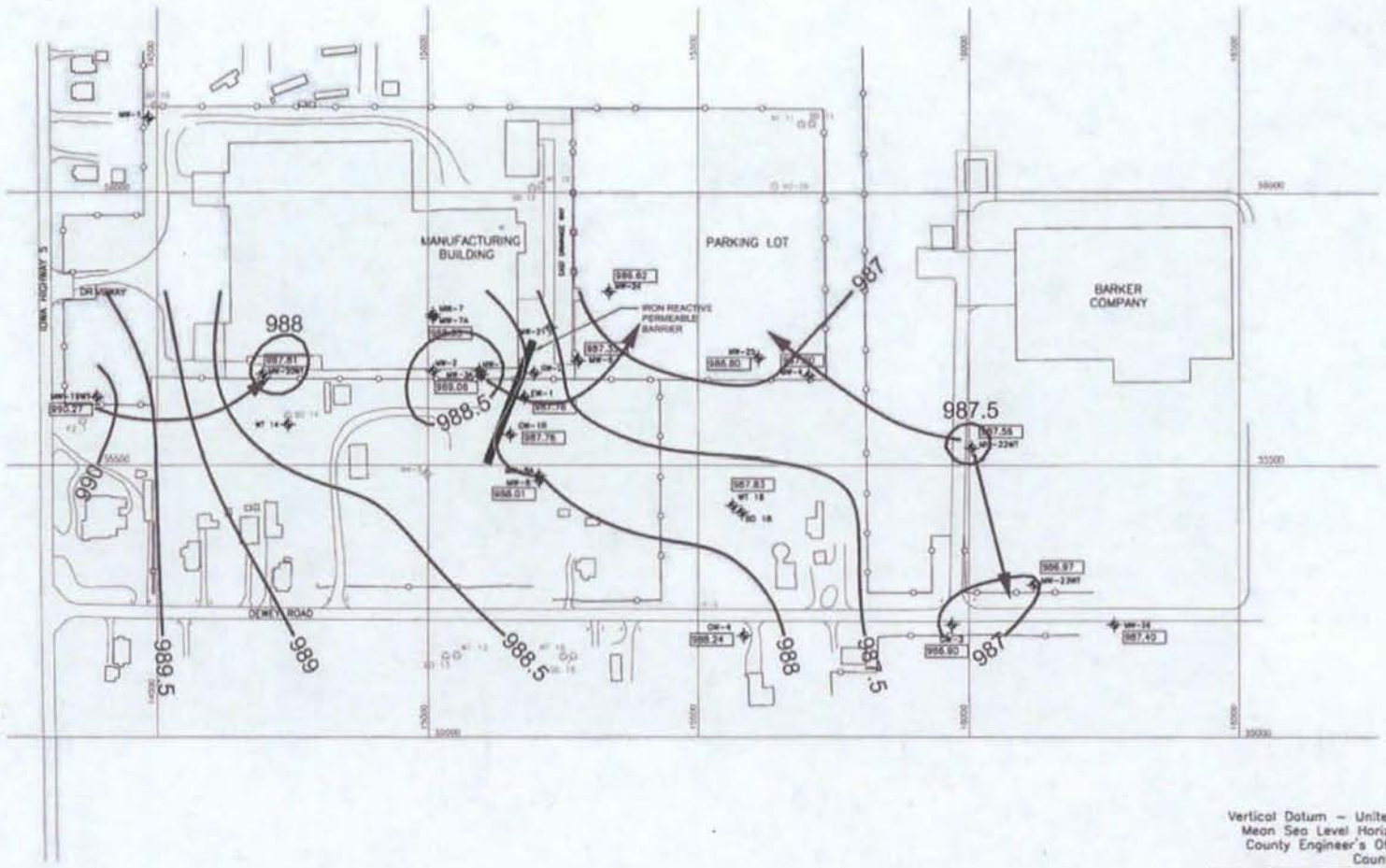


CENTERVILLE EAST QUADRANGLE
IOWA – APPANOOSE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 CENTERVILLE 15' QUADRANGLE
1979

Woodward-Clyde Consultants
ENGINEERS, GEOLOGISTS, AND ENVIRONMENTAL SCIENTISTS

McGRAW EDISON SITE
CENTERVILLE, IOWA

DESIGN: SR	CHK'D: JPS	PROJECT NO. 91C3337	FIG. NO. 1
DRAWN: LG	DATE: 11/18/92		



Vertical Datum – United States Geological Survey – Mean Sea Level Horizontal Control – Appanoose County Engineer's Office coordinate system for County mapping.

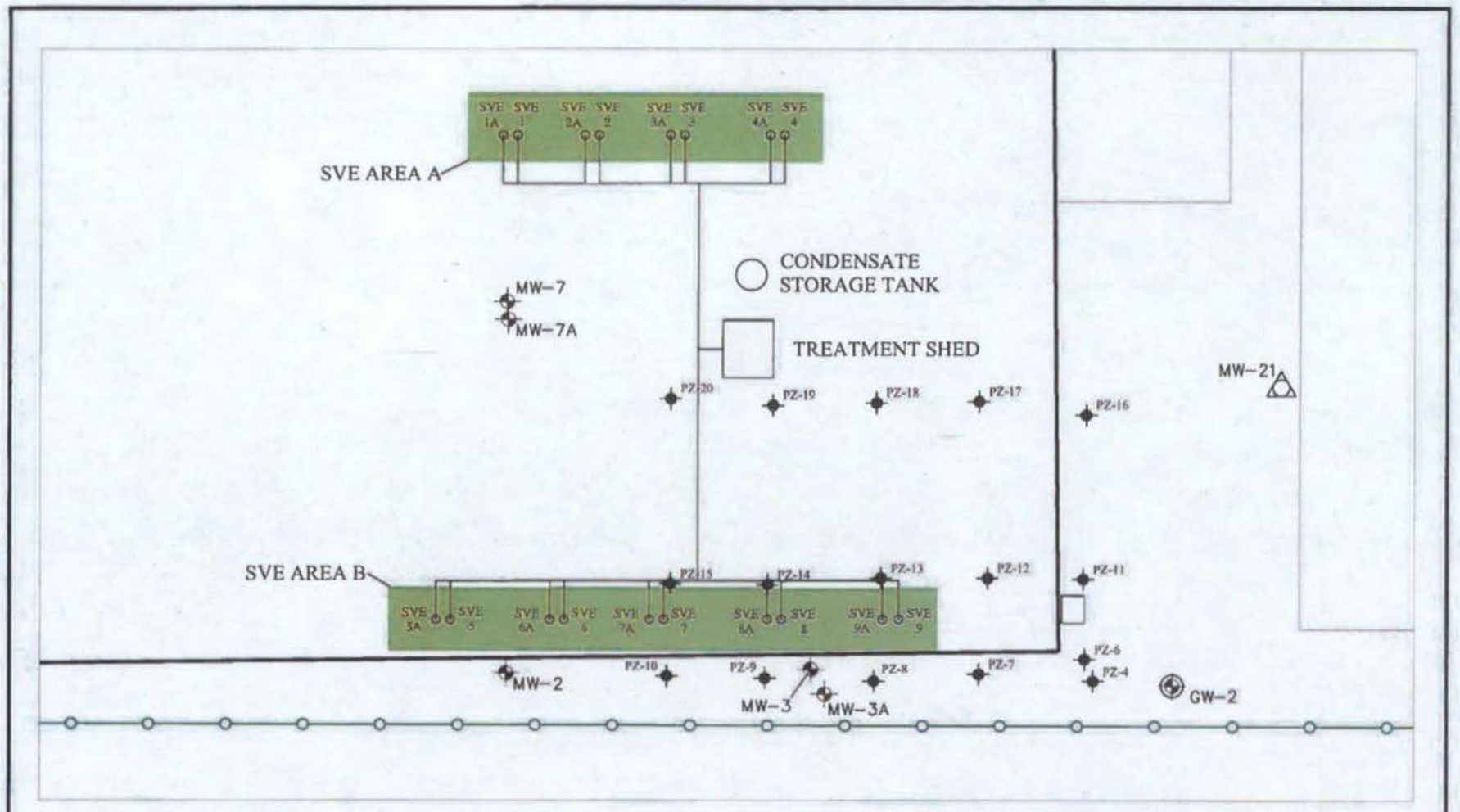
EXPLANATION

- CHAIN LINK FENCE
- 987.76 GROUNDWATER LEVEL DATA – JANUARY 2014 (FEET ABOVE MSL)
- 988 GROUNDWATER CONTOUR (FEET ABOVE MSL) DASHED WHERE INFERRED
- GROUNDWATER FLOW DIRECTION
- MW MONITORING AND SUMP WELLS
- IW ABANDONED WELL

0 100 200 400
SCALE IN FEET

FORMER McGRAW-EDISON SITE CENTERVILLE, IOWA	DATE: 2/4/14
	DESIGNED: MRN
	CHECKED: MRN
GROUNDWATER ELEVATION MAP (JANUARY 2014)	APPROVED: MRN
	DRAWN: HJW
	PROJ.: 2202.042
TETRA TECH	Figure 2

S:\CAD\COOPER\CENTERVILLE\GROUNDWATER\2202.042-4-140918.DWG



EXPLANATION

- Chain link fence
- Monitoring wells installed in 1999
- Monitoring wells and sumps installed prior to 1999
- Boring converted to monitoring well
- Piezometer

N

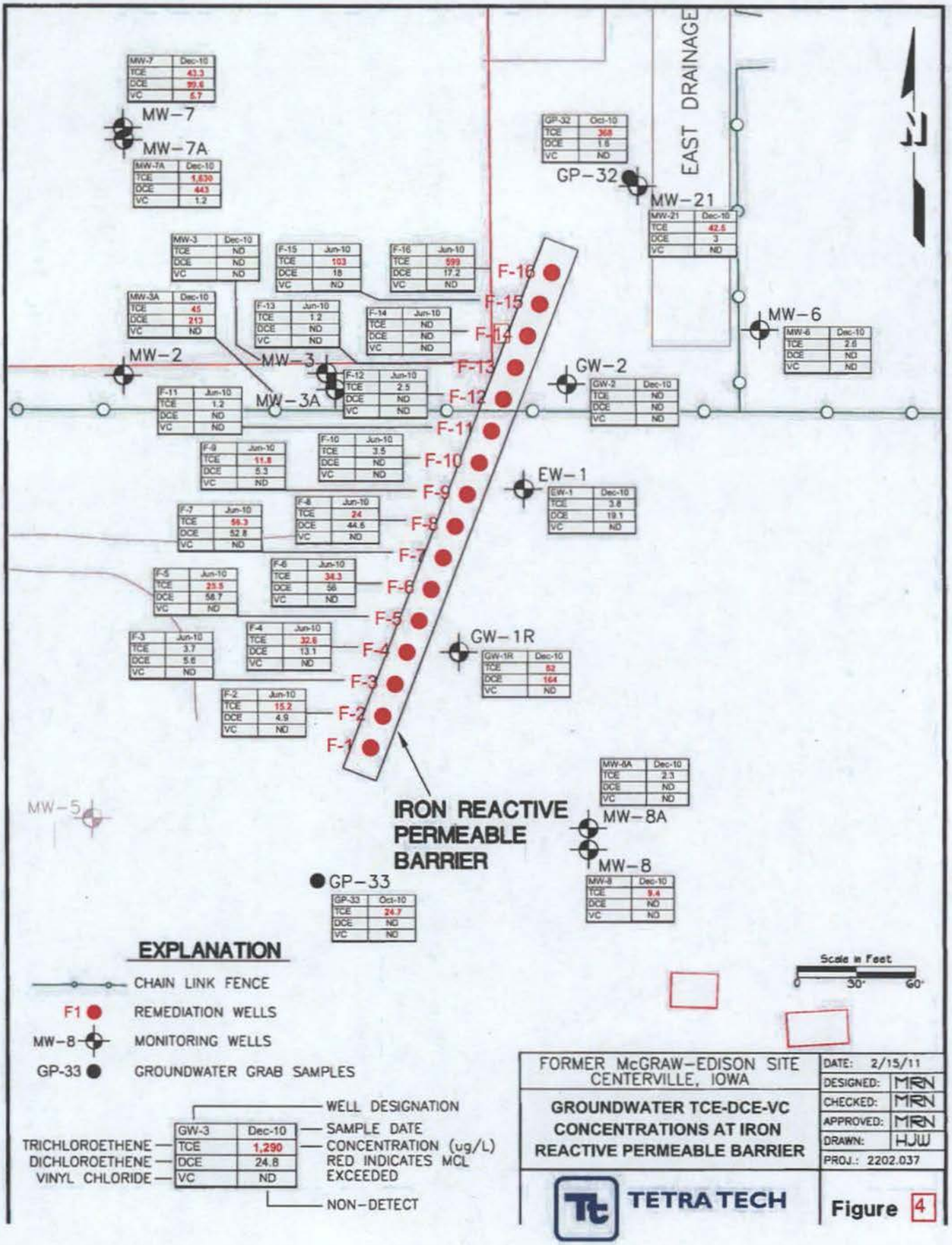
0 20 40 80

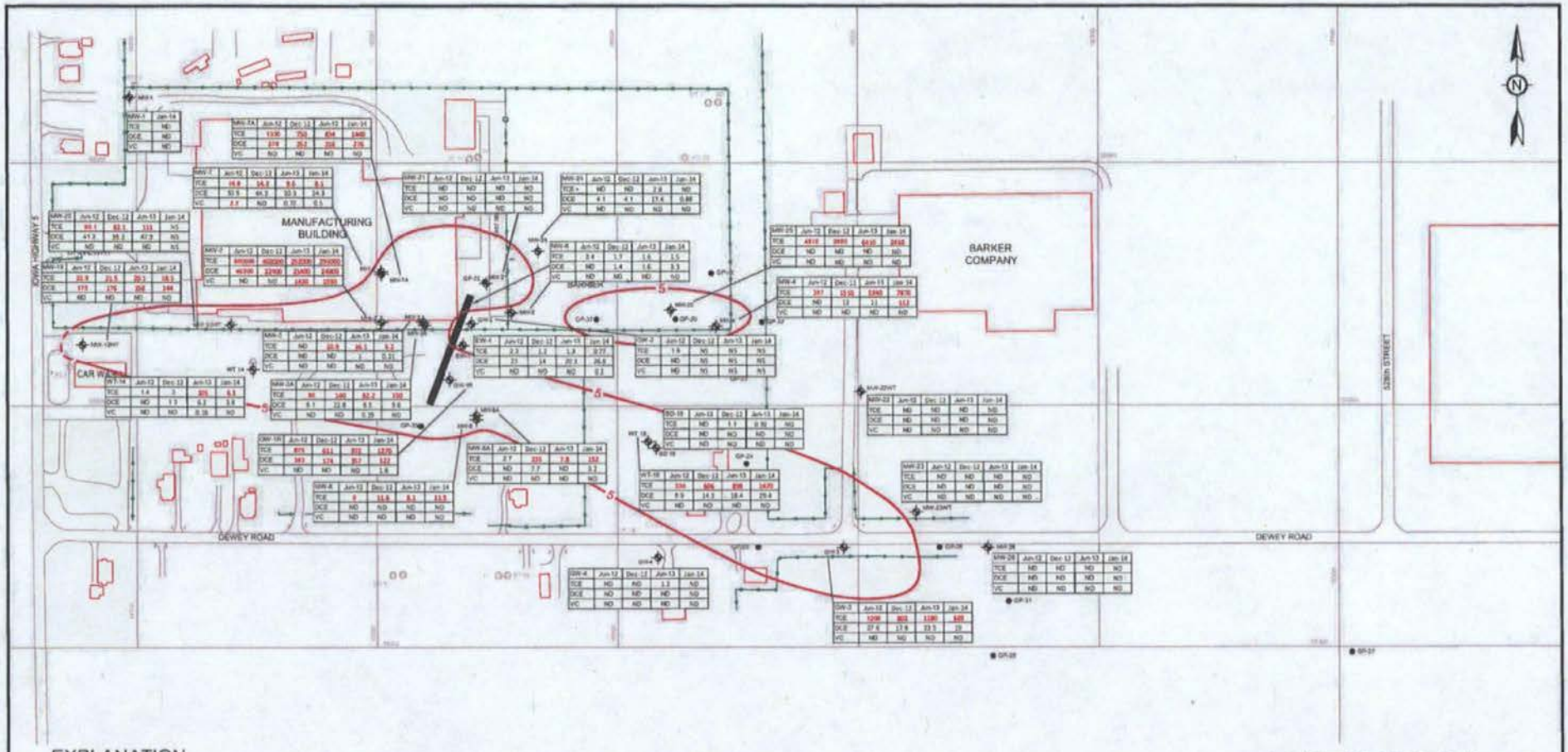
SCALE IN FEET

Vertical Datum - United States Geological Survey - Mean Sea Level
Horizontal Control - Appanoose County Engineer's Office coordinate system for County mapping.

Former McGraw-Edison Site Centerville, Iowa	DATE: 07/23/07
	DESIGNED: DJB
	CHECKED: DJB
SVE System Layout	APPROVED: DJB
	DRAWN: DJB
	PROJ: 2201.042
TETRA TECH	FIGURE: 3

Centerville\cad\SVE-layout.dwg


EAST DRAINAGE
MW-7
MW-7A
GP-32
MW-21
MW-6
MW-2
MW-3
MW-3A
GW-2
EW-1
GW-1R
MW-5
MW-8A
MW-8
GP-33
F-16
F-15
F-14
F-13
F-12
F-11
F-10
F-9
F-8
F-7
F-6
F-5
F-4
F-3
F-2
F-1
IRON REACTIVE PERMEABLE BARRIER
EXPLANATION
CHAIN LINK FENCE
REMEDIATION WELLS
MONITORING WELLS
GROUNDWATER GRAB SAMPLES
WELL DESIGNATION
SAMPLE DATE
CONCENTRATION (ug/L)
RED INDICATES MCL EXCEEDED
NON-DETECT
TRICHLOROETHENE
DICHLOROETHENE
VINYL CHLORIDE
Scale in Feet
0
30
60
FORMER McGRAW-EDISON SITE
CENTERVILLE, IOWA
GROUNDWATER TCE-DCE-VC CONCENTRATIONS AT IRON REACTIVE PERMEABLE BARRIER
DATE: 2/15/11
DESIGNED: MRN
CHECKED: MRN
APPROVED: MRN
DRAWN: HJW
PROJ.: 2202.037
TETRA TECH
Figure 4



EXPLANATION

	MW-19	Jun-12	Dec-12	Jun-13	Jan-14
TRICHLOROETHENE	TCE	22.9	21.5	20.1	18.5
DICHLOROETHENE	DCE	175	176	158	144
VINYL CHLORIDE	VC	ND	ND	ND	ND

- WELL DESIGNATION
- SAMPLE DATE
- CONCENTRATION (ug/L) RED INDICATES MCL EXCEEDED
- NON-DETECT

5 TCE CONCENTRATION CONTOURS (ug/L) (DASHED WHERE INFERRED)

CHAIN LINK FENCE

MW MONITORING AND SUMP WELLS

WT ABANDONED WELL

GP GROUNDWATER GRAB SAMPLE LOCATION

NOTE: SEE FIGURE 3 FOR CONCENTRATIONS AT SAMPLING LOCATIONS WITHIN THE IRON REACTIVE PERMEABLE BARRIER.

0 100 200 400
SCALE IN FEET

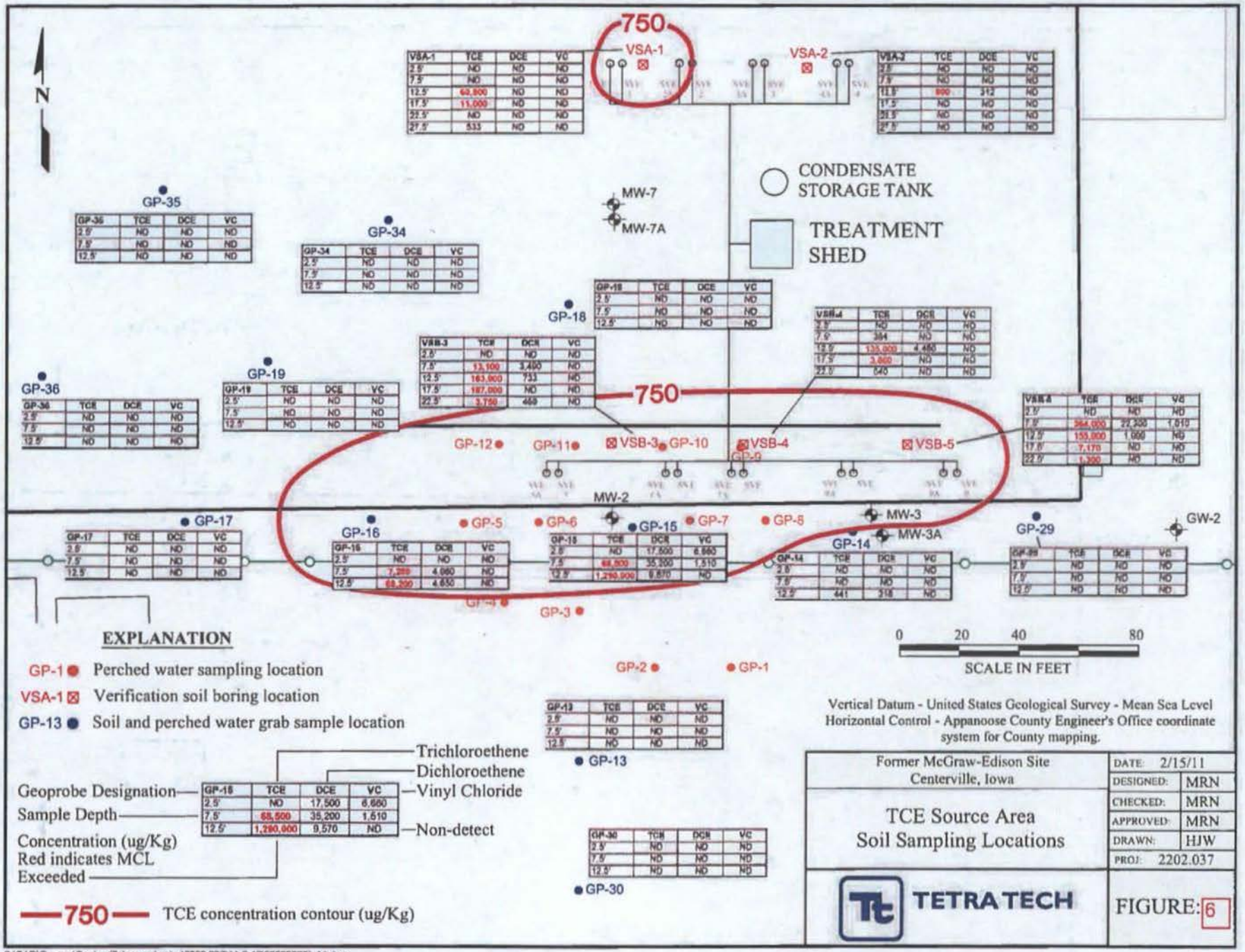
Vertical Datum - United States Geological Survey - Mean Sea Level Horizontal Control - Appanoose County Engineer's Office coordinate system for County mapping.

FORMER McGRAW-EDISON SITE CENTERVILLE, IOWA	DATE: 3/17/14
	DESIGNED: MRN
	CHECKED: MRN
GROUNDWATER PLUME (JANUARY 2014)	APPROVED: MRN
	DRAWN: HJW
	PROJ.: 2202.042

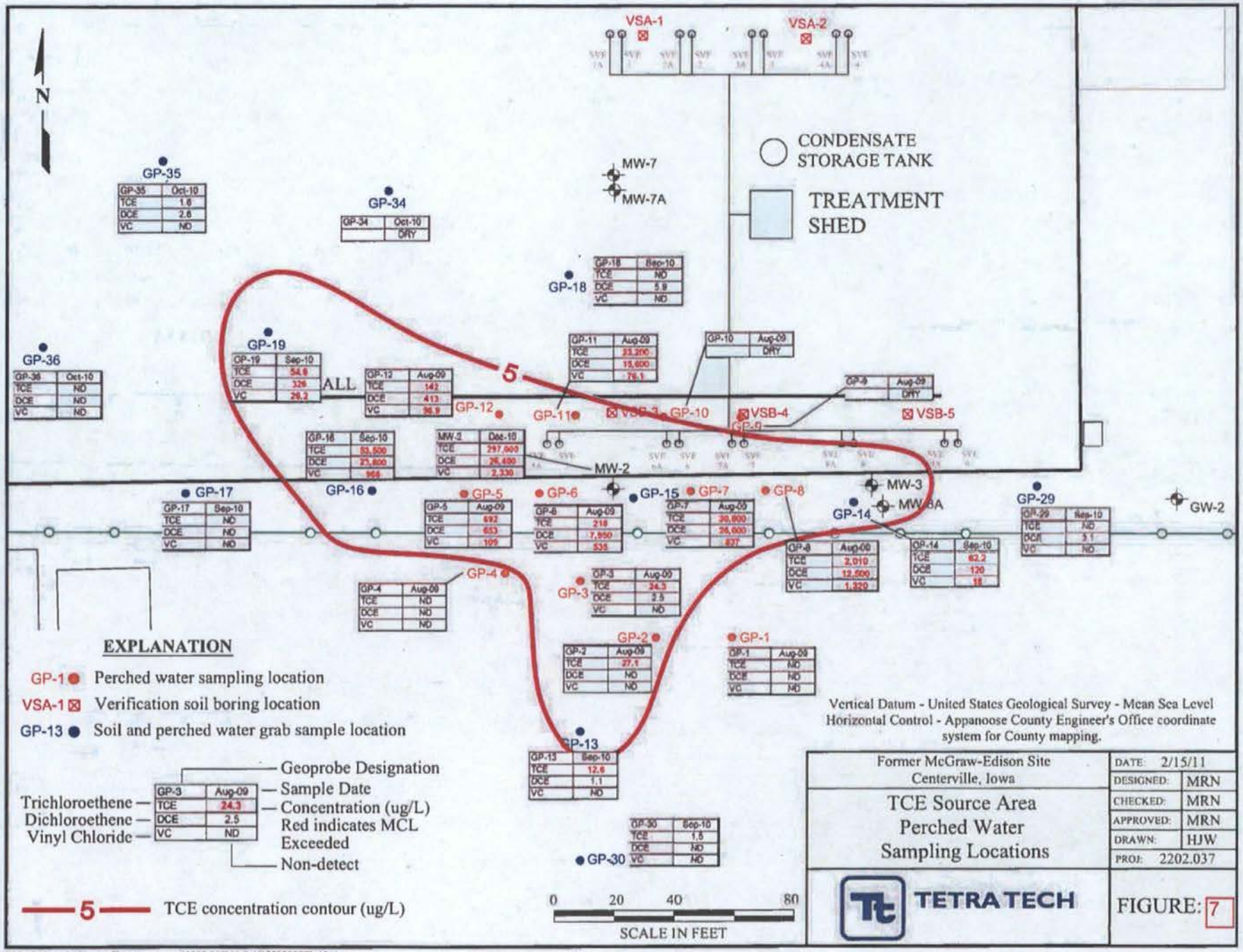
TETRA TECH

Figure 5

S:\CAD\COOPER\CENTERVILLE\2-26-14\FIG11.DWG



S:\CAD\Cooper\Centerville\groundwater\2202.032\11-8-10\2202032Fig14.dwg



S:\CAD\Cooper\Centerville\groundwater\2202.032\11-8-10\2202032Fig15.dwg

Attachment 1

TCE Summary Table and Trend Plots

Table 1: January 2014 SVE System Performance Sampling Event Results
McGraw Edison Site - Centerville, IA

SVE Extraction Point	Average Gas Flow at System Startup (acfm)	January 2014 Well Head Sampling Event						
		Well Head System			PID Gas Analysis	TCE Adjusted Concentration	Adjusted TCE Extraction Rate	
		Vacuum	Gas Flow				Per Well Head	Per Cluster
		(inches of Hg)	(acfm)	(scfm)	(ppmv)	(ppmv)	(lbs/day)	(lbs/day)
SVE 1	14.3							
SVE 1A	14.1							
SVE 2	6.8							
SVE 2A	11.5							
SVE 3	5.5							0.00
SVE 3A	9.0	4.5	8.0	7.2	0.5	0.3	0.00	
SVE 4	0.9	15.5	23.9	12.2	0.2	0.1	0.00	0.00
SVE 4A	4.5							
SVE 5	7.7							0.00
SVE 5A	8.7	10.5	12.0	8.3	0.4	0.2	0.00	
SVE 6	12.2	13.5	4.1	2.4	80.8 *	48.9	0.06	0.11
SVE 6A	11.5	13.0	20.6	12.3	15.9 *	9.6	0.05	
SVE 7	11.7							0.04
SVE 7A	11.3	11.0	15.3	10.2	13.3 *	8.1	0.04	
SVE 8	6.6	15.0	6.9	3.6	1.4 *	0.8	0.00	0.01
SVE 8A	4.5	20.0	16.8	5.9	3.3 *	2.0	0.01	
SVE 9	6.2							0.01
SVE 9A	10.0	3.5	9.5	8.9	2.3 *	1.4	0.01	
Total System	120.0	14.5	117.1	71.0	10.4	6.3	0.17	0.17
SVE System Exhaust TCE Concentration (Summa Canister)					6.3	6.3		

NOTES:

The TCE extraction rate per SVE extraction point has been adjusted to reflect mass removal obtained using Summa canister TCE data.

Blanks indicate the point was not undergoing active remediation.

* - The vacuum sample box would not seal and a sample could not be collected for PID measurement. PID results presented are from the previous sample event in June 2013.

Table 2: Historical TCE Extraction Rates and Cumulative Mass Removed
McGraw Edison Site - Centerville, IA

SVE Extraction Point	TCE Extraction	SVE Performance Sampling Event															
		1/16/00	1/18/00	1/19/00	1/20/00	2/17/00	3/28/00	5/2/00	7/27/00	11/30/00	5/29/01	10/22/01	4/29/02	1/29/03	7/30/03	1/26/04	8/1/04
SVE 1/1A	Rate (lbs/day)	0	0.50	0.43	0.54	0.26	0.16	0.10	0.05	0.04	0.09	0.00	0.14	0.01	0.02	0.00	0.00
	Cumulative (lbs)	0	1.00	1.47	1.95	13.2	21.6	26.1	31.7	37.1	50.6	55.9	69.5	87.8	90.6	92.2	92.2
SVE 2/2A	Rate (lbs/day)	0	1.59	0.96	1.05	0.69	0.28	0.14	0.11	0.09	0.08	0.05	0.12	0.12	0.07	0.001	0.001
	Cumulative (lbs)	0	3.18	4.46	5.46	29.8	49.1	56.4	65.4	77.9	96.7	104.3	120.7	149.4	166.4	173.0	173.2
SVE 3/3A	Rate (lbs/day)	0	0.86	0.59	0.93	0.57	0.23	0.17	0.04	0.05	0.14	0.01	0.54	0.01	0.01	0.00	0.00
	Cumulative (lbs)	0	1.72	2.45	3.21	24.1	40.0	47.0	54.6	60.2	80.3	88.9	140.9	206.6	207.9	208.4	208.5
SVE 4/4A	Rate (lbs/day)	0	0.11	0.06	0.10	0.04	0.02	0.05	0.04	0.02	0.09	0.01	0.04	0.00	0.00	0.00	0.00
	Cumulative (lbs)	0	0.22	0.31	0.39	2.35	3.55	4.77	8.42	12.3	24.0	29.3	34.2	39.5	39.7	39.9	40.0
Total SVE Area A	Rate (lbs/day)	0.00	3.06	2.04	2.52	1.55	0.68	0.46	0.24	0.21	0.40	0.07	0.85	0.14	0.10	0.00	0.00
	Cumulative (lbs)	0	6	12	14	72	117	137	163	181	252	278	365	483	505	514	514
SVE 5/5A	Rate (lbs/day)	0	2.91	0.72	0.40	3.20	1.60	1.05	1.59	1.00	0.09	1.41	0.61	1.72	0.95	0.08	0.01
	Cumulative (lbs)	0	5.82	7.64	8.20	58.6	154.6	201.0	306.4	464.1	578.2	664.0	805.0	1,085	1,327	1,419	1,428
SVE 6/6A	Rate (lbs/day)	0	3.13	5.13	4.10	1.03	0.42	0.20	0.29	0.48	0.57	0.32	0.18	0.76	0.20	0.01	0.02
	Cumulative (lbs)	0	6.26	10.4	15.0	86.8	115.8	126.7	144.0	190.7	301.1	352.3	436.4	549.1	636.2	655.5	658.3
SVE 7/7A	Rate (lbs/day)	0	0.33	0.25	0.47	0.22	0.10	0.06	0.08	0.09	0.23	0.04	0.10	0.19	0.11	0.00	0.00
	Cumulative (lbs)	0	0.66	0.95	1.31	11.0	17.4	20.2	25.5	35.9	69.5	85.0	110.6	145.8	173.8	184.2	184.6
SVE 8/8A	Rate (lbs/day)	0	0.70	1.29	1.15	0.34	0.16	0.13	0.14	0.16	0.26	0.01	--	0.01	--	0.00	0.00
	Cumulative (lbs)	0	1.40	2.40	3.62	24.5	34.5	39.6	49.8	67.9	111.6	127.1	152.7	155.2	156.9	157.0	157.2
SVE 9/9A	Rate (lbs/day)	0	1.17	1.25	1.42	0.31	0.17	0.06	0.11	0.14	0.23	0.13	--	0.18	0.02	0.00	0.01
	Cumulative (lbs)	0	2.34	3.55	4.89	29.1	38.7	42.7	48.8	64.1	103.8	124.5	158.4	195.5	213.6	215.0	215.6
Total SVE Area B	Rate (lbs/day)	0.00	8.24	8.64	7.54	5.10	2.45	1.50	2.21	1.85	1.36	1.90	0.89	2.87	1.28	0.10	0.04
	Cumulative (lbs)	0	25	33	41	218	369	438	583	831	1,164	1,353	1,663	2,131	2,507	2,631	2,644
Total System	Rate (lbs/day)	0	11.3	10.7	10.2	6.7	3.1	2.0	2.5	2.1	1.8	2.0	1.7	3.0	1.4	0.1	0.04
	Cumulative (lbs)	0	34	45	55	291	486	576	749	1,021	1,416	1,631	2,028	2,614	3,012	3,145	3,158

NOTES:

1. The cumulative TCE mass removal on 01/18/00 assumes a daily mass removal rate of 11.3 lbs/day on 01/16/00 and 01/17/00.
2. The cumulative TCE mass removal is calculated by adding the previous mass removed to the average TCE extraction rate between consecutive sampling events multiplied by the time between the sampling events.
3. SVE Extraction Point PID measurements obtained in 10/12/00 were used as part of the 11/30/00 sampling event (resampled SVE System exhaust).
4. No data could be collected from the following SVE points on the dates indicated due to water in the SVE point and/or sample bags, so the cumulative TCE mass removal for those points was estimated assuming a daily mass removal rate equal to that of the previous period:
   SVE points 8/8A (04/29/02, 07/30/09) SVE point 3A (04/30/06, 11/28/09, 04/19/07)
   SVE points 9/9A (04/29/02) SVE point 9A (04/30/06, 11/28/09, 04/19/07)
   SVE point 6 (08/20/09)

Table 2: Historical TCE Extraction Rates and Cumulative Mass Removed
McGraw Edison Site - Centerville, IA

SVE Extraction Point	TCE Extraction	SVE Performance Sampling Event															
		3/4/05	4/30/06	11/28/06	4/19/07	12/20/07	10/10/08	8/20/09	12/17/09	5/29/10	12/19/10	12/15/11	6/14/12	12/3/12	9/25/13	1/10/14	Average (last 3 events)
SVE 1/1A	Rate (lbs/day)	0.01															NA
	Cumulative (lbs)	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	0.00
SVE 2/2A	Rate (lbs/day)	0.01															NA
	Cumulative (lbs)	174.4	174.4	174.4	174.4	174.4	174.4	174.4	174.4	174.4	174.4	174.4	174.4	174.4	174.4	174.4	0.00
SVE 3/3A	Rate (lbs/day)	0.04	0.04	0.04	0.04	0.00	0.01	0.12	0.04	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00
	Cumulative (lbs)	212.4	216.6	224.2	229.2	232.4	233.1	252.4	261.4	265.1	265.4	267.2	268.7	268.7	270.1	271.5	0.00
SVE 4/4A	Rate (lbs/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
	Cumulative (lbs)	40.1	40.2	40.3	40.3	40.3	40.5	42.2	42.7	43.0	43.0	45.1	46.9	46.9	47.0	47.2	0.00
Total SVE Area A	Rate (lbs/day)	0.05	0.04	0.04	0.04	0.00	0.01	0.12	0.04	0.00	0.00	0.04	0.00	0.00	0.01	0.00	0.01
	Cumulative (lbs)	520	524	532	537	540	541	562	572	575	578	580	583	583	584	586	
SVE 5/5A	Rate (lbs/day)	0.35	0.00	0.03	0.04	0.57	0.11	0.61	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cumulative (lbs)	1,467	1,488	1,491	1,496	1,551	1,606	1,717	1,768	1,790	1,790	1,790	1,790	1,790	1,791	1,791	0.00
SVE 6/6A	Rate (lbs/day)	0.07	0.05	0.02	0.02	0.00	0.16	0.20	0.11	0.01	0.02	0.03	0.10	0.09	0.42	0.11	0.21
	Cumulative (lbs)	667.2	674.1	681.0	683.4	685.0	698.1	753.8	771.9	782.8	785.2	790.8	803.1	820.4	872.0	926.6	0.00
SVE 7/7A	Rate (lbs/day)	0.02	0.00	0.00	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.02	0.04	0.03
	Cumulative (lbs)	187.1	188.4	188.6	188.9	190.3	202.5	224.6	224.7	224.9	225.1	225.3	226.0	229.2	234.6	241.1	0.00
SVE 8/8A	Rate (lbs/day)	0.02	0.02	0.00	0.00	0.00	0.05	0.01	0.00	0.01	0.01	0.01	0.06	0.01	0.01	0.01	0.01
	Cumulative (lbs)	160.0	162.3	164.4	164.7	164.8	168.9	177.8	178.2	179.1	180.2	181.6	187.8	193.8	195.4	197.0	0.00
SVE 9/9A	Rate (lbs/day)	0.07	0.07	0.07	0.07	0.00	0.18	0.00	0.00	0.00	0.01	0.07	0.01	0.00	0.05	0.01	0.02
	Cumulative (lbs)	223.6	231.7	246.1	255.6	261.7	276.2	304.2	304.2	304.3	305.0	313.3	321.4	323.0	328.0	333.2	0.00
Total SVE Area B	Rate (lbs/day)	0.53	0.14	0.12	0.13	0.58	0.64	0.82	0.34	0.02	0.04	0.12	0.19	0.14	0.50	0.17	0.27
	Cumulative (lbs)	2,705	2,745	2,771	2,789	2,853	2,952	3,178	3,247	3,281	3,286	3,301	3,329	3,357	3,421	3,489	
Total System	Rate (lbs/day)	0.58	0.17	0.15	0.17	0.58	0.66	0.94	0.38	0.02	0.04	0.15	0.19	0.14	0.51	0.17	0.27
	Cumulative (lbs)	3,225	3,269	3,303	3,326	3,393	3,493	3,740	3,818	3,857	3,864	3,881	3,912	3,940	4,005	4,075	

NOTES:

1. The cumulative TCE mass removal on 01/18/00 assumes a daily mass removal rate of 11.3 lbs/day on 01/16/00 and 01/17/00.
2. The cumulative TCE mass removal is calculated by adding the previous mass removed to the average TCE extraction rate between consecutive sampling events multiplied by the time between the sampling events.
3. SVE Extraction Point PID measurements obtained in 10/12/00 were used as part of the 11/30/00 sampling event (resampled SVE System exhaust).
4. No data could be collected from the following SVE points on the dates indicated due to water in the SVE point and/or sample bags, so the cumulative TCE mass removal for those points was estimated assuming a daily mass removal rate equal to that of the previous period:
   SVE points 8/8A (04/29/02, 07/30/09)
   SVE points 9/9A (04/29/02)
   SVE point 6 (08/20/09)
   SVE point 3A (04/30/06, 11/28/09, 04/19/07)
   SVE point 9A (04/30/06, 11/28/09, 04/19/07)

Table 3
Cooper Industries
McGraw-Edison Site
Centerville, Iowa
Groundwater Elevations
January 2014

Well ID	Top of Casing Elevation	Top of Screen	Bottom of Screen	Measured Well Depth	Jan-14	
					Water Depth	Water Elevation
	(ft-msl)	Depth (ft BTOC)	Depth (ft BTOC)	(ft BTOC)	(ft)	(ft-msl)
EW-1	1020.92	42.98	47.48	50.2	33.16	987.76
GW-1R	1017.46	31.37	41.37	41.4	29.70	987.76
GW-2	1021.61	57.8	67.8	66.07	Damaged	
GW-3	1017.19	29.45	39.45	39.69	30.29	986.90
GW-4	1020.2	28.41	38.41	37.9	31.96	988.24
MW-1	1022.69	27.34	42.34	44.22	29.53	993.16
MW-2	1019.85	4.35	9.35	13.41	3.35	1016.50
MW-3	1023.29	62.59	72.59	73.45	35.79	987.50
MW-3A	1019.93	24.3	34.3	33.66	30.87	989.06
MW-4	1020.56	34.92	44.92	46.23	33.36	987.20
MW-5	1018.37	32.73	42.61	Lost		
MW-6	1021.49	38.97	48.97	47.2	34.16	987.33
MW-7	1020.58	44.04	69.04	69.35	33.22	987.36
MW-7A	1020.41	27.67	35.67	35.37	32.08	988.33
MW-8	1020.46	38.2	42.2	43.33	32.45	988.01
MW-8A	1020.98	27.71	36.71	36.32	32.32	988.66
WT-14	1019.46	34.2	44.2	43.75	31.79	987.67
WT-18	1021.62	34.56	44.96	44.72	33.79	987.83
BD-18	1021.28	74.98	84.98	84.13	39.59	981.69
MW-19WT	1013.84	31.27	36.57	36.59	23.57	990.27
MW-20WT	1020.09	31.92	41.92	32.42	32.28	987.81
MW-21	1020.44	62.31	72.31	74.28	33.00	987.44
MW-22WT	1015.00	29.8	34.8	41.81	27.44	987.56
MW-23WT	1013.64	32.73	37.73	37.02	26.67	986.97
MW-24	1019.36	34.45	44.45	44.45	32.74	986.62
MW-25	1018.27	34.57	44.57	44.57	31.47	986.80
MW-26	1012.98	29.42	39.42	39.42	25.58	987.40
WT-11	1020.27	36.63	46.63	43.7	Abandoned	Abandoned
WT-13	1012.98	39.52	49.52	46.12	Abandoned	Abandoned
BD-11	1021.19	107.39	117.39	116.9	Abandoned	Abandoned
BD-12	1022.83	80.00	90.00	87.49	Abandoned	Abandoned
BD-13	1014.58	74.71	85.11	82.77	Abandoned	Abandoned
BD-14	1019.49	61.94	71.94	72.72	Abandoned	Abandoned
BD-16	1019.66	100.08	110.08	107.93	Abandoned	Abandoned
BR-10	1021.39	Not installed	Not installed	95.4	Abandoned	Abandoned
PZ-1	Unknown	Unknown	Unknown	65.1	Abandoned	Abandoned
PZ-2B	Unknown	Unknown	Unknown	77.94	Abandoned	Abandoned
WT-12	1023.13	39.64	49.64	46.27	Abandoned	Abandoned
WT-16	1017.19	34.16	43.16	41.84	Abandoned	Abandoned

Table 4, MNA Groundwater Field Parameters
Cooper Industries McGraw-Edison Site Centerville, IA

Monitoring Well	Location Relative to IRPB (up-gradient or down-gradient)	DO (mg/L)											
		Apr-08	Oct-08	Jul-09	Dec-09	Jun-10	Dec-10	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Jan-14
MW-7A	Up-gradient	7.80	1.25	4.36	3.26	4.08	1.99	4.81	3.15	5.85	7.20	5.48	NM
MW-3A	Up-gradient	7.00	1.00	4.12	7.07	9.15	5.76	7.54	8.41	2.40	5.05	3.51	9.34
GW-1R	~20 feet Down-gradient	0.00	0.30	2.14	3.40	0.59	0.65	0.30	0.63	2.70	2.99	2.78	5.59
GW-2	~20 feet Down-gradient	0.10	0.50	1.48	3.09	0.68	1.33	1.04	0.94	1.43	NS	NS	NS
EW-1	~20 feet Down-gradient	0.00	0.50	1.56	1.58	1.30	5.63	1.13	2.43	1.67	1.25	2.14	5.59
MW-6	~110 feet Down-gradient	9.30	3.80	6.97	9.11	8.96	7.80	7.51	6.66	8.03	8.70	7.83	9.83
MW-8	~110 feet Down-gradient	7.10	9.70	7.71	8.83	9.61	8.22	7.66	7.28	8.79	8.69	6.81	8.69
WT-18	~450 feet Down-gradient	1.70	2.40	3.40	5.01	3.25	2.52	2.71	6.37	7.74	8.88	8.25	9.59
GW-4	~590 feet Down-gradient	8.00	4.00	5.44	7.31	6.60	6.24	5.64	6.21	6.40	6.86	5.04	8.11
MW-22WT	~850 feet Down-gradient	0.00	1.40	0.34	3.43	0.79	1.31	0.72	4.15	2.16	2.79	0.96	6.27
GW-3	~920 feet Down-gradient	2.70	2.70	6.55	5.09	3.93	5.24	4.48	5.95	7.12	6.86	4.98	6.99
MW-23WT	~1030 feet Down-gradient	0.00	0.40	2.68	4.03	0.82	4.14	0.93	4.28	4.27	4.79	2.11	6.46

Monitoring Well	Location Relative to IRPB (up-gradient or down-gradient)	Eh (mV)											
		Apr-08	Oct-08	Jul-09	Dec-09	Jun-10	Dec-10	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Jan-14
MW-7A	Up-gradient	141	-47	64	51	29	72	116	57	111	69	74	NM
MW-3A	Up-gradient	44	-239	-78	69	42	-99	62	35	44	100	87	91
GW-1R	~20 feet Down-gradient	19	-112	-2	17	81	-38	-88	-97	-69	-18	-91	-38
GW-2	~20 feet Down-gradient	-158	-321	-187	37	36	-132	-154	-184	-133	NS	NS	NS
EW-1	~20 feet Down-gradient	-51	-92	-112	87	31	-84	-115	-97	-103	-93	47	16
MW-6	~110 feet Down-gradient	-95	-27	-37	116	33	-65	-89	-103	-27	-78	-71	-18
MW-8	~110 feet Down-gradient	-71	20	-79	122	100	-61	-60	-84	-28	-92	-79	13
WT-18	~450 feet Down-gradient	78	-65	54	17	83	96	98	37	136	82	14	158
GW-4	~590 feet Down-gradient	92	-26	79	25	86	103	106	56	159	92	76	140
MW-22WT	~850 feet Down-gradient	-109	-91	-85	34	-45	-65	-86	16	-51	44	-25	84
GW-3	~920 feet Down-gradient	90	-52	77	-7	72	76	178	67	127	77	66	142
MW-23WT	~1030 feet Down-gradient	-106	-353	52	28	35	-68	-90	-96	6	10	-2	46

Monitoring Well	Location Relative to IRPB (up-gradient or down-gradient)	pH (units)											
		Apr-08	Oct-08	Jul-09	Dec-09	Jun-10	Dec-10	Jun-11	Dec-11	Jun-12	Dec-12	Jun-13	Jan-14
MW-7A	Up-gradient	8.50	8.13	8.02	7.76	7.61	7.52	7.71	7.88	7.53	7.96	8.53	8.03
MW-3A	Up-gradient	7.90	8.30	7.34	7.80	8.14	7.70	7.61	8.09	7.59	7.92	7.7	7.43
GW-1R	~20 feet Down-gradient	7.60	9.10	7.99	7.82	7.19	7.33	7.33	7.35	7.24	7.33	8.5	8.23
GW-2	~20 feet Down-gradient	7.80	8.70	7.68	7.84	7.37	8.00	7.65	7.87	7.61	NS	NS	NS
EW-1	~20 feet Down-gradient	7.60	9.30	7.84	7.99	7.85	8.83	7.44	7.82	7.52	7.15	9.86	8.49
MW-6	~110 feet Down-gradient	13.00	13.70	6.97	12.99	12.19	12.67	12.44	12.9	12.13	12.71	12.28	12.35
MW-8	~110 feet Down-gradient	12.00	6.80	12.80	12.61	12.01	12.34	12.26	12.44	12.03	12.36	12.96	11.87
WT-18	~450 feet Down-gradient	7.10	8.50	7.41	7.35	6.82	7.09	7.18	7.33	7.06	7.22	6.99	7.18
GW-4	~590 feet Down-gradient	8.00	8.60	7.46	7.36	7.08	7.15	7.41	7.24	7.1	7.25	7.82	7.18
MW-22WT	~850 feet Down-gradient	7.00	7.20	7.03	7.00	6.87	7.08	7.2	7.09	7.17	7.23	7.65	6.58
GW-3	~920 feet Down-gradient	7.00	8.60	7.44	7.35	7.03	7.05	7.17	7.21	7.1	7.16	7.81	7.03
MW-23WT	~1030 feet Down-gradient	7.10	8.70	7.36	7.32	6.92	6.82	7.11	7.06	7.09	7.18	7.84	6.91

Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
EW-1	06/1999	Sample				1U	1U	1U					12	1U	
EW-1	03/2000	Sample											5U		
EW-1	10/10/00	Sample				<1.0U	<1.0U	<1.0U					4	<1.0U	
EW-1	04/24/01	Sample				<5.0	<5.0	<5.0					6.6	<5.0	
EW-1	10/23/01	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
EW-1	04/30/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	66	<5.0	<5.0
EW-1	10/22/02	Sample	<10J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J
EW-1	04/15/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
EW-1	10/29/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
EW-1	06/23/04	Sample	<10	<5.0	<5.0	<5.0	20	<5.0	<5.0	<5.0	<5.0	<5.0	8.8	<5.0	<5.0
EW-1	10/26/04	Sample	<10	<5.0	<5.0	<5.0	61	<5.0	<5.0	<5.0	<5.0	<5.0	8.8	<5.0	<5.0
EW-1	05/16/05	Sample	<10	<5.0	<5.0	<5.0	40	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
EW-1	10/24/05	Sample	<10	<5.0	<5.0	<5.0	20	<5.0	<5.0	<5.0	<5.0	<5.0	13	<5.0	<5.0
EW-1	05/01/06	Sample	<10	<5.0	<5.0	<5.0	60	<5.0	<5.0	<5.0	<5.0	<5.0	23	<5.0	<5.0
EW-1	10/02/06	Sample	<10	<5.0	<5.0	<5.0	54	<5.0	<5.0	<5.0 J	<5.0	<5.0	10	<5.0	<5.0
EW-1	04/16/07	Sample	<10 J	<5.0	<5.0	<5.0	72	<5.0	<5.0	<5.0 J	<5.0	<5.0	18	<5.0	<5.0
EW-1	10/01/07	Sample	<10	<5.0	<5.0	<5.0	77	<5.0	<5.0	<5.0	<5.0	<5.0	23	<5.0	<5.0
EW-1	04/23/08	Sample	<10	<5.0	<5.0	<5.0	81	<5.0	<5.0	<5.0	<5.0	<5.0	27	<5.0	<5.0
EW-1	10/09/08	Sample	<10	<5.0	<5.0	<5.0	33	<5.0	<5.0	<5.0	<5.0	<5.0	14	<5.0	<5.0
EW-1	07/21/09	Sample	<10	<1.0	<1.0	<1.0	32.3	<1.0	<1.0	<1.0	<1.0	<1.0	18.5	<1.0	<3.0
EW-1	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	17.5	<1.0	<1.0	<1.0	<1.0	<1.0	14.1	<1.0	<3.0
EW-1	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	26.9	<1.0	<1.0	<1.0	<1.0	<1.0	9.3	<1.0	<3.0
EW-1	12/16/10	Sample	<10.0	<1.0	<1.0	<1.0	19.1	<1.0	<1.0	<1.0	<1.0	<1.0	3.8	<1.0	<3.0
EW-1	06/27/11	Sample	<10.0	<1.0	<1.0	<1.0	24.8	<1.0	<1.0	3.2	<1.0	<1.0	3.4	<1.0	<3.0
EW-1	12/13/11	Sample	<10.0	<1.0	<1.0	<1.0	21.1	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	<1.0	<3.0
EW-1	06/12/12	Sample	<10.0	<1.0	<1.0	<1.0	20	<1.0	<1.0	<1.0	<1.0	<1.0	2.3	<1.0	<3.0
EW-1	12/04/12	Sample	<10.0	<1.0	<1.0	<1.0	14	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	<1.0	<3.0
EW-1	06/24/13	Sample	<10.0	0.25 J	<1.0	<1.0	20.3	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	<3.0
EW-1	01/14/14	Sample	<10.0	0.33 J	<1.0	<1.0	26.8	<1.0	<1.0	0.29 J	<1.0	<1.0	0.77 J	0.20 J	<3.0

Blank = Not Analyzed
U = Compound not detected at indicated detection limit
J = Estimated concentration between detection limit and practical quantitation limit
B = Compound detected in blank
ug/L = micrograms per liter

Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GW-1	06/1999	Sample	10UJ	1U	2.6	1U	2.1	1U	1U	1U	1U	1U	860D	1U	1.3U
GW-1	01/01/00	Sample	11J	1U	1U	1U	3.5	1U	1U	1U	1U	1U	380D	1U	1.3U
GW-1	03/2000	Sample	20U	5U	5U	5U	4.9J	5U	5U	5U	5U	5U	1400	5U	5U
GW-1	07/26/00	Sample	3.5	<1.0U	<1.0U	<1.0U	4.6	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	670	<1.0U	<1.0U
GW-1	10/10/00	Sample				<1.0U	2	<1.0U					370	<1.0U	
GW-1	01/31/01	Sample	5	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	100	<1.0U	<1.0U
GW-1	04/24/01	Sample				<5.0J	13J	<5.0J					360J	<5.0J	
GW-1	08/09/01	Sample	<10	<5.0	<5.0	<5.0	12	<5.0	<5.0	<5.0	<5.0	<5.0	270	<5.0	<5.0
GW-1	10/24/01	Sample	<10 J	<5.0	<5.0	<5.0	22	<5.0	<5.0	<5.0	<5.0	<5.0	690	<5.0	<5.0
GW-1	01/28/02	Sample	<10	<5.0	<5.0	<5.0	19	<5.0	<5.0	<5.0	<5.0	<5.0	2700	<5.0	<5.0
GW-1	04/30/02	Sample	<10	<5.0	<5.0	<5.0	16	<5.0	<5.0	<5.0	<5.0	<5.0	1800	<5.0	<5.0
GW-1	07/25/02	Sample	<10	<5.0	<5.0	<5.0	10	<5.0	<5.0	<5.0	<5.0	<5.0	670	<5.0	<5.0
GW-1	10/22/02	Sample	<10J	<5.0J	<5.0J	<5.0	19J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	3200J	<5.0J	<5.0J
GW-1	01/29/03	Sample	<10	<5.0	<5.0	<5.0	51	<5.0	<5.0	<5.0	<5.0	<5.0	48	<5.0	<5.0
GW-1	01/29/03	Duplicate	<10	<5.0	<5.0	<5.0	50	<5.0	<5.0	<5.0	<5.0	<5.0	44	<5.0	<5.0
GW-1	04/15/03	Sample	<10	<5.0	<5.0	<5.0	180	<5.0	<5.0	<5.0	<5.0	<5.0	82	<5.0	<5.0
GW-1	07/29/03	Sample	<10	<5.0	<5.0	<5.0	310	<5.0	<5.0	<5.0	<5.0	<5.0	150	<5.0	<5.0
GW-1	07/29/03	Duplicate	<10	<5.0	<5.0	<5.0	330	<5.0	<5.0	<5.0	<5.0	<5.0	150	<5.0	<5.0
GW-1	10/29/03	Sample	<10	<5.0	<5.0	<5.0	230	<5.0	<5.0	<5.0	<5.0	<5.0	210	<5.0	<5.0
GW-1	06/23/04	Sample	<10	<5.0	<5.0	<5.0	160	<5.0	<5.0	<5.0	<5.0	<5.0	27	<5.0	<5.0
GW-1	10/26/04	Sample	<10	<5.0	<5.0	<5.0	240	<5.0	<5.0	<5.0	5.5	<5.0	34	<5.0	<5.0
GW-1	05/18/05	Sample	<10	<5.0	<5.0	<5.0	82	<5.0	<5.0	<5.0	5.5	<5.0	20	<5.0	<5.0
GW-1	10/26/05	Sample	<10	<5.0	<5.0	<5.0	44	<5.0	<5.0	<5.0	5.5	<5.0	310	<5.0	<5.0
GW-1	05/03/06	Sample	<10	<5.0	<5.0	<5.0	67	<5.0	<5.0	<5.0	5.5	<5.0	730	<5.0	<5.0
GW-1	10/04/06	Sample	<10	6.2	<5.0	<5.0	390	<5.0	<5.0	<5.0 J	5.5	<5.0	730	<5.0	<5.0
GW-1	04/18/07	Sample	<10 J	14	<5.0	<5.0	550	<5.0	<5.0	<5.0	5.5	<5.0	470	<5.0	<5.0
GW-1	10/03/07	Sample	<10	16	<5.0	5.5	1100	<5.0	<5.0	<5.0	<5.0	<5.0	980	<5.0	<5.0
GW-1	04/23/08	Sample	<10	14	<5.0	<5.0	550	<5.0	<5.0	<5.0	<5.0	<5.0	83	<5.0	<5.0
GW-1	04/23/08	Duplicate	<10	14	<5.0	<5.0	490	<5.0	<5.0	<5.0	<5.0	<5.0	84	<5.0	<5.0
GW-1	10/08/08	Sample	<10	14	<5.0	<5.0	310	<5.0	<5.0	<5.0	<5.0	<5.0	60	<5.0	<5.0
GW-1	07/23/09	Sample	<10	1.3	<1.0	1.2	85.9	<1.0	<1.0	<1.0	<1.0	<1.0	422	<1.0	<3.0
GW-1	12/14/09	Sample	<50.0	<5.0	<5.0	<5.0	95.9	<5.0	<5.0	<5.0	<5.0	<5.0	269	<5.0	<15.0
GW-1	06/21/10	Sample	<50.0	<5.0	<5.0	<5.0	176	<5.0	<5.0	<5.0	<5.0	<5.0	37.2	<5.0	<15.0
GW-1	12/15/10	Sample	<50.0	<5.0	<5.0	<5.0	164	<5.0	<5.0	<5.0	<5.0	<5.0	52	<5.0	<15.0
GW-1	06/27/11	Sample	<10.0	<1.0	<1.0	<1.0	86.4	<1.0	<1.0	2.6	<1.0	<1.0	95	<1.0	<3.0
GW-1	12/13/11	Sample	<10.0	<1.0	<1.0	<1.0	179	<1.0	<1.0	<1.0	<1.0	<1.0	157	<1.0	<3.0
GW-1	12/13/11	Duplicate	<10.0	<1.0	<1.0	<1.0	194	<1.0	<1.0	<1.0	<1.0	<1.0	193	<1.0	<3.0
GW-1	06/11/12	Sample	<10.0	<1.0	<1.0	1.3	363	<1.0	<1.0	<1.0	<1.0	<1.0	675	<1.0	<3.0
GW-1	06/11/12	Duplicate	<10.0	<1.0	<1.0	1.3	315	<1.0	<1.0	<1.0	<1.0	<1.0	600	<1.0	<3.0
GW-1	12/04/12	Sample	<10.0	<1.0	<1.0	<1.0	174	<1.0	<1.0	<1.0	<1.0	<1.0	611	<1.0	<3.0
GW-1	12/04/12	Duplicate	<10.0	<1.0	<1.0	<1.0	165	<1.0	<1.0	<1.0	<1.0	<1.0	592	<1.0	<3.0
GW-1	06/24/13	Sample	<100.0	<10.0	<10.0	<10.0	357	<10.0	<10.0	<10.0	<10.0	<10.0	972	<10.0	<30.0
GW-1	06/24/13	Duplicate	<10.0	<1.0	<1.0	<1.0	390	<1.0	<1.0	<1.0	<1.0	<1.0	1120	<1.0	<3.0
GW-1	01/14/14	Sample	<10.0	1.2 J	<1.0	2.2 J	322	<1.0	<1.0	8.1 J	<1.0	<1.0	1270	1.6 J	<3.0
GW-1	01/14/14	Duplicate	<100.0	<10.0	<10.0	<10.0	267	<10.0	<10.0	9.4 J	<10.0	<10.0	998	1.6 J	<30.0

Blank = Not Analyzed
U = Compound not detected at indicated detection limit
J = Estimated concentration between detection limit and practical quantitation limit
B = Compound detected in blank
ug/L = micrograms per liter

Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GW-2	06/1999	Sample	10UJ	1U	1.2	1U	1U	1U	1U	1U	1U	1U	1.9	1U	1.3U
GW-2	01/2000	Sample	110J	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1U	1.3U
GW-2	03/2000	Sample	20U	5U	5U	5U	5U	5U	5U	5U	5U	5U	8.4UJ	5U	5U
GW-2	07/26/00	Sample	5.6	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U
GW-2	10/10/00	Sample				<1.0U	<1.0U	<1.0U					14	<1.0U	
GW-2	01/31/01	Sample	4	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	<1.0U	1	26	<1.0U	<1.0U
GW-2	04/25/01	Sample				<5.0	<5.0	<5.0					5.5	<5.0	
GW-2	08/13/01	Sample	10J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	08/13/01	Duplicate	10J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	10/23/01	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	01/28/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	13	<5.0	<5.0
GW-2	01/28/02	Duplicate	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	11	<5.0	<5.0
GW-2	04/29/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	07/25/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	61	<5.0	<5.0
GW-2	04/15/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	07/28/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	10/22/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	01/29/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	04/15/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	07/28/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	10/29/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	06/23/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	10/27/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	05/16/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	05/16/05	Duplicate	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	10/24/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	10/24/05	Duplicate	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	05/01/06	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	10/02/06	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0 J	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	04/16/07	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	04/16/07	Duplicate	<10J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	10/01/07	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	10/01/07	Duplicate	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	04/23/08	Sample	12	43	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	10/06/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	10/06/08	Duplicate	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	07/20/09	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-2	07/20/09	Duplicate	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0
GW-2	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-2	12/14/09	Duplicate	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-2	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-2	12/21/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-2	06/27/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-2	06/27/11	Duplicate	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-2	12/14/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	<3.0
GW-2	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.9	<1.0	<3.0
GW-2	12/03/12	Sample	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
GW-2	06/24/13	Sample	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
GW-2	01/14/14	Sample	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Blank = Not Analyzed
U = Compound not detected at indicated detection limit
J = Estimated concentration between detection limit and practical quantitation limit
B = Compound detected in blank
ug/L = micrograms per liter

Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GW-3	06/1999	Sample				1U	1U	1U					150D	1U	
GW-3	03/2000	Sample											2000		
GW-3	10/10/00	Sample				<1.0U	1	<1.0U					580	<1.0U	
GW-3	04/23/01	Sample				<5.0J	<5.0J	<5.0J					230J	<5.0J	
GW-3	10/24/01	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	130	<5.0	<5.0
GW-3	04/30/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	950	<5.0	<5.0
GW-3	10/22/02	Sample	<10J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	330J	<5.0J	<5.0J
GW-3	04/14/03	Sample	<10	<5.0	<5.0	<5.0	6.6	<5.0	<5.0	<5.0	<5.0	<5.0	960	<5.0	<5.0
GW-3	10/28/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	350	<5.0	<5.0
GW-3	06/22/04	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	140	<5.0	<5.0
GW-3	10/26/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	140	<5.0	<5.0
GW-3	05/16/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	130	<5.0	<5.0
GW-3	10/26/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	340	<5.0	<5.0
GW-3	05/01/06	Sample	<10	<5.0	<5.0	<5.0	5.5	<5.0	<5.0	<5.0	<5.0	<5.0	890	<5.0	<5.0
GW-3	10/04/06	Sample	<10	<5.0	<5.0	<5.0	5.5	<5.0	<5.0	<5.0 J	<5.0	<5.0	470	<5.0	<5.0
GW-3	04/18/07	Sample	<10	<5.0	<5.0	<5.0	5.5	<5.0	<5.0	<5.0	<5.0	<5.0	310	<5.0	<5.0
GW-3	10/01/07	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	310	<5.0	<5.0
GW-3	04/22/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	240	<5.0	<5.0
GW-3	10/09/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	190	<5.0	<5.0
GW-3	07/23/09	Sample	<10	<1.0	<1.0	<1.0	6.5	<1.0	<1.0	<1.0	<1.0	<1.0	564	<1.0	<3.0
GW-3	12/14/09	Sample	<50.0	<5.0	<5.0	<5.0	11.4	<5.0	<5.0	<5.0	<5.0	<5.0	899	<5.0	<15.0
GW-3	06/21/10	Sample	<50.0	<5.0	<5.0	<5.0	18.3	<5.0	<5.0	<5.0	<5.0	<5.0	813	<5.0	<15.0
GW-3	12/15/10	Sample	<50.0	<5.0	<5.0	<5.0	24.8	<5.0	<5.0	<5.0	<5.0	<5.0	1290	<5.0	<15.0
GW-3	06/28/11	Sample	<100.0	<10.0	<10.0	<10.0	22.7	<10.0	<10.0	18.4	<10.0	<10.0	1320	<10.0	<30.0
GW-3	12/12/11	Sample	<100.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	403	<10.0	<30.0
GW-3	06/11/12	Sample	<100.0	<10.0	<10.0	<10.0	27.6	<10.0	<10.0	<10.0	<10.0	17.3	1200	<10.0	<30.0
GW-3	12/03/12	Sample	<100.0	<10.0	<10.0	<10.0	17.9	<10.0	<10.0	10	<10.0	<10.0	802	<10.0	<30.0
GW-3	06/24/13	Sample	<100.0	<10.0	<10.0	<10.0	23.5	<10.0	<10.0	10	<10.0	<10.0	1180	<10.0	<30.0
GW-3	01/13/14	Sample	<100.0	1.0 J	<10.0	<10.0	19	<10.0	<10.0	8.8 J	<10.0	<10.0	689	<10.0	<30.0

Blank = Not Analyzed
U = Compound not detected at indicated detection limit
J = Estimated concentration between detection limit and practical quantitation limit
B = Compound detected in blank
ug/L = micrograms per liter

Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
GW-4	06/1999	Sample				1U	1U	1U					1U	1U	
GW-4	03/2000	Sample											34UJ		
GW-4	10/21/02	Sample	<10J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	7.5J	<5.0J	<5.0J
GW-4	04/14/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-4	10/29/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-4	06/22/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-4	10/25/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-4	05/17/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-4	10/25/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6.4	<5.0	<5.0
GW-4	05/01/06	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	54	<5.0	<5.0
GW-4	10/02/06	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0 J	<5.0	<5.0	<5.0	<5.0	<5.0
GW-4	04/16/07	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-4	10/01/07	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-4	04/21/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-4	10/09/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GW-4	07/22/09	Sample	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0
GW-4	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-4	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-4	12/15/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-4	06/29/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-4	12/13/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-4	06/12/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-4	12/03/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
GW-4	06/24/13	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	.41 J	.29 J	1.2	<1.0	<3.0
GW-4	01/13/14	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.56 J	<1.0	<1.0	<1.0	<1.0	<3.0

Blank = Not Analyzed
U = Compound not detected at indicated detection limit
J = Estimated concentration between detection limit and practical quantitation limit
B = Compound detected in blank
ug/L = micrograms per liter

Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-2	10/05/08	Sample	<100	<10	<10	94	79000	630	<10	<10	<10	<10	550000	5200	<30
MW-2	06/26/10	Sample	<50000	<5000	<5000	<5000	29900	<5000	<5000	5730	<5000	<5000	592000	<5000	<15000
MW-2	12/18/10	Sample	<2000	<200	<200	<200	26400	<200	<200	<200	<200	<200	297000	2330	<600
MW-2	06/27/11	Sample	<50000	<5000	<5000	<5000	51500	<5000	<5000	17700	<5000	<5000	654000	5990	<15000
MW-2	12/14/11	Sample	<50000	<5000	<5000	<5000	20400	<5000	<5000	<5000	<5000	<5000	357000	<5000	<15000
MW-2	06/11/12	Sample	<50000	<5000	<5000	<5000	40500	<5000	<5000	<5000	<5000	<5000	860000	<5000	<15000
MW-2	12/05/12	Sample	<50000	<5000	<5000	<5000	22400	<5000	<5000	<5000	<5000	<5000	402000	<5000	<15000
MW-2	06/24/13	Sample	<50000	<5000	<5000	<5000	21400	<5000	<5000	<5000	<5000	<5000	252000	1430 J	<15000
MW-2	01/14/14	Sample	<50000	<5000	<5000	<5000	24800	<5000	<5000	3820 J	<5000	<5000	293000	1980 J	<15000

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Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-3	12/17/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-3	06/27/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.4	<1.0	<1.0	3.5	<1.0	<3.0
MW-3	12/14/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-3	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-3	12/06/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10.9	<1.0	<3.0
MW-3	06/24/13	Sample	<10.0	<1.0	<1.0	<1.0	1	<1.0	<1.0	<1.0	<1.0	<1.0	16.1	<1.0	<3.0
MW-3	01/14/14	Sample	<10.0	<1.0	<1.0	<1.0	0.21 J	<1.0	<1.0	<1.0	<1.0	<1.0	5.2	<1.0	<3.0

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ug/L = micrograms per liter

Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-3A	06/01/99	Sample	10UJ	1U	1U	1U	29	1.4	1U	1U	1U	1U	4000D	1U	1.3U
MW-3A	06/01/99	Duplicate	10UJ	1U	1U	1U	28	1.3	1U	1U	1U	1U	4300D	1U	1.3U
MW-3A	01/2000	Sample	10UJ	1U	1U	1U	190J	5	1U	1U	1U	1U	2600D	1U	1.3U
MW-3A	01/01/00	Duplicate	10UJ	1U	1U	1U	190J	5.1	1U	1U	1U	1U	2300D	1U	1.3U
MW-3A	03/2000	Sample	20U	5U	5U	5U	240	5U	5U	5U	5U	5U	6600	5U	5U
MW-3A	03/01/00	Duplicate	20U	5U	5U	5U	230	5U	5U	5U	5U	5U	7200	5U	5U
MW-3A	07/26/00	Sample	2.4	<1.0U	<1.0U	<1.0U	78	2.6	<1.0U	<1.0U	<1.0U	<1.0U	3300	<1.0U	<1.0U
MW-3A	10/10/00	Sample				<1.0U	120	1					2300	<1.0U	
MW-3A	01/31/01	Sample	1	<1.0U	<1.0U	<1.0U	160	4	<1.0U	<1.0U	<1.0U	<1.0U	4100	<1.0U	<1.0U
MW-3A	04/25/01	Sample				<5.0	250	<5.0					6300	7.2	
MW-3A	10/23/01	Sample	<10	<5.0	<5.0	<5.0	25	<5.0	<5.0	<5.0	<5.0	<5.0	5200	<5.0	<5.0
MW-3A	10/23/01	Duplicate	<10	<5.0	<5.0	<5.0	23	<5.0	<5.0	<5.0	<5.0	<5.0	5800	<5.0	<5.0
MW-3A	01/28/02	Sample	<10	<5.0	<5.0	<5.0	88	<5.0	<5.0	<5.0	<5.0	<5.0	5700	<5.0	<5.0
MW-3A	04/30/02	Sample	<10	<5.0	<5.0	<5.0	460	<5.0	<5.0	<5.0	<5.0	<5.0	9200	5.4	<5.0
MW-3A	07/25/02	Sample	<10	<5.0	<5.0	<5.0	1000	<5.0	<5.0	<5.0	<5.0	<5.0	8400	<5.0	<5.0
MW-3A	01/29/03	Sample	<10	<5.0	<5.0	<5.0	810	8.7	<5.0	<5.0	<5.0	<5.0	12000	8.8	<5.0
MW-3A	07/25/02	Duplicate	<10	<5.0	<5.0	<5.0	990	<5.0	<5.0	<5.0	<5.0	<5.0	8200	<5.0	<5.0
MW-3A	10/22/02	Sample	<10	<5.0	<5.0	<5.0	780	5.4	<5.0	<5.0	<5.0	<5.0	9400	<5.0	<5.0
MW-3A	04/15/03	Sample	<10	<5.0	<5.0	<5.0	510	6.8	<5.0	<5.0	<5.0	<5.0	8900	<5.0	<5.0
MW-3A	04/15/03	Duplicate	<10	<5.0	<5.0	<5.0	670	8.4	<5.0	<5.0	<5.0	<5.0	11000	<5.0	<5.0
MW-3A	07/29/03	Sample	<10	<5.0	<5.0	<5.0	340	<5.0	<5.0	<5.0	<5.0	<5.0	5400	<5.0	<5.0
MW-3A	10/27/03	Sample	<10 J	<5.0	<5.0	<5.0	400	<5.0	<5.0	<5.0	<5.0	<5.0	6000	<5.0	<5.0
MW-3A	06/23/04	Sample	<10	<5.0	<5.0	<5.0	730	<5.0	<5.0	<5.0	<5.0	<5.0	8100	<5.0	<5.0
MW-3A	06/23/04	Duplicate	<10	<5.0	<5.0	<5.0	750	<5.0	<5.0	<5.0	<5.0	<5.0	8600	<5.0	<5.0
MW-3A	10/26/04	Sample	<10	<5.0	<5.0	<5.0	770	5.2	<5.0	<5.0	<5.0	<5.0	9000	<5.0	<5.0
MW-3A	10/26/04	Duplicate	<10	<5.0	<5.0	<5.0	710	5.2	<5.0	<5.0	<5.0	<5.0	8000	<5.0	<5.0
MW-3A	05/18/05	Sample	<10	<5.0	<5.0	<5.0	340	<5.0	<5.0	<5.0	<5.0	<5.0	4100	<5.0	<5.0
MW-3A	10/23/05	Sample	<10	<5.0	<5.0	<5.0	1500	6.6	<5.0	<5.0	<5.0	<5.0	15000	8.3	<5.0
MW-3A	05/02/06	Sample	<10	<5.0	<5.0	<5.0	41	6.6	<5.0	<5.0	<5.0	<5.0	510	<5.0	<5.0
MW-3A	10/03/06	Sample	<10	<5.0	<5.0	<5.0	350	<5.0	<5.0	<5.0 J	<5.0	<5.0	4600	<5.0	<5.0
MW-3A	10/03/06	Duplicate	<10	<5.0	<5.0	<5.0	360	<5.0	<5.0	<5.0 J	<5.0	<5.0	4800	<5.0	<5.0
MW-3A	04/18/07	Sample	12 J	28	<5.0	<5.0	14	<5.0	<5.0	<5.0	<5.0	<5.0	220	<5.0	5.6
MW-3A	10/02/07	Sample	<10	<5.0	<5.0	<5.0	44	<5.0	<5.0	<5.0	<5.0	<5.0	180	<5.0	<5.0
MW-3A	04/22/08	Sample	<10	<5.0	<5.0	<5.0	100	<5.0	<5.0	<5.0	<5.0	<5.0	2100	<5.0	<5.0
MW-3A	10/07/08	Sample	<10	<5.0	<5.0	<5.0	340	<5.0	<5.0	<5.0	<5.0	<5.0	1900	<5.0	<5.0
MW-3A	07/22/09	Sample	<10	<1.0	<1.0	<1.0	46.4	<1.0	<1.0	<1.0	<1.0	<1.0	132	2	<3.0
MW-3A	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	34.3	<1.0	<1.0	<1.0	<1.0	<1.0	74.3	1.3	<3.0
MW-3A	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5.8	<1.0	<3.0
MW-3A	12/21/10	Sample	<10.0	<1.0	<1.0	<1.0	213	<1.0	<1.0	<1.0	<1.0	<1.0	45	<1.0	<3.0
MW-3A	06/27/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.9	<1.0	<3.0
MW-3A	12/14/11	Sample	<10.0	<1.0	<1.0	<1.0	2.6	<1.0	<1.0	<1.0	<1.0	<1.0	40.7	<1.0	<3.0
MW-3A	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	6.1	<1.0	<1.0	<1.0	<1.0	<1.0	85	<1.0	<3.0
MW-3A	12/05/12	Sample	<10.0	<1.0	<1.0	<1.0	22.8	<1.0	<1.0	<1.0	<1.0	<1.0	140	<1.0	<3.0
MW-3A	06/24/13	Sample	<10.0	<1.0	<1.0	<1.0	6.5	<1.0	<1.0	<1.0	<1.0	<1.0	82.2	0.29 J	<3.0
MW-3A	06/24/13	Duplicate	2.4 J	<1.0	<1.0	<1.0	3.7	<1.0	<1.0	<1.0	<1.0	<1.0	56.4	0.15 J	<3.0
MW-3A	01/14/14	Sample	<10.0	<1.0	<1.0	0.22 J	9.6	<1.0	<1.0	<1.0	<1.0	<1.0	150	<1.0	<3.0
MW-3A	01/14/14	Duplicate	<10.0	<1.0	<1.0	0.27 J	9.5	<1.0	<1.0	<1.0	<1.0	<1.0	144	<1.0	<3.0

Blank = Not Analyzed
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ug/L = micrograms per liter

Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-4	10/03/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	260	<5.0	<5.0
MW-4	07/19/09	Sample	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	262	<1.0	<3.0
MW-4	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	252	<1.0	<3.0
MW-4	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	196	<1.0	<3.0
MW-4	12/17/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	133	<1.0	<3.0
MW-4	06/29/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	162	<1.0	<3.0
MW-4	12/15/11	Sample	<10.0	<1.0	<1.0	<1.0	5.1	<1.0	<1.0	<1.0	<1.0	<1.0	252	<1.0	<3.0
MW-4	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	357	<1.0	<3.0
MW-4	12/05/12	Sample	<10.0	<1.0	<1.0	<1.0	12	<1.0	<1.0	<1.0	<1.0	<1.0	1510	<1.0	<3.0
MW-4	06/24/13	Sample	<10.0	<1.0	<1.0	<1.0	11.0 J	<1.0	<1.0	<1.0	<1.0	<1.0	5340	<1.0	<3.0
MW-4	01/14/14	Sample	128 J	<50.0	<50.0	<50.0	112	<50.0	<50.0	12.1 J	<50.0	16.8 J	7870	<50	<150

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Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-6	06/1999	Sample				1U	1U	1U					16	1U	
MW-6	03/2000	Sample											92UJ		
MW-6	10/10/00	Sample				<1.0U	<1.0U	<1.0U					10	<1.0U	
MW-6	04/24/01	Sample				<5.0	<5.0	<5.0					<5.0	<5.0	
MW-6	10/24/01	Sample	21 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	10	<5.0	<5.0
MW-6	04/29/02	Sample	16	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-6	10/22/02	Sample	<10J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	23J	<5.0J	<5.0J
MW-6	04/14/03	Sample	16	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	10	<5.0	<5.0
MW-6	10/28/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6.5	<5.0	<5.0
MW-6	06/23/04	Sample	12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-6	10/25/04	Sample	11 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-6	05/16/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-6	10/24/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	19	<5.0	<5.0
MW-6	05/01/06	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5	<5.0	<5.0
MW-6	10/02/06	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0 J	<5.0	<5.0	5.8	<5.0	<5.0
MW-6	04/18/07	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0 J	<5.0	<5.0	6.5	<5.0	<5.0
MW-6	10/01/07	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-6	04/21/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6	<5.0	<5.0
MW-6	10/06/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7.2	<5.0	<5.0
MW-6	07/19/09	Sample	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.4	<1.0	<3.0
MW-6	12/14/09	Sample	17	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.2	<1.0	<3.0
MW-6	06/21/10	Sample	18.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.4	<1.0	<3.0
MW-6	12/17/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.6	<1.0	<3.0
MW-6	06/29/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<3.0
MW-6	12/15/11	Sample	<10.0	<1.0	<1.0	<1.0	1.9	<1.0	<1.0	<1.0	<1.0	<1.0	2.5	<1.0	<3.0
MW-6	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.4	<1.0	<3.0
MW-6	12/05/12	Sample	14.3	<1.0	<1.0	<1.0	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	1.7	<1.0	<3.0
MW-6	06/24/13	Sample	7.8 J	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<3.0
MW-6	01/15/14	Sample	4.1 J	<1.0	<1.0	<1.0	3.3	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	<3.0

Blank = Not Analyzed
U = Compound not detected at indicated detection limit
J = Estimated concentration between detection limit and practical quantitation limit
B = Compound detected in blank
ug/L = micrograms per liter

Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-7	06/1999	Sample				1U	5.9	1U					26J	1U	
MW-7	03/2000	Sample											5.6UJ		
MW-7	10/10/00	Sample				<1.0U	21	<1.0U					2	<1.0U	
MW-7	04/25/01	Sample				<5.0	13	<5.0					<5.0	<5.0	
MW-7	10/22/01	Sample	<10	<5.0	<5.0	<5.0	31	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-7	05/01/02	Sample	<10	<5.0	<5.0	<5.0	5.5	<5.0	<5.0	<5.0	<5.0	<5.0	77	<5.0	<5.0
MW-7	10/23/02	Sample	<10J	<5.0J	<5.0J	<5.0J	19J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	8.3J	<5.0J	<5.0J
MW-7	04/15/03	Sample	<10	<5.0	<5.0	<5.0	32	<5.0	<5.0	<5.0	<5.0	<5.0	55	<5.0	<5.0
MW-7	10/29/03	Sample	<10	<5.0	<5.0	<5.0	35	<5.0	<5.0	<5.0	<5.0	<5.0	5.5	<5.0	<5.0
MW-7	06/21/04	Sample	<10	<5.0	<5.0	<5.0	67	<5.0	<5.0	<5.0	<5.0	<5.0	10	<5.0	<5.0
MW-7	10/27/04	Sample	<10	<5.0	<5.0	<5.0	27	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-7	05/15/05	Sample	<10	<5.0	<5.0	<5.0	33	<5.0	<5.0	<5.0	<5.0	<5.0	5.1 BU	<5.0	<5.0
MW-7	10/23/05	Sample	<10	<5.0	<5.0	<5.0	22	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-7	04/30/06	Sample	<10	<5.0	<5.0	<5.0	41	<5.0	<5.0	<5.0	<5.0	<5.0	5.7	<5.0	<5.0
MW-7	10/01/06	Sample	<10	<5.0	<5.0	<5.0	30	<5.0	<5.0	<5.0 J	<5.0	<5.0	<5.0	<5.0	<5.0
MW-7	04/16/07	Sample	<10 J	<5.0	<5.0	<5.0	34	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-7	10/01/07	Sample	<10	<5.0	<5.0	<5.0	39	<5.0	<5.0	<5.0	<5.0	<5.0	5.7	<5.0	<5.0
MW-7	04/20/08	Sample	<10	<5.0	<5.0	<5.0	50	<5.0	<5.0	<5.0	<5.0	<5.0	6.8	<5.0	<5.0
MW-7	10/07/08	Sample	<10	<5.0	<5.0	<5.0	45	<5.0	<5.0	<5.0	<5.0	<5.0	8.3	<5.0	<5.0
MW-7	07/21/09	Sample	<10	<1.0	<1.0	<1.0	123	4.6	<1.0	<1.0	<1.0	<1.0	26.4	4.8	<3.0
MW-7	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	69.5	2.7	<1.0	<1.0	<1.0	<1.0	14	2.7	<3.0
MW-7	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	73.6	2.7	<1.0	<1.0	<1.0	<1.0	15.5	3.9	<3.0
MW-7	12/18/10	Sample	<10.0	<1.0	<1.0	<1.0	99.6	3.4	<1.0	<1.0	<1.0	<1.0	43.3	5.7	<3.0
MW-7	06/29/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-7	12/15/11	Sample	<10.0	<1.0	<1.0	<1.0	20.6	<1.0	<1.0	<1.0	<1.0	<1.0	7.2	<1.0	<3.0
MW-7	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	53.5	2.2	<1.0	<1.0	<1.0	<1.0	16.6	2.2	<3.0
MW-7	12/06/12	Sample	<10.0	<1.0	<1.0	<1.0	44.3	1.7	<1.0	<1.0	<1.0	<1.0	14.2	1.5	<3.0
MW-7	06/24/13	Sample	<10.0	<1.0	<1.0	<1.0	30.3	1.3	<1.0	<1.0	<1.0	<1.0	9.6	0.72 J	<3.0
MW-7	01/15/14	Sample	<10.0	<1.0	<1.0	<1.0	24.3	1.2	<1.0	0.27 J	<1.0	<1.0	8.1	0.50 J	<3.0

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Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-7A	06/1999	Sample				1U	5.9	1U					15	1U	
MW-7A	03/2000	Sample											53UJ		
MW-7A	11/07/00	Sample				<5.0U	<5.0U	<5.0U					5.4	<10U	
MW-7A	11/07/00	Duplicate				<5.0U	<5.0U	<5.0U					5.8	<10U	
MW-7A	04/24/01	Sample				<5.0	<5.0	<5.0					<5.0	<5.0	
MW-7A	10/22/01	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	9.4	<5.0	<5.0
MW-7A	05/01/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	30	<5.0	<5.0
MW-7A	10/23/02	Sample	<10J	<5.0J	<5.0J	<5.0J	5.3J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	130J	<5.0J	<5.0J
MW-7A	04/15/03	Sample	<10	<5.0	<5.0	<5.0	7.3	<5.0	<5.0	<5.0	<5.0	<5.0	270	<5.0	<5.0
MW-7A	10/29/03	Sample	<10 J	<5.0 J	<5.0 J	<5.0 J	<5.0 J	<5.0 J	<5.0 J	<5.0 J	<5.0 J	<5.0 J	28 J	<5.0 J	<5.0 J
MW-7A	06/21/04	Sample	<10	<5.0	<5.0	<5.0	13	<5.0	<5.0	<5.0	<5.0	<5.0	120	<5.0	<5.0
MW-7A	10/27/04	Sample	<10	<5.0	<5.0	<5.0	26	<5.0	<5.0	<5.0	<5.0	<5.0	200	<5.0	<5.0
MW-7A	05/15/05	Sample	<10	<5.0	<5.0	<5.0	31	<5.0	<5.0	<5.0	<5.0	<5.0	150	<5.0	<5.0
MW-7A	10/23/05	Sample	<10	<5.0	<5.0	<5.0	280	<5.0	<5.0	<5.0	<5.0	<5.0	470	<5.0	<5.0
MW-7A	04/30/06	Sample	<10	<5.0	<5.0	<5.0	230	<5.0	<5.0	<5.0	<5.0	<5.0	260	<5.0	<5.0
MW-7A	10/01/06	Sample	<10	<5.0	<5.0	<5.0	200	7.8	<5.0	<5.0 J	<5.0	<5.0	270	<5.0	<5.0
MW-7A	04/16/07	Sample	<10 J	<5.0	<5.0	<5.0	19	<5.0	<5.0	<5.0	<5.0	<5.0	38	<5.0	<5.0
MW-7A	10/01/07	Sample	<10	<5.0	<5.0	<5.0	97	<5.0	<5.0	<5.0	<5.0	<5.0	100	<5.0	<5.0
MW-7A	04/20/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-7A	10/07/08	Sample	<10	<5.0	<5.0	<5.0	41	<5.0	<5.0	<5.0	<5.0	<5.0	89	<5.0	<5.0
MW-7A	07/21/09	Sample	<10	<1.0	<1.0	<1.0	205	<1.0	<1.0	<1.0	<1.0	<1.0	325	<1.0	<3.0
MW-7A	12/14/09	Sample	<50.0	<5.0	<5.0	<5.0	248	<5.0	<5.0	<5.0	<5.0	<5.0	522	<5.0	<15.0
MW-7A	06/21/10	Sample	<100.0	<10.0	<10.0	11.6	247	<10.0	<10.0	<10.0	<10.0	<10.0	921	<10.0	<30.0
MW-7A	12/18/10	Sample	<100.0	<10.0	<10.0	31.7	443	5.5	<10.0	<10.0	<10.0	<10.0	1630	1.2	<30.0
MW-7A	06/29/11	Sample	<200.0	<20.0	<20.0	<20.0	237	<20.0	<20.0	44.4	<20.0	<20.0	1080	<20.0	<60.0
MW-7A	12/15/11	Sample	<200.0	<20.0	<20.0	25.2	473	<20.0	<20.0	<20.0	<20.0	<20.0	2080	<20.0	<60.0
MW-7A	06/11/12	Sample	<200.0	<20.0	<20.0	<20.0	278	<20.0	<20.0	<20.0	<20.0	<20.0	1330	<20.0	<60.0
MW-7A	12/06/12	Sample	<200.0	<20.0	<20.0	<20.0	252	<20.0	<20.0	<20.0	<20.0	<20.0	750	<20.0	<60.0
MW-7A	06/24/13	Sample	<200.0	<20.0	<20.0	10.2 J	216	<20.0	<20.0	<20.0	<20.0	<20.0	834	<20.0	<60.0
MW-7A	01/15/14	Sample	<200.0	<20.0	<20.0	14.9 J	276	<20.0	<20.0	6.5 J	<20.0	<20.0	1440	<20.0	<60.0

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Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-8	06/1999	Sample				1U	1U	1U					8	1U	
MW-8	03/2000	Sample											47UJ		
MW-8	10/10/00	Sample				<1.0U	<1.0U	<1.0U					3	<1.0U	
MW-8	04/24/01	Sample				<5.0J	<5.0J	<5.0J					<5.0J	<5.0J	
MW-8	10/23/01	Sample	29 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8	04/29/02	Sample	52	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8	10/21/02	Sample	45J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8	04/13/03	Sample	48	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8	10/27/03	Sample	23	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8	06/21/04	Sample	23	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8	10/24/04	Sample	22 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.2	<5.0	<5.0
MW-8	05/15/05	Sample	15 BU	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.8 BU	<5.0	<5.0
MW-8	10/23/05	Sample	17 U	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7	<5.0	<5.0
MW-8	04/30/06	Sample	20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	13	<5.0	<5.0
MW-8	10/01/06	Sample	24	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0 J	<5.0	<5.0	13	<5.0	<5.0
MW-8	04/15/07	Sample	15 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	8.1	<5.0	<5.0
MW-8	10/01/07	Sample	14	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8	04/20/08	Sample	19	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8	10/07/08	Sample	13	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7.4	<5.0	<5.0
MW-8	07/20/09	Sample	12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	12	<1.0	<3.0
MW-8	12/14/09	Sample	24.9	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	12.1	<1.0	<3.0
MW-8	06/21/10	Sample	27.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.3	<1.0	<3.0
MW-8	12/16/10	Sample	12.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	9.4	<1.0	<3.0
MW-8	06/28/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.3	<1.0	<3.0
MW-8	12/13/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.7	<1.0	<3.0
MW-8	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	9.0	<1.0	<3.0
MW-8	12/04/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	11.6	<1.0	<3.0
MW-8	06/24/13	Sample	<10.0	<1.0	0.18 J	<1.0	<1.0	<1.0	<1.0	<1.0	0.67 J	0.52 J	8.1	<1.0	<3.0
MW-8	01/14/14	Sample	2.6 J	<1.0	0.22 J	<1.0	<1.0	<1.0	<1.0	0.25 J	<1.0	<1.0	11.9	<1.0	<3.0

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Table 5
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Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-8A	06/1999	Sample				1U	1U	1U					2.7	1U	
MW-8A	03/2000	Sample											15UJ		
MW-8A	10/10/00	Sample				<1.0U	<1.0U	<1.0U					3	<1.0U	
MW-8A	04/24/01	Sample				<5.0	<5.0	<5.0					<5.0	<5.0	
MW-8A	10/24/01	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8A	04/29/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8A	10/21/02	Sample	<10J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	34	<5.0	<5.0
MW-8A	04/13/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	25	<5.0	<5.0
MW-8A	10/27/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	19	<5.0	<5.0
MW-8A	06/21/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8A	10/24/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6.5	<5.0	<5.0
MW-8A	05/15/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.1 BU	<5.0	<5.0
MW-8A	10/23/05	Sample	12 U	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	11	24	<5.0	<5.0
MW-8A	04/30/06	Sample	11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8A	10/01/06	Sample	<10	<5.0	<5.0	<5.0	<5.0	12	<5.0	<5.0 J	<5.0	<5.0	7.5	<5.0	<5.0
MW-8A	04/15/07	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8A	10/01/07	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8A	04/20/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8A	10/08/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-8A	07/20/09	Sample	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<3.0
MW-8A	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-8A	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-8A	12/16/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.3	<1.0	<3.0
MW-8A	06/28/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-8A	12/13/11	Sample	<10.0	<1.0	<1.0	<1.0	3.3	<1.0	<1.0	<1.0	<1.0	<1.0	135	<1.0	<3.0
MW-8A	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.7	<1.0	<3.0
MW-8A	12/04/12	Sample	<10.0	<1.0	<1.0	<1.0	7.7	<1.0	<1.0	<1.0	<1.0	<1.0	235	<1.0	<3.0
MW-8A	06/24/13	Sample	<10.0	0.11 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.50 J	0.56 J	7.8	<1.0	<3.0
MW-8A	01/14/14	Sample	<10.0	<1.0	<1.0	<1.0	3.2	<1.0	<1.0	0.26 J	<1.0	<1.0	152	<1.0	<3.0

Blank = Not Analyzed
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Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
WT-14	10/03/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
WT-14	07/19/09	Sample	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.2	<1.0	<3.0
WT-14	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	1.8	<1.0	<1.0	<1.0	<1.0	<1.0	3.6	<1.0	<3.0
WT-14	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
WT-14	12/16/10	Sample	<10.0	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	2.5	<1.0	<3.0
WT-14	06/29/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
WT-14	12/13/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2	<1.0	<3.0
WT-14	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	<1.0	<3.0
WT-14	12/04/12	Sample	<10.0	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	3	<1.0	<3.0
WT-14	06/24/13	Sample	1.9 J	<1.0	<1.0	<1.0	6.2	<1.0	<1.0	<1.0	<1.0	<1.0	105	0.16 J	<3.0
WT-14	01/14/14	Sample	<10.0	<1.0	<1.0	<1.0	3.8	<1.0	<1.0	<1.0	<1.0	<1.0	6.3	<1.0	<3.0

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B = Compound detected in blank
ug/L = micrograms per liter

Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
WT-18	06/1999	Sample				1U	1U	1U					24	1U	
WT-18	03/2000	Sample											150UJ		
WT-18	10/10/00	Sample				<1.0U	3	<1.0U					87	<1.0U	
WT-18	04/25/01	Sample				<5.0	<5.0	<5.0					55	<5.0	
WT-18	10/24/01	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	45	<5.0	<5.0
WT-18	04/30/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	110	<5.0	<5.0
WT-18	10/22/02	Sample	<10J	<5.0J	<5.0J	<5.0J	8.5J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	260J	<5.0J	<5.0J
WT-18	04/14/03	Sample	<10	<5.0	<5.0	<5.0	38	<5.0	<5.0	<5.0	<5.0	<5.0	1000	<5.0	<5.0
WT-18	10/28/03	Sample	<10	<5.0	<5.0	<5.0	28	<5.0	<5.0	<5.0	<5.0	<5.0	580	<5.0	<5.0
WT-18	06/22/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	99	<5.0	<5.0
WT-18	10/26/04	Sample	<10	<5.0	<5.0	11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	290	<5.0	<5.0
WT-18	05/17/05	Sample	<10	<5.0	<5.0	11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	86	<5.0	<5.0
WT-18	10/26/05	Sample	<10	<5.0	<5.0	<5.0	21	<5.0	<5.0	<5.0	<5.0	<5.0	520	<5.0	<5.0
WT-18	05/02/06	Sample	<10	<5.0	<5.0	<5.0	13	<5.0	<5.0	<5.0	<5.0	<5.0	380	<5.0	<5.0
WT-18	05/02/06	Duplicate	<10	<5.0	<5.0	<5.0	15	<5.0	<5.0	<5.0	<5.0	<5.0	420	<5.0	<5.0
WT-18	10/04/06	Sample	<10	<5.0	<5.0	<5.0	8.1	<5.0	<5.0	<5.0 J	<5.0	<5.0	260	<5.0	<5.0
WT-18	04/17/07	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	110	<5.0	<5.0
WT-18	10/01/07	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	140	<5.0	<5.0
WT-18	04/22/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	70	<5.0	<5.0
WT-18	10/08/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	63	<5.0	<5.0
WT-18	07/22/09	Sample	<10	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	101	<1.0	<3.0
WT-18	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	88.2	<1.0	<3.0
WT-18	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	66.4	<1.0	<3.0
WT-18	12/15/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	104	<1.0	<3.0
WT-18	06/29/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	79.6	<1.0	<3.0
WT-18	06/29/11	Duplicate	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	82.5	<1.0	<3.0
WT-18	12/13/11	Sample	<10.0	<1.0	<1.0	<1.0	6.4	<1.0	<1.0	<1.0	<1.0	<1.0	210	<1.0	<3.0
WT-18	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	8.9	<1.0	<1.0	<1.0	<1.0	<1.0	338	<1.0	<3.0
WT-18	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	8.9	<1.0	<1.0	<1.0	<1.0	<1.0	338	<1.0	<3.0
WT-18	12/03/12	Sample	<10.0	<1.0	<1.0	<1.0	14.3	<1.0	<1.0	5.1	<1.0	<1.0	606	<1.0	<3.0
WT-18	06/24/13	Sample	<50.0	< 5.0	< 5.0	< 5.0	18.4	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	898	< 5.0	<15.0
WT-18	01/13/14	Sample	<50.0	0.95 J	< 5.0	< 5.0	29.4	< 5.0	< 5.0	5.9	< 5.0	< 5.0	1470	< 5.0	<15.0

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Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
BD-18	06/1999	Sample				1U	1U	1U					1.3	1U	
BD-18	03/2000	Sample											41UJ		
BD-18	11/07/00	Sample				<5.0U	<5.0U	<5.0U					<5.0U	<10U	
BD-18	04/25/01	Sample				<5.0	<5.0	<5.0					<5.0	<5.0	
BD-18	10/23/01	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
BD-18	04/30/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
BD-18	10/22/02	Sample	<10J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J	<5.0J
BD-18	04/14/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6.2
BD-18	10/28/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
BD-18	06/22/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
BD-18	10/25/04	Sample	12 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
BD-18	05/17/05	Sample	12 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	13 BU	<5.0	<5.0
BD-18	10/25/05	Sample	15 U	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
BD-18	05/02/06	Sample	20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7.2	<5.0	<5.0
BD-18	10/03/06	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0 J	<5.0	<5.0	12	<5.0	<5.0
BD-18	04/17/07	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
BD-18	10/01/07	Sample	24	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
BD-18	04/22/08	Sample	46	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
BD-18	10/08/08	Sample	14	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
BD-18	07/22/09	Sample	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<3.0
BD-18	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
BD-18	06/21/10	Sample	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BD-18	12/15/10	Sample	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BD-18	06/29/11	Sample	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
BD-18	12/15/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
BD-18	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<3.0
BD-18	12/04/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<3.0
BD-18	06/24/13	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.48 J	0.92 J	<1.0	<3.0
BD-18	01/13/14	Sample	3.9 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.42 J	<1.0	1.1	<1.0	<1.0	<3.0

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Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-19	10/03/08	Sample	<10	<5.0	<5.0	<5.0	300	25	<5.0	<5.0	<5.0	<5.0	39	2.8	<5.0
MW-19	07/19/09	Sample	<10	<1.0	<1.0	<1.0	255	12.6	<1.0	<1.0	<1.0	<1.0	32.4	1.8	<3.0
MW-19	12/14/09	Sample	<50.0	<5.0	<5.0	<5.0	214	9.6	<5.0	<5.0	<5.0	<5.0	26.8	<5.0	<15.0
MW-19	06/21/10	Sample	<50.0	<5.0	<5.0	<5.0	214	10.9	<5.0	<5.0	<5.0	<5.0	28.3	<5.0	<15.0
MW-19	12/16/10	Sample	<50.0	<5.0	<5.0	<5.0	197	10.6	<5.0	<5.0	<5.0	<5.0	29.9	1.5	<15.0
MW-19	06/28/11	Sample	<20.0	<2.0	<2.0	<2.0	144	7.1	<2.0	6.5	<2.0	<2.0	16.7	<2.0	<6.0
MW-19	12/14/11	Sample	<20.0	<2.0	<2.0	<2.0	204	10.9	<2.0	<2.0	<2.0	2.1	29.5	<2.0	<6.0
MW-19	06/11/12	Sample	<20.0	<2.0	<2.0	<2.0	175	7.3	<2.0	<2.0	<2.0	<2.0	22.9	<2.0	<6.0
MW-19	12/04/12	Sample	<20.0	<2.0	<2.0	<2.0	176	5.3	<2.0	<2.0	<2.0	<2.0	21.5	<2.0	<6.0
MW-19	06/24/13	Sample	5.5 J	0.35 J	<2.0	<2.0	158	4.9	<2.0	<2.0	<2.0	0.43 J	20.1	<2.0	<6.0
MW-19	01/14/14	Sample	<20.0	0.34 J	<2.0	<2.0	144	5.6	<2.0	2.1	<2.0	<2.0	18.5	<2.0	<6.0

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Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-20	07/19/09	Sample	<10	<1.0	<1.0	<1.0	233	5.4	<1.0	<1.0	<1.0	<1.0	602	<1.0	<3.0
MW-20	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	15.1	<1.0	<1.0	<1.0	<1.0	<1.0	43.4	<1.0	<3.0
MW-20	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	4	<1.0	<1.0	<1.0	<1.0	<1.0	8.5	<1.0	<3.0
MW-20	12/16/10	Sample	<10.0	<1.0	<1.0	<1.0	177	4.4	<1.0	<1.0	<1.0	<1.0	394	<1.0	<3.0
MW-20	06/28/11	Sample	<50.0	<5.0	<5.0	<5.0	72.1	<5.0	<5.0	14.3	<5.0	<5.0	202	<5.0	<15.0
MW-20	12/14/11	Sample	<50.0	<5.0	<5.0	<5.0	124	<5.0	<5.0	<5.0	<5.0	<5.0	349	<5.0	<15.0
MW-20	06/11/12	Sample	<50.0	<5.0	<5.0	<5.0	41.2	<5.0	<5.0	<5.0	<5.0	7.2	90.1	<5.0	<15.0
MW-20	12/04/12	Sample	16.2	<5.0	<5.0	<5.0	33.2	<5.0	<5.0	<5.0	<5.0	<5.0	82.1	<5.0	<15.0
MW-20	06/24/13	Sample	11.3	<5.0	<5.0	<5.0	47.9	0.86 J	<5.0	<5.0	<5.0	<5.0	111	<5.0	<15.0

Blank = Not Analyzed
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Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-21	12/18/10	Sample	<10.0	<1.0	<1.0	<1.0	3	<1.0	<1.0	<1.0	<1.0	<1.0	42.5	<1.0	<3.0
MW-21	06/29/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-21	12/14/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	<3.0
MW-21	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-21	12/05/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-21	06/24/13	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-21	01/15/14	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0

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Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-22	06/1999	Sample				1U	1U	1U					1U	1U	
MW-22	03/2000	Sample											5U		
MW-22	10/10/00	Sample				<1.0U	<1.0U	<1.0U					<1.0U	<1.0U	
MW-22	04/24/01	Sample				<5.0	<5.0	<5.0					<5.0	<5.0	
MW-22	10/22/01	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	04/30/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	10/21/02	Sample	<10J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	04/14/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	10/28/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	06/22/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	10/25/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	05/17/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	10/25/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	10	<5.0	<5.0
MW-22	05/02/06	Sample	18	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	10/03/06	Sample	17	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0 J	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	04/17/07	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	10/01/07	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	04/21/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	10/09/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-22	07/24/09	Sample	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<3.0
MW-22	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-22	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-22	12/15/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-22	06/28/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-22	12/12/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-22	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.5
MW-22	12/03/12	Sample	<10.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-22	06/24/13	Sample	3.7 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-22	01/13/14	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0

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Table 5
Volatile Organic Compounds
Groundwater Chemistry Results
Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-23	06/1999	Sample				1U	1U	1U					1U	1U	
MW-23	03/2000	Sample											13UJ		
MW-23	11/07/00	Sample				<5.0U	<5.0U	<5.0U					<5.0U	<10U	
MW-23	04/23/01	Sample				<5.0	<5.0	<5.0					<5.0	<5.0	
MW-23	10/22/01	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	04/30/02	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	10/21/02	Sample	<10J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	04/14/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	10/28/03	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	06/22/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	10/25/04	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	05/17/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	10/25/05	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	05/02/06	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	10/03/06	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0 J	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	04/17/07	Sample	<10 J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	10/01/07	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	04/21/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	10/09/08	Sample	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MW-23	07/23/09	Sample	<50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<15.0
MW-23	12/14/09	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-23	06/21/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-23	12/15/10	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-23	06/28/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-23	12/12/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-23	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-23	12/03/12	Sample	<10.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.1
MW-23	06/24/13	Sample	6.2 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-23	01/13/14	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0

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Cooper Industries, LLC McGraw Edison, Centerville, IA Site

ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-24	09/23/11	Sample	<10.0	<1.0	3.4	<1.0	12.8	<1.0	<1.0	<1.0	<1.0	<1.0	1.8	<1.0	<3.0
MW-24	12/15/11	Sample	<10.0	<1.0	<1.0	<1.0	8	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	<3.0
MW-24	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	4.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-24	12/05/12	Sample	<10.0	<1.0	<1.0	<1.0	4.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-24	06/24/13	Sample	<10.0	<1.0	<1.0	<1.0	17.4	0.28 J	<1.0	<1.0	<1.0	<1.0	2.6	<1.0	<3.0
MW-24	01/15/14	Sample	<10.0	<1.0	<1.0	<1.0	0.88 J	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0

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ID	Date	Parameter	Acetone	Benzene	Chloroform	1, 1-DCE	c-1, 2-DCE	t-1, 2-DCE	Ethylbenzene	DCM	PCE	Toluene	TCE	VC	Xylenes (Total)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-25	09/23/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3640	<1.0	<3
MW-25	12/15/11	Sample	<200	<20	<20	<20	<20	<20	<20	<20	<20	<20	2440	<20	<60
MW-25	12/15/11	Duplicate	<200	<20	<20	<20	<20	<20	<20	<20	<20	<20	2650	<20	<60
MW-25	06/11/12	Sample	<200	<20	<20	<20	<20	<20	<20	<20	<20	<20	4810	<20	<60
MW-25	06/11/12	Duplicate	<200	<20	<20	<20	<20	<20	<20	<20	<20	<20	5260	<20	<60
MW-25	12/05/12	Sample	<200	<20	<20	<20	<20	<20	<20	<20	<20	<20	2880	<20	<60
MW-25	12/05/12	Duplicate	<200	<20	<20	<20	<20	<20	<20	<20	<20	<20	2860	<20	<60
MW-25	06/24/13	Sample	<200	<20	<20	<20	<20	<20	<20	<20	<20	<20	6410	<20	<60
MW-25	01/15/14	Sample	<500	6.1 J	<50	<50	<50	<50	<50	<50	<50	<50	2410	<50	<150

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		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-26	09/23/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-26	12/12/11	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-26	06/11/12	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0
MW-26	12/03/12	Sample	<10.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.1
MW-26	06/24/13	Sample	<10.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.1
MW-26	01/13/14	Sample	<10.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0

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U = Compound not detected at indicated detection limit
J = Estimated concentration between detection limit and practical quantitation limit
B = Compound detected in blank
ug/L = micrograms per liter

FIGURE 3
DUAL-PHASE SVE SYSTEM EXHAUST TCE CONCENTRATION
McGraw-Edison Site, Centerville, Iowa

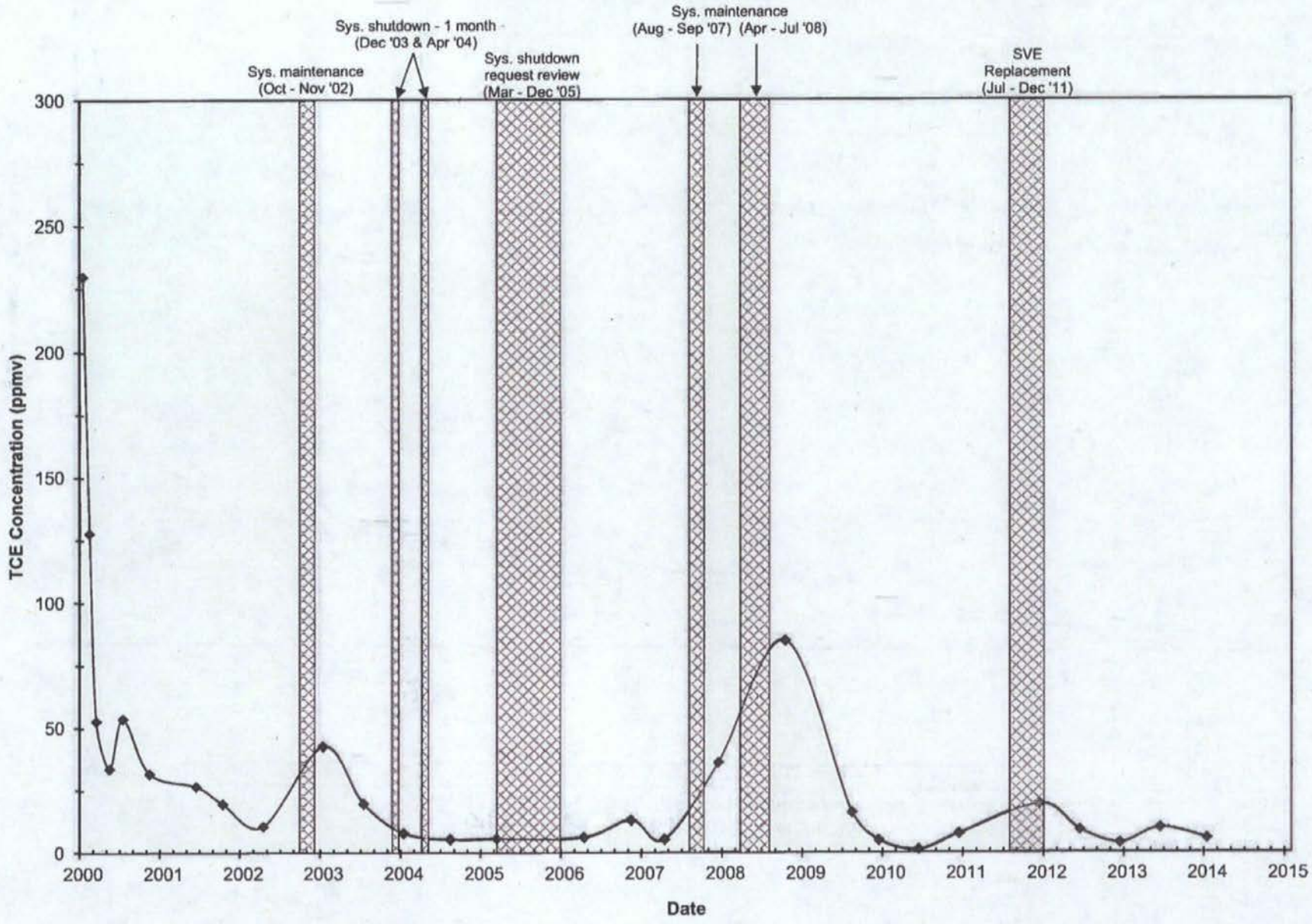


FIGURE 4
DUAL-PHASE SVE AREA A TCE REMOVED
McGraw-Edison Site, Centerville, Iowa

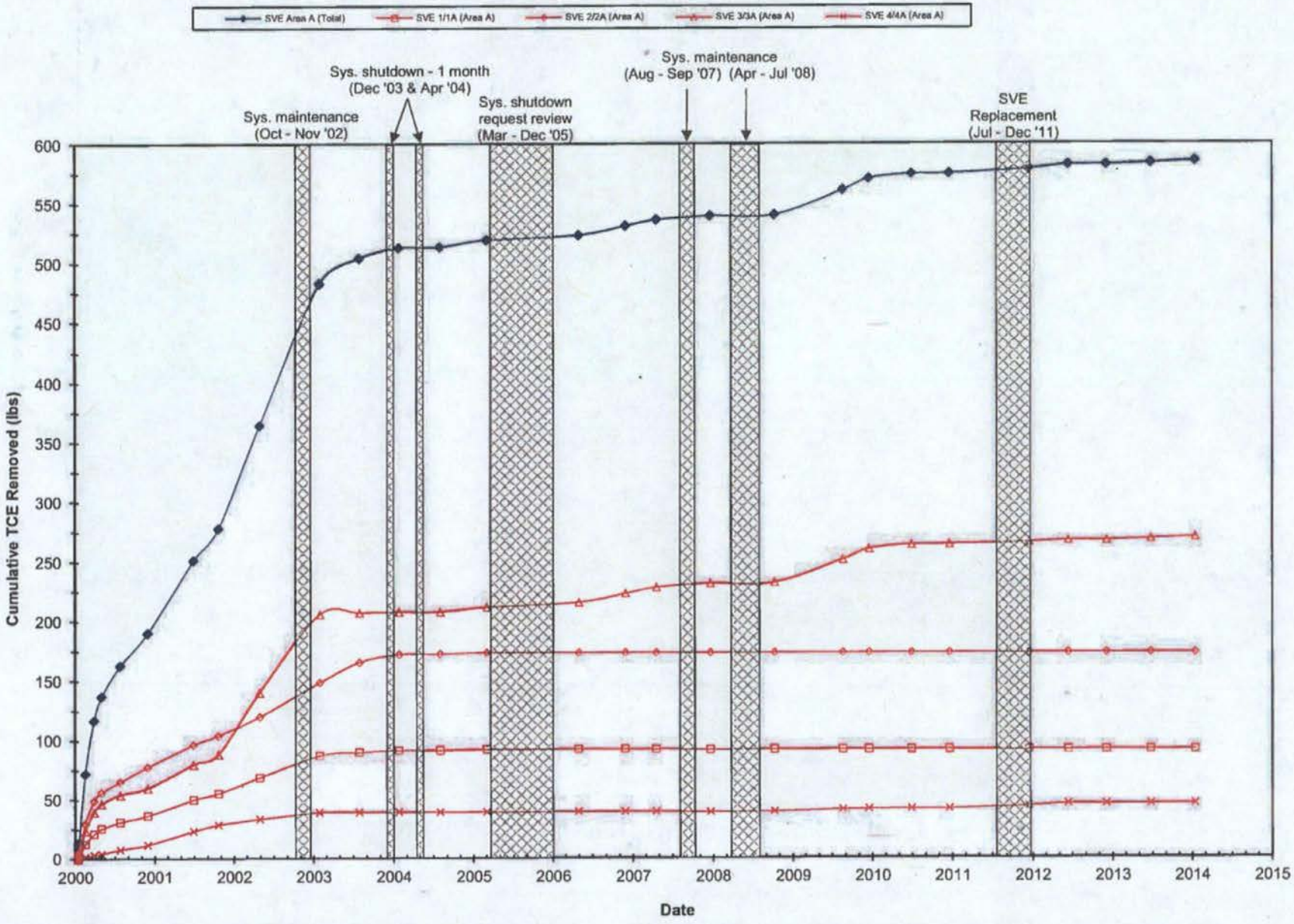


FIGURE 5
DUAL-PHASE SVE AREA B TCE REMOVED
McGraw-Edison Site, Centerville, Iowa

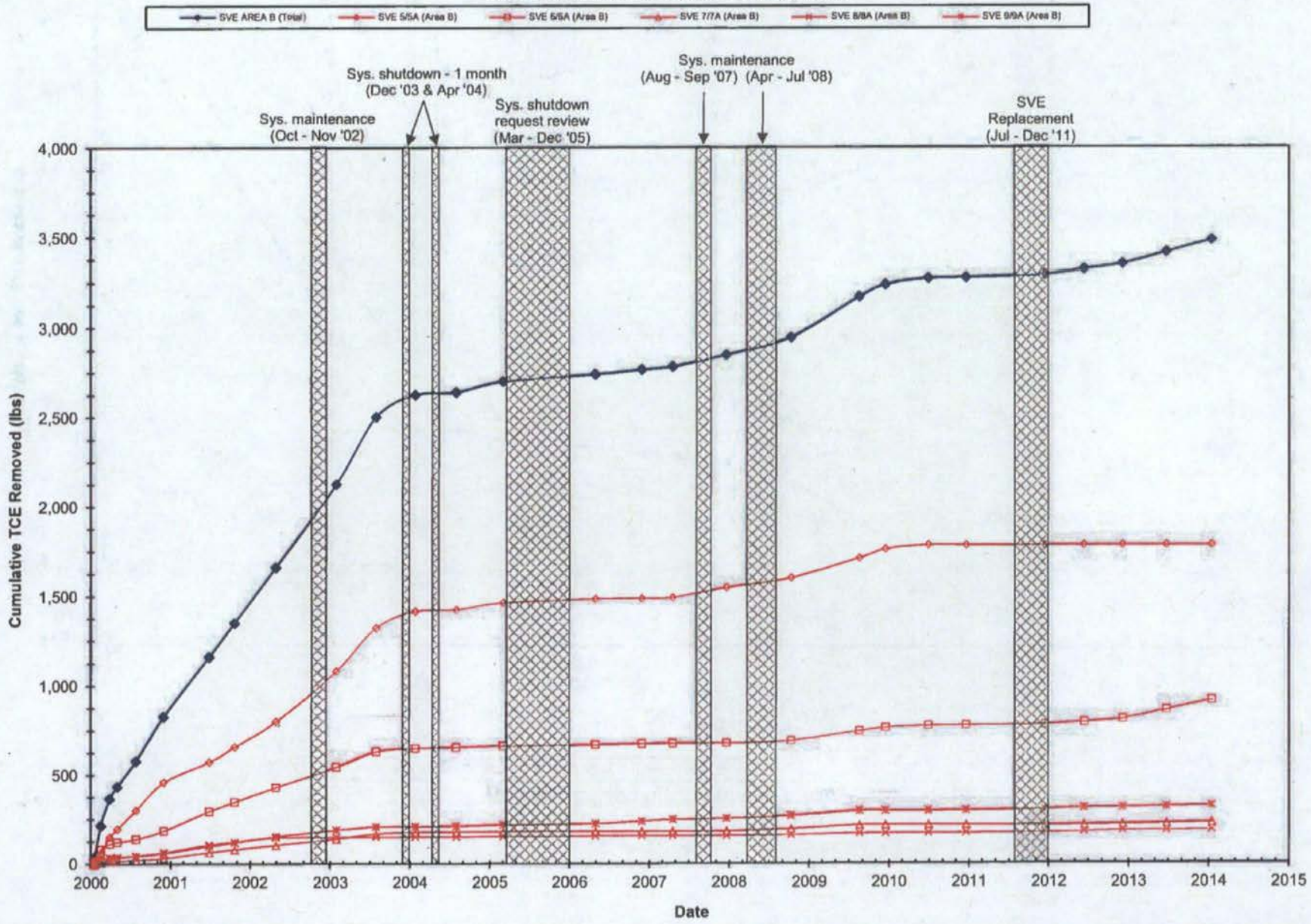


FIGURE 6
DUAL-PHASE SVE TCE REMOVED
McGraw-Edison Site, Centerville, Iowa

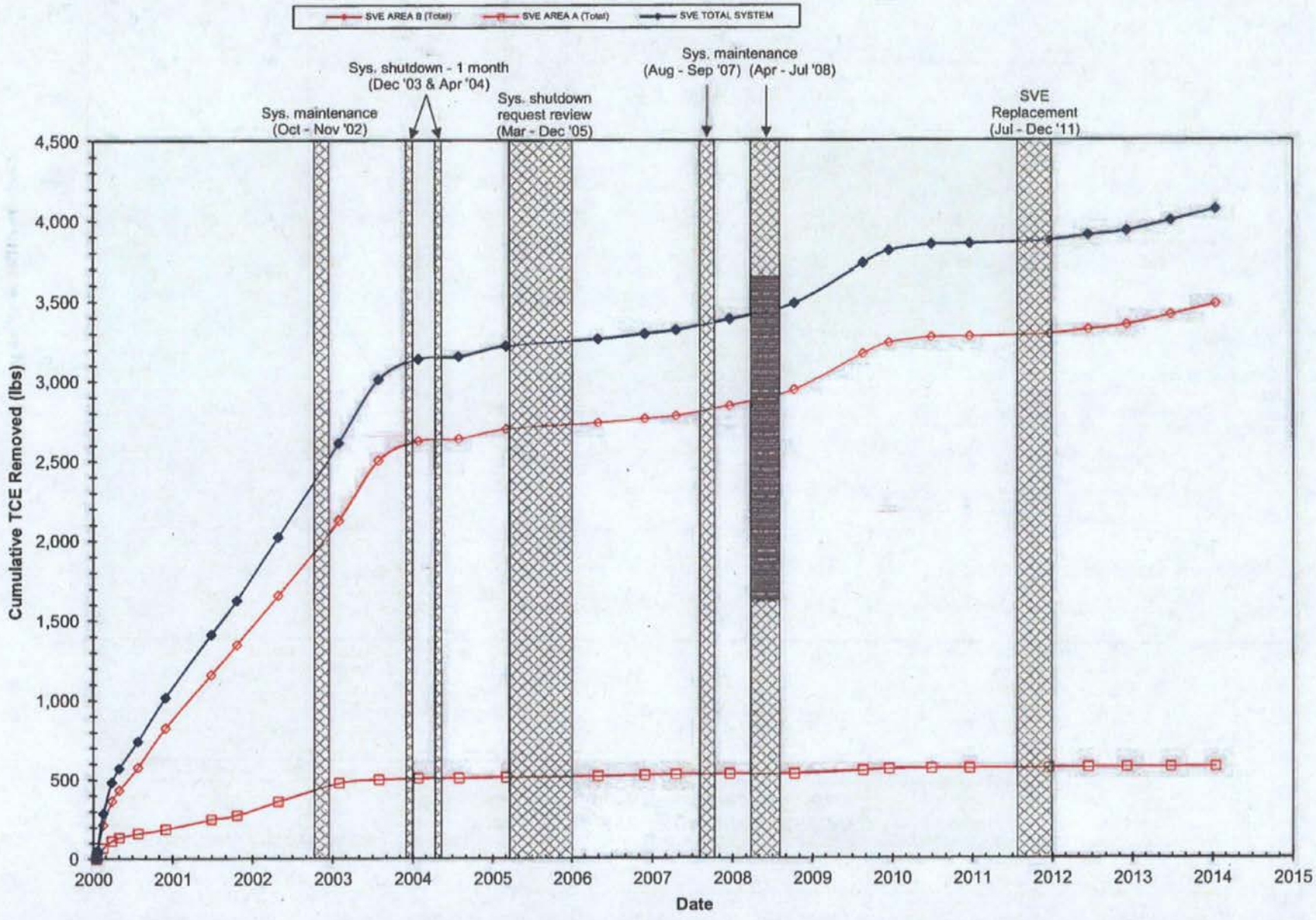


FIGURE 7
DUAL-PHASE SVE AREA A TCE EXTRACTION RATE
McGraw-Edison Site, Centerville, Iowa

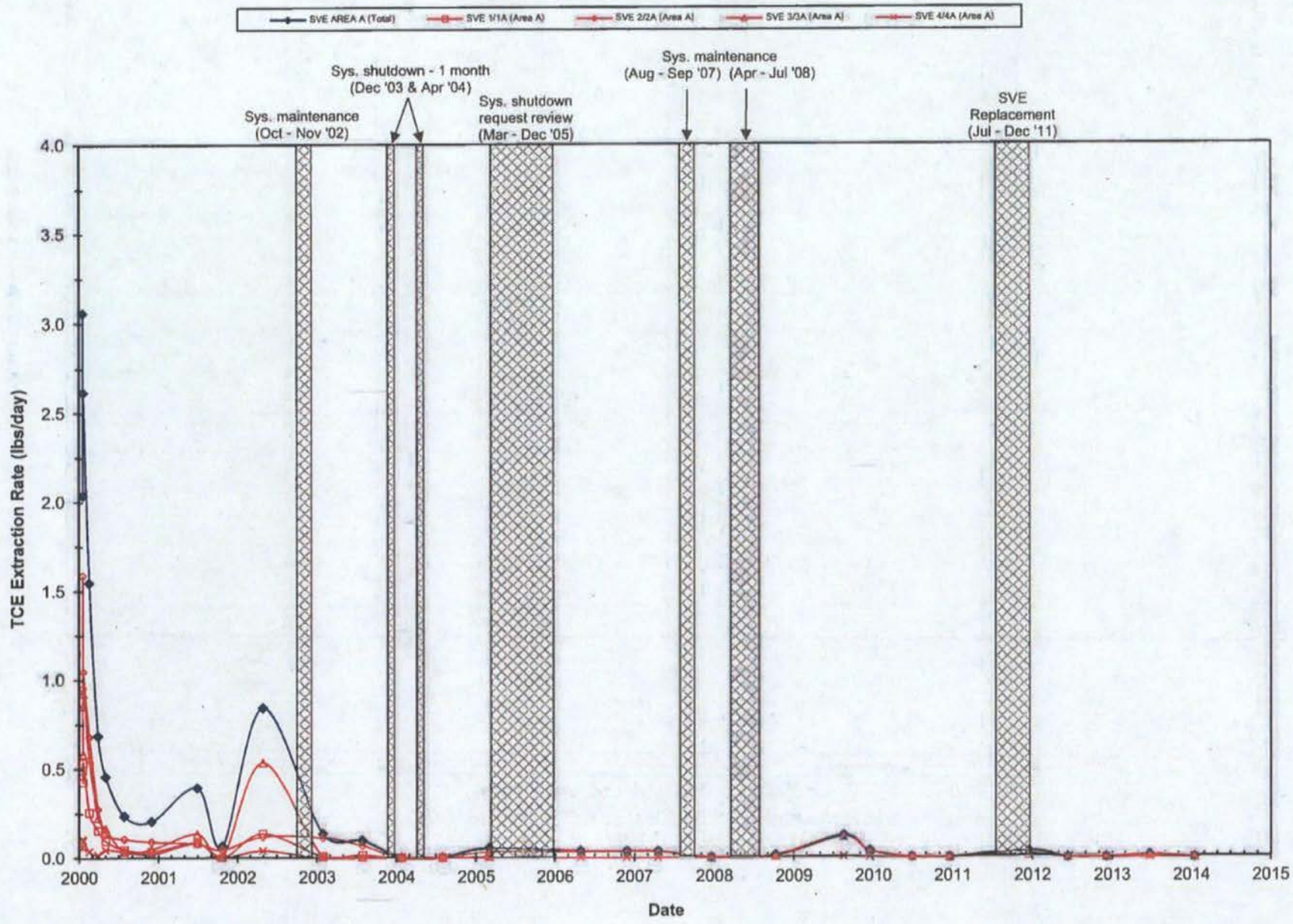
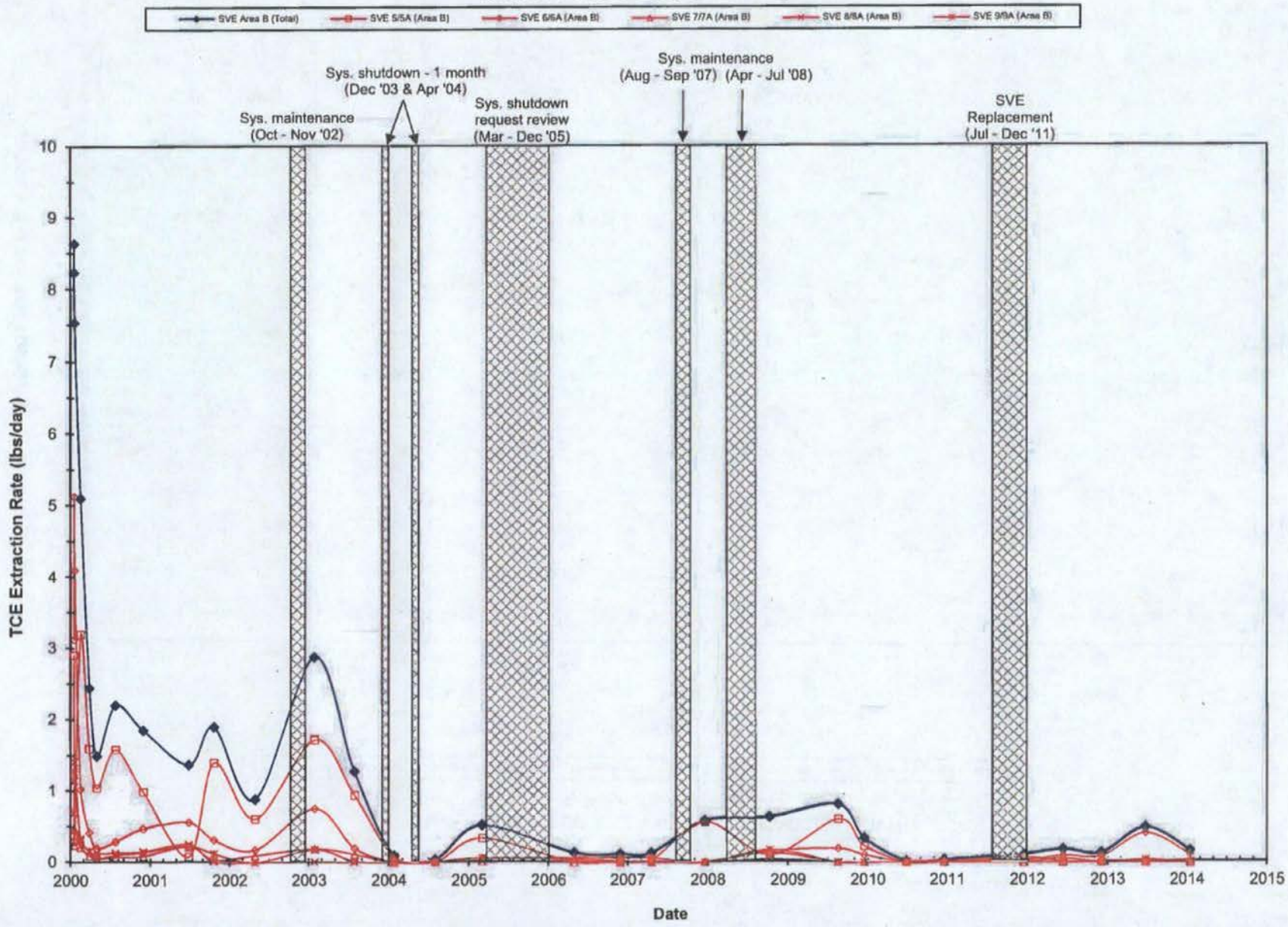
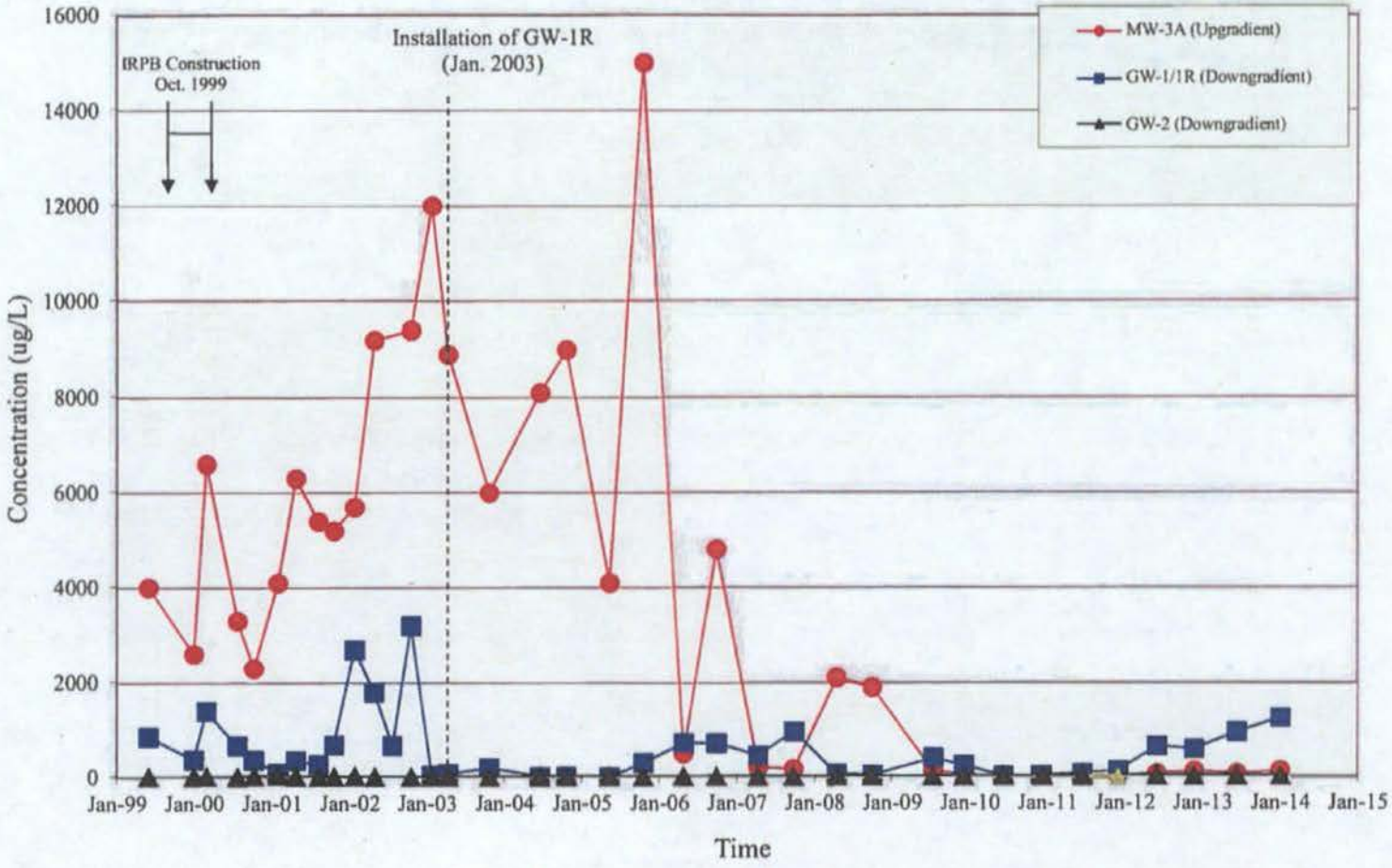


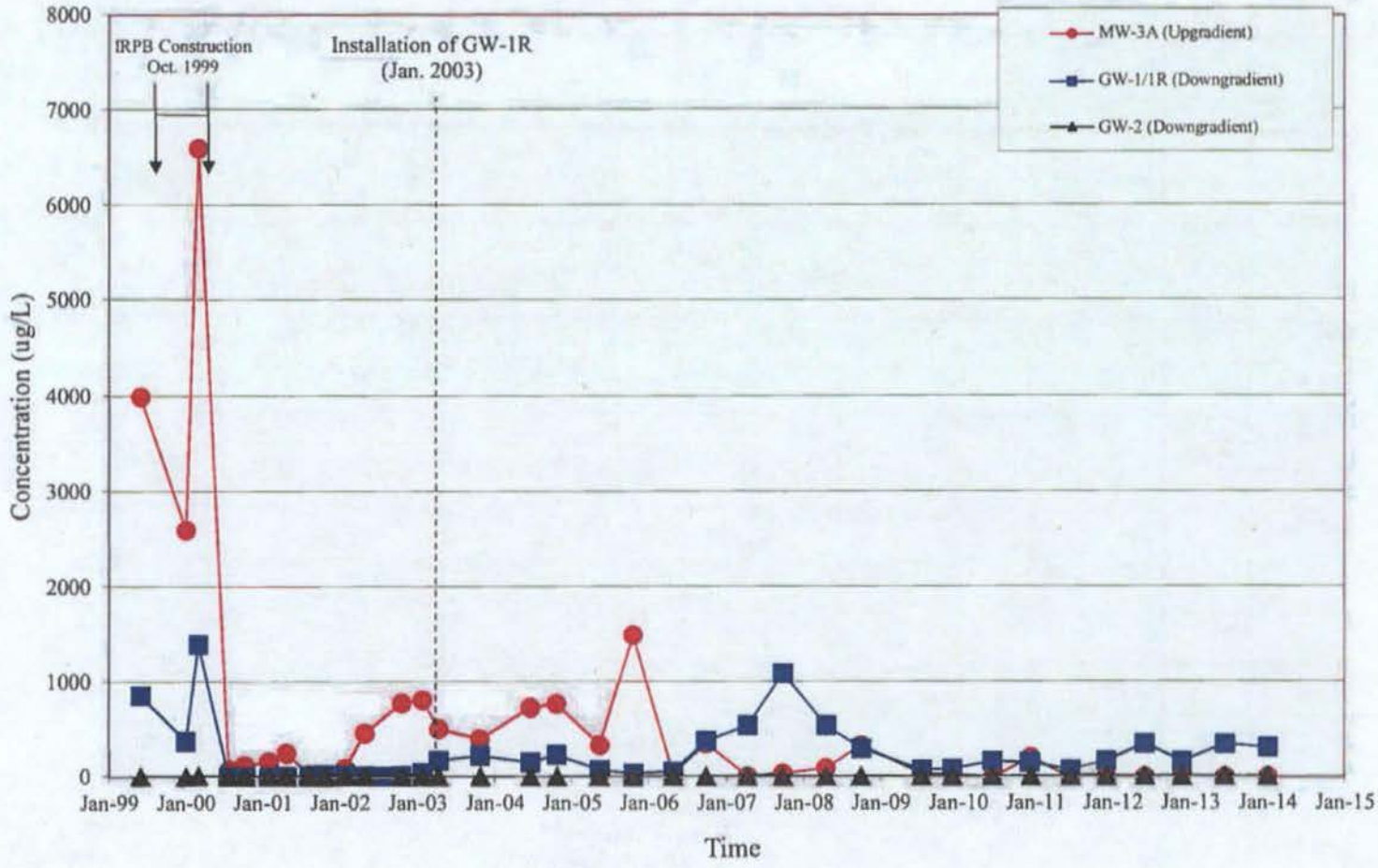
FIGURE 8
DUAL-PHASE SVE AREA B TCE EXTRACTION RATE
McGraw-Edison Site, Centerville, Iowa



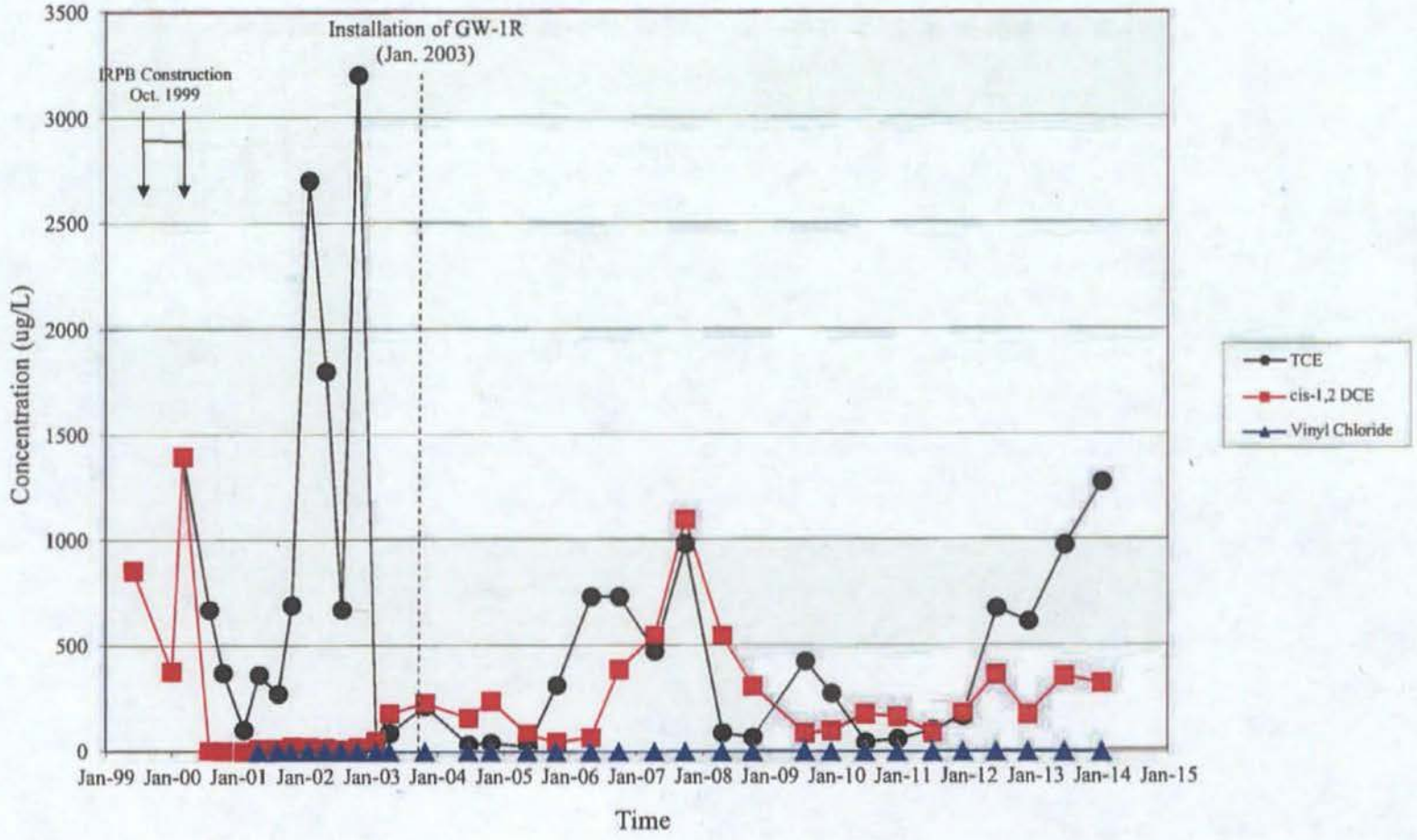
Trichloroethene Data-Iron Reactive Permeable Barrier
McGraw Edison Site
Centerville, Iowa

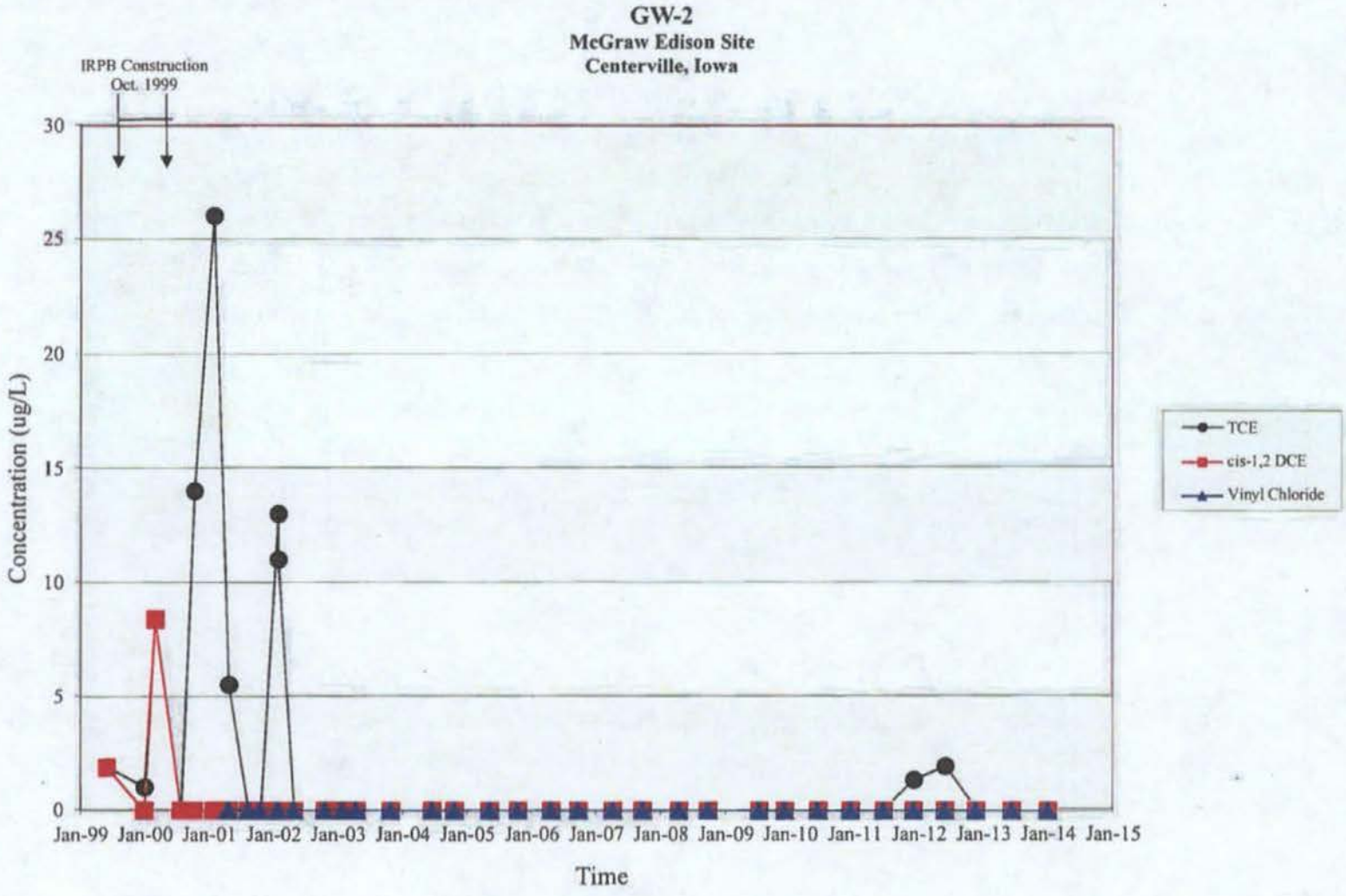


cis 1,2-DCE Data-Iron Reactive Permeable Barrier
McGraw Edison Site
Centerville, Iowa

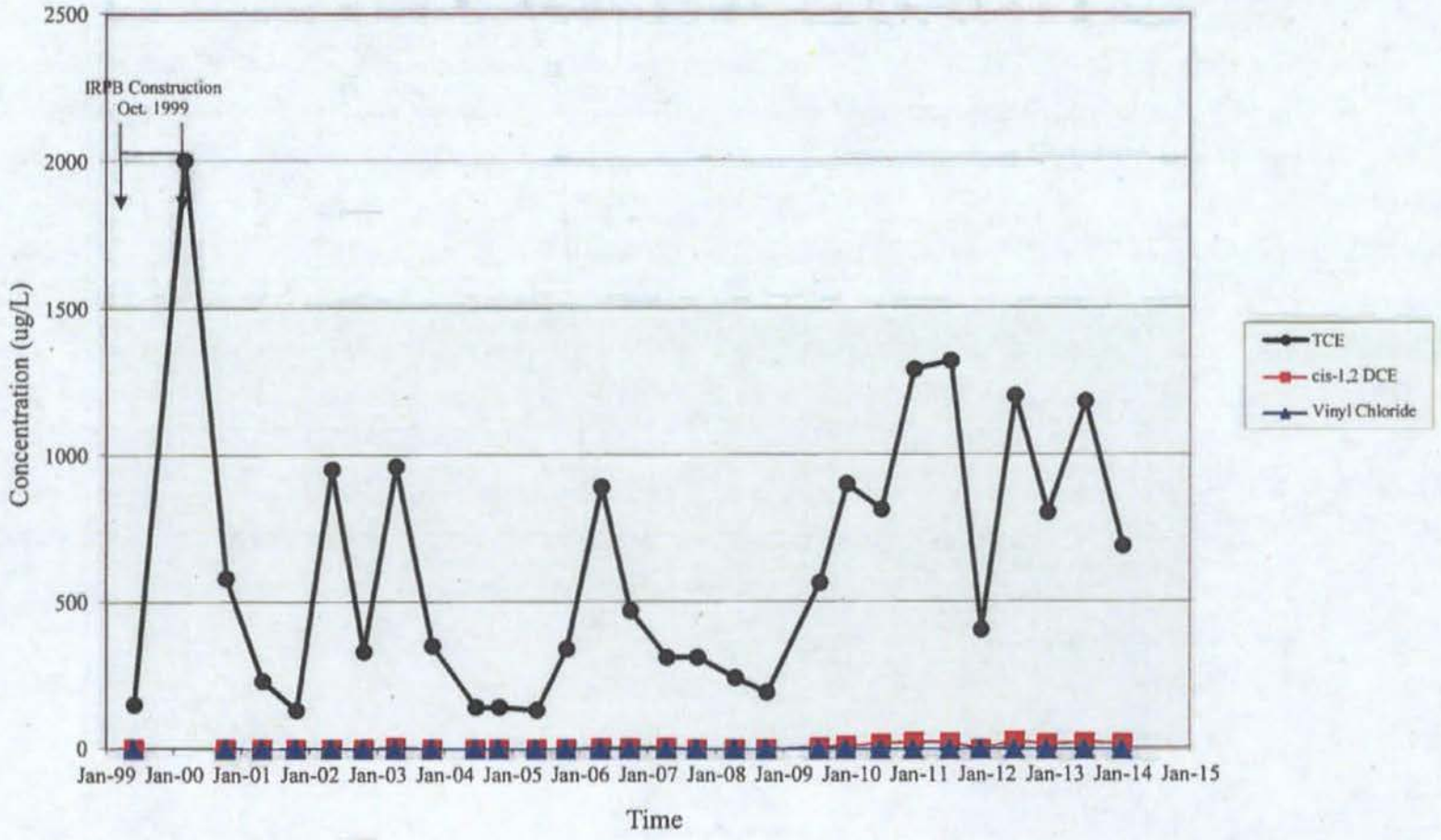


GW-1 and GW-1R
McGraw Edison Site
Centerville, Iowa

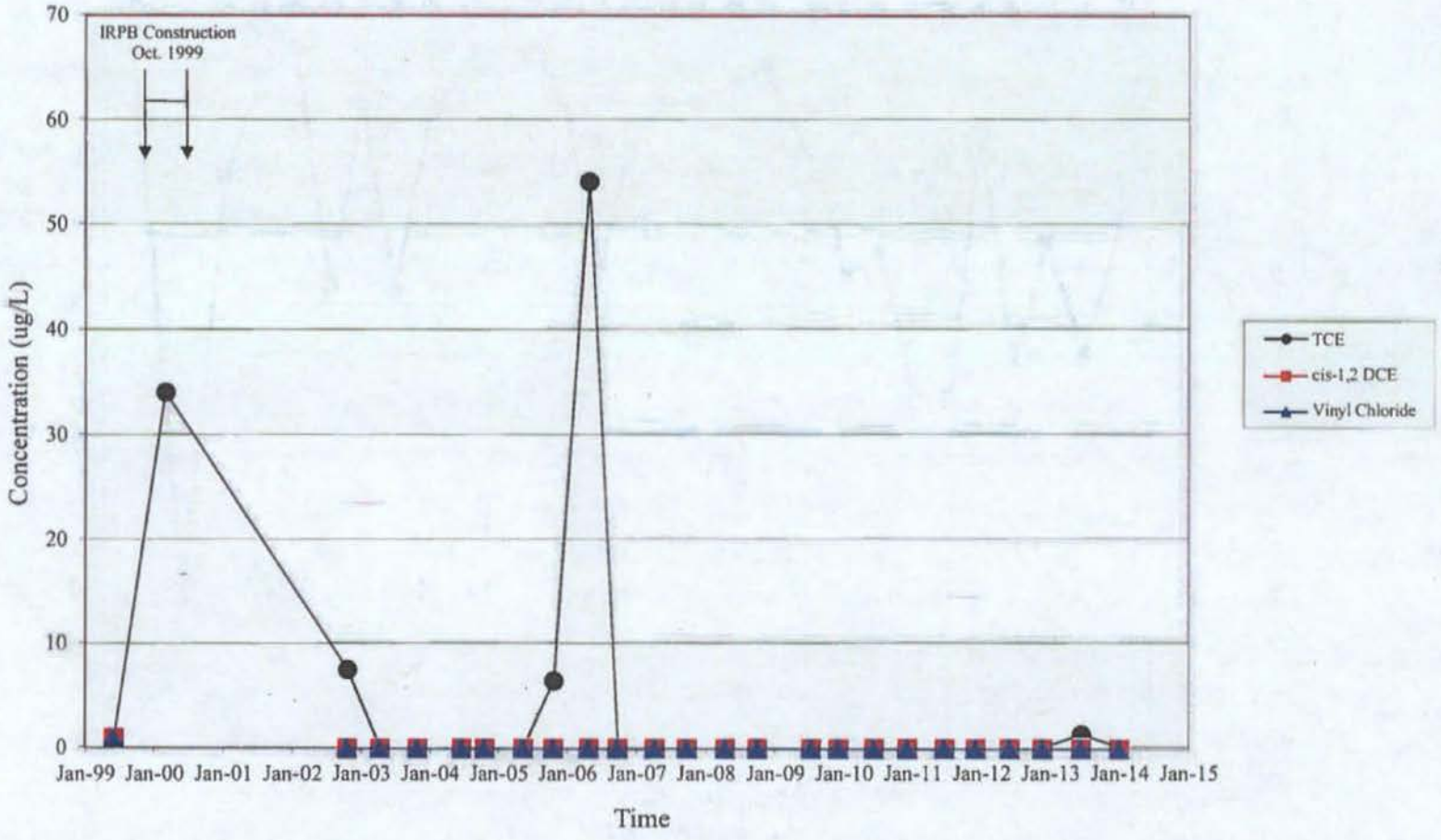



GW-2
McGraw Edison Site
Centerville, Iowa
IRPB Construction
Oct. 1999
30
25
20
15
10
5
0
Concentration (ug/L)
Jan-99
Jan-00
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Time
TCE
cis-1,2 DCE
Vinyl Chloride

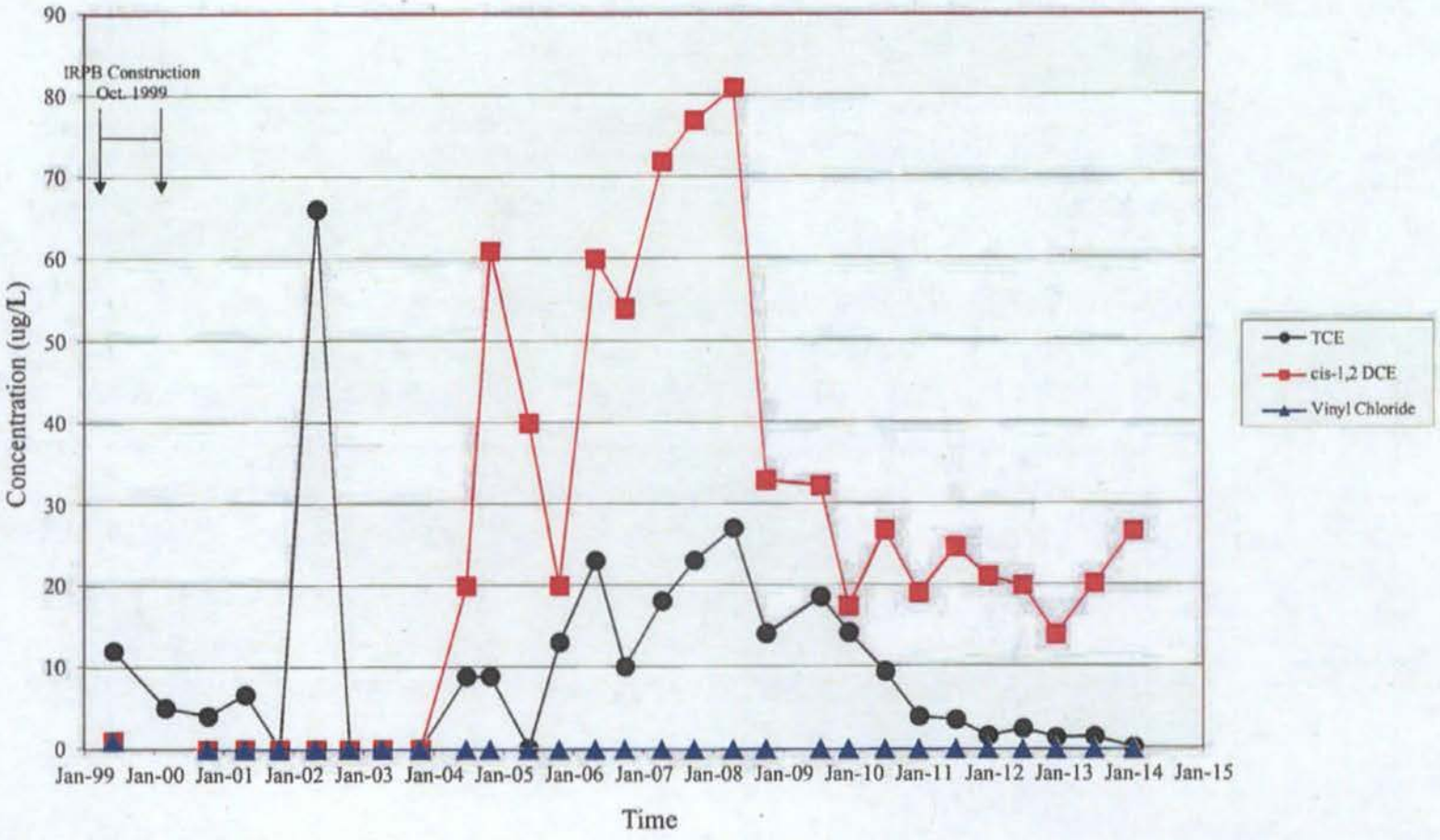
GW-3
McGraw Edison Site
Centerville, Iowa



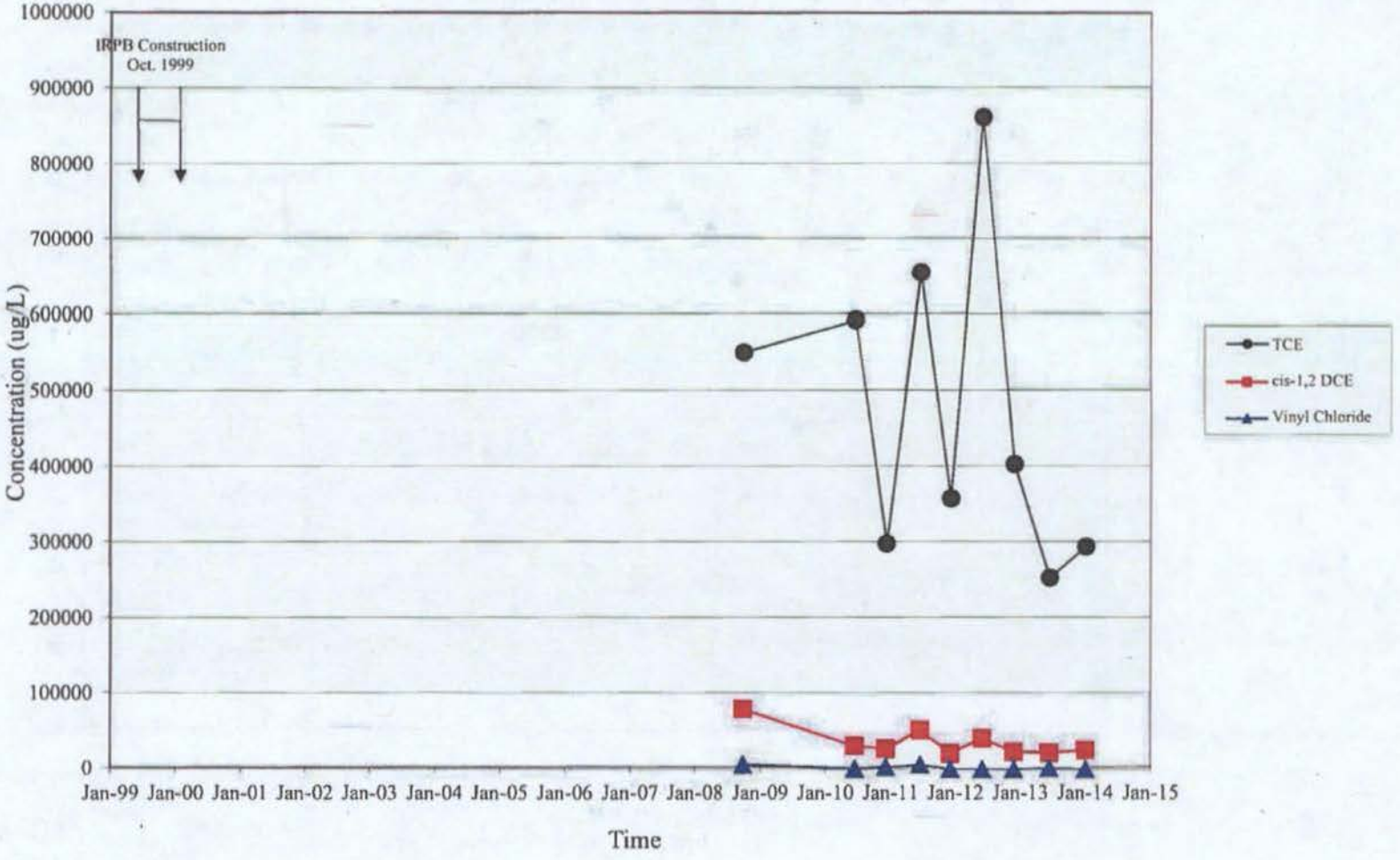
GW-4
McGraw Edison Site
Centerville, Iowa



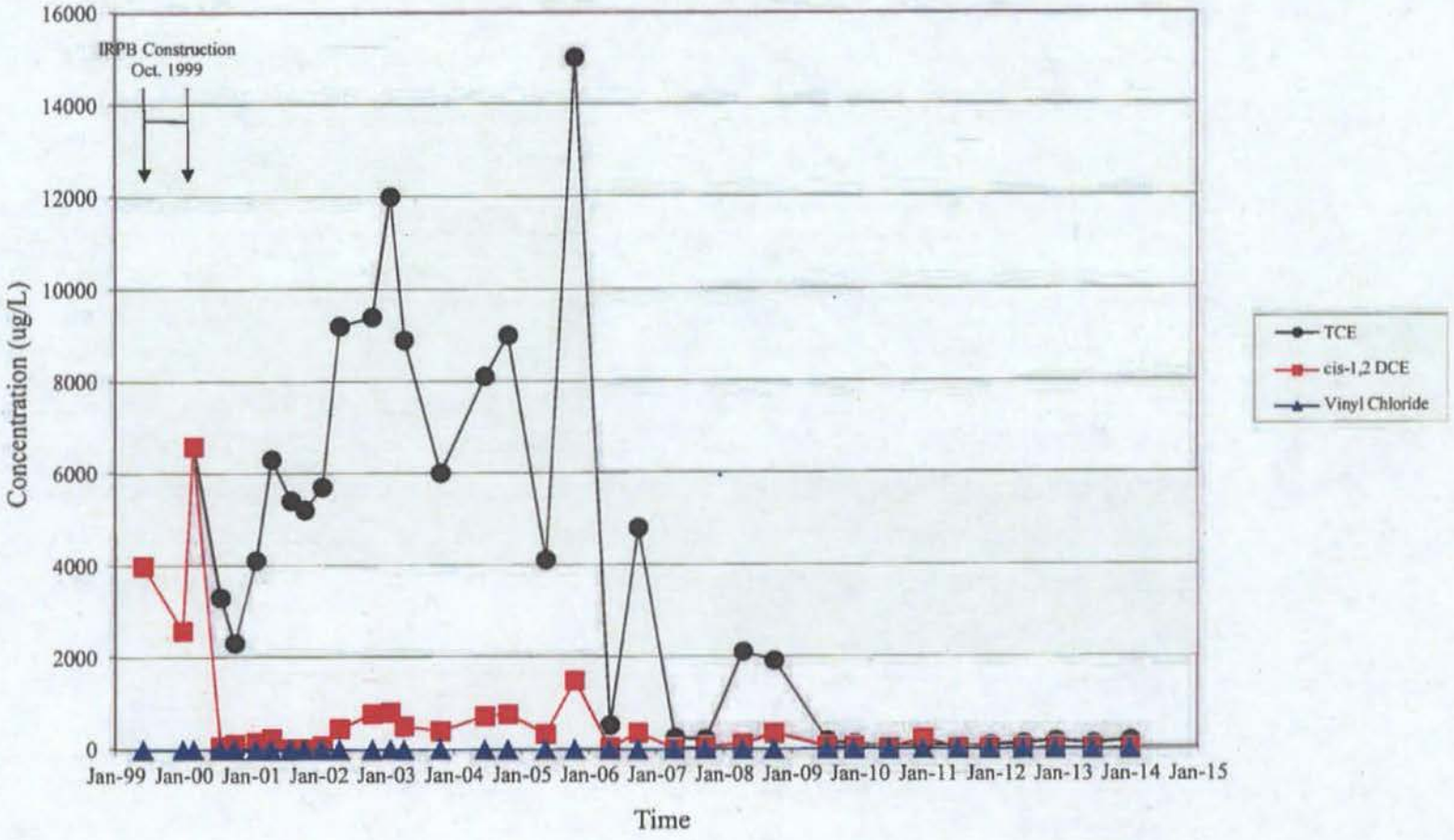
EW-1
McGraw Edison Site
Centerville, Iowa



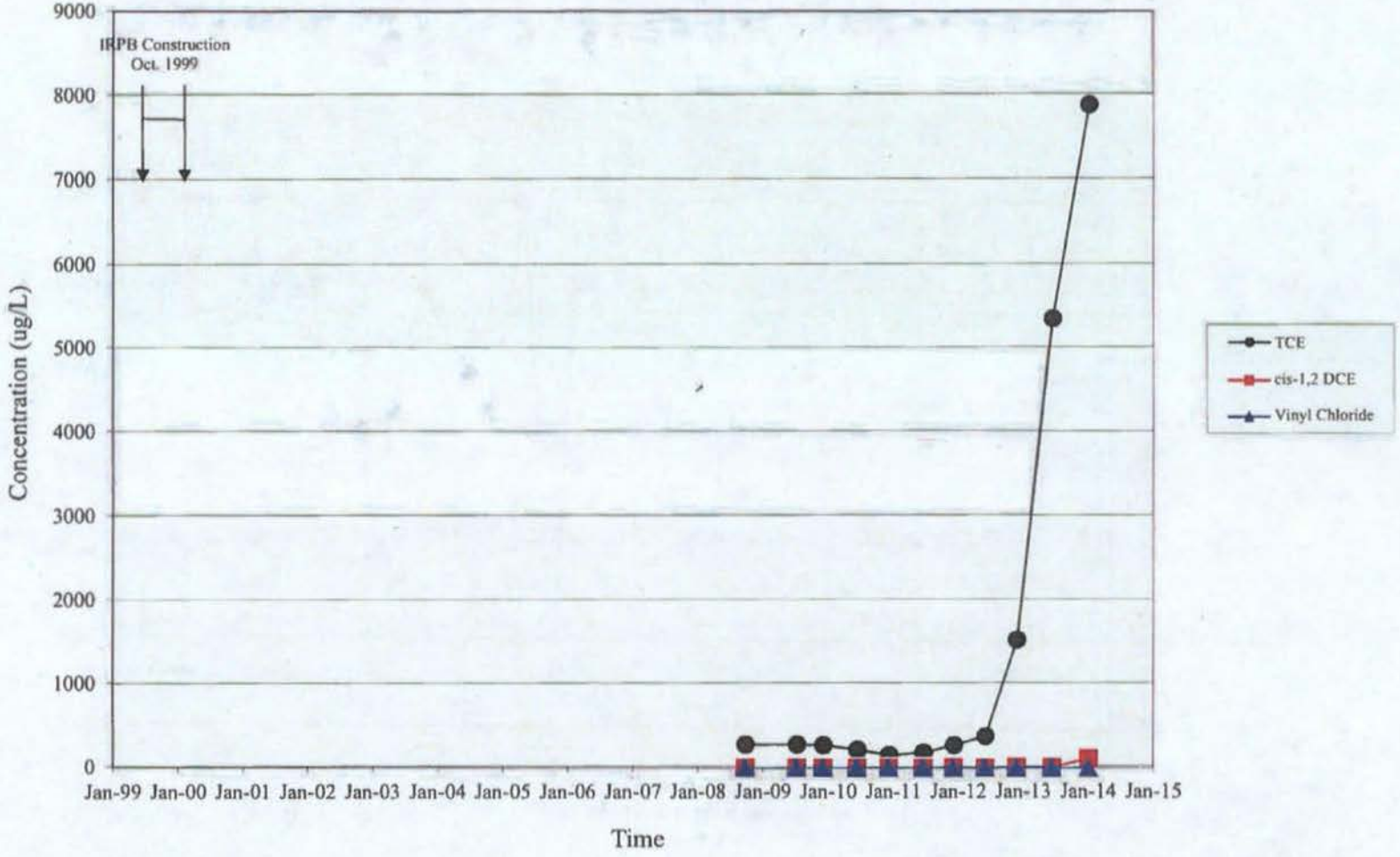
MW-2
McGraw Edison Site
Centerville, Iowa



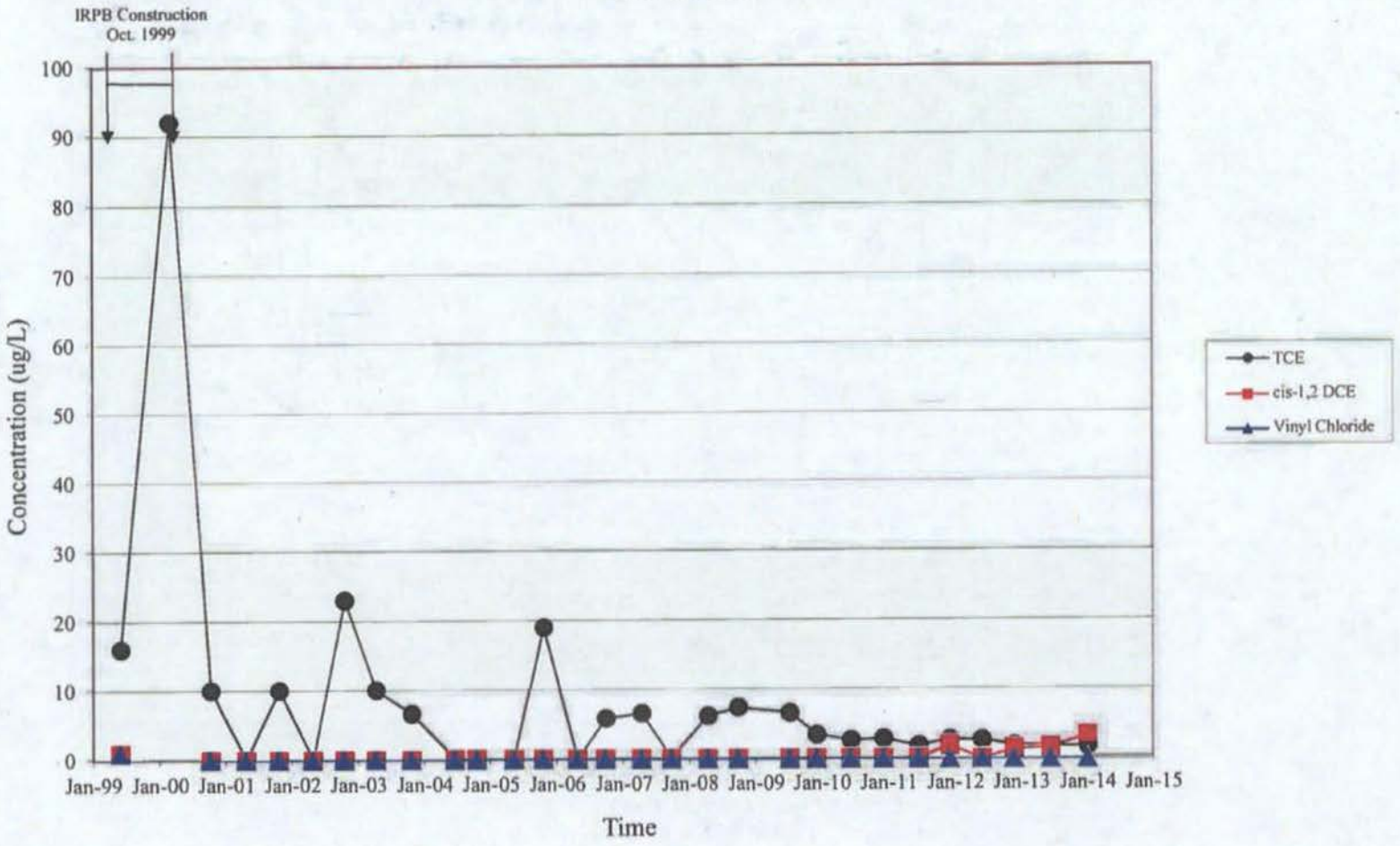
MW-3A
McGraw Edison Site
Centerville, Iowa



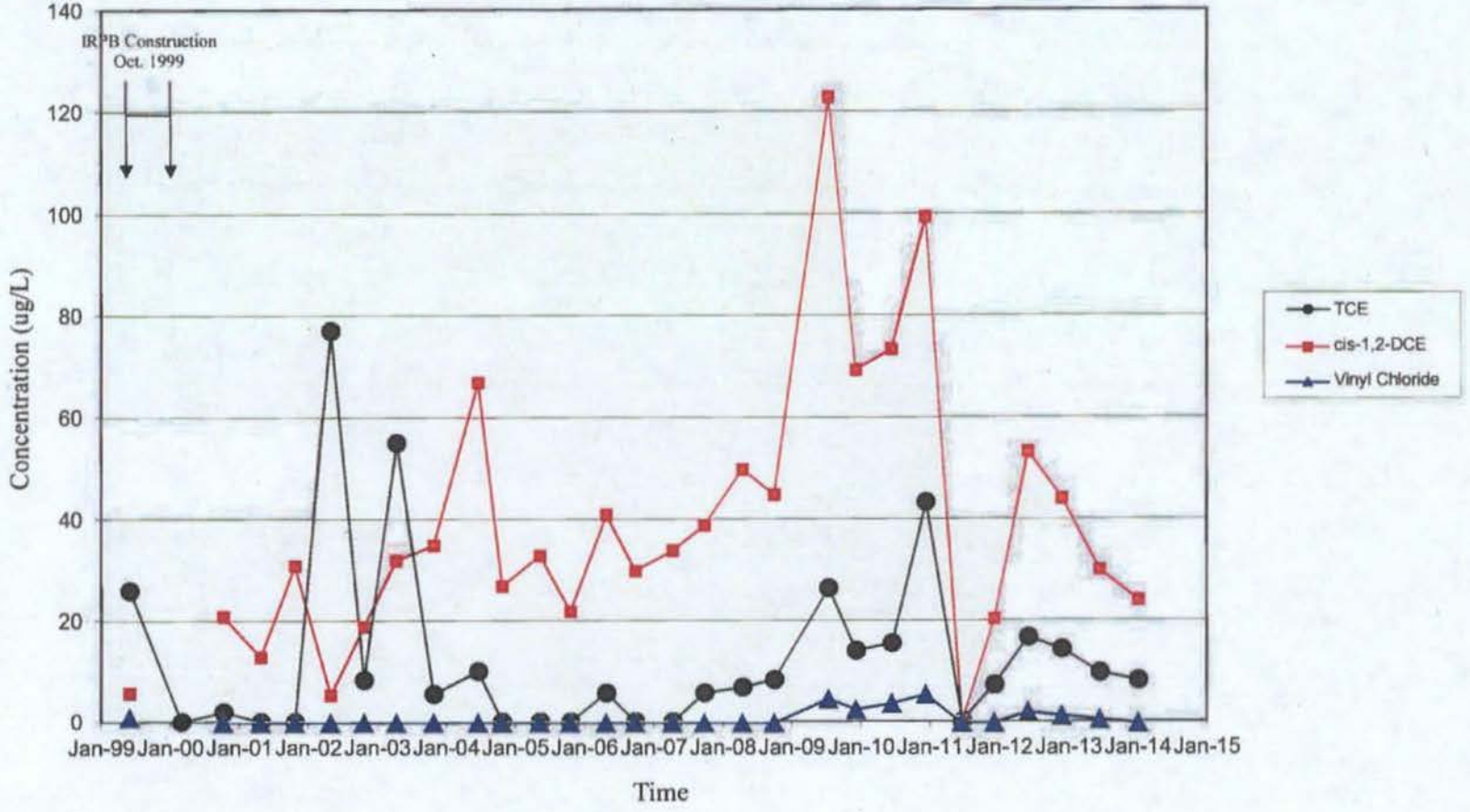
MW-4
McGraw Edison Site
Centerville, Iowa



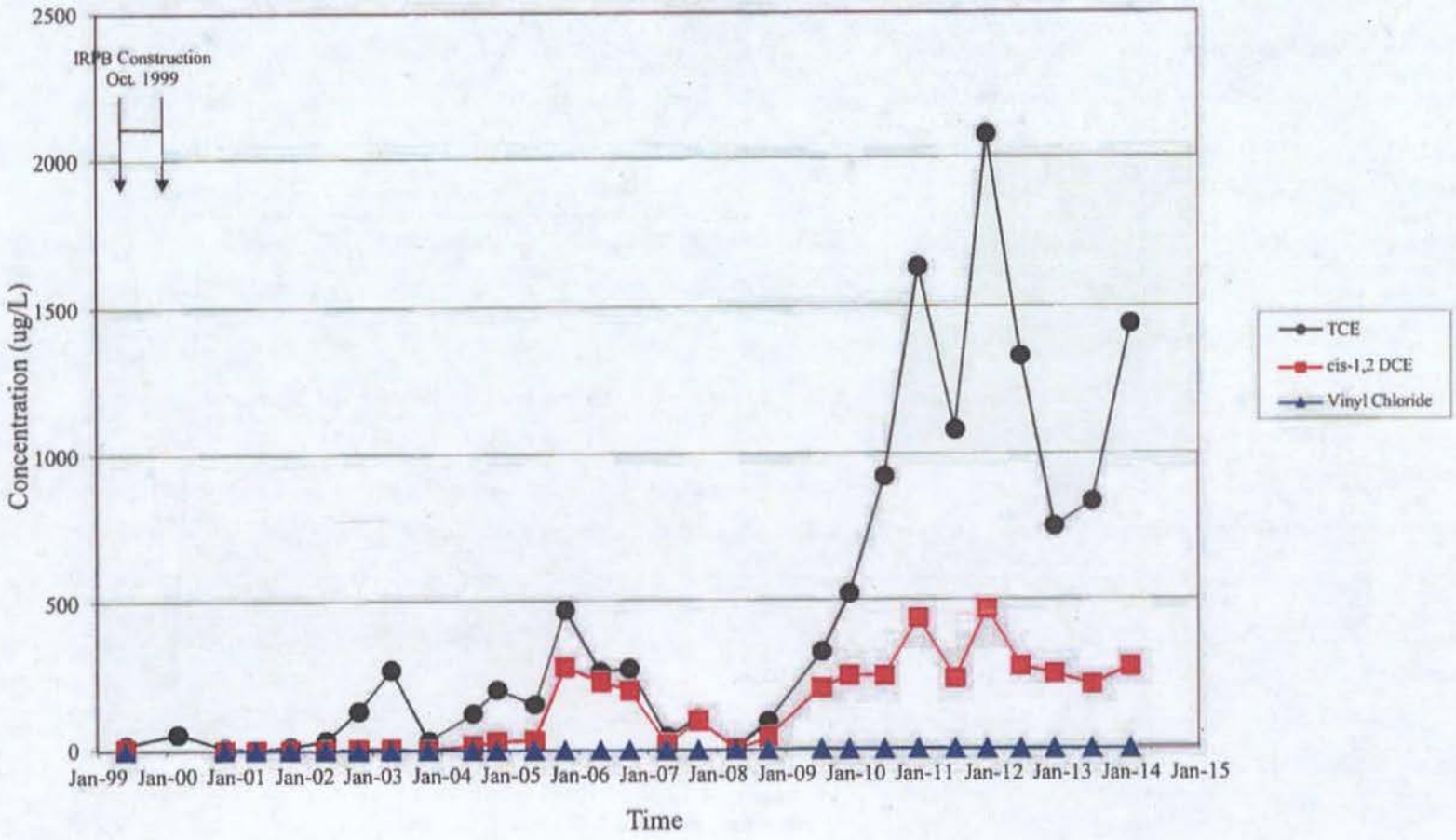
MW-6
McGraw Edison Site
Centerville, Iowa

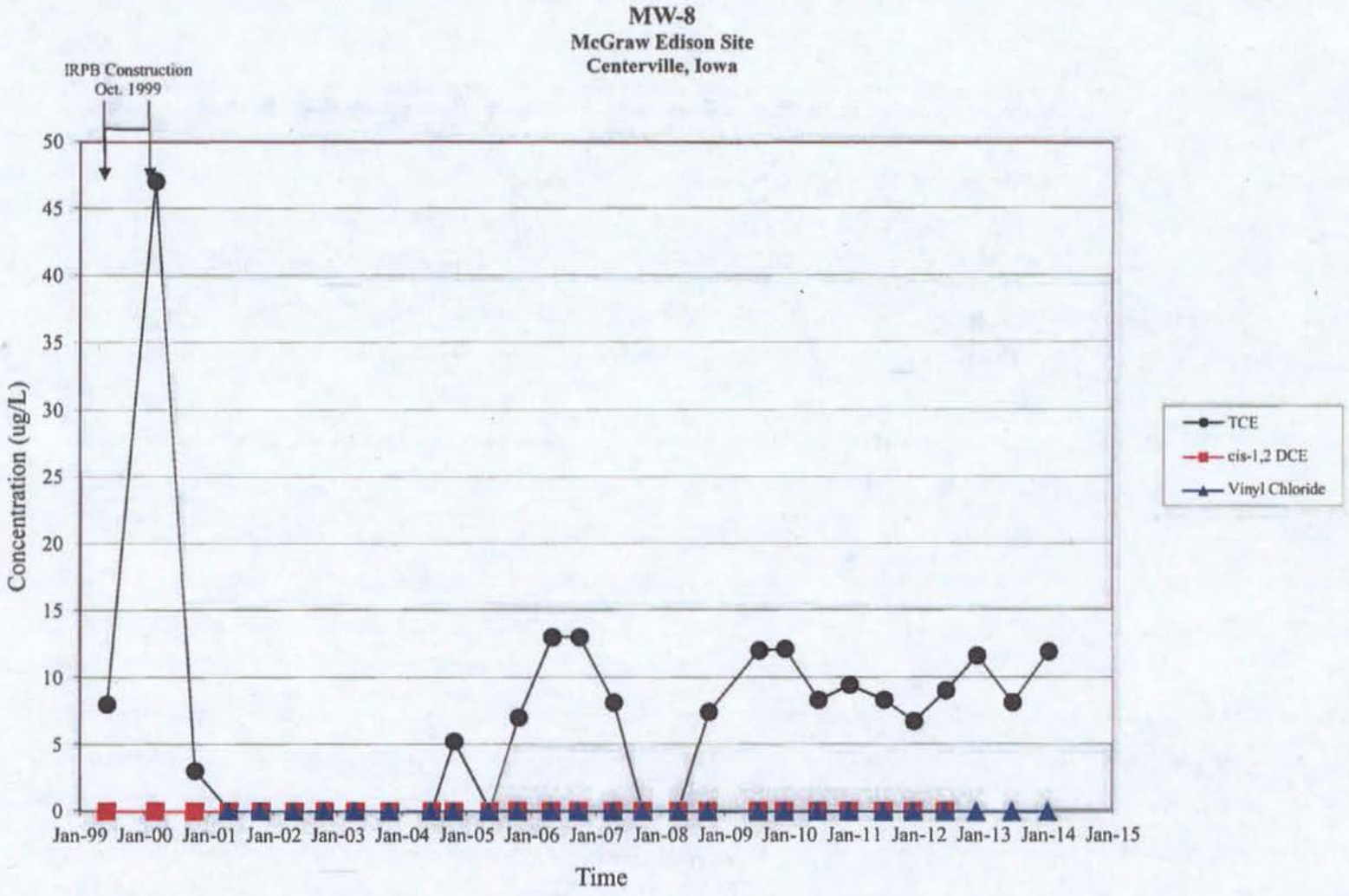


MW-7
McGraw Edison Site
Centerville, Iowa

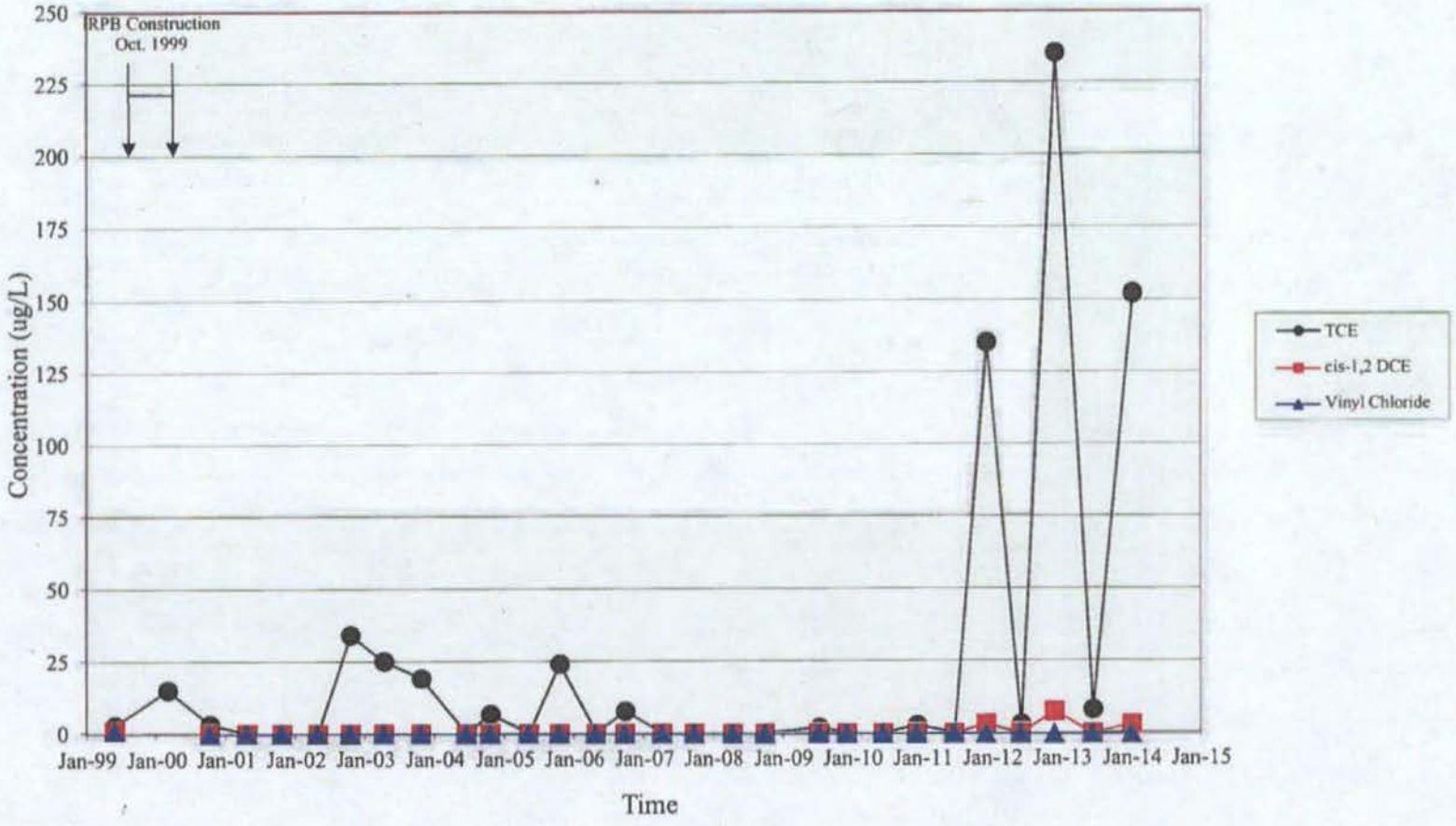


MW-7A
McGraw Edison Site
Centerville, Iowa

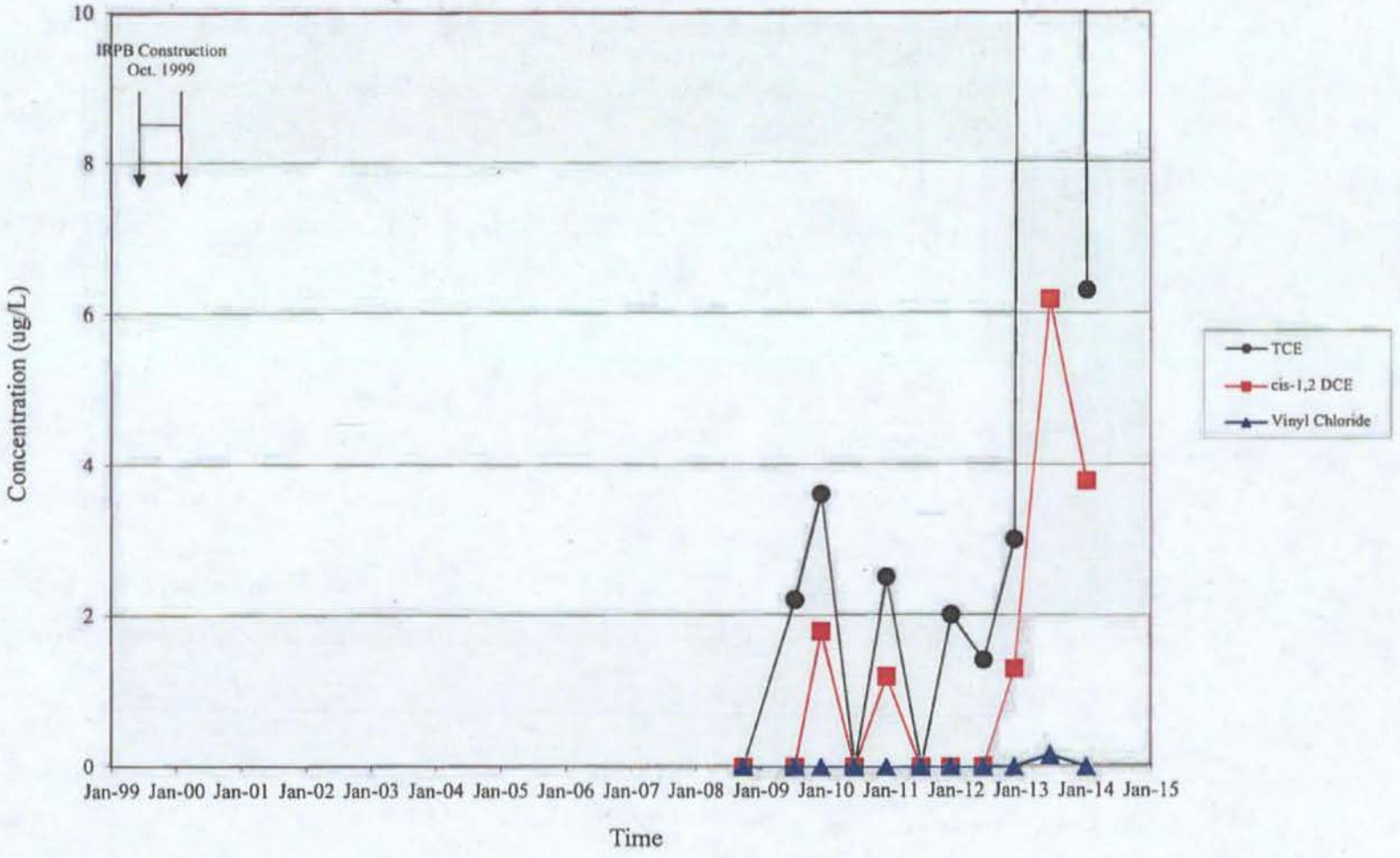



MW-8
McGraw Edison Site
Centerville, Iowa
IRPB Construction
Oct. 1999
50
45
40
35
30
25
20
15
10
5
0
Concentration (ug/L)
Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05 Jan-06 Jan-07 Jan-08 Jan-09 Jan-10 Jan-11 Jan-12 Jan-13 Jan-14 Jan-15
Time
TCE
cis-1,2 DCE
Vinyl Chloride

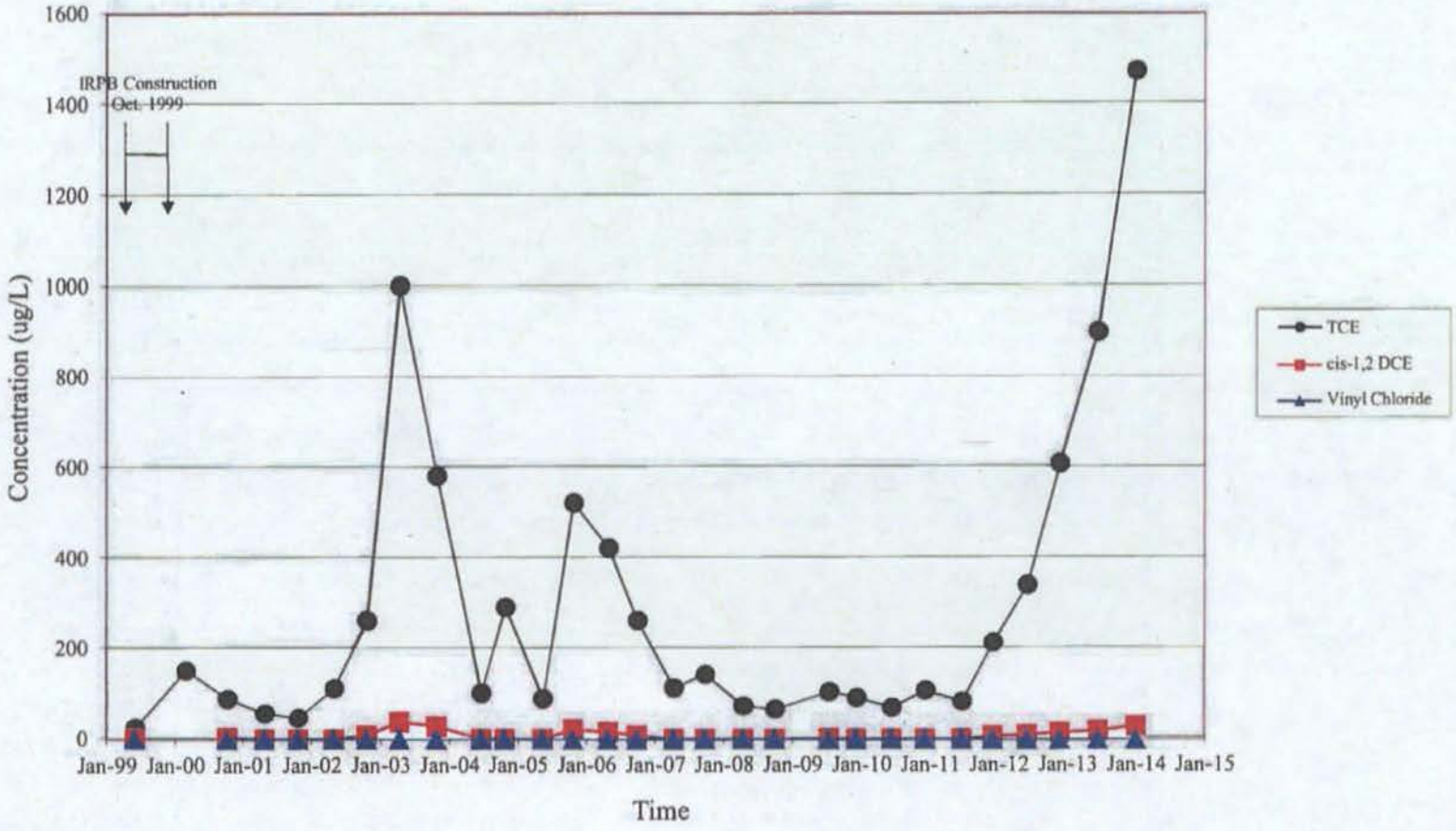
MW-8A
McGraw Edison Site
Centerville, Iowa



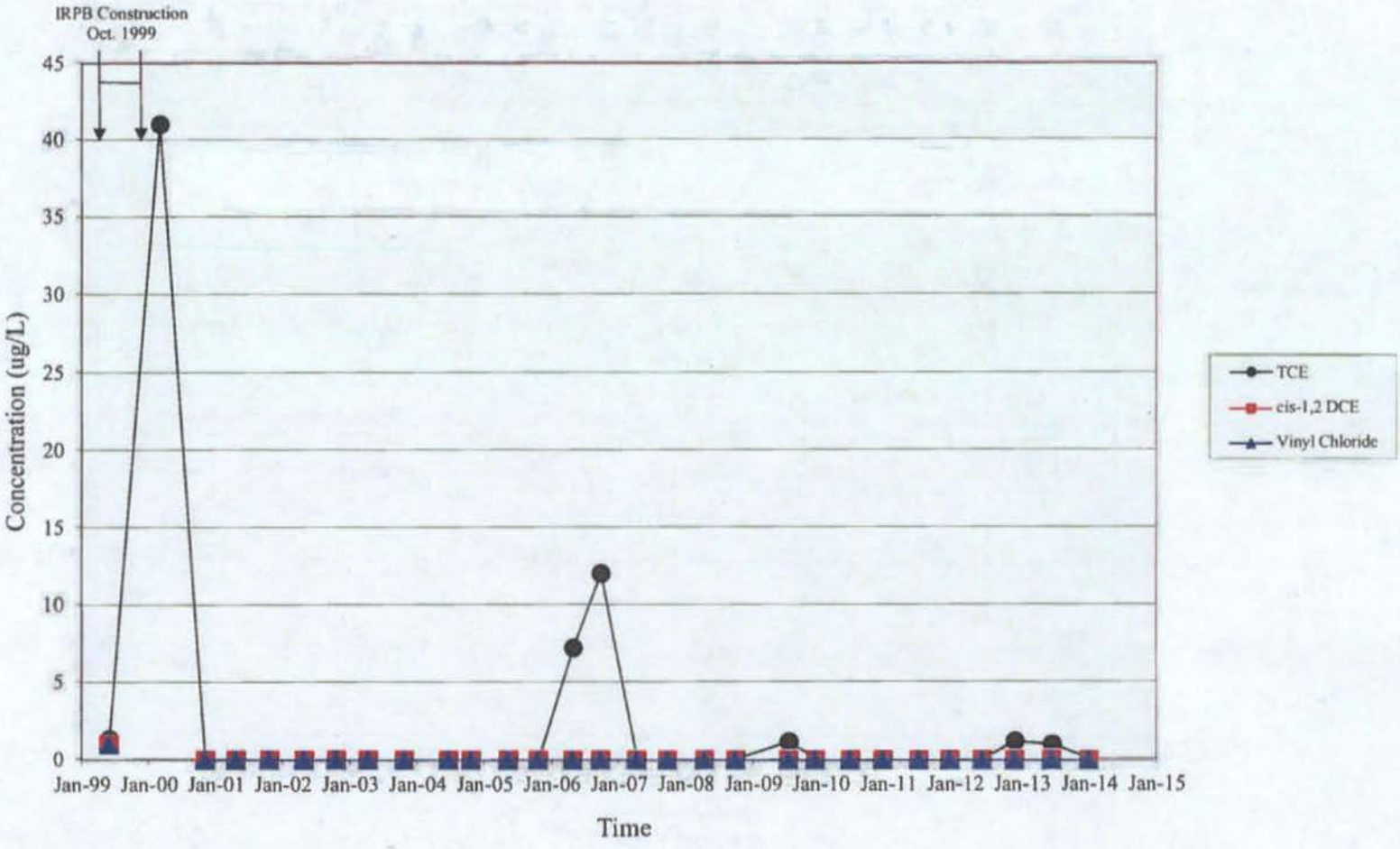
MW-14
McGraw Edison Site
Centerville, Iowa

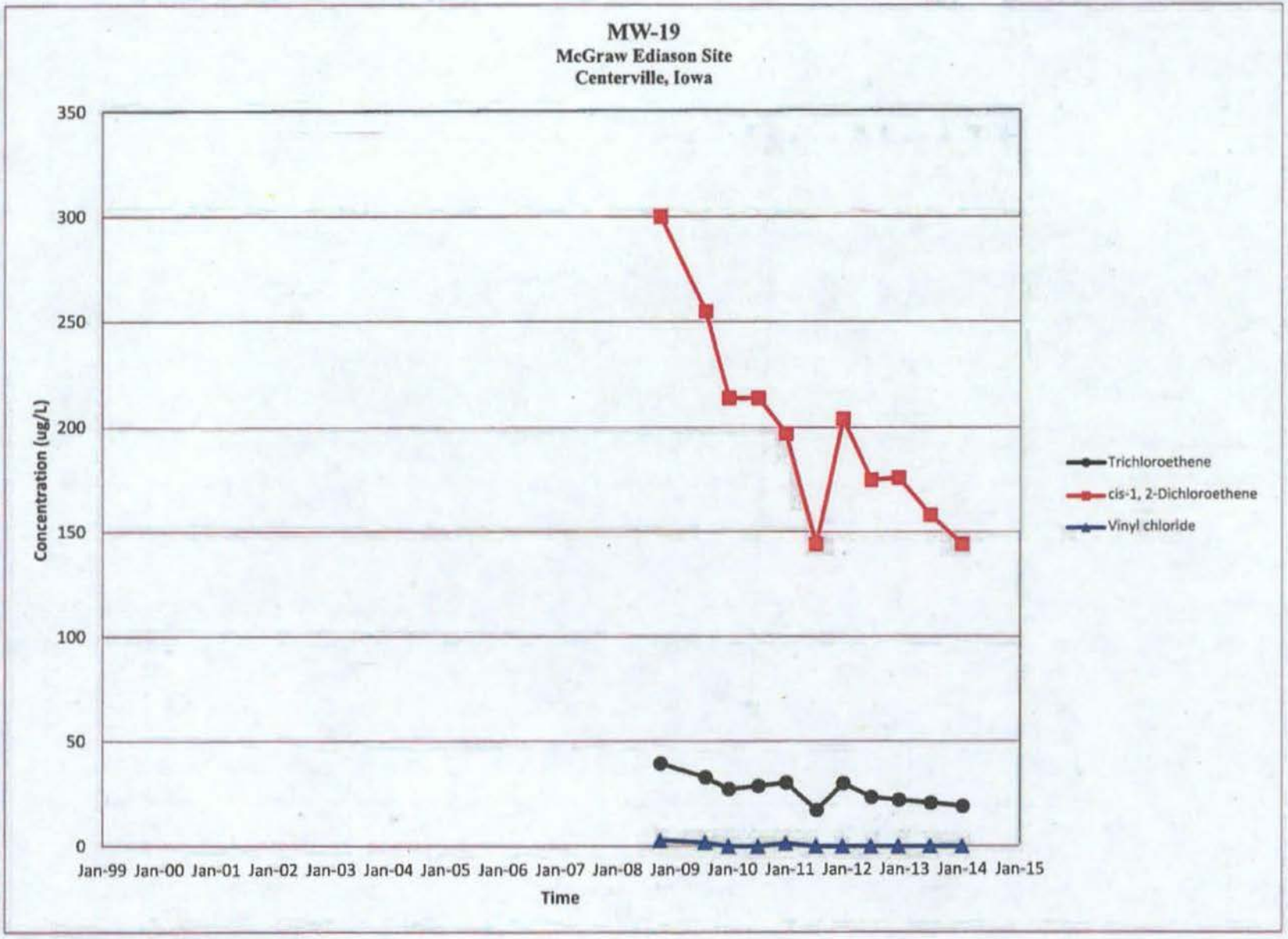


WT-18
McGraw Edison Site
Centerville, Iowa

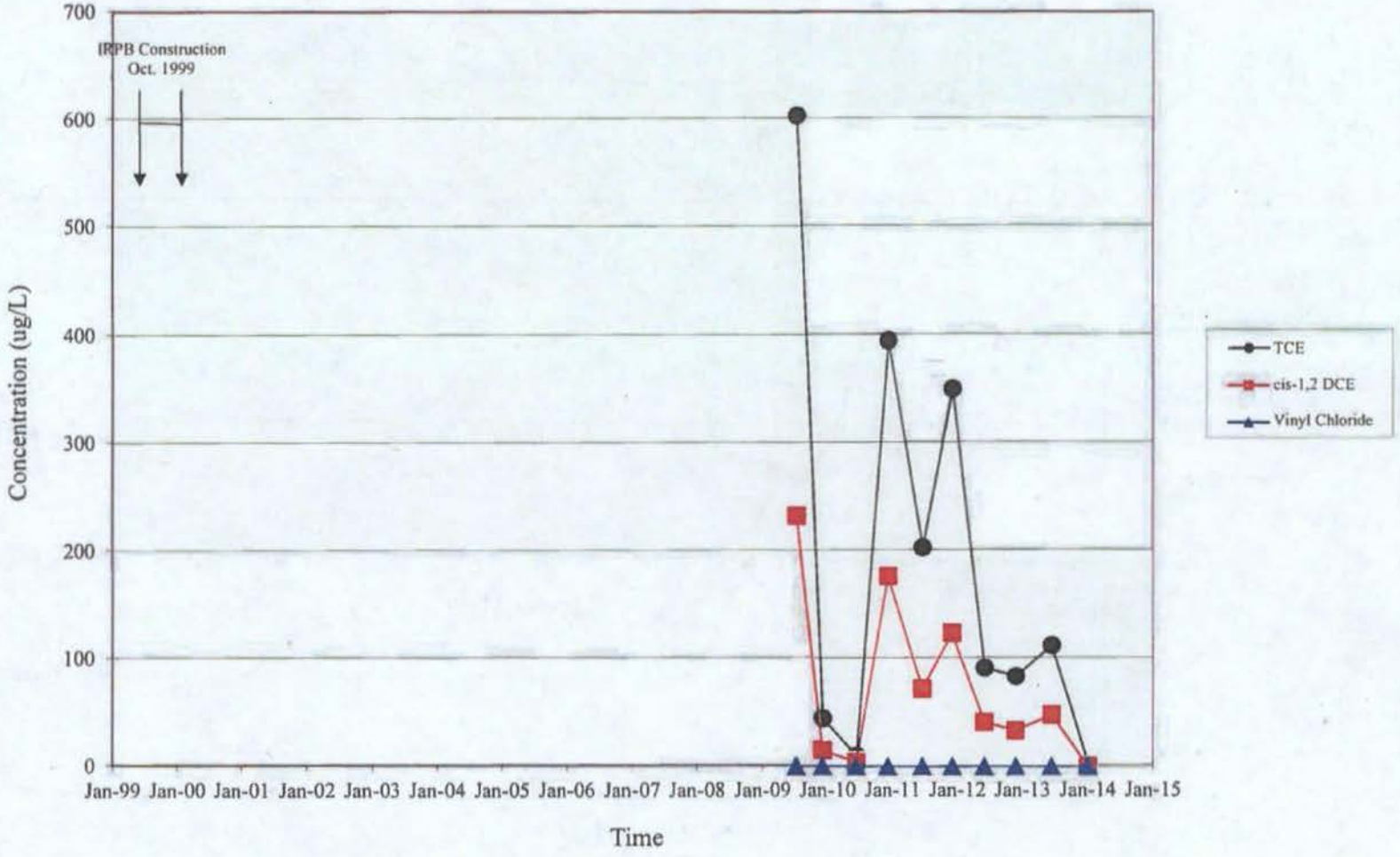


BD-18
McGraw Edison Site
Centerville, Iowa

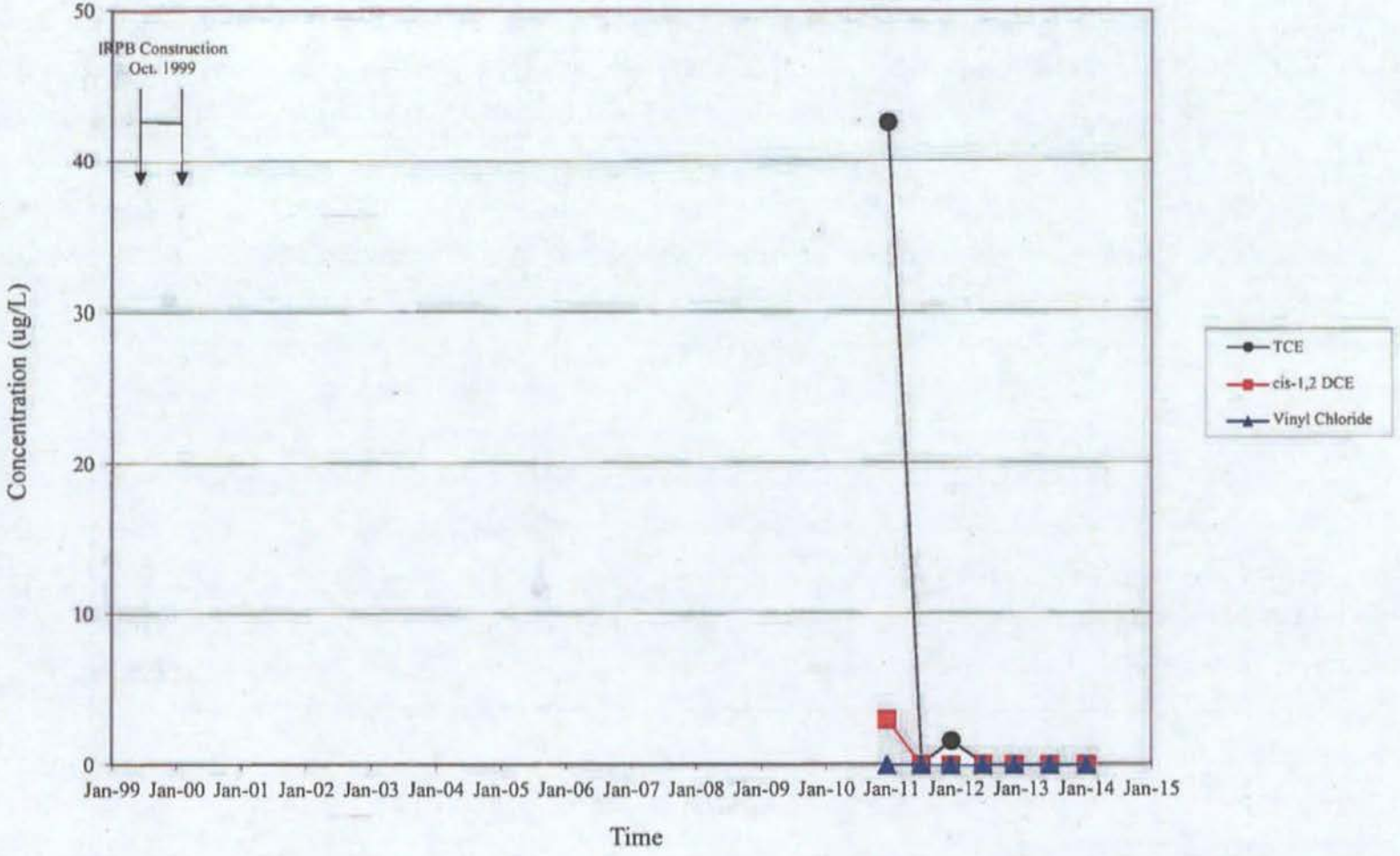



MW-19
McGraw Ediason Site
Centerville, Iowa
350
300
250
200
150
100
50
0
Concentration (ug/L)
Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05 Jan-06 Jan-07 Jan-08 Jan-09 Jan-10 Jan-11 Jan-12 Jan-13 Jan-14 Jan-15
Time
Trichloroethene
cis-1, 2-Dichloroethene
Vinyl chloride

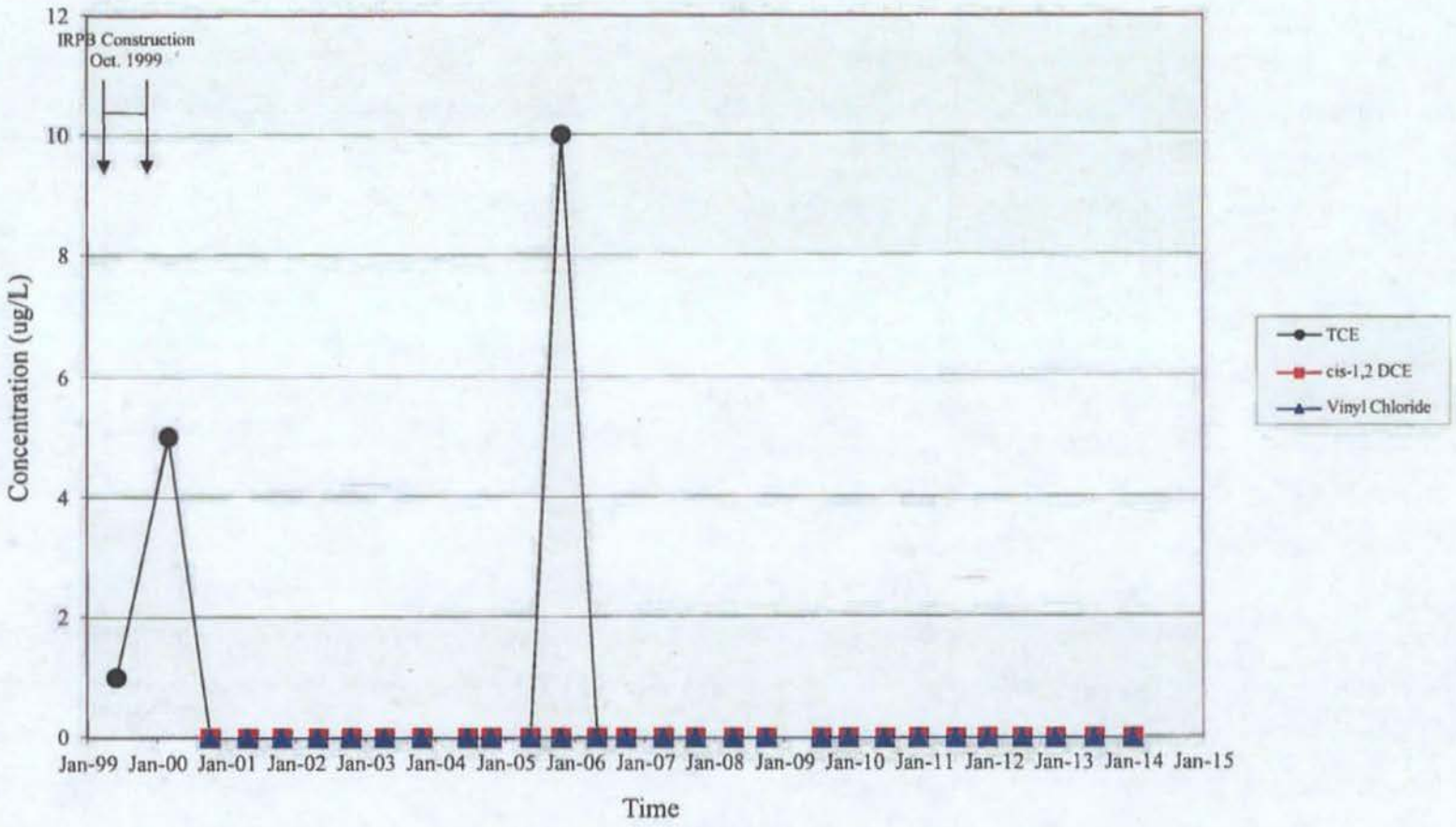
MW-20
McGraw Edison Site
Centerville, Iowa



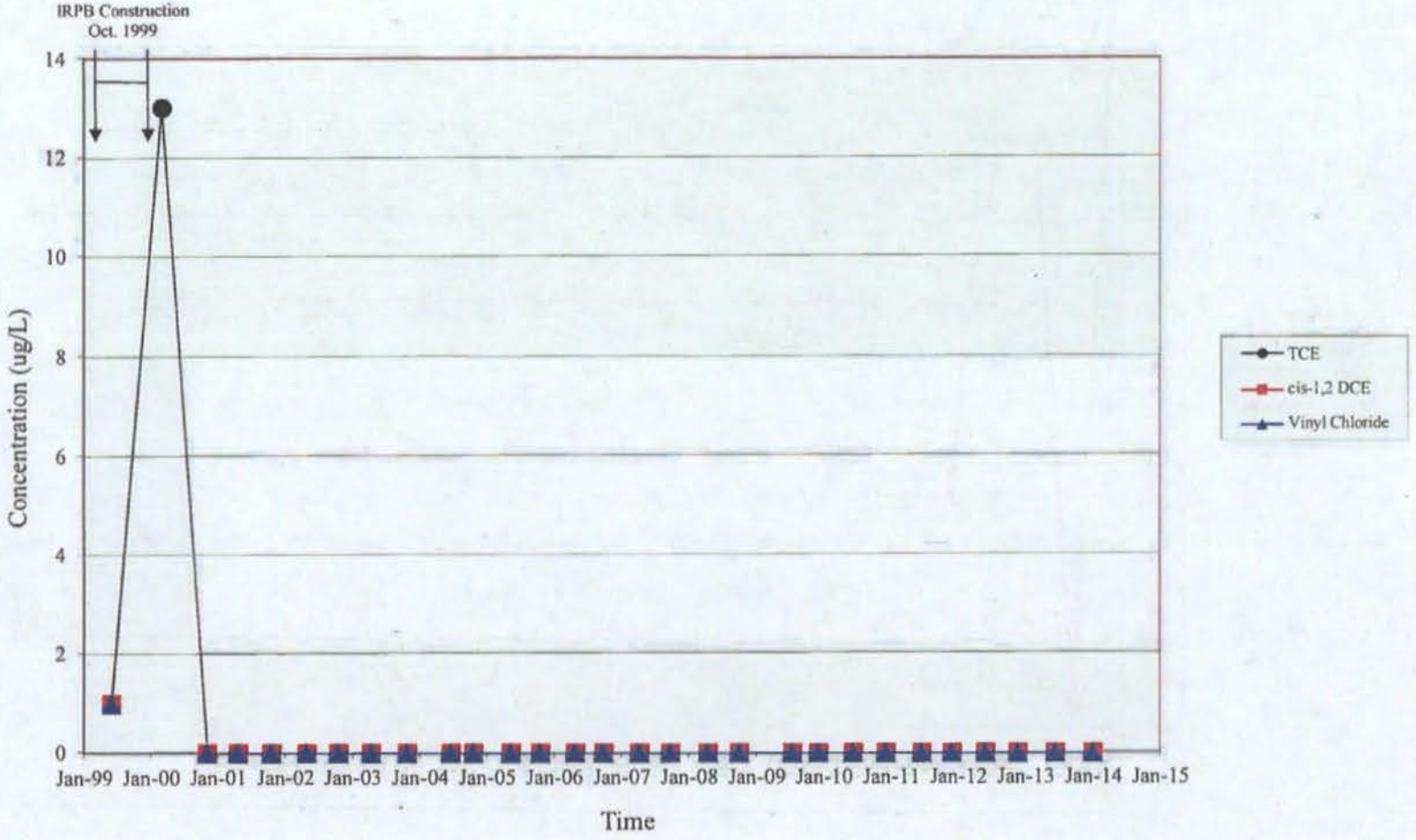
MW-21
McGraw Edison Site
Centerville, Iowa

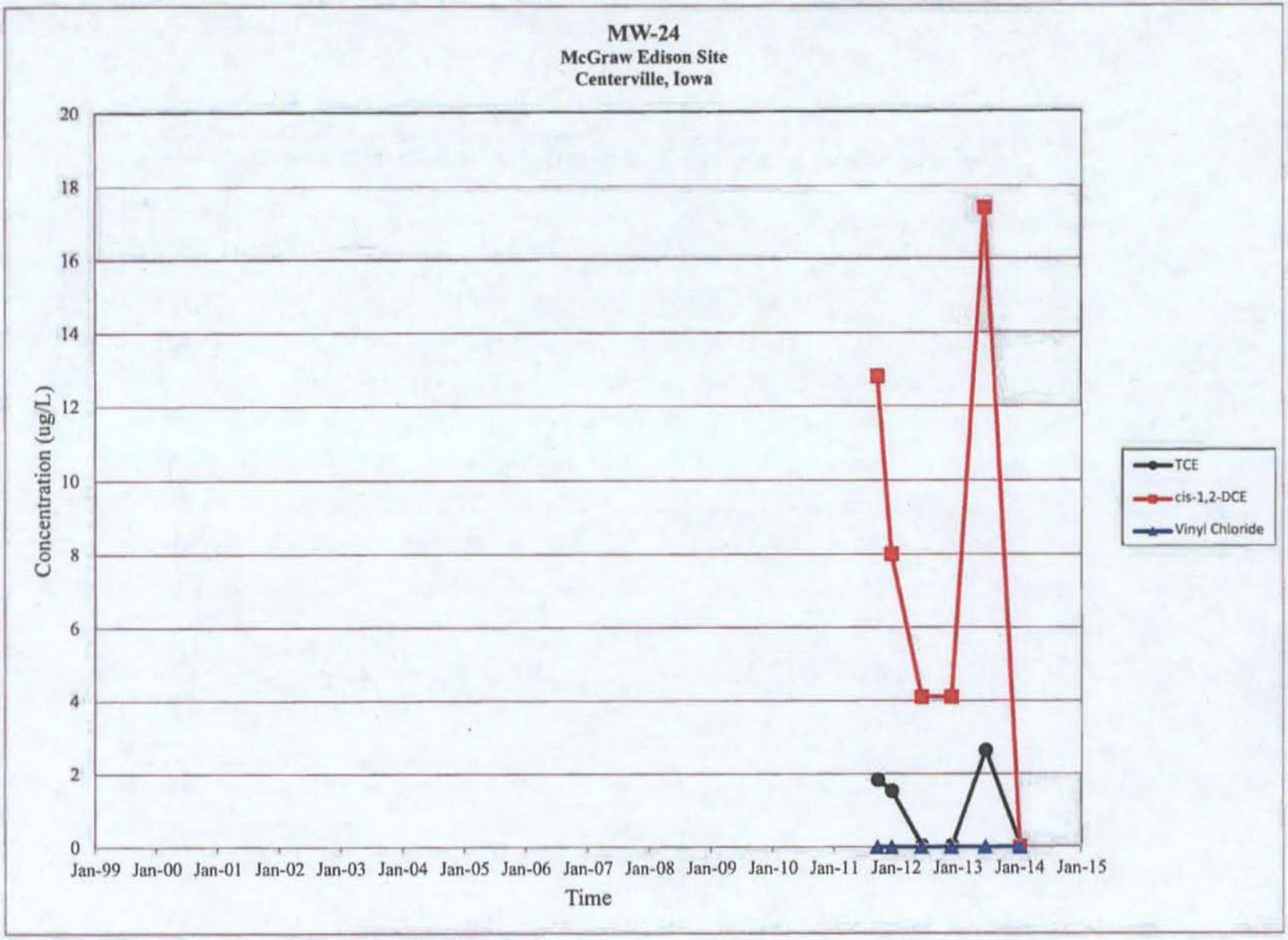


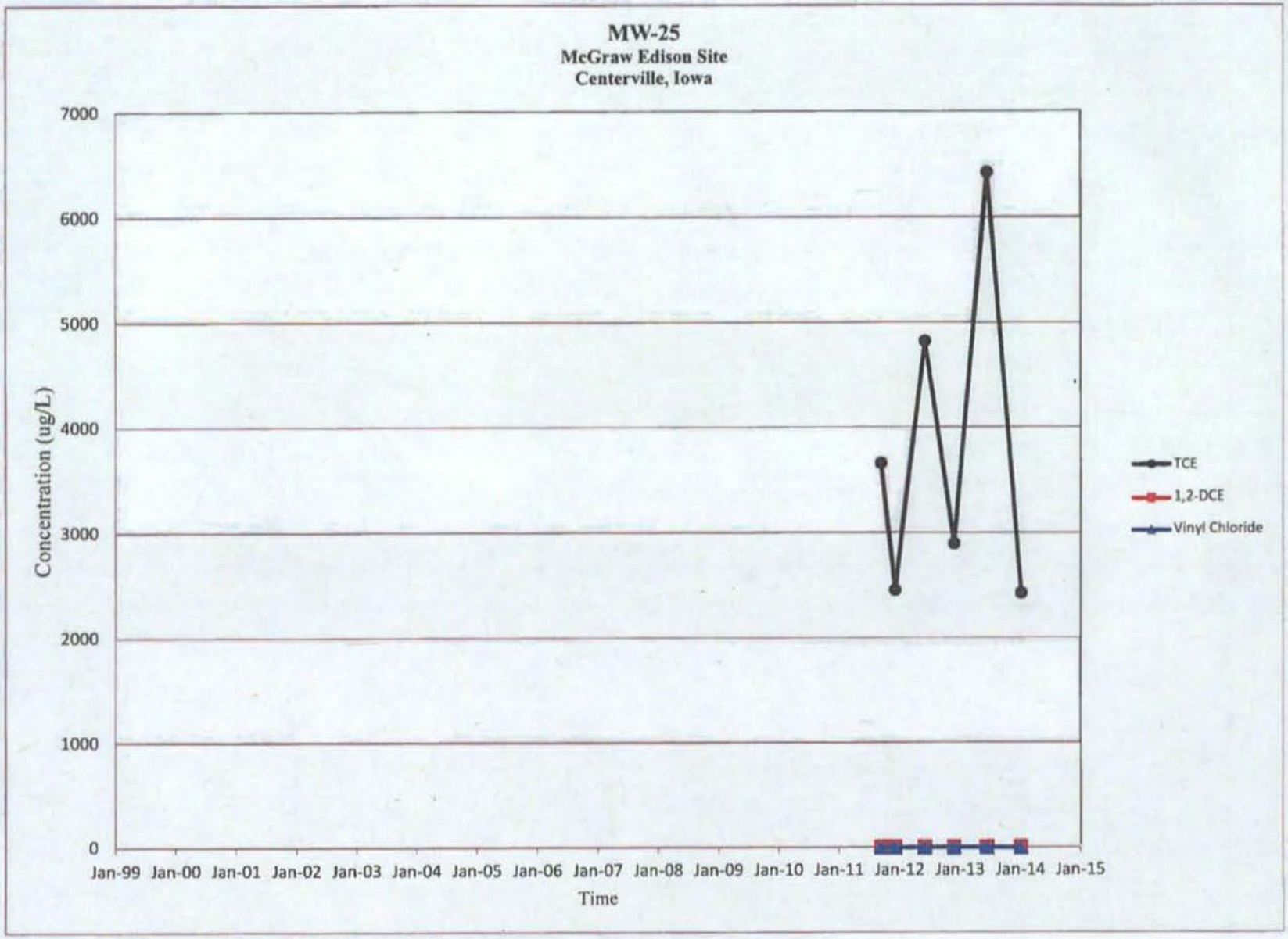
MW-22WT
McGraw Edison Site
Centerville, Iowa



MW-23WT
McGraw Edison Site
Centerville, Iowa




MW-24
McGraw Edison Site
Centerville, Iowa
Concentration (ug/L)
20
18
16
14
12
10
8
6
4
2
0
Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05 Jan-06 Jan-07 Jan-08 Jan-09 Jan-10 Jan-11 Jan-12 Jan-13 Jan-14 Jan-15
Time
TCE
cis-1,2-DCE
Vinyl Chloride


MW-25
McGraw Edison Site
Centerville, Iowa
Concentration (ug/L)
7000
6000
5000
4000
3000
2000
1000
0
Jan-99 Jan-00 Jan-01 Jan-02 Jan-03 Jan-04 Jan-05 Jan-06 Jan-07 Jan-08 Jan-09 Jan-10 Jan-11 Jan-12 Jan-13 Jan-14 Jan-15
Time
TCE
1,2-DCE
Vinyl Chloride

Attachment 2

Site Inspection Form and Site Photos

Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program.

Five-Year Review Site Inspection Checklist (Template)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION

Site name: McGraw-Edison	**Date of inspection:** 4/22/14
Location and Region Centerville, IA	**EPA ID:** IAD981711989
Agency, office, or company leading the five-year review: EPA Region 7	**Weather/temperature:** Sunny, 55°

Remedy Includes: (Check all that apply)

- Landfill cover/containment
- Access controls
- ✓ Institutional controls
- Groundwater pump and treatment
- Surface water collection and treatment
- Other SVE + IRPB
- ✓ Monitored natural attenuation
- Groundwater containment
- Vertical barrier walls

Attachments: Inspection team roster attached Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Mike Noel (Name) V.P Principal Hydrogeologist (Title) 4/22/14 (Date)
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

2. **O&M staff** Mike Bam (Name) SVE System Operator (Title) 4/22/14 (Date)
   Interviewed (at site) at office by phone Phone no. _____
   Problems, suggestions; Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency IDNR
Contact Dan Cook (Name) Project Manager (Title) _____ (Date) 515-281-4171 (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

Agency _____
Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone no.)
Problems; suggestions; Report attached _____

4. **Other interviews** (optional) Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1.	**O&M Documents**			
	O&M manual	Readily available	Up to date	N/A
	As-built drawings	Readily available	Up to date	N/A
	✓Maintenance logs	✓Readily available	✓Up to date	N/A
	Remarks			
2.	**Site-Specific Health and Safety Plan**	Readily available	Up to date	✓N/A
	Contingency plan/emergency response plan	Readily available	Up to date	✓N/A
	Remarks			
3.	**O&M and OSHA Training Records**	Readily available	Up to date	✓N/A
	Remarks			
4.	**Permits and Service Agreements**			
	Air discharge permit	Readily available	Up to date	N/A
	Effluent discharge	Readily available	Up to date	N/A
	Waste disposal, POTW	Readily available	Up to date	N/A
	Other permits	Readily available	Up to date	N/A
	Remarks			
5.	**Gas Generation Records**	✓Readily available	Up to date	N/A
	Remarks			
6.	**Settlement Monument Records**	Readily available	Up to date	✓N/A
	Remarks			
7.	**Groundwater Monitoring Records**	✓Readily available	Up to date	N/A
	Remarks			
8.	**Leachate Extraction Records**	Readily available	Up to date	✓N/A
	Remarks			
9.	**Discharge Compliance Records**			
	Air	Readily available	Up to date	✓N/A
	Water (effluent)	Readily available	Up to date	✓N/A
	Remarks			
10.	**Daily Access/Security Logs**	Readily available	Up to date	✓N/A
	Remarks			

IV. O&M COSTS

1. **O&M Organization**

State in-house — Contractor for State
PRP in-house — Contractor for PRP
Federal Facility in-house — Contractor for Federal Facility
Other Cooper Industries has contracted with Tetra Tech, Inc. to provide O+M who in turn has contracted with Midwest Environmental Services to operate the SVE system.

2. **O&M Cost Records**

Readily available — Up to date
Funding mechanism/agreement in place
Original O&M cost estimate _____ Breakdown attached

Total annual cost by year for review period if available

From _____ (Date) To _____ (Date) _____ (Total cost) Breakdown attached
From _____ (Date) To _____ (Date) _____ (Total cost) Breakdown attached
From _____ (Date) To _____ (Date) _____ (Total cost) Breakdown attached
From _____ (Date) To _____ (Date) _____ (Total cost) Breakdown attached
From _____ (Date) To _____ (Date) _____ (Total cost) Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ✓Applicable N/A

A. Fencing

1. **Fencing damaged** Location shown on site map Gates secured ✓N/A

Remarks There is a Fence surrounding the site

B. Other Access Restrictions

1. **Signs and other security measures** Location shown on site map ✓N/A

Remarks _____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented — Yes ✓No N/A
Site conditions imply ICs not being fully enforced — Yes ✓No N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date — Yes No N/A
Reports are verified by the lead agency — Yes No N/A

Specific requirements in deed or decision documents have been met — ✓Yes No N/A
Violations have been reported — Yes No ✓N/A
Other problems or suggestions: Report attached

2. **Adequacy** ICs are adequate ICs are inadequate N/A
Remarks _____

D. General

1. **Vandalism/trespassing** Location shown on site map ✓No vandalism evident
Remarks _____

2. **Land use changes on site** N/A
Remarks There have been no land use changes on site

3. **Land use changes off site** N/A
Remarks A Walmart Store was constructed across Dewey Rd. to the south of the site. This does not affect protectiveness.

VI. GENERAL SITE CONDITIONS

A. Roads Applicable N/A

1. **Roads damaged** Location shown on site map ✓Roads adequate N/A
Remarks _____

B. Other Site Conditions

Remarks_____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS Applicable ✓N/A

A. Landfill Surface

1. **Settlement** (Low spots) Location shown on site map Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Cracks** Location shown on site map Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____
   _____

3. **Erosion** Location shown on site map Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

4. **Holes** Location shown on site map Holes not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

5. **Vegetative Cover** Grass Cover properly established No signs of stress
   Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____
   _____

6. **Alternative Cover (armored rock, concrete, etc.)** N/A
   Remarks_____
   _____

7. **Bulges** Location shown on site map Bulges not evident
   Areal extent_____ Height_____
   Remarks_____
   _____

8. **Wet Areas/Water Damage** Wet areas/water damage not evident
   - Wet areas — Location shown on site map — Areal extent_____
   - Ponding — Location shown on site map — Areal extent_____
   - Seeps — Location shown on site map — Areal extent_____
   - Soft subgrade — Location shown on site map — Areal extent_____

   Remarks_____

9. **Slope Instability** Slides — Location shown on site map — No evidence of slope instability
   Areal extent_____
   Remarks_____

B. Benches Applicable N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** Location shown on site map N/A or okay
   Remarks_____

2. **Bench Breached** Location shown on site map N/A or okay
   Remarks_____

3. **Bench Overtopped** Location shown on site map N/A or okay
   Remarks_____

C. Letdown Channels Applicable N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** Location shown on site map No evidence of settlement
   Areal extent_____ Depth_____
   Remarks_____

2. **Material Degradation** Location shown on site map No evidence of degradation
   Material type_____ Areal extent_____
   Remarks_____

3. **Erosion** Location shown on site map No evidence of erosion
   Areal extent_____ Depth_____
   Remarks_____

4. **Undercutting** Location shown on site map No evidence of undercutting
Areal extent _____ Depth _____
Remarks _____

5. **Obstructions** Type _____ No obstructions
Location shown on site map Areal extent _____
Size _____
Remarks _____

6. **Excessive Vegetative Growth** Type _____
No evidence of excessive growth
Vegetation in channels does not obstruct flow
Location shown on site map Areal extent _____
Remarks _____

D. Cover Penetrations Applicable N/A

1. **Gas Vents** Active Passive
Properly secured/locked Functioning Routinely sampled Good condition
Evidence of leakage at penetration Needs Maintenance
N/A
Remarks _____

2. **Gas Monitoring Probes**
Properly secured/locked Functioning Routinely sampled Good condition
Evidence of leakage at penetration Needs Maintenance N/A
Remarks _____

3. **Monitoring Wells** (within surface area of landfill)
Properly secured/locked Functioning Routinely sampled Good condition
Evidence of leakage at penetration Needs Maintenance N/A
Remarks _____

4. **Leachate Extraction Wells**
Properly secured/locked Functioning Routinely sampled Good condition
Evidence of leakage at penetration Needs Maintenance N/A
Remarks _____

5. **Settlement Monuments** Located Routinely surveyed N/A
Remarks _____

E. Gas Collection and Treatment	Applicable	N/A
1. **Gas Treatment Facilities** Flaring Thermal destruction Collection for reuse Good condition Needs Maintenance Remarks		
2. **Gas Collection Wells, Manifolds and Piping** Good condition Needs Maintenance Remarks		
3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings) Good condition Needs Maintenance N/A Remarks		
F. Cover Drainage Layer	Applicable	N/A
1. **Outlet Pipes Inspected** Remarks	Functioning	N/A
2. **Outlet Rock Inspected** Remarks	Functioning	N/A
G. Detention/Sedimentation Ponds	Applicable	N/A
1. **Siltation** Areal extent_____ Depth_____ N/A Siltation not evident Remarks		
2. **Erosion** Areal extent_____ Depth_____ Erosion not evident Remarks		
3. **Outlet Works** Functioning N/A Remarks		
4. **Dam** Functioning N/A Remarks		

H. Retaining Walls Applicable N/A

1. **Deformations** Location shown on site map Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** Location shown on site map Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge Applicable N/A

1. **Siltation** Location shown on site map Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** Location shown on site map N/A
   Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** Location shown on site map Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** Functioning N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS Applicable ✓N/A

1. **Settlement** Location shown on site map Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   Performance not monitored
   Frequency_____ Evidence of breaching
   Head differential_____
   Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES	✓Applicable	N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines Applicable ✓N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   Good condition All required wells properly operating Needs Maintenance N/A
   Remarks_____

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines Applicable ✓N/A

1. **Collection Structures, Pumps, and Electrical**
   Good condition Needs Maintenance
   Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   Good condition Needs Maintenance
   Remarks_____

3. **Spare Parts and Equipment**
   Readily available Good condition Requires upgrade Needs to be provided
   Remarks_____

C. Treatment System Applicable N/A

1. **Treatment Train** (Check components that apply)
   - Metals removal
   - Oil/water separation
   - Bioremediation
   - Air stripping
   - Carbon adsorbers
   - Filters
   - Additive (*e.g.*, chelation agent, flocculent)
   - ✓ Others SVE system and Iron Reactive Permeable Barrier
   - Good condition
   - Needs Maintenance
   - ✓ Sampling ports properly marked and functional
   - Sampling/maintenance log displayed and up to date
   - ✓ Equipment properly identified
   - Quantity of groundwater treated annually
   - Quantity of surface water treated annually

   Remarks

2. **Electrical Enclosures and Panels** (properly rated and functional)
   - N/A
   - ✓ Good condition
   - Needs Maintenance

   Remarks

3. **Tanks, Vaults, Storage Vessels**
   - ✓ N/A
   - Good condition
   - Proper secondary containment
   - Needs Maintenance

   Remarks

4. **Discharge Structure and Appurtenances**
   - ✓ N/A
   - Good condition
   - Needs Maintenance

   Remarks

5. **Treatment Building(s)**
   - N/A
   - ✓ Good condition (esp. roof and doorways)
   - Needs repair
   - Chemicals and equipment properly stored

   Remarks

6. **Monitoring Wells** (pump and treatment remedy)
   - Properly secured/locked
   - ✓ Functioning
   - ✓ Routinely sampled
   - Good condition
   - All required wells located
   - Needs Maintenance
   - N/A

   Remarks Currently sampling on a semi-annual schedule

D. Monitoring Data

1. Monitoring Data
   - ✓ Is routinely submitted on time
   - ✓ Is of acceptable quality

2. Monitoring data suggests:
   - Groundwater plume is effectively contained
   - Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
   Properly secured/locked ✓ Functioning ✓ Routinely sampled Good condition
   All required wells located Needs Maintenance N/A
   Remarks _____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

See report text

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

See report text

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

See report text

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

See report text

Site Inspection Team Roster		
Personnel	**Representing**	**Phone Number**
Owens Hull	US EPA	913-551-7226
Mike Noel	Tetra Tech, Inc.	262-792-1282
Mike Bain	Midwest Environmental Services Inc.	641-437-7023
Lyle Cowan	Centerville Holdings, L.L.C.	

Photo 1 – IRPB Wells F-13, F14 and F15 (Facing South)

Photo 2 – MW-2 (Facing East)

Photo 3 – Soil Vapor Extraction System blower.

Photo 4 – Soil Vapor Extraction System Wells (Area B)

Attachment 3

Public Display Ad

Thursday, April 3, 2014

DAILY IOWEGIAN

THE NEWSPAPER THAT CARES ABOUT APPANOOSE COUNTY

FIFTY CENTS www.dailyiowegian.com 10 PAGES

McGraw-Edison Superfund Site
Second Five-Year Review
Centerville, Appanoose County, Iowa

EPA has initiated the second Five-Year Review at the McGraw-Edison Superfund site. The review is required by the Superfund law to make sure completed cleanups continue to protect human health and
the environment. This second Five-Year Review should be completed by July 2014. The first Five-Year Review completed in 2009 found that the remedy at the site remains protective of human health and the environment.

From 1966 to 1978, McGraw-Edison manufactured toasters and toaster ovens, which included metal plating and a wastewater treatment system. The solvent trichloroethylene (TCE) was used to clean the metal plating equipment. TCE is the main contaminant of concern. The remedies consist of a soil vapor extraction system to address source area soils and an iron reactive permeable barrier to address the groundwater contamination. EPA will study site information during this second Five-Year Review and inspect the site to determine if the remedy continues to protect human health and the environment.

EPA encourages community members to ask questions and report any concerns about the site. A final report will be prepared at the end of the review and will be available at the site information repositories.

Detailed information about the site is available at the following locations:

Drake Public Library
115 Drake Avenue
Centerville, Iowa

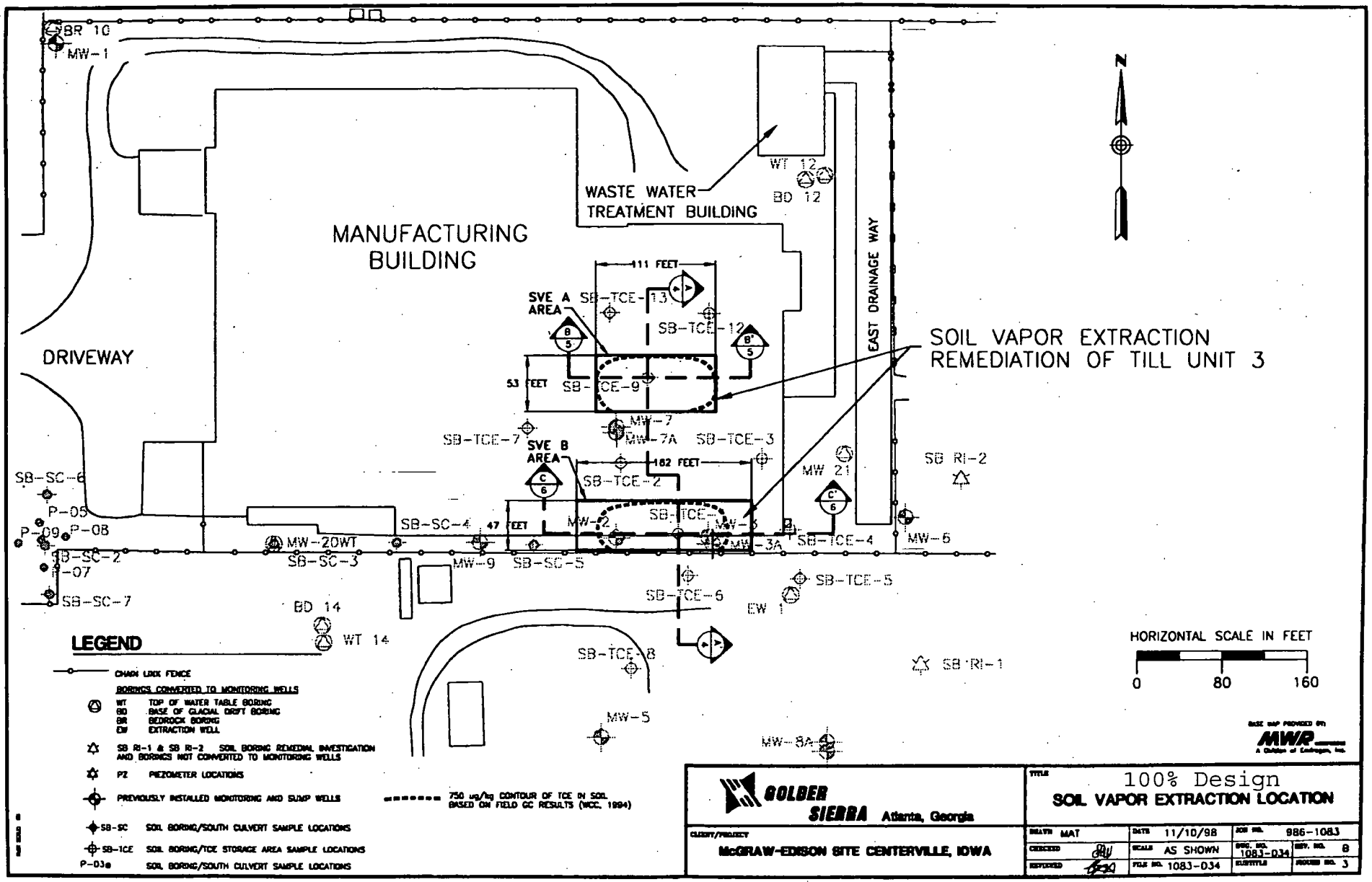
EPA Records Center
11201 Renner Blvd.
Lenexa, Kansas

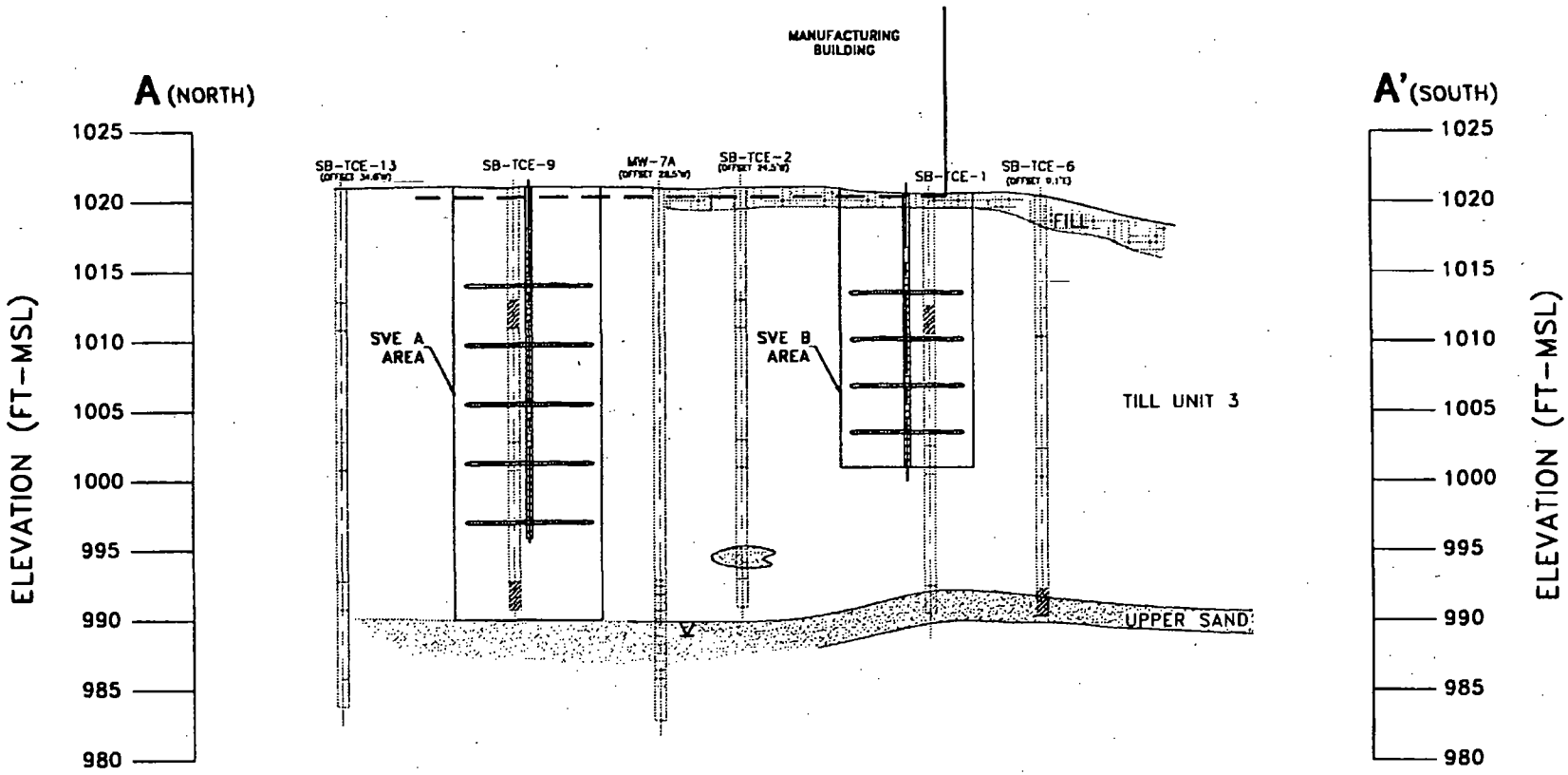
Questions or requests for site information and/or the five-year review process can be submitted to:

Ben Washburn
Community Involvement Coordinator
Toll free: 800-223-0425
Email: washburn.ben@epa.gov

Attachment 4

Soil Vapor Extraction System Layout


BR 10
MW-1
WASTE WATER TREATMENT BUILDING
WT 12
BD 12
MANUFACTURING BUILDING
EAST DRAINAGE WAY
N
DRIVEWAY
SOIL VAPOR EXTRACTION REMEDIATION OF TILL UNIT 3
111 FEET
SVE A AREA
SB-TCE-13
SB-TCE-12
B
5
B'
5
53 FEET
SB-TCE-9
MW-7
MW-7A
SB-TCE-7
SB-TCE-3
SVE B AREA
162 FEET
SB-TCE-2
C
6
C'
6
MW 21
SB RI-2
SB-SC-6
P-05
P-09
P-08
SB-SC-4
47 FEET
MW-2
SB-TCE-1
MW-3
MW-3A
SB-TCE-4
MW-6
MW-20WT
SB-SC-3
SB-SC-2
P-07
MW-9
SB-SC-5
SB-TCE-5
SB-SC-7
BD 14
SB-TCE-6
EW 1
WT 14
SB-TCE-8
SB RI-1
MW-5
MW-8A
HORIZONTAL SCALE IN FEET
0
80
160
LEGEND
CHAIN LINK FENCE
BORINGS CONVERTED TO MONITORING WELLS
WT TOP OF WATER TABLE BORING
BD BASE OF GLACIAL DRIFT BORING
BR BEDROCK BORING
EW EXTRACTION WELL
SB RI-1 & SB RI-2 SOIL BORING REMEDIAL INVESTIGATION AND BORINGS NOT CONVERTED TO MONITORING WELLS
PZ PIEZOMETER LOCATIONS
PREVIOUSLY INSTALLED MONITORING AND SUMP WELLS
750 ug/kg CONTOUR OF TCE IN SOIL BASED ON FIELD GC RESULTS (WCC, 1994)
SB-SC SOIL BORING/SOUTH CULVERT SAMPLE LOCATIONS
SB-TCE SOIL BORING/TCE STORAGE AREA SAMPLE LOCATIONS
P-03e SOIL BORING/SOUTH CULVERT SAMPLE LOCATIONS
BASE MAP PROVIDED BY
MWR
A Division of Landmark, Inc.
GOLDER SIERRA Atlanta, Georgia
CLIENT/PROJECT
McGRAW-EDISON SITE CENTERVILLE, IOWA
TITLE
100% Design
SOIL VAPOR EXTRACTION LOCATION
DRAWN MAT
DATE 11/10/98
JOB NO. 986-1083
CHECKED
SCALE AS SHOWN
DWG. NO. 1083-034
REV. NO. B
REVIEWED
FILE NO. 1083-034
SUBTITLE
ROLLED NO. 3



LEGEND

- SVE EXTRACTION POINT
- HORIZONTAL SAND FILLED FRACTURE
- SOIL SAMPLED CONTAINED >750 ug/kg of TCE
- WATER LEVEL, MAY 1998

HORIZONTAL SCALE IN FEET
0 40 80
VERTICAL SCALE EXAGGERATED 5X

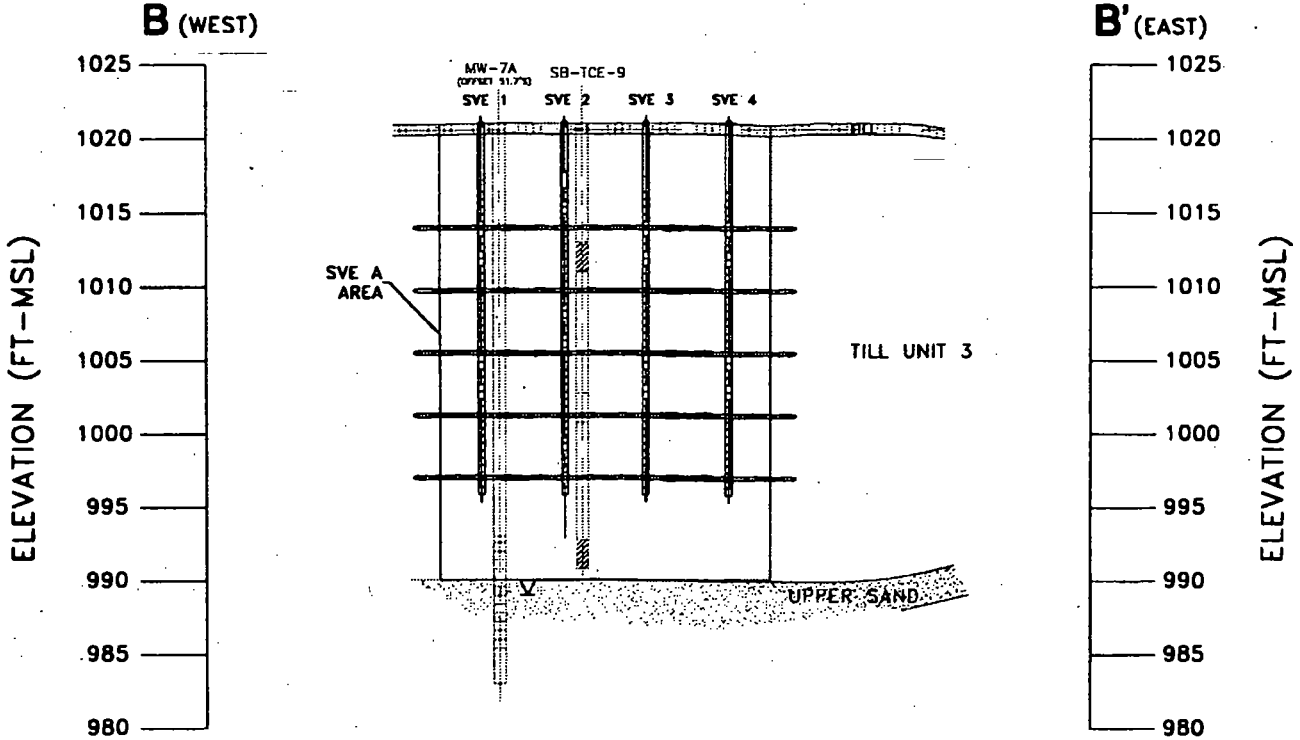
100% Design

GOLDER SIERRA Atlanta, Georgia

CLIENT/PROJECT: McGRAW-EDISON SITE CENTERVILLE, IOWA

TITLE: SVE A & SVE B AREA CROSS SECTION A-A'

DRAWN MAT	DATE 11/17/98	JOB NO. 986-1083	
CHECKED	SCALE AS SHOWN	DWG. NO. 1083-033	REV. NO.
REVIEWED	FILE NO. 1083-033	SUBTITLE	FIGURE NO. 4



LEGEND

- SVE EXTRACTION POINT
- HORIZONTAL SAND FILLED FRACTURE
- SOIL SAMPLED CONTAINED >750 ug/kg of TCE
- WATER LEVEL, MAY 1998

HORIZONTAL SCALE IN FEET
0 40 80
VERTICAL SCALE EXAGGERATED 5X

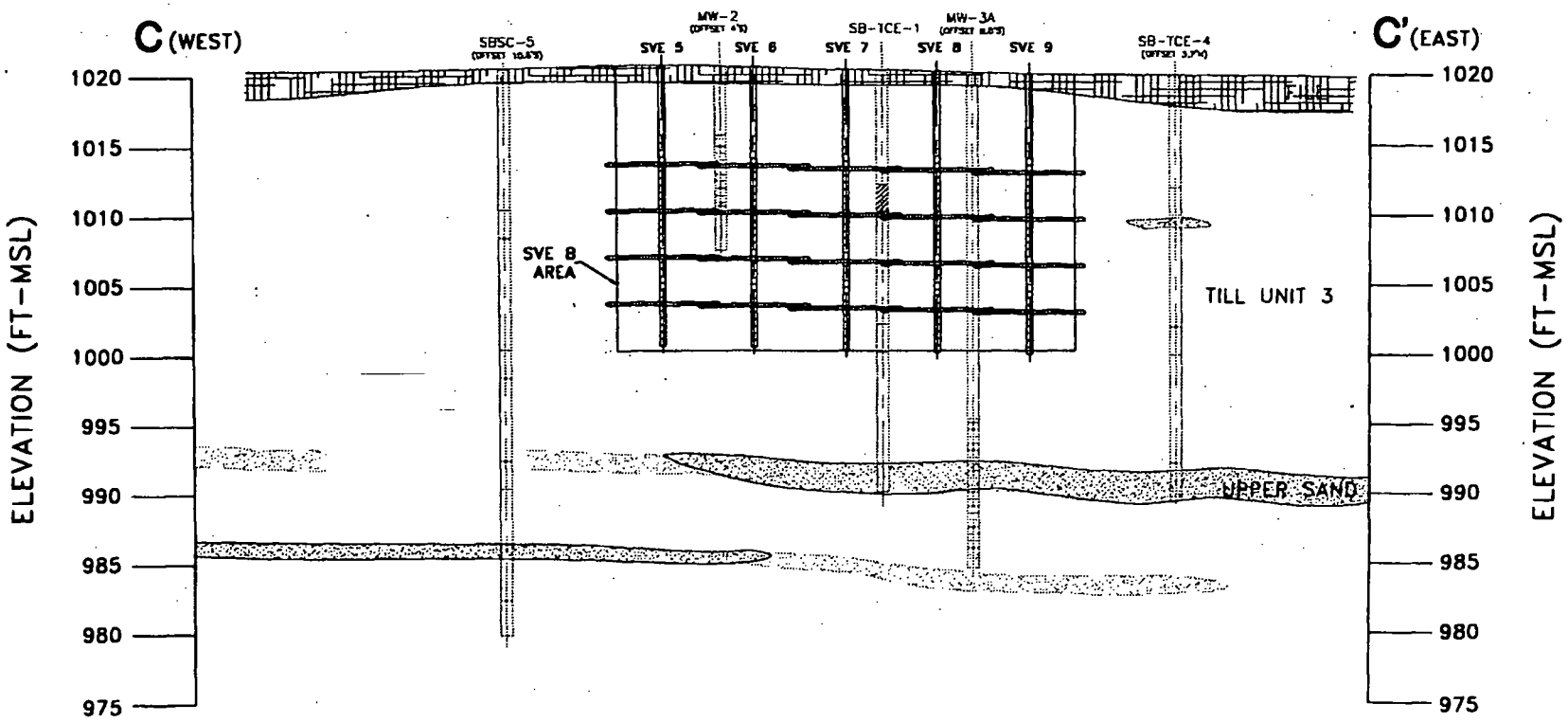
100% Design

GOLDER SIERRA Atlanta, Georgia

CLIENT/PROJECT: McGRAW-EDISON SITE CENTERVILLE, IOWA

TITLE: SVE A AREA CROSS SECTION B-B'

DRAWN MAT	DATE 11/10/98	JOB NO. 986-1083	
CHECKED	SCALE AS SHOWN	CONT. NO. 1083-036	REV. NO.
REVISED	FILE NO. 1083-036	SUBTITLE	FIGURE NO. 5



LEGEND

- SVE EXTRACTION POINT
- HORIZONTAL SAND FILLED FRACTURE
- SOIL SAMPLED CONTAINED >750 ug/kg of TCE

HORIZONTAL SCALE IN FEET
0 40 80
VERTICAL SCALE EXAGGERATED 5X

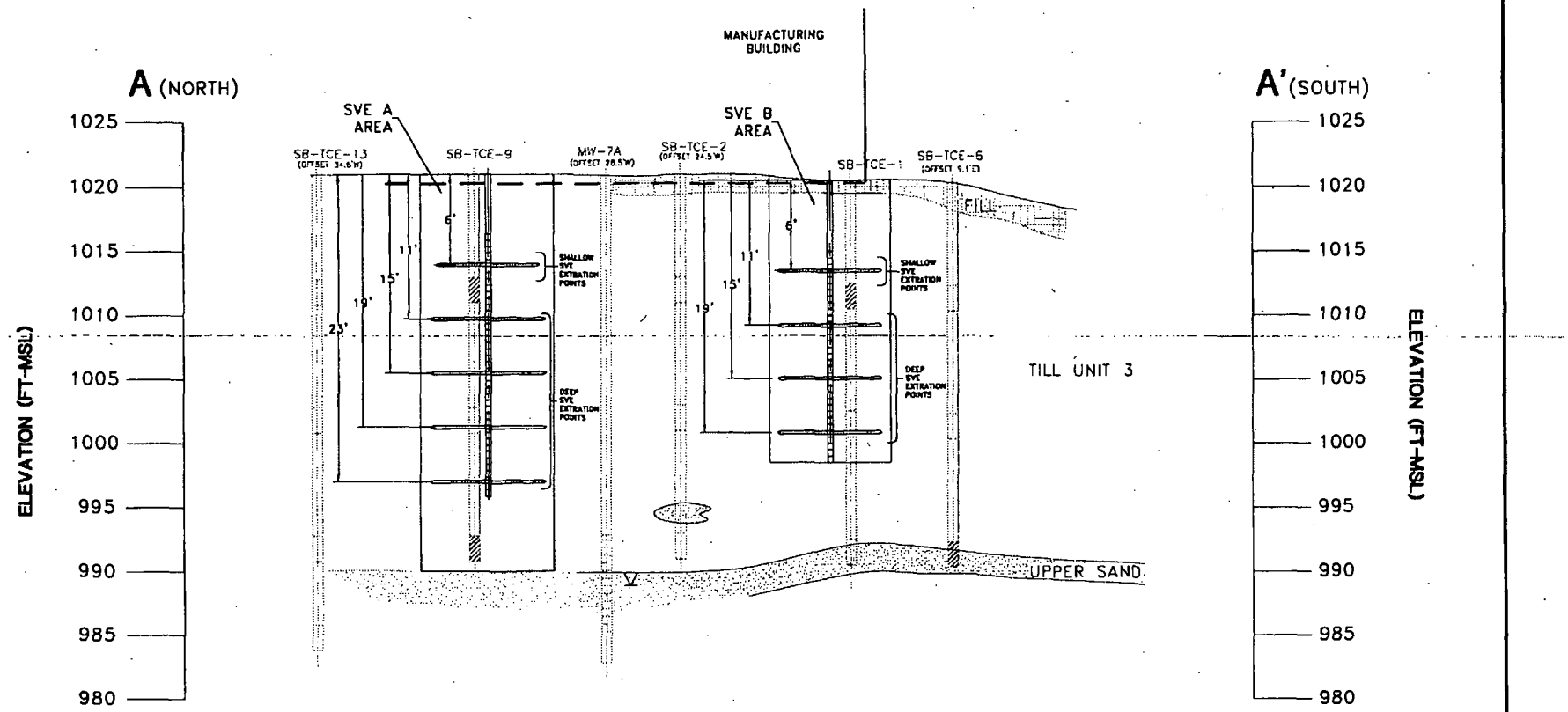
100% Design

GOLDER SIERRA Atlanta, Georgia

CLIENT/PROJECT: McGRAW-EDISON SITE CENTERVILLE, IOWA

TITLE: SVE B AREA CROSS SECTION C-C'

DRAWN MAT	DATE 11/10/98	JOB NO. 986-1083	
CHECKED	SCALE AS SHOWN	DWG. NO. 1083-035	REV. NO.
REVIEWED	FILE NO. 1083-035	SUBTITLE	FIGURE NO. 6



LEGEND

- SVE EXTRACTION POINT
- HORIZONTAL SAND FILLED FRACTURE
- SOIL SAMPLED CONTAINED >750 ug/kg of TCE (WCC, 1994)
- WATER LEVEL, MAY 1998

HORIZONTAL SCALE IN FEET
0 40 80
VERTICAL SCALE EXAGGERATED 5X

As-Built

Rev	Date	by/check	Description
A	2/8/00	MAT/	ADDED DIM'S FOR TRACS

GOLDER SIERRA
Atlanta, Georgia

DWG. NO. 1083-D33
REV. NO. A
JOB NO. 986-1083
DATE 3/3/99
DRAWN MAT
SCALE AS SHOWN
CHECKED RIO
FILE NO. 1083-D33.dwg
REVIEWED

CLIENT/PROJECT
McGRAW-EDISON SITE
CENTERVILLE, IOWA

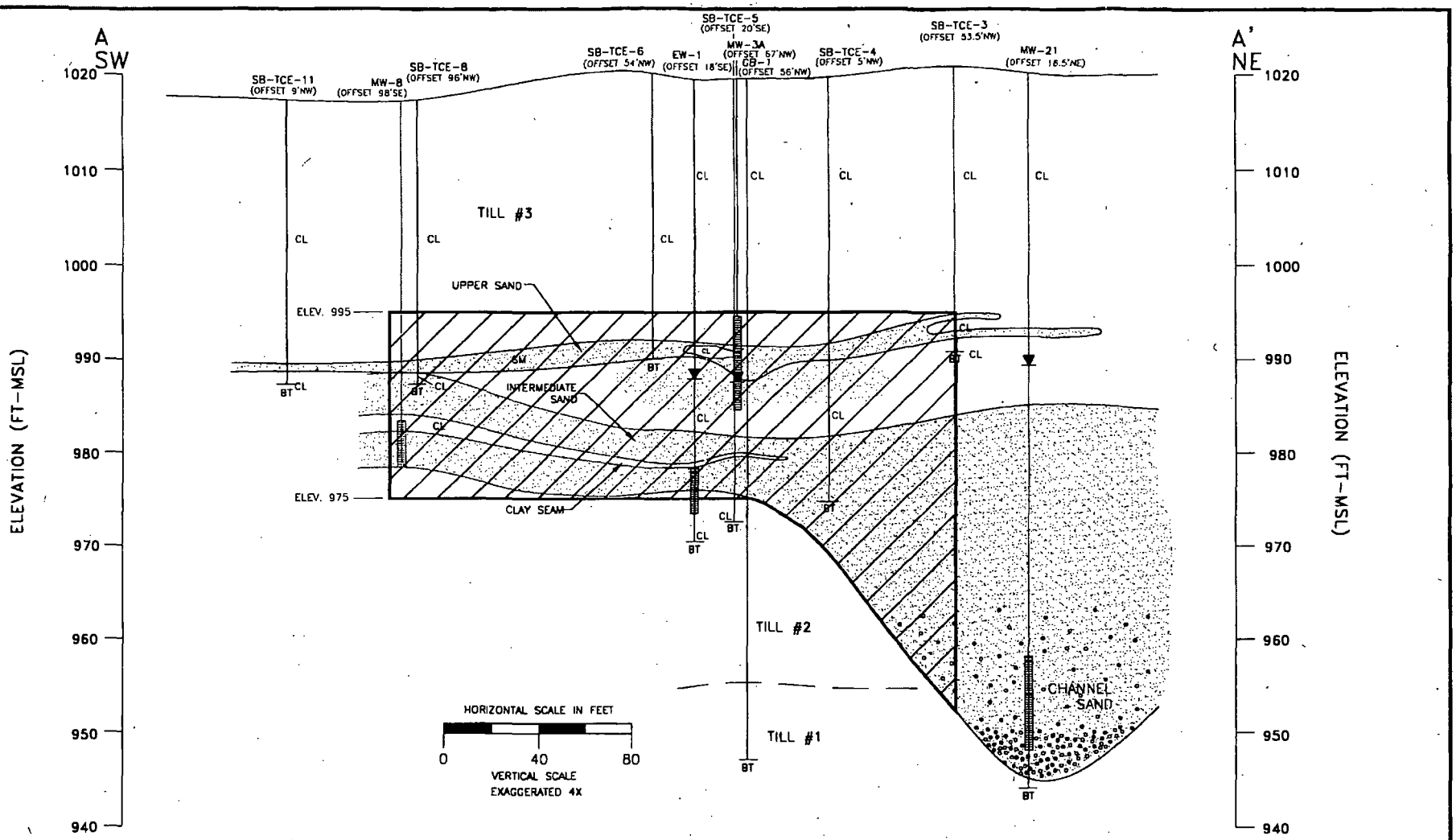
TITLE
SVE A & SVE B AREA
CROSS SECTION A-A'

FIGURE NO. 3

PLOT 1:40

Attachment 5

Iron Reactive Permeable Barrier System Layout



LEGEND

- GROUNDWATER LEVEL DATA (MAY 3, 1998)
- BT BORING TERMINATED
- MONITORING WELL SCREEN
- PROPOSED IRON REACTIVE PERMEABLE BARRIER

NOTE: IRON REACTIVE PERMEABLE BARRIER EXTEND DOWN TO TOP OF UNDERLYING TILL UNIT (EITHER TILL #1 OR #2) BELOW THE CHANNEL SANDS, WHERE ENCOUNTERED.

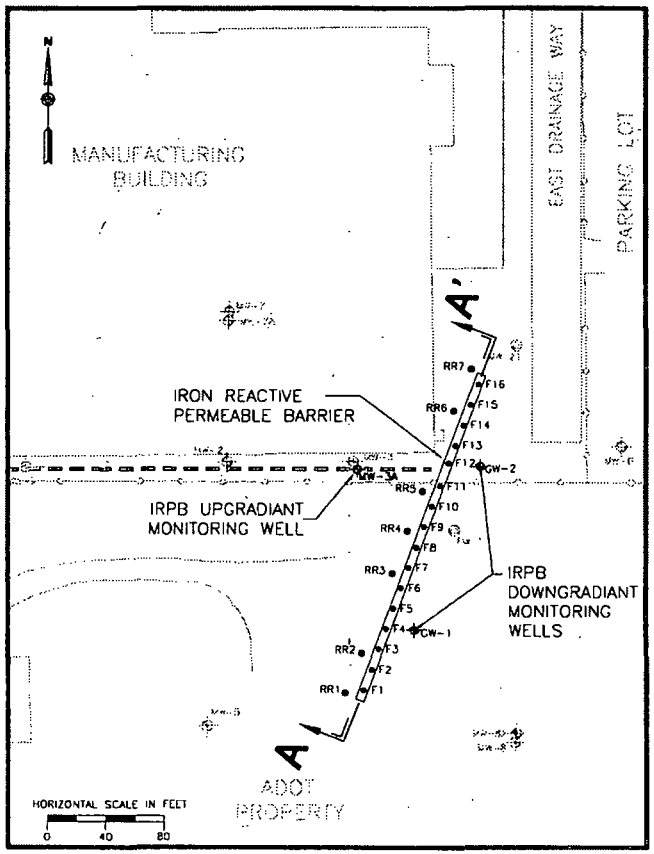
GOLDER SIERRA
Atlanta, Georgia

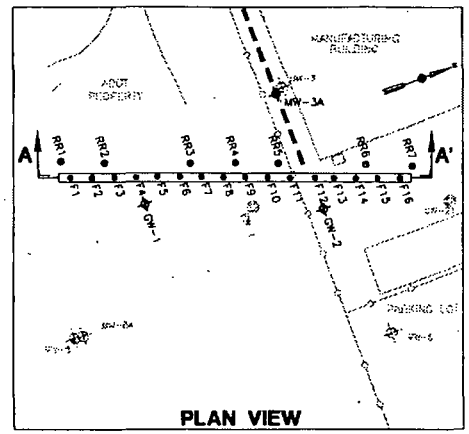
DWG. NO.	1083-D10
REV. NO.	F
JOB NO.	986-1083
DATE	2/23/99
DRAWN	MAT
SCALE	AS SHOWN
CHECKED	RIO
FILE NO.	1083-D10.dwg
SUPERVISED	

CLIENT/PROJECT: McGRAW-EDISON SITE
CENTERVILLE, IOWA
100% Design

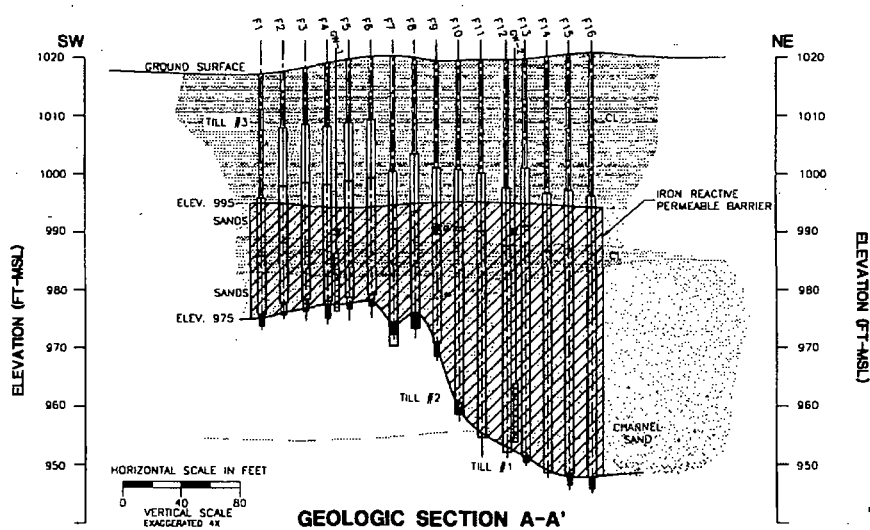
TITLE: IRON REACTIVE PERMEABLE BARRIER
CROSS SECTION A-A'

FIGURE NO. 4





PLAN VIEW



GEOLOGIC SECTION A-A'

LEGEND

- CHAIN LINK FENCE
- STORMWATER CULVERT
- GROUNDWATER LEVEL DATA (JUNE 1999)
- IRON REACTIVE PERMEABLE BARRIER
- F4 ● HYDROFRACTURE WELLS
- RR2 ● RESISTIVITY RECEIVER STRINGS
- GW-1 ⊕ MONITORING WELLS
- MW-3 ⊕ PREVIOUSLY INSTALLED MONITORING WELLS
- BORINGS CONVERTED TO MONITORING WELLS
- SPLIT SPOON SAMPLING
- FRAC CASING
- MONITORING WELL SCREEN

NOTE: HYDROFRACTURE WELLS AND IRON REACTIVE PERMEABLE BARRIER EXTEND DOWN TO TOP OF UNDERLYING TILL UNIT (EITHER TILL #2 OR #1) BELOW THE CHANNEL SANDS, WHERE ENCOUNTERED.

Rev	Date	by/check	Description
B	1/25/00	MAT/	UPDATED DRAWING - CHCD LOCATION OF WELLS PER SURVEY
A	12/8/99	MAT/	UPDATED DRAWING - TO SHOW TOP OF TILL 2 PER BORINGS

GOLDER SIERRA
Atlanta, Georgia

DWG. NO. 1083-c08
REV. NO. B
JOB NO. 986-1083
DATE 3/1/99
DRAWN MAT
SCALE AS SHOWN
CHECKED KIO
FILE NO. 1083-c08.dwg
REVIEWED

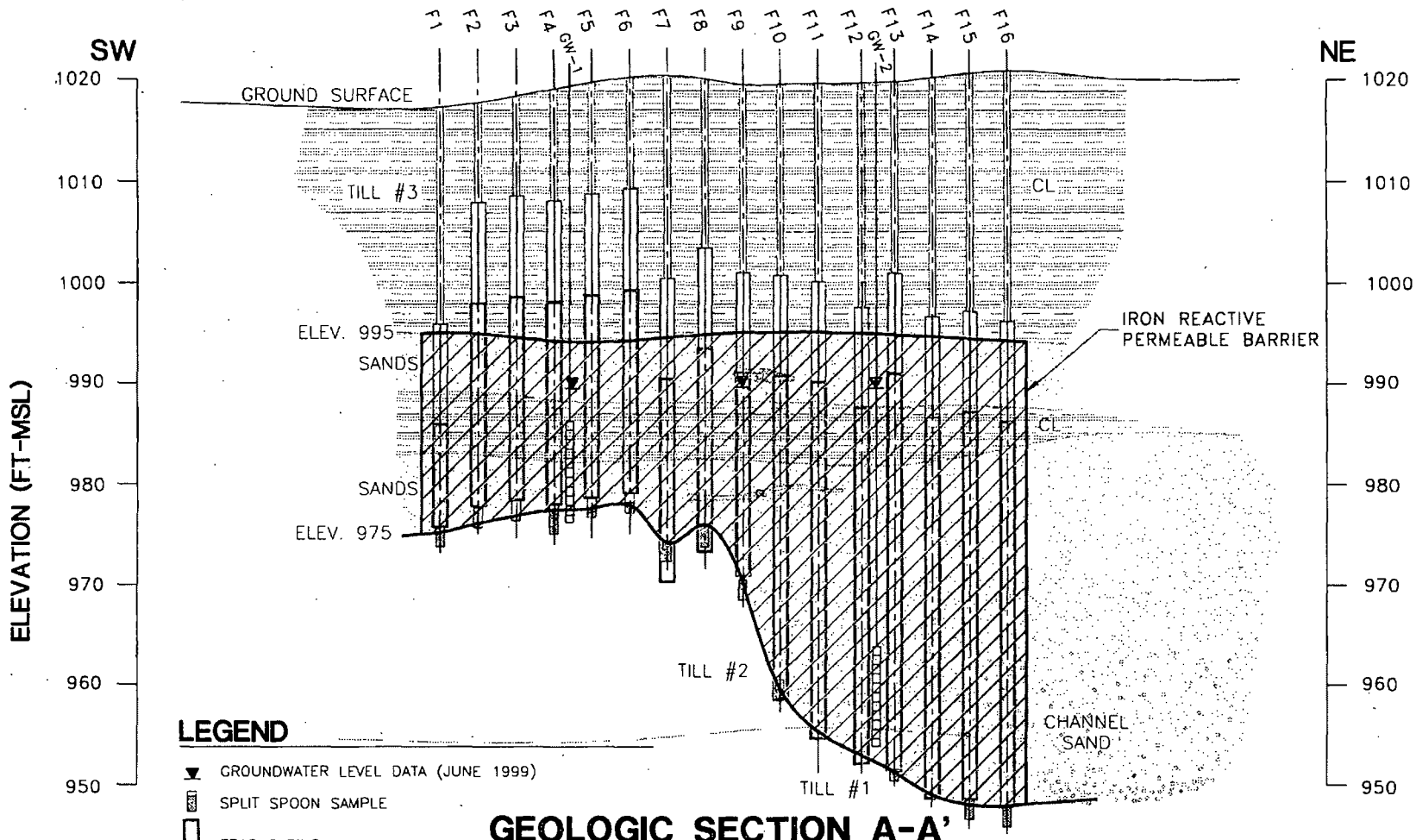
CLIENT/PROJECT
McGRAW-EDISON SITE
CENTERVILLE, IOWA
As-Built

TITLE
IRON REACTIVE PERMEABLE BARRIER LOCATION PLAN AND CROSS SECTION

FIGURE NO. 3

BASE MAP PROVIDED BY: AWP, A Division of Converge, Inc.

PLOT 1:80



GEOLOGIC SECTION A-A'

LEGEND

- GROUNDWATER LEVEL DATA (JUNE 1999)
- SPLIT SPOON SAMPLE
- FRAC CASING
- MONITORING WELL SCREEN
- IRON REACTIVE PERMEABLE BARRIER

HORIZONTAL SCALE IN FEET
0 40 80
VERTICAL SCALE
EXAGGERATED 4X

Rev	Date	by/check	Description
A	12/8/99	MAT/	UPDATED DRAWING PER SURVEY
A	12/8/99	MAT/	UPDATED DRAWING PER FRAC INSTALLATION

GOLDER SIERRA
Atlanta, Georgia

DWG. NO. 1083-d53
REV. NO. B
JOB NO. 986-1083
DATE 9/20/99
DRAWN MAT
SCALE AS SHOWN
CHECKED RIO
FILE NO. 1083-d53.dwg
REVIEWED

CLIENT/PROJECT
McGRAW-EDISON SITE
CENTERVILLE, IOWA
As-Built

TITLE
AS BUILT GEOMETRY OF
IRON REACTIVE PERMEABLE BARRIER

FIGURE NO. 16

PLOT SCALE: 40

Attachment 6

Notice of Lease and Property Restrictions

Book 2005 Page 601
Document 2005 601 Type 06 01 Pages 25
Date 3/24/2005 Time 1:26 PM
Rec Amt $127.00
COMPARED
Cheryl K. Platt, Recorder
Appanoose Co. IOWA

Pd 127.00 mail

NOTICE OF LEASE AND PROPERTY RESTRICTION

THE STATE OF IOWA §
§
COUNTY OF APPANOOSE §

THIS NOTICE OF LEASE AND PROPERTY RESTRICTION (this "Notice") is made and tendered by Cooper Industries, LLC as the surviving company of the merger with Cooper Industries, Inc., the successor via merger to McGraw Edison Company (the "Company").

RECITALS

A. The City of Centerville (the "City") and the Company entered into that certain Real Estate Donation Agreement dated effective as of June 22, 2004, pursuant to which the Company donated to the City the land described on Exhibit "A" attached hereto and incorporated herein, and all improvements thereon (the "Property").

B. As consideration for the donation of the Property, the City, as Donee, agreed to certain use restrictions on the land. The Real Estate Donation Agreement, attached hereto as Exhibit "B" and incorporated herein, states in Section 4:

> "Donee and Donee's successors and assigns' use of the Property shall be limited to industrial/commercial use and shall not include any residential, health care, day care or private or public school uses. Donee shall not install any water wells or in any way whatsoever use the groundwater at the Property."

The Real Estate Donation Agreement, further states in Section 6:

> (a) In the event that the Donee demolishes or rebuilds the existing structures or otherwise develops the site, the Donee agrees:
>
> (i) not to develop the site for any public use including but not limited to, residential, day care, health care, or public or private school facilities.
>
> (ii) that Donor shall approve any soil disturbance and any soil, excavations, debris, etc. removed from the site will be disposed of in a facility approved by Donor and the Iowa DNR; and,
>
> (iii) The Donee will defend and indemnify Donor against any and all losses incurred or claims made relating to the development of the site including any damage to Donor's environmental remediation equipment.

After Recording Return To:
LandAmerica
7557 Rambler Road, Ste 1200
Dallas, TX 75231
Attn: Nancy Shirar
File No.: ACC-05-1041

(b) The Donee and Donor acknowledge that Donor currently has environmental remediation equipment occupying approximately 50,000 square feet of space in the building on the Property. Unless otherwise waived by Donor, within thirty (30) days prior to the occupancy of the Property by another party, the Donee will install chainlink fencing sufficient to: (a) separate the remediation equipment from the remainder of the building; and (b) prevent unauthorized access to the equipment. Donor and Donor's agents shall be allowed unrestricted access to the equipment, the non-reactive barrier, on-site groundwater monitoring wells and, except for utility charges, shall occupy the space rent free.

(c) Donee shall provide to Donor such cooperation and assistance as is reasonably necessary for Donor to complete any obligation under this agreement including, but limited to, filing deed notices or restrictions in the public record.

C. As additional consideration for the donation of the Property, the City agreed to lease a portion of the Property to the Company under terms which include:

(a) Premises - Approximately 35,900 square foot section located at the Southeast corner of the building

(b) Term – Twelve months commencing on June 1, 2004 and ending on May 31, 2005. Upon the final day of the term and any extension thereof, the lease automatically renews, without notice, for an additional one-year term.

(c) Rent – The Company occupies the property rent free.

D. The Warehouse Lease Agreement is attached hereto as Exhibit "C" and is incorporated herein for all purposes.

E. The Company is recording this **NOTICE OF LEASE AND PROPERTY RESTRICTION** to provide notice of the Company's rights and interest under the Warehouse Lease Agreement and the restrictions to land use agreed to in the Real Estate Donation Agreement.

IN WITNESS WHEREOF, this Notice has been executed by the Company as of the date first above written.

COOPER INDUSTRIES, LLC
A Delaware corporation

Randall B. Ammerman
Vice President

4

Exhibit A
Legal Description

Lots 4, 5, 6, 7 and 8 of Block 2 and Lot 1 of Block 3 of Law Bros. and Bromberg's First Addition to Centerville, Iowa, in the Southwest Quarter of the Southwest Quarter of Section 6, Township 68 North, Range 17 West of the 5th P.M., Appanoose County, Iowa, except highway right-of-way on West side of said lots. Also, beginning at a point 193 feet East and 425 feet North of the Southwest Corner of above named Section 6; thence East 941.2 feet, thence North 25 feet, thence East 204.83 feet, thence South 25 feet, thence East 102.5 feet to the East line of the Southwest Quarter of the Southwest Quarter of said Section 6, thence North on said East line 500 feet, thence West 1246.5 feet, thence South 500 feet to the point of beginning, containing 14.4 acres more or less. Also the Street 50 feet wide lying between Lot 1, Block 3 in Law Bros. and Bromberg's First Addition to Centerville, Iowa, and Lot 8, Block 2, in said Addition; and alley 20 feet wide running North and South along the East end of Lot 1, Block 3, and Lots 1, 2, 3, 4, 5, 6, 7 and 8, Block 2, in said addition, except the West Half of that portion of said alley lying back of Lots 1, 2, and 3, Block 2, in said Addition; also Commencing at the Southwest Corner of the Southeast Quarter of the Southwest Quarter of Section 6, Township 68 North, Range 17 West in Appanoose County, Iowa, thence North 925 feet, thence East 70 feet, thence South 925 feet, thence West 70 feet to the point of beginning.

EXHIBIT B

Real Estate Donation Agreement

REAL ESTATE DONATION AGREEMENT

June 23, 2004

IN CONSIDERATION OF TEN AND NO/100 ($10.00) DOLLARS, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the undersigned McGraw Edison Company ("Donor"), agrees to donate and convey to The City of Centerville ("Donee"), and Donee hereby agrees to accept the donation upon the terms and conditions herein contained (this "Agreement"), the property described in Exhibit A attached hereto and known as the McGraw Edison Facility located at Highway 5 South, Centerville, Iowa together with all improvements attached to the property ("Property") under the following terms and conditions:

1. CLOSING:

(a) The closing of the transaction contemplated hereby shall be held on or before June 30, 2004, or upon such earlier or later date as Donee and Donor may elect, with the closing to be held in the offices of the City Attorney. The terms "closing" and "date of closing" as used in this Agreement shall refer to the date and place of closing as determined by the terms of this paragraph. All costs of closing the transaction, including the cost of a survey, title policy, attorney and recording fees shall be paid by the Donee.

(b) Donor agrees to execute and deliver to Donee at closing a Special Warranty Deed ("Deed") conveying the Property.

(c) Possession of the Property shall be delivered by Donor to Donee on the date of closing.

(d) Ad valorem taxes for the year 2004, shall be prorated as of the date of closing. The 2004 ad valorem taxes shall be based on the year 2003 tax bills. Donee and the Donor shall promptly re-prorate the taxes at such time as the year 2003 ad valorem taxes are available. The Donee shall pay all transfer taxes, if any.

(e) The Donor shall execute and deliver to the Donee or the Escrow Agent, as the case may be, in a commercially acceptable form the following documents at or prior to the closing:

(i) The Deed;

(ii) Real Estate Transfer Tax Declaration (if applicable);

(iii) Blanket Bill of Sale as to any personal or intangible property located on the Property, other than any personal or intangible property identified by the Donee to be excluded from the conveyance herein;

(iv) Corporate resolution and incumbency certificate authorizing the conveyance of the Property pursuant to the terms hereof and authorizing the respective officers to execute and deliver closing documents with respect to such conveyance; and

(v) Such documents and instruments as are required by the attorney for the City as listed in the Title Opinion.

(vi) Groundwater Hazard Statement

(f) The parties shall cooperate with each other to fulfill their respective responsibilities under any applicable law concerning notifications or filings regarding the transfer of property containing environmental contamination.

2. TITLE:

Donee, at Donee's option and expense, may obtain a title commitment on the Property. Donee shall have twenty (20) days from the date of receipt of such Title Opinion to state all objections to title. Exceptions shown on the Title Opinion not objected to by Donee by delivery of written notification to Donor within twenty (20) days from the receipt of the Title Opinion, shall be deemed to be acceptable to Donee as if specified herein. The foregoing accepted exceptions excepting those insurable under a typical owner's title guarantee policy (and all not affecting the marketability of the property) or those required by the State of Iowa and/or the Environmental Protection Agency, are collectively referred to herein as the "Permitted Exceptions". Upon receipt of written notice of Donee's objections, Donor shall have a reasonable time, not to exceed thirty (30) days from the date of receipt of such written notice, in which to remedy or remove such exception(s) objected to by Donee.

(a) If Donor is unable or unwilling to remove or remedy any survey matter or title exceptions objected to by Donee within thirty (30) days from the date of written notice of such Donee's objections, then each of Donee and Donor shall have the right to terminate this Agreement, unless Donee elects to waive any such objections and notifies Donor thirty (30) days before the date of closing (hereinafter defined) that (a) such title objections are now Permitted Exceptions and (b) of Donee's intentions to close the transaction contemplated herein.

3. EFFECTIVE DATE:

This Agreement shall be effective upon the date that both Donee and Donor have executed this Agreement ("Effective Date"). All critical dates referenced in this Agreement shall be calculated from the Effective Date.

4. LIABILITIES:

Donee accepts the Property in its "as is, where is" condition. Donee assumes, shall be liable for, and will indemnify, defend and hold Donor harmless from and against, any claims, demands, proceedings, liabilities, obligations, damages, injuries and costs regarding the Property, whether arising from events or conditions, known or unknown, before or after Closing, including those arising as a consequence of Donee's inspections, ownership, use, development, occupancy or operation of the Property. Donee and Donee's successors and assigns' use of the Property shall be limited to industrial/commercial use and shall not include any other uses, including without limitation, residential, health care, day care or private or public school uses. Donee shall not install any water wells or in any way whatsoever use the groundwater at the Property. Donor reserves the right to file in the public record any restrictive covenants that Donor, in Donor's sole

discretion, finds necessary to evidence such limitations on land use or groundwater usage. The indemnification obligations of this Section 4 shall survive the delivery of title, and shall not merge into the Deed.

Donee specifically agrees that Donor shall have no statutory, common law or other liability regarding the Property. The Donee hereby irrevocably waives any and all rights, claims, causes of action or theories of liability it might otherwise have relating to the Property against Donor or its affiliates under or based upon any principle of equity or any federal, state, local or foreign statute, law, ordinance, rule or regulation. Without limiting the foregoing, the Donee waives any rights it may have to contribution from the Donor or any of its affiliates under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA").

5. DONOR'S DISCLAIMER:

EXCEPT AS EXPRESSLY SET FORTH IN THIS AGREEMENT, DONOR DISCLAIMS ANY AND ALL WARRANTIES OR REPRESENTATIONS, WHETHER EXPRESS OR IMPLIED, AS TO THE USE, CONDITION, VALUE OF OR FITNESS OF THE PROPERTY AND BY CLOSING DONEE ACCEPTS THE PROPERTY IN ITS "AS IS, WHERE IS" CONDITION, WITH ALL FAULTS. WITHOUT IN ANY WAY LIMITING THE DISCLAIMER IN THE IMMEDIATELY PRECEDING SENTENCE, DONOR FURTHER DISCLAIMS ANY AND ALL WARRANTIES OR REPRESENTATIONS, WHETHER EXPRESS OR IMPLIED, THAT ANY INFORMATION AVAILABLE TO DONEE FROM DONOR, THIRD PARTIES (INCLUDING GOVERNMENTAL AGENCIES) OR OTHER SOURCES, FULLY, FAIRLY OR ACCURATELY REPRESENTS THE EXTENT OF ENVIRONMENTAL CONTAMINATION, CONDITIONS AFFECTING ENVIRONMENTAL MATTERS OR COMPLIANCE OR NONCOMPLIANCE WITH ENVIRONMENTAL LAWS.

6. SPECIAL PROVISIONS:

(a) In the event that the Donee demolishes or rebuilds the existing structures or otherwise develops the site, the Donee agrees:

(i) not to develop the site for any public use including but not limited to, residential, day care, health care, or public or private school facilities.

(ii) that Donor shall approve any soil disturbance and any soil, excavations, debris, etc. removed from the site will be disposed of in a facility approved by Donor and the Iowa DNR; and,

(iii) The Donee will defend and indemnify Donor against any and all losses incurred or claims made relating to the development of the site including any damage to Donor's environmental remediation equipment.

(b) The Donee and Donor acknowledge that Donor currently has environmental remediation equipment occupying approximately 50,000 square feet of space in the building on the Property. Unless otherwise waived by Donor, within thirty (30) days prior to the occupancy of the Property by another party, the Donee will install chainlink fencing sufficient to: (a) separate the remediation equipment from the remainder of the building; and (b) prevent unauthorized access to the equipment. Donor and Donor's agents shall be allowed unrestricted access to the equipment, the non-reactive barrier, on-site groundwater monitoring wells and, except for utility charges, shall occupy the space rent free. This Agreement is contingent upon Donor and Donee entering into a Lease Agreement in the form attached hereto as Exhibit B. Donor's occupancy of the space shall continue until Donor has removed all the remediation equipment from the building and is no longer required to monitor any environmental issue at the site.

(c) Donee shall provide to Donor such cooperation and assistance as is reasonably necessary for Donor to complete any obligation under this agreement including, but limited to, filing deed notices or restrictions in the public record.

7. MISCELLANEOUS:

(a) Time is of the essence of this Agreement.

(b) If any term or condition of this Agreement shall be held to be invalid or unenforceable, the remainder of the Agreement shall not be affected thereby.

(c) This Agreement constitutes the entire agreement of the parties hereto and, unless specified otherwise herein, no representation, inducement, promises or prior agreements, oral or written, between the parties or made by any agent on behalf of the parties or otherwise shall be of any force and effect.

(d) This Agreement shall be construed and interpreted under the laws of the State of Iowa.

(e) Donee and Donor shall at closing execute all other papers and documents that may become necessary in order to close this transaction as may be suggested by the counsel of either party hereto and approved by the other party's counsel.

(f) Any notice hereunder must be in writing, and shall be effective when deposited in the United States Mail, Certified Return Receipt Requested or otherwise only if and when received by the party to be notified. For purposes of notice, the addresses of the parties shall be as set forth below or as may be designated from time to time.

(g) Neither party to this Agreement shall make a public announcement regarding the transaction contemplated herein prior to the closing of such transaction, unless first approved in writing by the other party hereto. The provisions of this Section shall not limit the ability of the Donee, however, to disclose this Agreement to: (i) any of its advisors; and (ii) any of its lenders and their advisors.

(h) This Agreement shall be binding upon and inure to the benefit of the parties and their permitted successors and assigns. Donee agrees to provide to Donor written acknowledgment of the obligations set forth in the Agreement from any future buyer, successor, or assign.

Donee: _____
By: John C. Williams
Title: Mayor, City of Centerville
Address: 312 E. Maple Street
Centerville, Iowa
Phone:

Donor: _____
By: Robert W. Teets
Title: Vice President
Address: 600 Travis, Suite 5800
Houston, TX 77002
Phone: (713) 209-8400
Fax: (713) 209-8981

STATE OF TEXAS §
§
COUNTY OF HARRIS §

On June 17, 2004 before me, personally appeared Robert W. Teets, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature _____
NOTARY PUBLIC

JEANETTA AGUIRRE
NOTARY PUBLIC
STATE OF TEXAS
My Comm. Exp. 1-6-2008

(Seal)

STATE OF IOWA §
§
COUNTY OF APPANOOSE §

On June 22, 2004 before me, personally appeared personally appeared John C. Williams, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature _____
NOTARY PUBLIC

GAY A. BAILEY
Commission Number 702180
MY COMMISSION EXPIRES
MARCH 14, 2008

(Seal)

GAY A. BAILEY
Commission Number 702180
MY COMMISSION EXPIRES
MARCH 14, 2008

Exhibit A
Legal Description

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