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LONG-TERM REMEDIAL COMPLETION REPORT
SOURCE AREA 4

Southeast Rockford
Groundwater Contamination
Superfund Site

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Abbreviations and Acronyms

1,1,1-TCA	1,1,1-trichloroethane
1,1,2-TCA	1,1,2-trichloroethane
1,1-DCE	1,1-dichloroethene
Area 4	Source Area 4
bgs	below ground surface
Bodine	Bodine Environmental Services, Inc.
CDM Smith	CDM Smith, Inc.
CLP	Contract Laboratory Program
COC	contaminant of concern
CPVC	chlorinated polyvinyl chloride
ERH	electrical resistance heating
ESD	Explanation of Significant Difference
FFS	Focused Feasibility Study
GETS	Groundwater Extraction and Treatment System
GMZ	Groundwater Management Zone
GWP	groundwater monitoring probe
hp	horsepower
HSA	hollow-stem auger
IC	institutional control
ID	inside diameter
Illinois EPA	Illinois Environmental Protection Agency
K&S	K&S Engineers, Inc.
kW	kilowatt
kWh	kilowatt hour
LGAC	liquid-phase granular activated carbon
LNAPL	light non-aqueous phase liquid
MPE	multi-phase extraction
MS/MSD	matrix spike/matrix spike duplicate
NAPL	non-aqueous phase liquid
NPL	National Priorities List
O&F	operational and functional
O&M	Operation and Maintenance
OU	operable unit
OU1	Operable Unit 1
OU2	Operable Unit 2

OU3	Operable Unit 3
PARCCS	precision, accuracy, representativeness, comparability, completeness, and sensitivity
PCE	tetrachloroethene
PCU	Power Control Unit
PEX	cross-linked polyethylene
PID	photoionization detector
ppb	part per billion
ppm	part per million
psi	pounds per square inch
PVC	polyvinyl chloride
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RA	Remedial Action
RAO	remedial action objective
RI	Remedial Investigation
RG	Remediation Goal
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SCOU	Source Control Operable Unit
SDG	sample delivery group
SERGC	Southeast Rockford Groundwater Contamination Superfund Site
SERT	Soil electrical resistance testing
sf	square feet
SRB	sulfate-reducing bacteria
STAT	STAT Analysis, Inc.
TCE	trichloroethene
Terra	Terra Probe Environmental, Inc.
TMP	temperature monitoring probe
TRS	TRS Group, Inc.
U.S. EPA	United States Environmental Protection Agency
VGAC	vapor-phase granular activated carbon
VOC	volatile organic compound
VP	vapor piezometer
VR	vapor recovery

Section 1
Introduction

CDM Smith Inc. (CDM Smith) has prepared this Remedial Action (RA) Report under Work Order 05 of Contract HWA-16302 with the Illinois Environmental Protection Agency (Illinois EPA). Through previous work orders under Contracts HWA-8308 and HWA-16302 with Illinois EPA, CDM Smith conducted remedial design (RD) and remedial action (RA) oversight activities associated with Source Area 4 (Area 4) of the Southeast Rockford Groundwater Contamination Superfund site (SERGC) located in Rockford, Winnebago County, Illinois.

This RA Report documents the two Area 4 source RAs and is a culmination of the RA activities described in *Interim Leachate Component Remedial Action Completion Report, Source Area 4, Southeast Rockford Groundwater Contamination Superfund Site*, dated February 2011 (CDM Smith 2011) and *Soil Component Remedial Action Completion Report, Source Area 4, Southeast Rockford Groundwater Contamination Superfund Site*, dated December 2017 (CDM Smith 2017). Additional information specific to each RA component is in the respective reports.

Both component RAs were conducted in accordance with the Operable Unit 3 (OU3, or Source Control Operable Unit) Record of Decision (ROD) (U.S. EPA 2002) and the Soil Component RA was also conducted in accordance with the Explanation of Significant Differences (ESD) signed by Illinois EPA and United States Environmental Protection Agency (U.S. EPA) in July 2012.

1.1 Purpose and Organization

The purpose of this RA Report is to provide information regarding the implementation of the leachate and soil component RAs at Area 4. As described in the Close Out Procedures for National Priorities List (NPL) Sites guidance, a RA Report is to be completed after the RA is complete (U.S. EPA 2011).

In general accordance with the close-out procedures guidance, this report is organized into the following sections:

Section 1 – Introduction: provides a Site description and Site history for Area 4.

Section 2 – Source Area 4 Description: provides a summary of the ROD requirements, soil component ESD, remedial action objectives (RAO), remediation goals (RG), institutional controls (IC), and summaries of the RDs completed for Area 4.

Section 3 – Construction Activities: provides a summary of the leachate and soil RA construction activities conducted.

Section 4 – Chronology of Events: provides a chronological summary of events that took place during the RAs.

Section 5 – Performance Standards and Construction Quality Control provides details and a discussion about measuring and meeting performance standards and adhering to construction quality control during the Area 4 RAs.

Section 6 – Final Inspection and Certifications: provides details about the various punch lists, demobilizations, and final RA inspections that occurred for the leachate and soil RAs.

Section 7 – Operation and Maintenance Activities: describes the various operation and maintenance activities that occurred during each RA.

Section 8 – Area 4 Contact Information: provides a list of contact information for personnel involved in the construction of the ERH system, including Illinois EPA personnel, and contractor personnel.

Section 9 – References: provides documents referenced in report.

1.2 Site Name, Location and Description

The SERGC Site is located in the southeast portion of Rockford, Illinois and covers an area approximately three miles long by two and one-half miles wide and has three operable units (OU):

- Operable Unit 1 (OU1): Drinking Water Operable Unit
- Operable Unit 2 (OU2): Groundwater Operable Unit
- Operable Unit 3 (OU3): Source Control Operable Unit

OU1 focused on providing local residents with a safe supply of drinking water, while OU2 addressed the area-wide groundwater contamination. A remedial investigation (RI) was conducted for OU2 that identified the primary source areas for groundwater contamination. These source areas include Areas 4, 7, 9/10, and 11. The contaminant plume in the groundwater with total chlorinated volatile organic compound (VOC) concentrations above 10 parts per billion (ppb) defines the boundaries of the SERGC Site, as defined by the OU2 ROD (U.S. EPA 1995). The extent of the SERGC Site is shown in **Figure 1-1**.

OU3 began as a state-led action in May 1996 to select remedies for each of the source areas. Additional investigations were conducted for OU3 to determine the best course of action to clean up the source areas. The ROD for OU3 (U.S. EPA 2002) contains the actions, alternatives and preferred options for remediation of the source area contamination. The remedies selected for each source were split into separate soil and leachate components, where "leachate" was defined as shallow, contaminated groundwater within the source area. The RA discussed in this report was implemented to remediate the soil contamination at Area 4 in accordance with the OU3 ROD.

Area 4 is located in the southeast portion of Rockford, Illinois, within a mixed industrial, commercial, and residential area. A residential trailer park is located adjacent to Area 4 to the northeast. The location of Area 4, along with the other source areas, is shown on **Figure 1-2**.

Area 4 is located south of Harrison Avenue at 2360 Marshall Street. This location consists of a building and a parking lot that formerly housed the Swebco Manufacturing, Inc. (Swebco), machine shop and was last used as a wood pallet manufacturing and refurbishing operation. The building is currently vacant and was condemned by the City of Rockford in July 2016. Prior to and during the soil component RA, unauthorized access to the building was noticed; however, this did not impact progress of the RA. Property taxes for the property have not been paid in a number of years and the property is in receivership.

1.3 Site History

In 1981, the City of Rockford discovered groundwater contamination in the area that became the SERGC Site. From 1981 to 1997, the Illinois EPA and the Illinois Department of Public Health performed investigations at the Site that revealed that VOCs were present in the groundwater, soil, and soil gas. During this and subsequent investigations, numerous contaminants of concern (COC) were identified including 1,1-dichloroethene, (1,1-DCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,1,2-trichloroethane (1,1,2-TCA), trichloroethene (TCE), tetrachloroethene (PCE), and carbon tetrachloride.

Historical activities at Area 4, which includes Swebco, resulted in spills, leaks, and/or direct discharges of chemicals at the former Swebco loading dock area and other plant areas. Chlorinated solvents were the principal contaminants present at Area 4. Soil contamination, including visible staining and free product, existed from approximately 12 to 37 feet below ground surface (bgs) under the southern portion of the building and from 25 to 37 feet bgs in the northern portion of the parking lot area, and from just below the surface to 37 feet bgs in the former loading dock area where waste was thought to have been placed on the ground. Groundwater samples collected from the aquifer in the overburden soil revealed that chlorinated solvent contamination was present in the groundwater. Depth to groundwater varies seasonally by up to several feet but is generally encountered at approximately 30 feet bgs.

The SERGC Site was proposed for listing on the NPL in the Federal Register on June 24, 1988 and was formally added to the NPL on March 31, 1989 as a state-lead, federally funded Superfund site. The ROD for OU3, Source Control Operable Unit, was signed by the Illinois EPA Director on May 8, 2002 and by the U.S. EPA on June 11, 2002. S. EPA Superfund Division Director on June 11, 2002. The SERGC Site is identified by the Comprehensive Environmental Response, Compensation, and Liability Information System identification number of ILD981000417.

1.4 Regulatory Enforcement Activities

Since the development of the 1995 ROD, there have been several major enforcement agreements developed between the U. S. EPA, Illinois EPA and parties associated with the SERGC Site. The first of these was a consent decree entered by the federal district court in Rockford in April 1998. This decree required the City of Rockford to install water mains and services within the public right-of-way, provide needed connections to homes and businesses, supplement the previously existing groundwater well-monitoring network with new wells, and commence a long-term groundwater sampling and analytical program. This work has entered the monitoring phase. Over 9,200 feet of new water mains were installed, and an additional 262 individual water service connections were made. A total of nine new groundwater monitoring wells were installed, with

several of these located near the Rock River. The consent decree also required the payment of up to $200,000 by the City of Rockford to the State of Illinois and federal government for future oversight costs.

Several subsequent consent decrees were entered into with various potentially responsible parties, some of which were source area specific and did not include Area 4.

1.5 Investigation Activities and Remedial Actions

This section presents a brief summary of previous investigation activities at Area 4, significant findings of the RI, Focused Feasibility Study (FFS) and pre-RA characterization activities, as well as previous RAs conducted.

1.5.1 Historical Investigations

The Phase I Remedial Investigation (RI) for the Southeast Rockford Groundwater Contamination Site was conducted from May to October of 1991 and consisted primarily of a site-wide soil gas survey, monitoring well installation, and groundwater sampling and analysis. Within Area 4, ten soil gas samples were collected, and down gradient monitoring wells were sampled. The results from the Phase I RI sampling indicated that elevated levels of TCA, PCE and TCE were present in the subsurface soils and in groundwater. Based on these results, the Phase II RI activities focused on finding the source areas of contamination within Area 4.

The Phase II activities were conducted from January 1993 to January 1994 and included additional soil gas sampling, installation and sampling of six soil borings and collection of two surficial soil samples. The Phase II results indicated that high concentrations of VOCs, primarily TCA, were present in the subsurface at depths ranging from 8 feet bgs to approximately 30 feet bgs. The Phase II site-wide groundwater investigation conducted concurrently also indicated the same contaminant mix down gradient, confirming that the subsurface in Area 4 was impacting site-wide groundwater. In December 1993, residential air sampling was conducted in Area 4 to determine if the soil and groundwater contamination was affecting indoor air quality in homes near the source. The VOCs detected in the indoor air samples were consistent with those detected in the soil gas but were not found to be present at levels above health-based guidelines.

Additional indoor air sampling was conducted in Area 4 in July 2003 and evaluated using the more recently developed soil vapor intrusion modeling guidelines. This indoor air evaluation indicated that the migration pathways are generally inadequate or incomplete and do not result in indoor air concentrations at levels that present an unacceptable health risk.

1.5.2 Remedial Investigation and Feasibility Study

The RI Report for the site-wide groundwater investigation and source area identification was completed by CDM Smith (CDM Smith 1995) and resulted in the signing of the OU2 ROD which required additional extension of the City of Rockford municipal water system and selected natural attenuation, long-term groundwater monitoring, and source control measures as the remedy to restore the contaminated aquifer. In 2000, the Source Control Operable Unit (SCOU) RI and FFS reports were completed.

The SCOU FFS addressed contaminated soils, non-aqueous phase liquid (NAPL), and leachate considered to be principal threat wastes and the primary causes of groundwater contamination at the four source areas. Alternatives developed in the SCOU FFS were separated into leachate and soil alternatives. In order to simplify the OU3 ROD, technologies intended to contain and/or treat contaminated shallow groundwater in the immediate vicinity of the four primary source areas were considered leachate alternatives.

1.5.3 Pre-Design Activities and Pilot Testing

In order to fill data gaps identified in the SCOU RI/FFS, CDM Smith conducted several pre-design field investigations. In 2004 and 2005, additional subsurface soil and groundwater samples were collected to fully evaluate the extent of free product in shallow soils, determine the horizontal and vertical extent of contaminated vadose zone soils and determine the site related impacts to groundwater at and below the water table. The results of these investigations were used to design the 2005 interim soil removal described in the next subsection.

In 2006, pilot testing was conducted at Area 4 to determine the hydrogeologic properties of the aquifer for input to the treatment system requirements for the RD of the leachate containment system. This pilot testing included the installation of three groundwater extraction wells down gradient of Area 4, aquifer pump testing and pre- and post-pump testing groundwater sampling. The results of the aquifer testing were analyzed and incorporated into the regional groundwater model to simulate pumping scenarios for the RD. The simulations indicated that pumping 45 to 60 gallons per minute would be sufficient to capture the estimated extent of the contaminant plume at Area 4. Based on a pump test, the upper portion aquifer is highly conductive with an estimated hydraulic conductivity of 150 feet per day or 1 X 10^{-2} centimeters per second.

In January 2016, the RA contractor for the soil component of the Area 4 RA conducted a pre-design field study to determine if the electrical resistance heating (ERH) system RD would achieve the remediation goals (RGs) as designed. Using previously collected subsurface soil and groundwater data, the subsurface was characterized and divided into three remediation zones.

- Zone 1 consisted of soil contamination and LNAPL below a portion of the former Swebco building that is a high-bay garage. Significant contamination generally existed between 12 and 37 feet bgs but was closer to the building foundation on the northern end of the garage. It is believed that some waste was deposited in this area prior to construction of the garage.
- Zone 2 consisted of soil contamination and LNAPL in the former loading dock area. Contamination was originally encountered between 0.5 and 37 feet bgs, but the area was subsequently excavated down to 3 feet bgs in 2005. The excavated area was lined with plastic sheeting and backfilled with clean gravel. It is believed that this is the primary location where waste was deposited.
- Zone 3 consisted of the area below the parking lot where significant contamination and LNAPL existed in approximately the top 10 feet of the aquifer. The transition between Zone 2 and Zone 3 was very abrupt indicating the waste deposited in Zone 2 essentially dropped straight down until it encountered the water table and then migrated into Zone 3.

The pre-design field study included a test soil boring in Zone 2, the zone with the highest detected levels of contamination, for Soil Electrical Resistance Testing (SERT) that is described in Section 2.2.

1.5.4 Previous Remedial Actions

An interim soil removal was conducted on September 13, 2005 in the 20 feet by 50 feet area of the former loading dock. Approximately 185 cubic yards of contaminated soils were excavated to reduce the human exposure potential to contamination just below the ground surface. Soils were excavated to a depth of approximately 3 feet bgs and disposed off-site as non-hazardous waste based on the results of previously collected waste characterization samples. The excavation was lined with plastic sheeting and backfilled with clean fill.

Section 2

Source Area 4 Description

This section presents background information on the Site including the following:

- A summary of requirements specified in the OU3 ROD (U.S. EPA 2002) and the ESD (Illinois EPA 2012) including information on cleanup goals, institutional controls (IC), monitoring requirements, operation and maintenance requirements, and other parameters applicable to the design, construction, operation, and performance of the RA.
- Additional information regarding the basis for determining cleanup goals for the Site, including planned future land use and a summary of the remedial design, including any significant regulatory or technical considerations or events occurring during the preparation of the Remedial Design.

2.1 ROD Requirements and Design Criteria

This section describes RA objectives (RAOs), leachate and soil cleanup goals, and a description of the selected remedies for Area 4 leachate and soil components.

Remedy selection was based on the nature and extent of contamination, as well as consideration of the types of and uses of the properties in each area. The remedies described in the OU3 ROD were selected to accomplish the following results: (1) stop on-going contamination of the groundwater, thus protecting the water resources for future generations; (2) ensure that VOCs in soil gas do not move into the basements of nearby residences; (3) protect people from ingestion of contaminated groundwater; (4) reduce the risk of direct contact with contaminated soil or free product beneath the ground surface; and (5) assure the project is in compliance with the OU2 ROD provisions that required controlling sources of groundwater contamination.

Source Control Alternatives developed within the OU3 FFS and discussed in the ROD were separated into leachate and soil alternatives. In some cases, technologies designed to remediate soil, NAPL, and leachate contamination were either not sufficient to protect human health and the environment or were not practical solutions. In these cases, technologies were considered to contain rather than treat the resulting groundwater contamination. In order to simplify the ROD, technologies intended to contain shallow, contaminated groundwater in the immediate vicinity of the four primary source areas were considered "leachate" alternatives.

In general, the leachate and soil remedies were selected to work in together. The leachate remedy was selected as a groundwater containment remedy (hydraulic containment) to contain contaminated shallow groundwater emanating from the source in soil until such time that the soil could be remediated as a source remediation action, followed by whatever period of time necessary to capture any residual contamination in groundwater that had already left the source.

2.1.1 Remedial Action Objectives

Based on RIs and a site-specific risk assessment, RAOs were developed. The following Area 4 RAOs provide a general description of what the RAs for leachate and soil were intended to accomplish:

- Prevent the public from ingestion of soil, and direct contact with soil containing contamination in excess of state or federal standards or that poses a threat to human health
- Prevent the public from inhalation of airborne contaminants in excess of state or federal standards or that pose a threat to human health
- Prevent the further migration of contamination from Area 4 that would result in degradation of site-wide groundwater or surface water to levels in excess of state or federal standards, or that pose a threat to human health or the environment

A number of potential leachate and soil RA alternatives for Area 4 were developed and evaluated based on RAOs, RGs, and comparative evaluation criteria. The detailed comparative analysis of Area 4 remedial alternatives is discussed in detail in the OU3 ROD. Based on the comparative analysis, the remedy selected for Area 4 included ICs, soil excavation with on-site low temperature thermal desorption for the soil component, and hydraulic containment and treatment of leachate for the leachate component.

2.1.2 Selected Remedy and Cleanup Goals

The RA implemented at Area 4 was conducted in two separate stages. The first stage addressed leachate by controlling the off-site migration of chlorinated solvent contamination in groundwater from the source area. Leachate extraction wells were installed downgradient of the main soil source areas for long-term hydraulic containment of leachate. Extracted leachate was pumped to a leachate treatment system consisting of an oil/water separator, air stripper and liquid phase carbon for treatment of leachate and vapor phase carbon units for treatment of the vapor effluent from the system. Subsequently, effluent water was discharged to the concrete-lined drainage ditch immediately north of the treatment system

The second stage of the RA addressed the contaminated soil at the site that was acting as a source. The OU3 ROD for SERGC identified ex situ thermal remediation through excavation and onsite low-temperature thermal desorption as the remedy for the contaminated soils impacting the groundwater at Area 4. As a result of pre-design work, it was established that the volume of soil to be treated was approximately double the original estimate due to significant contamination extending below the footprint of the building onsite. The excavation of the soils beneath the building and excavation to the required depth of approximately 37 feet bgs presented significant construction challenges and increased costs. In addition, the space required to stockpile uncontaminated, contaminated, and treated soil at the same time in a relatively small area presented significant challenges for implementation of an excavation remedy and increased the time required to conduct the remedy due to staging requirements.

Therefore, the Illinois EPA and the U.S. EPA determined that employing ERH, an in situ thermal remedy for the soils, would eliminate these challenges and decrease the cleanup costs. In addition, ERH would be capable of achieving the same or better results with significantly fewer

health and safety hazards to construction workers and the public during implementation. The ESD that altered the remedy was signed by the Illinois EPA on July 23, 2012 and by the U.S. EPA on July 27, 2012.

The specific performance standards required for the implementation of the Area 4 RA included achieving the following RGs established in the ROD and subsequent documentation for Area 4 as shown in **Table 2-1** below.

Table 2-1. Remedial Goals and Discharge Limits

Contaminant	Soil RG	Groundwater RG	Liquid Effluent Discharge
Carbon tetrachloride*	70	5	280
1,1-Dichloroethene	60	7	1
1,1,1-Trichloroethane	9,118	200	390
1,1,2-Trichloroethane*	20	5	12
Trichloroethene	60	5	25
Tetrachloroethene*	60	5	3

Note: All units in parts per billion (ppb)
*Subsequently established remediation goal (RG) (Illinois EPA 2004)

Institutional controls (IC) relevant to Area 4 were established in the OU2 and OU3 RODs and were not changed by the ESD. For Area 4, this consisted of groundwater use restrictions, but no ICs were enacted solely for Area 4. On a site-wide basis, the OU2 ROD groundwater use ICs focused on the limited number of properties that had refused hook-ups to the Rockford water supply system under OU1. The OU2 ROD groundwater use ICs cited formal notifications that could be sent by the Winnebago County Health Department to the property owner that the property had a contaminated water supply well to compel the current or new property owner to subsequently accept connection to the Rockford water supply system. However, because no property owner in the immediate vicinity of Area 4 had refused connection to the Rockford water supply system, this arrangement of notifications was generally not applicable to Area 4.

In the OU3 ROD, a groundwater use restriction IC was an element of each leachate component remedy for each source area. For each source area, the IC would apply to the groundwater management zone (GMZ) that was to be established for that source area. (See Section 2.2.1.1 for a description of a GMZ.) Although not specifically stated in the OU3 ROD, this groundwater use IC was generally focused on the installation of new private supply wells in the immediate vicinity of any source area and was implemented through a Winnebago County ordinance prohibiting the installation of new private supply wells. This groundwater use IC is applicable to the entire SERGC site and will continue to be in effect following completion of the Area 4 RA.

2.2 Remedial Design Summary

The selected remedies for Area 4 leachate and soil are summarized in this section. For the leachate RD, the components of the RD, which included a groundwater management zone (GMZ) and hydraulic containment of control, are defined and discussed.

2.2.1 Groundwater

2.2.1.1 Groundwater Management Zone

Pursuant to 35 Ill. Adm. Code 620.250, Illinois EPA defined a GMZ for Area 4. As defined by Illinois EPA regulations, "a GMZ may be established as a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site." GMZs are used and established for sites undergoing remediation that is approved by the Illinois EPA. **Figure 2-1** shows the boundary of the GMZ and the GMZ monitoring points. The GMZ for Area 4 was approved by Illinois EPA in December 2010.

Volume 1, Section 7.1 of the FFS states, "Groundwater that lies beyond the GMZ of each source is considered part of the site-wide groundwater." During the time needed for remediation of the source areas, groundwater that exceeds the Class I Groundwater Quality Standards may exist below the entire area. The GMZ boundary acts as a location for compliance measurement; however, the actual Area 4 compliance monitoring wells were just downgradient of the GMZ boundary.

The GMZ monitoring network included 9 monitoring wells and the three extraction wells installed as part of the leachate source control RD. The GMZ monitoring was initially conducted quarterly, however after two years of leachate source control system operation, the frequency was adjusted to semiannual.

2.2.1.2 Leachate Source Control

Groundwater modeling conducted following the pre-design aquifer testing activities indicated that either one 60 gpm extraction well or three 20 gpm extraction wells would be the most efficient for capturing the plume. The three-well configuration was selected due to maintenance considerations.

Originally, the entire Area 4 leachate extraction and treatment system (i.e., the groundwater extraction wells and treatment train described above) was to be located on the actual Area 4 property. However, difficulties with obtaining property access caused Illinois EPA to relocate all system components to publicly owned ROWs.

Further, because the proposed treatment system location on the ROW was near several underground utilities, the treatment system was designed as a "mobile" unit that could be quickly disconnected and moved if emergency repairs to the underground utilities were necessary.

The leachate treatment train consisted of an oil-water separator, air stripper, bag filters, and separate carbon units for liquid and vapor streams. The treated liquid effluent was discharged on-site to an adjacent concrete storm water ditch. Liquid effluent was monitored monthly for VOCs to confirm that the leachate was treated to acceptable levels. Vapors stripped from the leachate in the air-stripping unit were directed to on-site granular activated carbon (GAC) units. The effluent vapor stream from the vapor phase carbon unit was monitored monthly to determine that the VOC discharge rate remained below 8 pounds per hour. This portion of the system was bypassed after about a year of operation because the influent vapor stream concentration was consistently below the required discharge rate based on the total VOC concentration of the liquid influent. Institutional controls were placed on groundwater usage

within the GMZ. Several additional monitoring wells were installed for a total of 9 GMZ monitoring wells and three extraction wells and a GMZ monitoring program was implemented as previously described.

2.2.2 Soil

The area containing the subsurface appurtenances associated with the soil RD ERH system was divided into three remediation zones. Zone 1 was 1,350 square feet (sf) in area and located below a portion of the onsite building. Zone 2 was 1,300 sf in area and located adjacent to the building west of Zone 1. Zone 3 was 6,100 sf in area and located west of Zone 2. Zone 3 extended to the west side of Marshall Street.

2.2.2.1 Pre-Design Field Study

On January 12, 2016, TRS was on site to collect continuous soil samples to 36 feet bgs in the center of Zone 2. This is the location of the site where the highest concentrations of TCA had been historically observed and where LNAPL had been previously observed. The soil sample was collected using a direct push rig (Geoprobe 6620) with a dual-tube 21 sampler system. A water sample was collected from the boring location by pushing a 1-inch temporary polyvinyl chloride (PVC) well with 5 feet of 10-slot screen interval. A peristaltic pump was then used to briefly purge and collect a sample from the well. Several attempts were made but no NAPL was observed.

The two soil samples with the strongest odor (from 12 to 16 feet bgs and 28 to 32 feet bgs) were selected for individual testing of percent moisture, wet and dry density, calculated porosity, sieve analysis, and gas chromatograph fingerprinting.

Soil Electrical Resistance Testing (SERT) was conducted by TRS once during the pre-design study and once after electrode installation was complete to obtain the specific electrical resistance of the native soil as measured in ohms. The soil samples collected during the pre-design study ranged between approximately 23 and 47 ohm-meters which was consistent with the 34 ohm-meter value that TRS used in the preliminary design for the ERH system.

TRS conducted additional SERT testing at the site in September 2016 by applying low voltages to the soil volume to determine the resistance of the soil and subsequently confirm the ERH design. Although the resulting SERT data was not provided under a claim of intellectual property, no modifications to the ERH system were made and it is assumed that the results provided enough evidence that the system would achieve the RGs as configured.

2.2.2.2 Electrical Resistance Heating Process

ERH is a process whereby soils and groundwater are heated by creating a voltage gradient to induce current flow through the subsurface volume to be remediated. Electrical energy is introduced to the subsurface at electrodes, and it is the resistance of the soil matrix to the flow of electricity between electrodes that heats the subsurface and eventually boils a portion of the soil moisture into steam. This in situ steam generation occurs in all soil types, regardless of permeability. The heat generated by resistance to the induced electrical current also volatilizes the target contaminants. The in-situ steam generated by ERH acts as a carrier gas to carry VOCs to negative pressure vapor recovery (VR) wells.

From the VR wells, steam and soil vapors were transported via chlorinated polyvinyl chloride (CPVC) plastic piping headers to the ERH condenser where the recovered mixture passed through a vapor/liquid separator and heat exchanger. The condensate generated following the heat exchange was captured and conveyed for subsequent treatment and the extracted air treated using vapor-phase granular activated carbon (VGAC).

Although volatilization is usually the primary removal mechanism for VOCs in conjunction with steam stripping, chlorinated ethanes (such as TCA) can be degraded in place by hydrolysis.

Hydrolysis is a chemical substitution reaction in which hydrogen ions in water react with organic molecules, replacing chlorine atoms. Oxidizing conditions or available oxygen is not required for hydrolysis. Hydrolysis can be a significant degrader of some CVOCs at room temperature; especially halogenated alkanes. The rate of hydrolysis increases with temperature and clay soil types tend to accelerate hydrolysis.

Section 3

Construction Activities

This section provides a summary description of the activities undertaken to construct and implement the SERGC Area 4 RAs. The construction activities are separated into Area 4 leachate and soil component activities.

3.1 Leachate RA Activities

This subsection provides a summary description of the activities undertaken to construct and implement the SERGC Area 4 leachate component RA including mobilization and site preparation, construction and installation of all vaults, pipes, connections, and appurtenances related to the pumping and transfer of groundwater to the treatment unit, construction and installation of groundwater treatment unit, and startup and testing of the groundwater treatment unit. Bodine Services of the Midwest, Inc. (Bodine), formerly Bodine Environmental Services, of Decatur, Illinois, was the RA Contractor for the leachate component RA.

The *Interim Leachate Component Remedial Action Completion Report, Source Area 4, Southeast Rockford Groundwater Contamination Superfund Site*, dated February 2011 (CDM Smith 2011) provides additional details, including backup documentation such as field documentation, test reports, photologs, etc., for the leachate component RA.

3.1.1 Mobilization and Site Preparation

Prior to commencement of major construction activities at Area 4, several activities were conducted, including clearing and grubbing, installation of orange construction fence, installation of silt fence and other erosion control features, installation of the project office trailer, utility locating, and obtaining permits.

3.1.1.1 Site Preparation

Clearing and grubbing activities were conducted at the proposed treatment unit building location at the dead end of Sewell Street on the south side of the concrete drainage ditch. Trees and bushes were removed from the area and disposed offsite.

Portions of the work area limits were defined using orange construction fencing prior to commencement of work. The fencing was placed on all work area limit boundaries along private property and opposite the silt fence (Section 3.1.2 below). Fencing was installed using steel T-posts as support and securing the fence with zip ties.

3.1.1.2 Erosion and Sedimentation Control

Silt fence was installed along the south side of the concrete drainage ditch at the top of slope. The silt fence was originally installed at the top of the ditch along the entire limit of work, except within an area of dense brush and debris that could not be feasibly removed during site mobilization. Upon implementation of work along the drainage ditch, the brush and debris in this

area were removed by heavy equipment excavation. At this time silt fence was installed in the area.

Sediment filter traps were installed in the two stormwater drains on the north end of Marshall Street within the limit of work. The traps consisted of a metal frame sized to fit into the storm drain and geotextile filter fabric secured within the metal frame for sediment filtration. The stormwater drain steel grates were placed over top of the sediment traps for the duration of the work. A similar sediment filter trap was installed at the storm drain at the dead end of Sewell Street on the south side of the concrete drainage ditch (next to the leachate treatment unit).

3.1.1.3 Utility Location and Modification

Prior to commencing construction activities, Bodine contacted the Joint Utility Location Information for Excavators (JULIE) one call entity for marking subsurface utilities throughout the proposed work area. During the remedial design process, utilities had been located and included on the design contract drawings. The onsite utility locate verified the location of utilities included on the design drawings and added locations of additional underground utilities not marked on the design drawings. Upon marking of existing utilities, plans were made for placement of the leachate treatment unit building at the dead end of Sewell Street on the south side of the concrete drainage ditch. However, the City of Rockford requested that the treatment unit building not be placed over existing utilities, in particular, the existing sewer and gas pipelines located in the proposed treatment unit area.

In order meet the City of Rockford's request, Nicor Gas Inc. was contracted by the City of Rockford to modify the location of the existing gas line in conjunction with storm water improvements on Sewell being performed by the City. Starting on September 1, 2009, Nicor Gas Inc. mobilized onsite to install a new gas line parallel with Sewell Street. Excavations were conducted on both ends of the new gas line location to cut the existing pipeline and make the required connections to the new pipeline. The old gas line was abandoned in place. The movement of the gas line to the east allowed enough room for the leachate treatment unit building to be placed as planned, and to avoid placement over the existing city sewer pipeline. Upon completion of the gas line re-alignment work, the old and new gas lines were marked with paint and flagging. Near the proposed treatment unit area, the new gas line was reported to be a least 10 feet below ground surface, according to Nicor Gas site workers.

The gas line re-alignment was completed within an approximate one-week period. After backfilling of the trench on the north end (near the Site office trailer), Nicor abandoned the site without performing any site restoration such as seeding or placement of erosion control. As a result, erosion of backfill material occurred during several heavy rain events, and undermined asphalt at the dead end of Sewell Street.

3.1.1.4 Permits

Prior to commencing construction activities, the Bodine obtained a right-of- way permit to perform work on Marshall Street for a 3-week construction period between August 17, 2009 and September 5, 2009. Under the permit, the portion of Marshall Street within the work area limits was shutdown to through traffic. Road barricades were erected on the north and south sides of

the closed street. For the duration of work, a road closed sign was posted at the north end of Marshall Street at the intersection with Harrison Avenue.

Work was completed on Marshall Street within the scheduled period of the permit and the road was reopened on September 4, 2009. However, the permit period was extended for two additional weeks to allow for work at the well valve vault.

Extension of the construction permit on Marshall Street allowed the RA Contractor to partially or completely close Marshall Street as needed to conduct work in a safe manner near the well valve vault. A building permit was also obtained from the City of Rockford for installing the pre-fabricated leachate treatment unit building. The permit was issued by the City of Rockford on October 6, 2009.

3.1.1.5 Temporary Facilities

A site office trailer was installed on the dead end of Sewell Street on the north side of the concrete drainage ditch. The office trailer was installed in accordance with the Contract Documents (i.e., remedial design drawings and specifications, and RA Contractor submittals). The trailer contained two locking external doors and two rooms with internal door, desk spaces, cabinet storage spaces, a drawing table, refrigerator, heater and air conditioner, drinking water supply, a fax/printer/copy machine, and electrical and telephone connection. A gravel pad was placed as a base for the office trailer. One single-occupant toilet unit was also present onsite next to the office trailer.

3.1.2 Marshall Street Excavation, Trenching, and Backfilling

Work on the closed down portion of Marshall Street was the first major phase of RA construction for Area 4. Commencement of this phase of work began August 18, 2009 and was completed on September 3, 2009 with the placement of new asphalt within the excavation area. This phase of work included excavation of existing asphalt within the entire work area limit, trenching along the extraction wells and up to the well valve vault, pipe and electrical conduit installation, extraction well vault and well valve vault installation, backfilling and compaction, grading and resurfacing, placement of new asphalt pavement, and work area cleanup and seeding.

3.1.2.1 Asphalt Excavation

Excavation of existing asphalt on Marshall Street began on August 18, 2009. This work was conducted in order to access and connect piping to the groundwater extraction wells located on Marshall Street. All excavating and general contractor work was conducted by Packard Excavating, Inc., an RA Subcontractor. Asphalt and a mix of gravel sub-base material were loaded onto trucks and disposed offsite. The initial asphalt excavation work was completed within a one-day period.

All the existing street asphalt was removed from within the original work area limit on Marshall Street, as defined on the Contract Drawings. An additional five to ten feet of asphalt excavation was conducted on the north and south sides of the work area. This additional excavation was completed at the RA Contractors discretion in order to complete the work safely and effectively, and did not affect contract scope, budget, or schedule.

3.1.2.2 Trenching and Well Valve Vault Placement

3.1.2.2.1 Well Valve Vault

The well valve vault was located on the west side of Marshall Street, on the north end of the work area limit. Pressure piping and electrical conduit from each of the three extraction wells entered the well valve vault on the east side. The well valve vault housed an electrical control panel and various equipment for operation of the pressure pipelines (e.g., flow meters, valves, manifold, and sample tap). The well valve vault served as an access point for this equipment. This section describes the installation of the well valve vault structure. Further details on installation of mechanical and electrical components in the well valve vault are provided in Section 3.1.4.

Excavation of the hole for the well valve vault was completed on August 18, 2009. Final grading of the well valve vault excavation floor was completed by hand on the following day, August 19, 2009. Following grading of the excavation floor, the pre-cast concrete well valve vault was set in place. The well valve vault was manufactured and delivered by Rockford Cement Products Co. A truck-mounted hydraulic crane was utilized to lift the well valve vault off the delivery truck and set it into the excavated hole. The well valve vault was lifted by the crane using the four rebar lifting hooks embedded into the pre-cast concrete vault walls. Additional information on construction and specifications for the well valve vault are provided in Section 3.1.4.

3.1.2.2.2 Trench Excavation

Excavation of the trench for process pipe and electrical conduit between the well valve vault and each extraction well was conducted initially on August 19, 2009 using the track-mounted excavator. This work was completed after the installation of the well valve vault. The excavation was started at the east well valve vault wall and was continued easterly into Marshall Street. The trench was then curved gradually to run parallel with Marshall Street along the west side of each extraction well. All sides of each extraction well pipe were exposed using the excavator and also by hand as needed. The entire trench was dug at minimum 4 feet below the original road surface. The trench was sloped gradually down to the well valve vault, where the depth at the vault was approximately 5.5 feet below ground surface. Trench depths were checked by the RA Subcontractor using a survey station (tripod, laser level, level rod, and rod- mounted laser level detector).

3.1.2.3 Process Pipe and Electrical Conduit Installation

This section describes the installation of the process piping and electrical conduit between the extraction wells and the well valve vault.

3.1.2.3.1 Process Pipe and Fittings

Prior to construction activities, CDM Smith, Illinois EPA, and the RA Contractor agreed to use high density polyethylene (HDPE) pipe for process (pressure) pipe and containment pipe, rather than the PVC) pipe specified in the original Contract Documents. Two-inch HDPE pipe was installed as the process pipe and four-inch HDPE pipe was installed as the containment pipe. Sections of 4-inch HDPE pipe were fused as needed using a McElroy Manufacturing Inc. PitBull No. 14 fusion machine. All fusion bonding of HDPE pipe was completed by a certified technician.

Connection of HDPE pipe to each extraction well was completed using a Merrill Manufacturing Company MCKS620 pitless adapter. The internal components of the pitless adapter consisted of a

stainless-steel support bar and pull pipe attached to the brass pitless adapter body. The support bar was cut to the required length for the pitless adapter connection (minimum 4 feet below the top of PVC well casing). The external components of the pitless adapter consisted of a brass discharge hub with O-ring seal on the inside and a 2-inch threaded female pipe connection on the outside. Upon startup of the submersible pumps, positive pressure created suction on both the internal and external O-rings, forming a water-tight seal around the 2-inch diameter hole in the PVC well casing.

Each of the three 2-inch and 4-inch HDPE pipelines entered the well valve vault through holes in the east concrete wall, drilled to approximately one-inch greater diameter than the outside diameter of the 4-inch HDPE pipe. The process piping entered the south room of the well valve vault.

3.1.2.3.2 Process Pipe Pressure Testing

Hydrostatic pressure testing with compressed nitrogen gas was completed on all three 2-inch HDPE pipelines coming from each extraction well into the well valve vault. The influent sides of the HDPE pipelines were temporarily detached from the pitless adapters and capped with a threaded steel cap to complete the testing. The effluent sides of the HDPE lines (in the well valve vault) were connected to a testing apparatus that consisted of the following with appropriate fittings (in said order): 1) 2- inch HDPE pipe flange adapter with reducer to 1-inch brass pipe, 2) 160 pounds per square inch (psi) pressure regulator, 3) ball valve, and 4) gas hose quick connect adapter. Testing was performed in accordance with the specifications as indicated by the following observations:

- Each 2-inch pipeline was pressurized with compressed nitrogen gas up to approximately 150 psi (50% above operating pressure).
- The pipes remained pressurized for a period of up to one hour to monitor for leakage and any change in the pressure reading.
- Leaks were at first observed audibly and then later by spraying soapy water solution on the connections. A slight pressure drop was observed as a result of leaks on the 2-inch/4-inch HDPE flange connections.
- The testing apparatuses were subsequently removed, pipe dope was reapplied to connections, the connections were tightened, and the testing apparatuses were reattached to the pipeline.
- Re-testing was conducted near 150 psi for one hour and no leaks or change in pressure were observed. The testing was considered complete at this time.

3.1.2.3.3 Electrical Conduit

Prior to construction activities, CDM Smith, Illinois EPA, and the RA Contractor agreed to not use the concrete electrical raceway encasement as originally specified in the Contract Documents. Rather, electrical conduit would be laid directly in the trench. The type of conduit used in the trench was Schedule 40 rigid PVC. Ten-foot-long sections were connected with PVC glue between the well valve vault and each extraction well. A total of nine PVC conduits entered into the north

side of the well valve vault through the east concrete wall. There were three conduits that terminated at each of the three extraction wells. At each extraction well end and at the well valve vault entrance, the PVC conduit was converted to galvanized steel conduit. At the extraction wells, each of the three PVC conduits converted to galvanized steel with a 90° elbow. The galvanized steel conduits ran parallel with each extraction well and each of the conduits connected to galvanized steel explosion proof junction boxes (Appleton GR-EFHC Series). At the well valve vault, each of the nine PVC conduits converted to galvanized steel just before entering the vault. Conduit entered the vault through holes in the concrete wall drilled to be approximately one-inch greater diameter than the outside diameter of the 1-inch conduit. Link seals were placed around each of the galvanized conduits to form a water tight seal.

3.1.2.3.4 Backfill and Grading

After the connections were made on each extraction well, limestone gravel pipe bedding was poured along the entire trench bottom. The type of gravel used was a poorly graded limestone gravel, material code CM07. Although approved for use, the type of pipe bedding material used was different than the sand bedding originally specified in the Contract Documents. In addition, clay pipe trench dams were not considered necessary for the pipe backfill, so they were not used as specified in the Contract Documents. These field order changes were agreed upon between CDM Smith, Illinois EPA, and the RA Contractor during implementation of the RA.

The electrical conduit was installed on the additional limestone gravel bedding layer above the foam board insulation. The electrical conduit was graded to slope towards the well valve vault using a level. Once the electrical conduit grade was set, additional limestone gravel was placed over top of the conduit (approximately 3 to 4 inches). The remaining backfill above the piping and electrical conduit is described in Section 3.1.2.5 below.

3.1.2.4 Extraction Well Vault Installation

After backfill work was conducted over the process pipe and electrical conduit (described above), each extraction well vault was installed. Each extraction well vault consisted of the following specifications:

- Pre-cast concrete footing: 4,000 psi minimum strength; 60 inch outside diameter; 24 inch inside diameter (open hole); 7 inches thick. Manufactured by Rockford Cement Products Co.
- Pre-cast concrete riser barrel: 4,000 psi minimum strength; 36 inside diameter, 5-inch-thick wall, 24 inch high. Manufactured by Rockford Cement Products Co.
- Steel manhole frame and watertight cover (with gasket seal), Model 1585: 36 inch outside diameter at top; 34 inch inside diameter at cover; 45 inch outside diameter at bottom; 8.5 inch tall. Manufactured by East Jordan Iron Works.

3.1.2.5 Additional Backfill and Compaction

3.1.2.5.1 Trench Backfill and Compaction

After each of the extraction well vaults were set in place and the 3 to 4-inch layer of limestone gravel was placed over the electrical conduit, all remaining backfill and compaction in the trench was completed. Excess limestone gravel stockpiled on the south side of the trench area was

placed into the trench on the south side around EW- 3 and sloped down towards EW-2. At EW-3, the level of limestone gravel was above the top of the well vault concrete footing. This was the only one of the three extraction well vaults that had additional limestone gravel placed around the concrete footing. Excess limestone gravel stockpiled on the north side of the trench area was placed into the trench on the north side near the well valve vault and at the bend in the trench.

The remainder of the trench was backfilled with a well graded sandy common fill above the limestone gravel. The IDOT material code for the sandy common fill is FA06. After the first approximately 6- to 12-inch sand lift was placed and compacted, buried electric line caution tape was placed along the entire trench above the process pipe and electrical conduit run. Additional lifts of sand were placed and compacted above the caution tape up to the elevation at 12 inches below the bottom of the permanent paving.

3.1.2.5.2 Road Gravel Base Backfill, Compaction, and Grading

After enough backfill and compaction of the trench area, additional existing road gravel base was removed from the entire road area adjacent to the trench. This additional material was removed by the RA Subcontractor to create a graded road surface and did not impact construction cost. Existing road gravel was excavated and stockpiled near the treatment unit area for use as fill around the treatment unit.

Surveying of the road area was conducted, and the road grade was adjusted accordingly to achieve proper drainage towards the north stormwater drains and to ensure drainage away from each extraction well vault manhole. Several grade stakes were placed along the east and west edges of the road and were marked with the 12-inch layer of road gravel base, the 1.5-inch asphalt binder course, and the 1.5-inch asphalt top course. Even 4- to 6-inch lifts of road gravel base were placed on the entire road area. A well graded gravelly sand was used for the road gravel base, material code CA06.

3.1.2.5.3 Compaction Density Testing

Compaction density testing was completed at two phases of the backfill process: during the trench backfill phase and the road gravel base layer phase. The Contract Documents specified the following frequency of testing:

- In Streets (upper foot): 1 test per 6-inch lift at a minimum of 3 locations
- In Streets (18 inches and deeper): 1 test per 12 inches at a minimum of 3 locations

The requirement to perform a set of density tests at each 12-inch compaction lift within the trench was not considered necessary for the RA; therefore, only one set of tests were performed for the trench backfill material. This set of tests was considered representative of the compaction density for the remainder of the compaction lifts.

The first set of compaction density tests were performed at three locations of the compacted sandy trench backfill at approximately 6 to 12 inches below the road gravel base bottom elevation. This testing was considered to meet the requirement for street areas at 18 inches below grade or deeper. The three areas tested were as follows: test 1 between EW-1 and EW-2, test 2 to the north of EW-1, and test 3 between EW-1 and EW-2 but closer to EW-2. Testing was

performed using a nuclear gauge between depths of 6 inches to 24 inches below the compacted surface. Results of the testing passed the specification compaction requirement of greater than 95% of maximum dry density.

The second set of compaction density tests were performed at three locations of the compacted road gravel base at approximately 6 inches below the asphalt binder course elevation. This testing met the requirement for street areas at 12 inches below grade. The three areas tested were as follows: test 1 between EW-3 and EW-2, test 2 between EW-2 and EW-1, and test 3 to the north of EW-1. Testing was performed using a nuclear gauge at a depth of 6 inches. Results of the testing passed the specification compaction requirement of greater than 95% of maximum dry density.

3.1.2.6 Stormwater Drain Modification

Per the City of Rockford's request and in order to set the proper drainage gradient, the elevations of the two stormwater drains on Marshall Street were modified (north end of the work area). This work was outside of the scope of work for the RA but was completed by the RA subcontractor with no significant added cost.

The stormwater drain on the west side of the street was lowered one brick level (approximately 3") and the stormwater drain on the east side of the street was raised one brick level (approximately 3"). The existing steel lids and bases for the stormwater drains were removed. On the west side, one layer of existing bricks was chiseled and hammered out of place. Some extra brick was removed accidentally, but mortar was added to set the proper level. The outside edges of the steel bases for both stormwater drains were also mortared in place. All concrete debris was removed from the bottom of the sewer drains upon completion of the work and the steel grates and sediment filter traps were set back in place.

3.1.2.7 Asphalt Pavement

The edges of the existing asphalt pavement surface on the north and south ends of the work area were smoothly cut with a walk-behind or hand cutting saw. Following final grading as described in Section 3.1.2.5, a new asphalt pavement was laid in accordance with the Contract Documents. The asphalt consisted of a 1.5-inch binder course and a 1.5-inch top course.

3.1.2.8 Work Area Cleanup Seeding

3.1.2.8.1 Marshall Street Right of Way Areas

The right of way along the west side of Marshall Street was re-graded and restored upon completion of the asphalt work. Lowering of the northwest stormwater drain resulted in a change in grade and road elevation along the west side of Marshall Street. This resulted in a need to re-grade the right of way slope.

The right of way between the south end of the work area limit and the electrical pole was sloped to approximately 3:1 (horizontal to vertical), and additional topsoil was added to the area as needed. Topsoil stockpiled from the cross-country pipe trench to the west of the well valve vault was used as topsoil for the Marshall Street right of way area. After enough topsoil application and grading, grass seed mix was hand broadcast and loose straw mulch was added to the entire area. The grass seed mix was selected as a fall planting blend, which was determined to be more

appropriate than the seed mix specified in the Contract Documents. The following are specifications for the seed mix:

- 34.00% Rival™ Brand Annual Ryegrass
- 33.87% Tonga Tetraploid Perennial Ryegrass
- 31.00% DUO Festulolium
- 0.12% other crop
- 0.90% inert matter
- 0.11% weed seed (not noxious weed seed)

After installation of the well valve vault cover, restoration of the right of way and areas around the well valve vault was completed. Limestone gravel was added beneath and around the well valve vault covers drain pipes. Stockpiled topsoil from the cross-country trench excavation was then backfilled around the well valve vault. Additional topsoil used for restoration was brought from an offsite location by the RA Subcontractor. The layer of topsoil was at a minimum depth of 4 inches as specified in the Contract Documents.

Grading on each of the four sides of the well valve vault was completed to match surrounding conditions. Slope grading on the east side of the well valve vault was limited by the elevation of the stormwater drain. Since this drain was lowered by approximately 3 inches, the grade on the east side of the well valve vault was steeper than expected. After all grading was completed seed mix was hand broadcast throughout the restoration area. Erosion control blanket was placed on most of seeded areas (i.e., north, east, and south sides of well valve vault). Erosion control blanket was secured with 6-inch landscape metal staples. Loose straw was placed on the seeded area to the west of the well valve vault.

3.1.3 Extraction Well Equipment Installation

3.1.3.1 Extraction Well Installation

As part of the pilot testing fieldwork activities conducted in July and August of 2006, the three groundwater extraction wells (EW-1, EW-2, and EW-3) were installed in Marshall Street, approximately 200 feet northwest and downgradient of the former loading dock at Area 4. The extraction wells were installed using sonic drilling methods by CDM Smith's drilling subcontractor, Boart Longyear of Schofield, Wisconsin. Each well was installed to a depth of approximately 60 feet below ground surface (bgs). They were installed within Marshall Street along a north-south trending line, approximately 28 feet apart and downgradient of the source area. The wells were placed east of the center line of the road to avoid a sewer line that runs down the middle of the street.

During drilling operations, soil was continuously sampled using a 10-foot long core barrel and logged by CDM Smith's field geologist in accordance with the United States Classification System (USCS). Soil was field screened using a photoionization detector (PID) and all readings were noted on the soil boring logs. To ensure that the extraction wells were sufficiently productive for aquifer testing and for future use as part of a permanent groundwater extraction system, they

were constructed of 6-inch diameter, schedule 80 polyvinyl chloride (PVC) well casing with a 35-foot screen comprised of #80-slot, V-wire wrapped PVC, manufactured by Johnson Screens Inc. of New Brighton, Minnesota.

Each extraction well was developed with a pump and surge technique. The wells were mechanically surged using a Smeal® development rig with a 6-inch fitted surge block. Surging occurred in 3-foot lifts for the entire length of each screen. After surging, sediment that was drawn into the well was removed with a bailer and wells were resurged as necessary. The wells were then pumped at approximately 30 to 40 gallons per minute (gpm). The pump was moved up and down the screen interval at each well and continued until the purged groundwater appeared clear and free of fine sediments. Development activities produced approximately 15,000 gallons of purge water. The water was stored onsite in a 21,000-gallon steel frac tank and was treated with a temporary treatment system prior to release to the concrete-lined ditch northwest of Area 4.

3.1.3.2 Extraction Well Equipment Installation

Each extraction well was equipped with the following major components, which are described below:

- Well packer
- Submersible pump and shroud
- Submersible water level transducer
- Level switches

On October 29, 2009, well packers were placed in each well at a depth of approximately 42 feet bgs with the screened interval below the packer remaining open. The intent of setting well packers at this depth was to target the upper, contaminated portion aquifer for pumping and contaminant removal. Each packer assembly consisted of two, flexible vinyl packers (model no. P425L) manufactured by Griffitts Well Packers. The packers were "stacked" one on top the other and connected with 4-inch PVC. A bushing was installed on the top packer to facilitate removal of the packer assembly with a rod, if necessary. The packer arrangement differed from the Contract Documents, which specified an inflatable packer, because the pressure required to inflate the packer could potentially damage the screen.

Following installation of the packer assembly at each well, a submersible pump was placed in each extraction well with the pump intake at an approximate depth of 37 feet bgs. The pumps installed were 4-inch diameter Grundfos model number 25S10-7 capable of pumping between 18 and 32 gpm. Further, to ensure proper cooling of the pump under operating conditions, each pump was placed within a "shroud" that consisted of a 4-foot length of 4-inch diameter PVC screen. Placement of the submersible pump within the shroud was not specified in the Contract Documents; however, this addition did not add any significant cost to the RA construction. Finally, a discharge tube consisting of schedule 80 PVC was attached to the pump.

Transducers and water level probes were installed in each extraction well on November 17, 2009. The transducers installed are Global Water WL400 Water Level Sensor. Each transducer was set at approximately 32 feet bgs.

Three Gems Sensors ATB3 water level switches were installed in each well to control operation of the pumps in case of low water level conditions that could result in damage to the submersible pumps. The level switches were installed at the following depths:

- Low level switch at 35 feet bgs (2 feet above the pump inlet)
- Neutral level switch at 33 feet bgs (4 feet above the pump inlet)
- High level switch at 30 feet bgs (7 feet above the pump inlet

3.1.4 Well Valve Vault

Description of trenching, placement of the well valve vault structure, and connection of piping and electrical conduit to the well valve vault were provided in Section 3.1.2. This section presents the details of installation of equipment and electrical components in the well valve vault, as well as the specifications for the well valve vault structure and lid.

3.1.4.1 Structure and Lid

Concrete used to manufacture the well valve vault had a minimum strength of 4,500 psi. The well valve vault floor and walls were constructed using #6 rebar on 12-inch vertical and horizontal centers. The interior of the well valve vault consisted of two rooms separated by a center concrete wall 6 inches wide. The south room contains the pressure piping and equipment and the north room contains the electrical components and control panel. The interior dimensions of each well valve vault room were 4 feet by 6 feet. All walls and the floor of the well valve vault were 6 inches thick. The walls were 6 feet high on the interior. Pressure piping and electrical conduit entered the vault through the 4-foot long wall sides.

The well valve vault lid consisted of two aluminum access hatches set in a pre-cast concrete base. The access hatches were manufactured by Haliday Products, Inc. and the pre-cast concrete base was manufactured by Rockford Cement Products Co.

The concrete base was cast with the access hatches set in place by stainless steel anchor bolts. The rubber gasket around the exterior of the access hatch frame provided a water tight sealed structure. Concrete used to manufacture the well valve vault base had a minimum strength of 4,500 psi and was formed using #6 rebar on 12-inch vertical and horizontal centers. The concrete base was 6 inches thick and had exterior dimensions of 72 inches by 114 inches. The concrete base also had a center concrete divider that sets on the center concrete wall of the well valve vault. The entire lid structure (concrete base and access hatches) was set onto the well valve vault structure using a lifting crane. Mastic was placed between the well valve vault and lid structure along all perimeter contacts.

The inside of each well valve vault room was accessed by steps installed on the west walls (three steps on each wall). The steps were constructed of grade 60 steel encased in polypropylene coating and have a treaded grip top surface. The steps were set in place when the well valve vault

was cast. Steps were set into the wall by a distance of 3 3/8 inches and protrude from the wall by 5 ¾ inches. The steps were 12 inches wide.

Round sumps in each side of the well valve vault were originally constructed of fiberglass, with dimensions of 18-inch interior diameter by 24 inches deep. As a result of construction deficiencies described in Section 3.2.2 (vault flooding and subsequent pumping through sump holes) the fiberglass sumps were replaced with cast in place concrete set by a form. The form was constructed using a standard 5-gallon plastic bucket, with dimensions of 11 ½ inches diameter by 14 ½ inches deep. See Section 3.2.2 construction deficiencies for further details on injection of concrete beneath the well valve vault and casting the concrete sumps.

3.1.4.2 Process Pipe, Fittings, and Equipment

Each of the three 2-inch and 4-inch HDPE pipelines entered the well valve vault through holes in the east concrete wall, drilled to be approximately one-inch greater diameter than the outside diameter of the 4-inch HDPE pipe. The 4-inch HDPE pipe terminated (open draining) on the inside of the well valve vault. Link seals (Link- Seal® LS-300) were placed around each 4-inch HDPE pipe, which provided a water tight seal around the pipe.

Inside the well valve vault, the 2-inch HPDE pipe was converted to Schedule 80 PVC pipe. Class 150 HDPE flanges were used to connect the influent 2-inch HPDE lines directly to the flow meters. A steel bolt ring was fed onto the 2-inch HDPE influent pipes and the HDPE flange components were fused to the influent HDPE pipes. The type of steel bolt rings was Design Flow® convoluted ductile iron 2-inch IPS bolt rings, manufactured by Independent Pipe Products, Inc. PTFE type gaskets were used for each flange connection.

The flow transmitter housing units were installed on the electrical side of the well valve vault. Manufacturer installed wiring on the flow meters was fed through a small hole in the 6-inch-thick divider wall. Details on electrical connections for the flow meters are provided in the section below on well valve vault electrical.

On the effluent side of the flow meters, Class 150 Van Stone Style PVC flanges connected to the 2-inch schedule 80 PVC pipe. After approximately 5 inches of PVC pipe, 2 inches to ¾ inch schedule 80 PVC reducing tees were installed for connection of the sample ports and pressure gauges.

Vertical ¾ inch schedule 80 PVC riser pipes were installed on each reducing tee, followed by ¾ inch schedule 80 PVC tees, which connected to each sample port and pressure gauge. The sample ports were stainless steel sink faucet valves with ½ inch NPT male inlet and four arm handles. The top side of the ¾ PVC tees was attached to 100 psi maximum pressure gauges via ¾ inch schedule 80 PVC riser pipes and lab ball valves.

A one to two-inch section of 2-inch schedule 80 PVC was installed on the effluent side of each reducing tee, followed by the 2-inch schedule 80 PVC butterfly check valves. The butterfly check valves had flanged influent and effluent connections and a Viton® o- ring material. A three to four-inch section of 2-inch schedule 80 PVC was installed on the effluent side of each butterfly check valve, followed by the two-inch schedule 80 PVC wafer butterfly valves. The wafer butterfly valves were a lever handle type and they also had flanged influent and effluent connections and a Viton® O-ring material.

On the effluent sides of the wafer butterfly valves (flanged connection), additional schedule 80 PVC and fittings were installed to connect all three pipes to one influent pipe for the treatment unit. Schedule 80 PVC tees and an elbow were used to complete these connections. Note that all piping (from the flow meters past the wafer butterfly valves) was secured to the concrete floor using pieces of Unistrut bolted to the floor. Unistrut straps were placed around the piping to secure the piping.

After the junction on the three influent pipes, the single process pipe is attached to another sample port and pressure regulator with the use of a 2-inch to ¾ inch schedule 80 PVC reducing tee. The sample port and pressure regulator are installed in the same manner as described above for each influent pipeline. Following about five to six inches of additional schedule 80 PVC, the final wafer butterfly valve is installed. The specifications for the wafer butterfly valve are the same as described above for each influent pipeline.

The effluent side of the wafer butterfly valve is attached to a Class 150 HDPE flange. As for the influent HPDE pipelines, a steel bolt ring was fed onto the 2-inch HDPE effluent pipe and the HDPE flange component was fused to the HDPE pipe. This connection completes the PVC pressure piping system in the well valve vault and converts the piping back to 2-inch HPDE for connection to the treatment unit. The setup of the effluent side double containment 4-inch HDPE pipe is the same as for the influent pipes to the well valve vault. The 4-inch HDPE pipe open drains through the west wall and is secured using link seals (Link-Seal® LS-300).

3.1.4.3 Electrical

Nine PVC conduits from the well vaults convert to galvanized steel just before entering the vault. Conduit enters the vault through holes in the concrete wall drilled to be approximately one-inch greater diameter than the outside diameter of the 1-inch conduit. Link seals were placed around each of the galvanized conduits to form a water tight seal.

Handholes were not installed in the instrumentation and control conduits as shown on the Contract Documents. Instead, each instrumentation and control conduit was installed as a dedicated "home run" between each well vault and the valve vault. Conduits are pitched to allow drainage away from the wells.

3.1.5 Cross-Country Process Pipe and Electrical Installation

This section describes the installation procedures and specifications for cross-country pipe and electrical conduit and wiring between the well valve vault and the treatment unit. Piping and electrical connections at the well valve vault are described in Section 3.1.4 above. Piping and electrical connections at the treatment unit are described in Section 3.1.7 below. The as-built site plan showing the cross-county routing of the process pipe and electrical conduits are included in the **Appendix A**.

3.1.5.1 Process Pipe

3.1.5.1.1 Process Pipe Installation

Process pipe was installed cross-country between the well valve vault and the treatment unit by directional boring. Directional boring was the chosen method of installing cross-country pipe, rather than trenching, due to the limited space for excavator work and the long distance required

(greater than 350 feet). Piping was installed in a southwest-northeast trend along the south side of the concrete drainage ditch, as specified in the Contract Drawings. Prior to starting directional boring, trenches were excavated on both ends of the piping run to intercept the boring. A directional boring unit was set up on the southwest side of the piping run, near the treatment unit area. Prior to starting the boring, surveying of the top surface of the pipe run was performed in order to determine the minimum required directional boring slope to maintain the 4-foot depth of piping.

Directional boring and pulling of the 4-inch containment pipe and 2-inch process pipe was completed in one day. Directional boring was terminated within a trench to the southwest of the well valve vault. A steel pulling rod with HDPE pipe attachment was fused to the 4-inch HDPE pipe and attached to the drill head. The directional boring machine was then used to pull the 4-inch HPDE pipe through the directional boring hole. For connection to the treatment unit, the process piping had to achieve a 90 degree turn to come up through the floor of the treatment unit building. Rather than install 90-degree elbow fittings on the HDPE, the piping was bent gradually up to the treatment unit building floor area. As result, some piping had to be placed above the 4-foot depth requirement. As such, this section of piping was insulated with foam insulation and a sleeve jacket, as specified in the Contract Drawings.

3.1.5.1.2 Trench Backfill and Compaction

The trench on the northeast end of the directional boring (adjacent to the well valve vault) was initially backfilled with approximately three 1-foot lifts of sandy common fill (FA06). Compaction of backfill lifts was completed using the walk-behind diesel plate compactor (approximately 1,000 lbs. operating weight). Trench spoils were then placed and compacted above the sandy common fill. The remainder of the trench was backfilled with poorly graded limestone gravel (CM07) up to the electrical conduit grade (minimum 2 feet below ground surface).

The trench on the southwest end of the directional boring (adjacent to the treatment unit) was backfilled with trench spoils from the excavation. Compaction was not completed on this backfill, except for rolling the top surface with the track mount excavator.

3.1.5.1.3 Process Pipe Pressure Testing

Hydrostatic pressure testing with compressed nitrogen gas was completed on the 2- inch HDPE pipe between the well valve vault and treatment unit. The effluent side of the HDPE pipe was still capped with the pulling rod. The influent side of the HDPE pipe (in the well valve vault) was connected to a testing apparatus that consisted of the following with appropriate fittings (in said order): 1) 2-inch HDPE pipe flange adapter with reducer to 1-inch brass pipe, 2) 160 psi pressure regulator, 3) ball valve, and 4) gas hose quick connect adapter. Testing was performed in accordance with the specifications as indicated by the following observations:

- The 2-inch line was pressurized with compressed nitrogen gas up to approximately 150 psi (50% above operating pressure).
- The pipe remained pressurized for a period of up to one hour to monitor for leakage and any change in the pressure reading.

- No drop-in pressure was noted during the hour testing period and so no leaks were observed. The testing was considered complete after the hour period.

3.1.5.2 Electrical

3.1.5.2.1 Construction and Handholes

Four runs of electrical conduit between the well valve vault and treatment unit were installed after the directional boring for process piping was completed. Using a small track mount excavator, a 2-foot wide by 2-foot deep trench was excavated between the well valve vault and the treatment unit area. At approximately half the distance along the trench excavation, a significant amount of trash debris was encountered that had to be removed, including concrete rubble, stumps and roots, and miscellaneous trash. This material was removed from the excavation area and disposed offsite.

Four runs of schedule 40 rigid PVC electrical conduit, including one spare, were installed directly on the trench bottom. Connections to the previously installed conduit at the well valve vault north wall were made first, followed by ten-foot sections connected with PVC glue. Two electrical handholes were installed between the well valve vault and the treatment unit. The handholes were installed at approximately one-third and two-thirds the distance of the cross-country electrical and piping run. Handholes are 24-inch by 24-inch Polymer Concrete (Quazite) boxes, with a removable top that is bolted and has a water sealing gasket.

3.1.5.2.2 Trench Backfill and Compaction

The electrical conduit trench was initially backfilled with approximately 3 to 6 inches of poorly graded limestone gravel (CM07), followed by the buried electric line caution tape, and then another 3 to 6 inches of limestone gravel. Trench spoils were placed above the gravel layer up to grade. Compaction and grading were completed with the small wheel loader. Wiring

After completion of the underground conduit installation, power and control wiring were pulled into the conduit. Two conduits contain power feeders, installed using type THHN/THWN wire: A common power feeder to the extraction wells and a power feeder to the well valve vault freeze protection. A 6-strand multimode fiber optic cable was installed in the third conduit for controls communication. A nylon pulling rope was installed in the fourth conduit, designated as spare.

3.1.6 Construction of Treatment Unit Foundation

Backfill that was previously placed and compacted in the treatment unit foundation area was removed and stockpiled (approximately 18 inches of material). The corners and sides of the treatment unit foundation were then surveyed, staked, and string lines were snapped to the corners. The 4-inch and 2-inch HDPE pipe protruding up into the treatment unit area was used as a boundary condition to determine the orientation and placement of the treatment unit foundation. One 6-inch lift road gravel base (CA06) was placed and compacted beneath each of the concrete anchor pad areas for the foundation.

After the initial compaction, surveying was conducted to determine the bottom grade elevation of each of the concrete anchor pads. Additional gravel was added and compacted on the footing areas to achieve a consistent and level elevation between the three anchor pads. Once the gravel base elevations were set, the forms were constructed for the 18-inch by 18-inch concrete anchor

pads. Forms and rebar were constructed in accordance with the Contract Drawings and Specifications. Four No. 5 rebar strands were installed along the length of the anchor pads at each corner of the block. Square sets of No. 3 rebar strands were then installed perpendicular to the No. 5 corners at 18-inch centers along the length of the anchor pads.

After setting of the rebar and forms, a final grading check was checked on the forms, and elevations were adjusted using wood shims. Once elevation was set, concrete was poured into each of the forms. Concrete was poured into the forms and worked into place using a hand-held vibratory mixer along the entire length of each concrete pad. Finish trowels were then used to smooth the surface of each anchor pad.

Testing of the concrete used in the foundation forms was conducted in accordance with the Specifications. The following tests were conducted along with some of the results:

- Slump Test: 2 inches
- Air Content: 3.7%
- Temperature: 69 degrees F
- Air Temperature: 50 degrees F

Created one set of compressive strength cylinders, one 7-day, one 14-day, and two 28-day cylinders. Compressive strength numbers are as follows:

- 7-day: 4,270 psi
- 14-day: 5,250 psi
- 28-day: 5,910 and 5,790 psi

Copies of the concrete test results are provided in the leachate component RA report.

Following removal of the concrete forms, the remaining foundation areas (in between the anchor pads) were backfilled and compacted with CA06 road gravel up to the grade of the anchor pads. The concrete foundation areas were coated with epoxy to protect them from chemical spills. The remaining work for installation of the treatment unit and attachment to the concrete anchor pads is provided in Section 3.1.7.

3.1.7 Installation of Treatment Unit

The treatment unit was delivered to the site on a flat-bed trailer and hoisted into place with a crane. The treatment unit was manufactured by Maple Leaf Equipment (MLE) in general accordance with the Contract Documents. The as-built layout of the treatment unit is included in **Appendix A**.

Exact placement of the treatment unit was dictated primarily by needing to “thread” the process pipe influent line sticking up from the ground through a one foot by one-foot hole in the treatment unit floor; however, the treatment unit was also placed securely on the concrete anchor pads. Following placement, metal shims were inserted between the bottom of the treatment unit

frame and the concrete anchor pads to level the treatment unit. Over the course of the next month, electrical and mechanic connections to the treatment unit were implemented. All connections were made in general accordance with the Contract Documents.

During the initial start-up period, various activities were conducted including testing, programming, inspection of mechanical connections, and training. All activities were performed in accordance with the Contract Documents and the start-up procedures provided by MLE. Minor leaking was observed at the connection to the lead liquid phase carbon vessel and was fixed. Samples for performance testing were collected during full scale startup operations.

3.1.8 System Modifications

Two significant modifications were subsequently made to the based on operational history as described in this section.

3.1.8.1 Iron Treatment System

After several weeks of operation, it became apparent that iron-related bacteria (IRB) were degrading system performance. The first evidence was that bag filters in the treatment unit had to be changed every two to three days and were coated with an orange material. Subsequently, iron fouling of the lead liquid-phase carbon vessel was observed.

In order to control the formation of the iron slime in the system, a temporary iron treatment system was installed on the system as a pilot test. The iron treatment system used Analytix Technologies AN-400 antiscalent and Tolcide PS-70A microbiocide injected into the influent process line as it enters the treatment unit. Based on the successful outcome of the pilot test, a permanent iron treatment system was installed beginning September 14, 2010. The iron control system consisted of two LMI Milton Roy E701-468SP chemical metering pumps injecting the AN-400 antiscalent at a rate of 0.8 gallons per day (gpd) and the PS-70A microbiocide at a rate of 0.5 gpd.

3.1.8.2 Treatment Unit Piping Insulation

During early summer 2010, extended periods of humid conditions resulted in significant condensation forming on the various pipes and pieces of process equipment that carry or contain process water in the treatment unit. The condensation eventually dripped onto the floor resulting in several millimeters of standing water on the floor of the treatment unit. Because the floor of the treatment unit is wood and prone to rotting, it was determined that all process piping, and equipment should be insulated to reduce the formation of condensation.

Armacell Armaflex 1-inch insulation was applied to all process equipment and 1-inch Armacell Armaflex pipe insulation with a vapor barrier jacket on the piping.

3.2 Soil RA Activities

This section provides a summary description of the activities undertaken to construct and implement the Southeast Rockford Area 4 ERH RA including mobilization and site preparation; construction and installation of all MPE electrodes, monitoring points, conveyance pipes, connections, appurtenances related to the connection between MPE electrodes, and the VR

system; startup; and testing of the ERH system and VR system. TRS Group, Inc. (TRS), of Broadview, Washington was the RA Contractor for the soil component RA.

The *Soil Component Remedial Action Completion Report, Source Area 4, Southeast Rockford Groundwater Contamination Superfund Site*, dated December 2017 (CDM Smith 2017) includes additional detail, including backup documentation such as field documentation, test reports, photologs, etc., for the soil component RA. However, a figure showing the ERH system layout from TRS' final report is provided in **Appendix A.**

3.2.1 Mobilization and Site Preparation

Prior to commencement of major construction activities at the Site, several activities were conducted, including trimming of trees, installation of orange construction fence, placement of the project office trailer, utility locating, and obtaining permits.

3.2.1.1 Site Preparation

Before work started at the site, a temporary security fence was erected around the site. This was later replaced with a permanent chain link fence and vehicle gate. After the fencing was installed, an existing interior loading dock on the western side of the building was removed so that MPE electrodes could be installed in the area. The broken concrete removed from this area was stockpiled inside of the existing building on site.

3.2.1.2 Utility Location and Modification

Prior to commencing construction activities, TRS contacted the JULIE one-call entity for marking subsurface utilities throughout the proposed work area. TRS also used another subcontractor, Blood Hound Underground Utility Locators to mark private utilities located on the site. During the remedial design process, utilities had been located and included on the design contract drawings. The onsite utility locate verified the location of utilities included on the design drawings.

Alongside the utility locate, ground penetrating radar was used to scan over each boring location in the treatment area.

3.2.1.3 Building Preparation

Before construction activities commenced, TRS made sure the existing building on site was secure in order to prevent unauthorized access to the building during construction and operations. This work included boarding up a broken window, placing locks on all entrance doors, and placing a lock on the inside of the garage door located on the south end of the building. Although unauthorized access to the building interior was noticed during the RA, it did not result in any impact to the RA.

3.2.1.4 Permits

Prior to commencing construction activities, TRS obtained a Right of Way Permit (Permit #: ROW20161344) to perform work on Marshall Street. Under the permit, the portion of Marshall Street within the work area limits was shutdown to through traffic, but still accessible to residents that lived within the area. TRS obtained road barricades from Traffic Services, Inc., that were erected on the north and south sides of the closed street and temporary fencing, consisting of 6-foot high stand fence held in place with sand bags, was placed around the work area to keep

unauthorized personnel from entering the work area. For the duration of work on Marshall Street, a road closed sign was posted at the north end of Marshall Street at the intersection with Harrison Avenue as well as detour signs that notified residents of an alternate route.

Work was completed on Marshall Street within the scheduled period of the permit and the road was reopened on September 9, 2016.

An electrical permit was also obtained by TRS. This permit allowed for the electrical connection from the power control unit (PCU) to the Commonwealth Edison electrical pole that was installed on site. TRS did not retain a copy of the electrical permit in its records.

3.2.1.5 Temporary Facilities

A mobile site office trailer was placed by TRS at the south end of the existing building located on site. This trailer remained on site for the duration of the RA and was removed after remediation was complete. The trailer contained two locking external doors, work bench, cabinet storage spaces, and electrical connection. Temporary fencing was erected around the work area located in Marshall Street and was removed when permanent fencing was installed after completion of construction activities in Marshall Street.

3.2.2 Installation of Multi-Phase Extraction Electrodes, Vapor Piezometers, Groundwater Monitoring Piezometers, and Temperature Monitoring Points

This section summarizes construction activities associated with the installation of MPE electrodes and monitoring points at the site. Field activities associated with the RA were initiated on July 5, 2016. Drilling and installation of the electrodes and various monitoring points was performed by subcontractors Terra Probe Environmental, Inc. (Terra), of Ottawa Lake, Michigan and K&S Engineers, Inc. (K&S), of Highland, Indiana. Subsurface installations included 39 MPE electrodes, 8 vapor piezometers (VPs), 7 temperature monitoring probes (TMPs), and 8 groundwater monitoring probes (GWPs).

Prior to the start of construction of the ERH system, on February 2, 2016, TRS requested that all electrodes and monitoring points that were not located in Marshall Street be installed above grade instead of the proposed below grade design. On April 27, 2016, CDM Smith and the Illinois EPA approved this change and authorized TRS to construct all MPE electrodes and monitoring points not located in Marshall Street above grade.

During the drilling and installation phase, GMZ multi-level monitoring well MLW01 was abandoned on August 29, 2016. because it was a PVC-cased monitoring well within the thermal treatment zone would have caused damage to the well. The original location of MLW01 was in approximately the same location as current monitoring well MW-408A, which was subsequently installed on May 19, 2017 as a replacement for MLW01.

3.2.2.1 Multi-Phase Extraction Electrode Installation

Terra used a Geoprobe 6620 track-mounted rig to install MPE electrodes and monitoring points inside of the existing building on site and K&S used a Diedrich-120 truck-mounted drilling rig to install the remaining MPE electrodes and monitoring points outside of the building. Both

subcontractors installed both MPE electrodes and monitoring points in a similar fashion. Except for boreholes located near suspected subsurface utilities, a pilot hole was advanced to 5 feet bgs with an 8.25-inch inside diameter (ID) hollow-stem augers (HSA) with a center plug on a 3-inch diameter rod. The HSA, with a wooden plug in the bit, was then used to drill the borehole to 39.5 or 40 feet bgs charging the HSA with water between flight connections after reaching 25 feet bgs. At locations near suspected subsurface utilities, K&S personnel used a hand auger to advance pilot holes to 5 feet bgs to verify utility clearance before advancing the 8.25-inch ID HSA. While the borings were being advanced, CDM Smith recorded the soil types and collected readings using a PID from the soil cuttings. Elevated PID readings were recorded between 32 feet bgs and 39 feet bgs which indicated that there were higher concentrations of contamination than originally expected at depth. As field-level data generated from soil cuttings obtained during drilling, no quality review was performed on the information.

After the borehole was drilled, a 4-inch Schedule 40 black iron steel pipe with a protective coating and a capped end was lowered inside the HSAs, and a 50-pound bag of iron shot was poured into the HSAs and allowed to sink to the bottom. Batches of graphite/iron shot mixture consisting of one 50-pound bag of iron shot for every three 50-pound bags of SWS Earth Contact Backfill graphite was then poured into the HSA. The mixture was saturated with water in a wheelbarrow for batches to be used in the portion of the annulus that was below the water table. For MPE electrodes in remediation Zones 1 and 2, the top of the graphite/iron shot mixture was brought up to 2 feet above the top of the slotted interval. For MPE electrodes in remediation Zone 3, the top of the graphite/iron shot mixture was only brought up to 23 feet bgs. Then, #4 silica/bluestone sand was poured through the HSAs and into the annulus on top of the installed graphite/iron shot mixture. The borehole annulus was filled with sand up to 1 to 0.5 feet bgs.

The locations of MPE-B2, MPE-B3, MPE-B4, MPE-C2, MPE-C4, MPE-F5, MPE-K7, and MPE-L7 were moved up to 4 feet from the original proposed locations because of various subsurface and overhead obstructions. Relocation of these MPE electrodes did not impact the ERH system or its functionality.

3.2.2.2 Vapor and Groundwater Piezometer Installation

Eight VPs and 8 GWPs were installed within and around the perimeter of the remediation area. All 16 VPs and piezometers were installed by K&S using an HSA drill rig. After VP installation was complete, TRS placed sample ports on top of the above grade piezometers.

Five VPs were completed above grade and three VPs were completed below grade. VPs were installed to 13 feet bgs. While the borings were being advanced, CDM Smith recorded the soil types and collected readings using a PID. The VPs were constructed of 0.5-inch schedule 80 CPVC pipe from 0 to 11 feet bgs and a 2-foot section of 0.5-inch V-wrapped stainless-steel screen (20 slot) from 11 to 13 feet bgs. A 0.5-inch stainless steel cap was attached to the bottom of the screen. #4 silica sand was poured into the bore hole by hand to 10 feet bgs and then grout was poured into the hole up to existing ground surface.

Six GWPs were installed above grade and two were installed below grade. GWPs were installed to a depth of 45 feet bgs. While the borings were being advanced, CDM Smith recorded the soil types and collected readings using a PID. The GWPs were constructed with a 2-inch V-Wrapped stainless-steel well screen from 20 to 40 feet bgs. #4 silica sand was placed in the hole by hand to

the bottom of the bore hole to 19.5 feet bgs with grout poured on top of the sand to existing ground surface. After installation, a groundwater transducer was placed in the well which was placed approximately 5 feet below the treatment area. A PVC protective sleeve was placed over the groundwater probe to keep rain water from entering the well.

There were two deviations from the original work plan. First, VP-C2 was moved approximately 10 feet to the west and 4 feet to the south of MPE-B4 because of a low hanging overhead utility line and due to an unknown and unmarked underground pipe. Second, GWP-L4 was moved 1.5 feet to the south because the original location was too close to the existing onsite building and the drill rig could not access the original location. The relocation of both monitoring points had no effect on the ERH system functionality.

3.2.2.3 Temperature Monitoring Point Installation

Seven TMPs were installed within the remediation area to measure subsurface temperatures during remediation. Six TMPs were completed above grade and one TMP was completed below grade. Terra installed two of TMPs and K&S installed the remaining five TMPs.

TMPs were installed using a 4.25-inch ID HSA fitted with a wooden knock out plug in the bit to a depth of 37 feet bgs. While the borings were being advanced, CDM Smith recorded the soil types and collected readings using a PID. Once at depth, the wooden plug was knocked out from the bottom of the HSA. A 1.5-inch diameter copper pipe (10.5-foot sections connected with soldered couplers) was then grouted into place with neat cement. Upon completion, the top of the copper pipe was approximately 1 foot above ground surface at all the TMP locations except TMP-D3 located under Marshall Street. For this TMP, the copper pipe was cut off below grade and temporarily capped once the cement grout set.

One of the TMPs was installed in a revised location due to site conditions. The location of TMP-D3 was moved approximately one-foot west of the proposed location because the proposed location was only approximately 9 feet west of overhead power lines. This deviation from the original location did not affect the ERH system's functionality.

3.2.2.4 Electrode Drip System and Cooling Loop Installation

An electrode drip system consisting of 0.75-inch cross-linked polyethylene (PEX) tubing was connected to a solenoid which was then connected to the MPE electrodes located in Zone 1 and Zone 2. The purpose of the drip water was to keep the interface between the electrode and surrounding soil moist for optimum electrical conductivity, with special focus on electrode elements with conductive intervals targeted across the unsaturated zone. In-line solenoids were wired to a solenoid field box to regulate the volume of water distributed in the immediate vicinity of each electrode via a 0.5-inch copper tube that was installed during MPE electrode installation.

On September 27, 2016, TRS installed a cooling loop inside groundwater extraction well EW003 to prevent heat damage to the pump within the extraction well. The cooling loop was placed in the trench network while it was still open and ran through the concrete vault of the extraction well (two 1-inch holes were drilled into the concrete). The cooling loop consisted of 0.75-inch PEX from 0 to 35 feet bgs and transitioned to 0.5-inch from 35 to 42.5 feet bgs. The cooling loop ran above ground from the exit trench, along the 4-inch CPVC blowdown line and connected to the north side of the condenser unit.

3.2.3 Trenching Activities

Trenching activities began on August 29, 2016. Diamond Cut Concrete Cutters of Villa Park, Illinois started by saw cutting a 30-inch wide cut in the asphalt connecting each MPE electrode location as well as a cut down to the Groundwater Extraction and Treatment System (GETS) vault. The trench network was run primarily in a north to south orientation with one leg of the trench heading in an east to west direction south of extraction well EW003, which is different than was indicated in the work plan and was done to avoid a potential encounter with any of Bodine's pre-existing extraction well infrastructure. This deviation from the originally proposed trench layout did not affect the functionality of the ERH system.

TRS personnel used a small excavator, TB250, to peel back asphalt in Marshall Street. This asphalt was staged to the side for future recycling. The excavator was then used to excavate an approximately 26-inch wide by 30-inch deep network of trenches so that MPE electrodes, TMPs, GWPs, VPs and their respective conveyance pipe and cable could be installed under Marshall Street. While trenches were being dug at the site, temporary fencing was placed around the open trenches to keep unauthorized persons from entering the area. Soil removed from Marshall Street was loaded and placed in roll off dumpsters for eventual disposal at Winnebago Landfill in Rockford, Illinois.

On August 31, 2016, TRS discovered a concrete stormwater pipe that runs north-south parallel to the row "D" MPE electrodes. TRS deviated from the newly proposed trench design and extended the easternmost north-south trench to the eastern side of the "D" row of MPE electrodes to not disturb the concrete pipe. This new trench design did not interfere with the functionality of the ERH system.

Once the network of trenches was complete, electrode heads were placed on MPE electrodes; VPs were capped; groundwater piezometers had 90-degree angle fittings attached and groundwater transducers were placed down into the water table; and resistance temperature detectors were placed in one TMP well (TMP-D3). All below grade wells were constructed similarly to the above grade MPE electrodes, vapor and groundwater piezometers, and TMPs (refer to Section 4.2).

Electrode cables (Type W 350) were connected to the MPE electrode heads and ran along the bottom of the trench to the exit point at the southeast side of the trench network. Two 1-inch CPVC pipes were connected to all MPE electrode heads for simultaneous vapor and water recovery, 1.5-inch CPVC pipe was connected to VP-B4, 1.25-inch CPVC pipe was connected to TMP-D3, and 1.25-inch CPVC pipes were connected to GWP-B4 and GWP-C3. All CPVC pipes were laid at the bottom of the trench and ran to the exit point where they exited the trench and came above grade.

After completion of below grade work, TRS had flowable backfill (Illinois Department of Transportation specification 2364) and concrete (rated at 4,000 psi) delivered to the site by Ozinga. The flowable backfill was poured into the trench by the truck and spread by TRS personnel. Flowable backfill was placed to approximately 4-inches bgs. Concrete was then poured on top of the backfill and smoothed by TRS personnel.

Coinciding with the trenching activities in Marshall Street, a trench was extended to the north along the west side of Marshall Street so that the condensate blowdown line (4-inch CPVC) and

communication cable could be connected to the existing GETS system vault operated by Bodine. This blowdown line was set into place so that effluent from the ERH system could be treated by the GETS. Two holes, a 6-inch hole and a 1-inch hole, were cored into the side of the concrete vault. The CPVC pipe was placed in the 6-inch diameter hole and hydraulically cemented into place and the communication cable was run through the 1-inch diameter hole and hydraulically cemented into place. Before the condensate blowdown line was fully connected, TRS performed a pressure test on the line to check for any leaks or compromised joints. TRS performed this pressure test by connecting ball valves at both ends of the line and filling the line with water which created approximately 40 to 70 psi inside the pipe. Once the whole line was filled with water, the ball valves were closed, and the water could sit in the line for approximately one hour. At the end of this time, TRS personnel walked the line to check and see if there were any leaks. No leaks were present, and the condensate blowdown line was deemed operational.

Marshall Street was reopened to the public and returned to normal traffic patterns on September 9, 2016. This section of Marshall Street was also repaved due to operational reasons which is described in Section 4.5.1.

3.2.4 Equipment Delivery and Connection

Throughout the course of the ERH system construction, TRS placed each piece of the ERH process equipment on the site. Process equipment that was mobilized to the site is listed below:

- PCU
- Condenser/cooling towers
- 40-horsepower (hp) vacuum blower
- Two auto-transformers
- VGAC roll off
- Two liquid-phase granular activated carbon (LGAC) vessels

On September 22, 2016, the PCU, condenser/cooling towers, 40-hp vacuum blower, two auto-transformers, and two LGAC vessels were delivered and placed onsite. Creative Crane and Rigging (Creative Crane) used a GMK-5240 crane to place equipment at the direction of TRS personnel.

Equipment was delivered via semi-truck and was picked up from the bed of the semi by Creative Crane and placed on site. Refer to the figure in **Appendix A** for locations of each piece of equipment. On October 6, 2016, a 13,000-pound VGAC roll off was delivered to the site. The roll off was approximately 20 feet by 8 feet and separated into two different chambers (acting as two vessels). It was installed on the effluent side of the VR blower in series (primary and secondary chambers).

After all the equipment was delivered and placed in its respective spot on site, TRS began connecting each piece of equipment together. Conveyance piping was connected to each of the MPE electrodes which consisted of 0.25-inch CPVC up to 2-inch CPVC pipe. These conveyance pipes were then run across the site and connected to a 6-inch CPVC VR pipe which was connected

to the north side of the condenser unit. A blower in (6-inch PVC) pipe was connected from the south end of the condenser unit and ran to the 40-hp blower located inside of the building and a blower out pipe (6-inch CPVC) was ran from the 40-hp blower out of the building and connected to the VGAC roll off located just in front of the vehicle gate.

Type W 350 electrode cables were connected to the PCU by bolting one end of the cable to an Amp-Trap which was then attached to its respective phase plate; first, second, or third phase, with the other end of the cable bolted to the top of its respective MPE electrode head.

A security system was installed along the fence line that surrounds the equipment and treatment area and consisted of 5 motion-detecting sensors as well as 9 motion activated cameras. The security system, once armed, recorded if movement was detected within the coverage area.

3.2.5 Operational Construction

This section discusses additional construction activities that occurred at Area 4 while the ERH system was operating.

3.2.5.1 Marshall Street Construction

Stray voltage issues that were present in Marshall Street led to the subsequent repaving of the entire trench network. On November 9, 2016, Stenstrom Excavation & Blacktop was on site to mill and repaved a section of Marshall Street measuring 40 feet by 121.5 feet that encompassed the entire network of trenches.

3.2.5.2 Stream Sparging System Construction

On January 17, 2017, TRS installed five steam sparge points at Area 4 following the second round of soil confirmation sampling. This steam sparging system was installed because of insufficient heating at depth which resulted from a suspected higher hydraulic conductivity that exists below 30 feet bgs.

These steam sparge points were constructed with a 0.75-inch copper pipe that was slotted along the bottom 2 feet. These steam sparge points were installed at GP-01 and GP-08 to 42 feet bgs and GP-06, GP-09, and a new point between MPE-E4 and MPE-E5 to 39 feet bgs via direct push technology. After the copper pipe was installed in the borehole, with the slotted interval surrounded by native soil, concrete was mixed and placed in the hole to keep the steam sparge points in place. On January 23, 2017, TRS began construction of the steam sparge system. On January 24, 2017, a 5-hp Atlas GX4FF air compressor was delivered to the site. An 0.5-inch black iron steep pipe was connected to the air compressor, located inside of the existing building and ran through the building and exited the building near the former loading dock. At the exit point, the pipe was connected to 3 solenoid valves which connected to the 3 steam sparge points (GP-01, GP-06, and GP-09) via a rubber hose. At each steam sparge point, one 0.75-inch copper 90-degree angle fitting was attached to the 0.75-inch copper pipe in the ground with a reducing 0.5-inch copper 90-degree fitting attached to the other end. A flow sensor was then attached to the 0.5-inch copper 90-degree fitting with a copper barb and another copper barb at the bottom for a rubber hose connection. The rubber hose was then connected with a pipe clamp with the other end of the hose connected to a solenoid valve attached to a timer. Air was added for

approximately 1 hour at each steam sparge point in consecutive cycles regulated by a timer for a 24-hour period.

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Section 4

Chronology of Events

This section presents a tabular summary that lists the major events for the SERGC Area 4 project and associated dates of these events beginning with the ROD signature.

Date	Event
June 2002	U.S. EPA ROD for OU3
March 2004	Phase I Pre-Design Sampling Activities
August – December 2005	Phase II Pre-Design Sampling Activities
September 2005	Interim Soil Removal
July-August 2006	Pilot Test and Extraction Well Installation for leachate component RA
October 2007	Final remedial design for leachate component submitted
June 2008	Leachate component work plan development and negotiation
February 2009	Leachate component RA contract award
August 2009	Leachate component RA mobilization and site preparation
August – October 2009	Installation of process piping, electrical components, well vaults, and well valve vault for leachate extraction/treatment system
October - December 2009	Installation of treatment unit foundation and treatment unit building and process equipment for leachate extraction/treatment system
November 2009	Baseline groundwater sampling event for leachate component
December 2009	Leachate treatment unit startup, primary construction complete
December 4, 2009	GMZ application for Area 4 submitted to Illinois EPA
February 2010	1st quarterly GMZ groundwater monitoring event conducted
February 2010	Temporary iron treatment system installed in leachate system
June 2010	2nd quarterly GMZ groundwater monitoring event conducted
July 2010	Insulation applied to process equipment and piping for leachate treatment system
September 2010	Permanent iron treatment system installed in leachate treatment system
October 6, 2010	Area 4 leachate component declared O&F
October 6, 2010	Area 4 leachate pre-final and final inspection
December 16, 2010	Area 4 GMZ application approved by Illinois EPA
October 2011	Soil component pre-design sampling activities
July 27, 2012	Explanation of Significant Differences for soil component remedy
January 12, 2016	ERH pre-design field study
April 11, 2016	Submittal of soil component RD
June 30, 2016	Approval of soil component RD
July 2016	Mobilization and site preparation for soil component RA
July – October 2016	Installation of all appurtenances related to soil component RA (including multi-phase extraction electrode installation, equipment placement, and construction of all conveyance piping)

Date	Event
September 9, 2016	Marshall Street reopened for public access
October 11, 2016	Operational Readiness Review for ERH system with U.S. EPA, Illinois EPA, TRS, Bodine, and CDM Smith
October 14, 2016	ERH system operations began (except for nine multi-phase extraction electrodes in Marshall Street)
November 9, 2016	Marshall Street repaved because of voltage potential issues
November 13, 2016	Nine multi-phase extraction electrodes connected to PCU. Full ERH application starts
December 13, 2016	First round of soil confirmation sampling for soil component RA
January 16, 2017	Second round of soil confirmation sampling for soil component RA
January 23, 2017	Steam sparging system installed for soil component RA
February 16, 2017	Third round of soil confirmation sampling for soil component RA
February 22, 2017	Illinois EPA approves completion of soil component RA activities; demobilizing ERH equipment starts
March 13, 2017	MPE electrodes abandoned in place
April 16, 2017	Pre-final inspection and demobilization meeting for soil component RA held between U.S. EPA, Illinois EPA, TRS, Bodine, and CDM Smith
April 28, 2017	Soil component RA completion
May 2018	Final semiannual GMZ sampling event
October 25, 2018	Leachate extraction/treatment system turned off
March 28, 2019	Termination of Area 4 GMZ
July 9, 2019	Pre-final Inspection of Area 4

Section 5

Performance Standards and Construction Quality Control

This section describes the overall performance of Area 4 RAs for both the leachate and soil components in terms of comparison to the remedial goals and cleanup levels. In addition, this section discusses the remedy performance monitoring strategy and quality assurance and quality control (QA/QC) procedures followed.

5.1 Comparison to Performance Standards

5.1.1 Leachate Control System

Performance monitoring of groundwater compared to remediation goals was conducted through GMZ monitoring was conducted by CDM Smith and system influent/effluent monitoring was conducted by Bodine through treatment system O&M. The performance standards for the leachate RA are presented in Section 2.2.1 and consist of groundwater RGs and effluent discharge limits.

Although RGs listed in Section 2.2.1 are the listed contaminants of concern for Area 4, CDM Smith also compared analytical results to Groundwater Quality Standards for Class I: Potable Resource Groundwater from 35 IAC 620.410 and the Illinois EPA Tiered Approach to Correction Action Objectives (TACO) Class I Groundwater Remediation Objective (GRO) from 35 IAC 742 when no Class I standard exists. For convenience, all are referred to as RGs. However, the TACO GROs that are not also Class I standards are not applicable or relevant and appropriate requirements listed in the ROD for the site, but are federal and state non-promulgated criteria, advisories, and guidance that are requirements to be considered.

5.1.1.1 GMZ Monitoring

Groundwater management zone monitoring started in November 2009 with the baseline sampling event conducted just prior to system start-up, the first sampling GMZ event after start-up in February 2010, and continued until May 2018. **Figure 2-1** shows the boundary of the GMZ and the GMZ monitoring points prior to termination on March 28, 2019. Additional information regarding GMZ monitoring activities and results can be found in the annual GMZ reports.

All GMZ monitoring activities were performed in general accordance with the approved GMZ application, Groundwater Management Zone and Electric Resistivity Heating Evaluation Quality Assurance Project Plan Addendum, and Groundwater Management Zone Monitoring Sampling and Analysis Plan. All GMZ samples were submitted through the Contract Laboratory Program (CLP) for analysis of Target Compound List (TCL) VOCs.

The original GMZ sampling network included 7 monitoring wells, 1 multi-port well with five ports, and 3 groundwater extraction wells for a total of 15 monitoring points. The following changes to the network occurred over time:

- Monitoring well MW-403A was added to the network in 2013 at the request of U.S. EPA to confirm that contaminated groundwater was not bypassing the leachate control system to the south of extraction well EW003.
- Multi-port well MLW01 was abandoned in August 2016 as part of the soil RA as discussed in Section 3.2.2.
- Monitoring well MW-408A was installed in May 2017 several feet from the location of the former multi-level well MLW01. Originally installed to assist with confirming the completion of the soil RA, it was sampled as part of the GMZ network during both semiannual events in 2017 and in May 2018. However, MW-408A was not a direct replacement for MLW01 because MW-408A was screened from 30 to 40 feet bgs and the upper-most port in MLW01 was screened from 30 to 35 feet bgs.

Table 5-1 lists the construction details for all the monitoring points that were part of the GMZ network.

Table 5-1. Area 4 GMZ Monitoring Point Construction Details

Well Number	Date Installed	Screened Interval*	Screen Length	Comments
MW-22A	October 2005	28-38	10	Compliance well
MW-22B	October 1990	36-46	10	
MW-32	May 1991	35-45	10	Background well
MW-130A	July 1993	28-38	10	Compliance well
MW-130B	October 2005	45-55	10	
MW-401A	October 2005	28-38	10	
MW-401B	October 2005	61-65	5	
MW-403A	July 2011	30-40	10	Added to GMZ network in 2013
MW-408A	May 2017	30-40	10	Added to GMZ network in May 2017
MLW-01	September 2005	E: 30-35	5	Abandoned in August 2016
		D: 39-44	5	Abandoned in August 2016
		C: 48-53	5	Abandoned in August 2016
		B: 57-62	5	Abandoned in August 2016
		A: 66-71	5	Abandoned in August 2016
EW-1	July 2006	25-42	17*	
EW-2	July 2006	25-43	18*	
EW-3	July 2006	25-42	17*	

* The "effective" screened intervals noted for the extraction wells results from removable packers installed in each well. The total screened interval of each extraction well is 35 feet

Monitoring was conducted quarterly for the first two years and adjusted to semiannual in 2012 after contaminant concentrations in samples collected from compliance monitoring wells MW-22A, MW-22B, MW-130A, and MW-130B fell below RGs and contaminant concentrations in the extraction wells had become relatively stable. **Table 5-2**, located in the Tables section, provides a comprehensive list of VOCs that were detected in each well since the baseline sampling event. In

this table, the VOCs listed were detected at least once in the listed well since the baseline sampling event. Additional detail can be found in the GMZ reports submitted to Illinois EPA.

The following bullets summarize analytical results of samples collected from monitoring wells in the GMZ network.

- MW-32 is the background well for Area 4. Concentrations of contaminants detected in samples collected from MW-32 were generally single or low double digits that are considered to be generally representative of the SERGC site. During the first two years of sampling, TCE exceeded its RG of 5 ug/L with concentrations of 5.1 to 9.3 ug/L. Over the last five years, the only compound that exceeded an RG was bromodichloromethane, a common byproduct of potable water treatment and probably not related to the SERGC site. Although CDM Smith did not perform any statistical trend analyses, it appears that contaminant concentrations generally decreased. Decreasing concentrations notwithstanding, samples collected from MW-32 since completion of the soil RA tended to have the most numerous VOCs detected and at the highest concentrations of any Area 4 GMZ monitoring well.

- MW-401 is located about 20 feet immediately downgradient of extraction wells. MW-401A had detections of several VOCs above the RG during the baseline event. Once the system was operational, the concentrations of VOCs decreased significantly, and no VOCs were detected above their RGs for any of the quarterly or semiannual monitoring events through May 2018. No contaminants were ever detected above RGs in samples collected from MW401B.

- The downgradient wells MW-22A and B, were considered compliance wells for the GMZ. In both wells, only 1-4 dioxane was detected once its RG and this occurred before the Class I standard for 1,4-dioxane was promulgated. Otherwise, VOC concentrations either decreased slightly or remained constant from the baseline through the May 2018 groundwater sampling event.

- The other two compliance wells are MW-130A and MW-130B, with MW-130A historically being the more contaminated of the two, had no detections of VOCs that exceeded the RGs for both semiannual events in 2017 or the May 2018 sampling event. The only exceedance that MW-130B had since the baseline event was TCA in the first quarter of 2010. After that, the concentration has decreased gradually and remained below the RG. TCA and 1,1-DCE were two major contaminants found at MW-130A above their RGs from 2010 to the second quarter of 2011; however, both chemicals decreased gradually over time. After the second quarter of 2011, neither chemical was detected over the RG and the concentrations in these wells did not show any significant changes since 2013.

5.1.1.2 Treatment System Influent and Effluent Monitoring

Treatment system liquid influent and effluent monitoring was conducted weekly during the first month of treatment system operation starting on December 2, 2009 and then monthly thereafter until shutdown in 2018. Influent and effluent sampling was performed in general accordance with the approved sampling and analysis plan; however, although a QAPP was prepared for this work, it was never approved.

All influent and effluent samples were analyzed by Test America in University Park, Illinois for VOCs. Following every carbon backwash event, the backwash discharge was analyzed by Test America for total iron, biochemical oxygen demand, and total suspended solids. Influent and effluent sampling was conducted to obtain analytical data to calculate the treatment system performance efficiency and contaminant mass removal. In addition, effluent sampling was conducted to confirm that liquid effluent discharge standards listed in Section 2.2.1 were being met.

The total VOC concentration of effluent samples decreased over time from a maximum of 2,324 ug/L, collected on December 9, 2009 one week after system start-up, to a minimum of 18 ug/L, collected on May 3, 2018 several months before the system was shut down, with a significant decrease occurring in late 2016 and early 2017 following completion of the soil component RA. The total VOC concentration of effluent samples throughout the leachate component RA was either not detected or in the low single digits and below the liquid effluent discharge standards.

5.1.1.3 GMZ Termination

Based on contaminant concentrations in GMZ samples collected during the two sampling events following completion of the Area 4 soil component RA, it appeared that the soil contamination at Area 4 had been successfully remediated and was no longer acting as a source of groundwater contamination. It was determined that one additional round of semiannual sampling would be conducted in May 2018 to confirm the absence of groundwater contamination at concentrations greater than background.

Groundwater contaminant concentrations from the May 2018 sampling event continued along the same low-level, below background trend that had been observed in 2017. Groundwater contaminant concentrations in all Area 4 GMZ wells were below the RGs, except for background well MW-32. Although a number of VOCs were detected in groundwater samples collected from the Area 4 monitoring wells, almost all concentrations were less than the background concentrations detected in well MW-32.

Based on contaminant concentrations in groundwater samples collected during semiannual events in 2017 and May 2018, from within and downgradient of Area 4 following completion of the Area 4 soil component RA, it appears that Area 4 has been successfully remediated. Because soil is no longer acting as a source of groundwater contamination and residual groundwater contamination from the Area 4 source has dissipated, Illinois EPA terminated the Area 4 GMZ on March 28, 2019. The GMZ termination memorandum is included in **Appendix C**.

5.1.2 Confirmation Soil Sampling

The following section details the three rounds of confirmation sampling that occurred on site. With one exception, confirmation sampling by TRS and CDM Smith was conducted in accordance with each contractor's respective approved Sampling and Analysis Plans (SAP) and Quality Assurance Project Plans (QAPP). The exception was that instead of the lowest confirmation sampling interval being 32 feet bgs in each boring, a limited number of sampling interval depths were increased to 37 feet bgs to confirm that deeper contamination observed during construction installation had been sufficiently treated.

Each sample collected by TRS and CDM Smith was collected using three 5-gram EnCore™ samplers. TRS collected soil samples for quick turn-around VOC (SW-846 8260B) analysis by its subcontract laboratory, Test America, Inc. CDM Smith collected soil samples for analysis by two different laboratories to verify TRS' analytical results. CDM Smith submitted samples for quick turn-around VOC (SW-846 8260B) analysis to its subcontract laboratory, STAT Analysis, Inc. (STAT) and for standard turn-around TCL VOC analysis through CLP. All TRS and CDM Smith analytical data was evaluated and validated as described in Section 5.4.2.

Data from each round of confirmation sampling were compared to the RGs for the COCs established in the ROD. Samples with all COC concentrations below the RGs were considered to have "passed," signifying that treatment at that sampling location/interval was complete.

Conversely, samples with any COC concentration above RGs were considered to have not passed and further treatment and confirmation sampling was necessary at that sampling location/interval.

5.1.2.1 First Round of Confirmation Soil Sampling

On December 13, 2016, the first round of soil confirmation sampling began at Area 4. Prior to the start of sampling, the entire system was de-energized. Terra was the subcontractor that was used for this phase of work.

A total of 18 soil borings were advanced at Area 4 using direct push technology. Confirmation soil samples were collected from four locations in Zone 1, four locations in Zone 2, and ten locations in Zone 3. Investigation locations, sample depths, and laboratories that received samples for the first round of soil sampling. The results are compared to the RGs for the COCs established in the ROD. Samples collected from borings GP-01, GP-03, GP-06, GP-08, GP-09, GP-13, GP-15, and GP-17 contained PCE and 1,1-DCE that exceeded the respective RGs indicating that additional treatment was required. Therefore, electrical energy input to the MPE electrodes nearest those sampling locations was continued. TRS modified the ERH system on December 27, 2016. These modifications resulted in the following MPE electrodes remaining in operation:

- MPE-D4
- MPE-D5
- MPE-E4
- MPE-E5
- MPE-F4
- MPE-F5
- MPE-G4
- MPE-G5
- MPE-H4
- MPE-H5
- MPE-H6
- MPE-K6
- MPE-K7
- MPE-L5
- MPE-L7
- MPE-M5
- MPE-M6

All other remaining MPE electrodes were disconnected from the PCU to reduce the energy input to the areas from which samples collected had met RGs.

5.1.2.2 Second Round of Confirmation Soil Sampling

The second round of confirmation soil sampling was conducted on January 16, 2017 and January 17, 2017. All soil samples were collected in the same manner as in the first round of confirmation

sampling and split with CDM Smith. Prior to the start of sampling, the contactor on the PCU was opened discontinuing electrical service to the treatment volume.

Following the second round of confirmation sampling and while waiting for analytical results, the following MPE electrodes remained in operation per the request of the Illinois EPA: MPE-G3, MPE-G4, MPE-G5, MPE-H4, MPE-H5, and MPE-H6. These MPE electrodes were requested to remain in operation because this area had the highest concentrations of contamination as seen from the first round of confirmation sampling and Illinois EPA did not want to "lose ground" by allowing the ground to cool while waiting for analytical results.

Samples collected from GP-01 had concentrations of PCE that exceeded the RGs at 37 feet bgs, GP-06 had concentrations of PCE and TCE that exceeded the RGs at 32 feet bgs and GP-09 had concentrations of PCE that exceeded the RGs at 32 feet bgs. Because concentrations of PCE either increased or remained constant at depth, a steam sparging system was installed as discussed in Section 4.5.2 to more aggressively target the deepest intervals following the second round of confirmation sampling.

After the analytical results were received, the following MPE electrodes remained in operation in conjunction with the steam sparging system:

- MPE-F4
- MPE-F5
- MPE-G3
- MPE-G4
- MPE-G5
- MPE-H3
- MPE-H4
- MPE-H5
- MPE-H6
- MPE-J4
- MPE-J5
- MPE-J6

5.1.2.3 Third Round of Confirmation Soil Sampling

On February 16, 2017, a third round of confirmation samples were collected at Area 4. All soil samples were collected in the same manner as the first and second round of confirmation sampling and all samples were split with CDM Smith. Prior to the start of sampling, the contactor on the PCU was opened discontinuing electrical service to the treatment volume and the steam sparge system was turned off. PCE was still detected in GP-01 at 37 feet bgs but was reported below the established RGs. All other samples collected reported analytes below RLs.

5.1.2.4 Soil Data Conclusions

Overall, there was a reduction in COC concentrations as seen throughout the three rounds of soil confirmation sampling. As stated in the TRS Final Report, the overall average percent of reduction was 99.97 percent when using the laboratory "minimum detection limit" for each COC as the basis of the calculation. However, this calculation used maximum concentration from data that was collected by CDM Smith in 2004.

Although significant reductions in COC concentrations were observed, especially with the addition of the steam sparging system, it is unknown whether that reduction percentage is accurate given the baseline data used in the calculation is 13 years old. Lower concentrations have been observed in soil samples collected more recently, and natural attenuation processes are known to be occurring at Area 4. Based on the use of the older, historical soil data used for

the baseline in the calculations, CDM Smith believes the resulting reduction percentage is qualified as likely biased high.

5.2 System Efficiency

5.2.1 Leachate Control System

Based on a comparison of influent and effluent samples, the treatment system generally removed 99.9 percent of the contaminants. In the later years of operation, especially after the soil component RA was completed, the calculated treatment efficiency decreased, but as a result of decreased influent concentrations while effluent concentrations remained stable. The total volume of contaminated groundwater water extracted and treated was about 218 million gallons and the total contaminant mass removed was approximately 635 pounds (288 kilograms).

5.2.2 ERH System

5.2.2.1 ERH Soil Treatment

A total of 1,356,100 kilowatt hours (kWh) of energy were applied to the treatment volume which exceeded the original estimate of 790,000 kWh by approximately 566,000 kWh. This was a result of the extended run time of the ERH system to allow for remediation of contamination at the bottom of the treatment volume. As is stated in the TRS Final Report, the average power level during energy application, when considering downtime, was 493 kilowatts (kW) which was less than the original TRS estimate of 616 kW. This lower power level was achieved because the system ran at a lower power for approximately 2 months after the first round of soil confirmation sampling was conducted until the system was turned off in February 2017.

Based on PID data collected by TRS, about 5,700 pounds (2,585) kilograms of petroleum hydrocarbons and chlorinated VOCs were removed from the thermal treatment zone. Additional information regarding the soil component RA can be found in the Soil Component RA Report.

5.2.2.2 ERH System Waste Generated and Treated

During system operations, a total of 214,685 gallons of condensate water and entrained liquid were generated by the ERH system. Of the 214,685 gallons, 112,279 gallons were discharged to the GETS. The remaining 102,406 gallons of liquid was condensate water that was generated by the ERH system and was recirculated through the drip line system connected to MPE electrodes in Zones 1 and 2 with a small percentage of that condensate evaporated through the two cooling towers located on top of the condenser unit.

5.3 Assessment of Data Quality

5.3.1 Leachate RA - GMZ Sampling

As specified in the original GMZ QAPP, field duplicates were taken at a rate of 1 per 10 natural samples (i.e., 10 percent) and matrix spike/matrix spike duplicate (MS/MSD) samples at the rate of 1 per 20 samples (i.e., 5 percent).

A data evaluation/validation review was conducted on the Area 4 groundwater data. Quality assurance (QA) objectives for data are expressed in terms of measurement performance data quality indicators, precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS). QA objectives provide a mechanism for ongoing quality control (QC) and

evaluating and measuring data quality throughout the project. These QA objectives are outlined in the QAPP (CDM Smith 2016).

A review of the collected data is necessary to identify if the measurement performance criteria established in the QAPP have been met. In general, the following data measurement objectives were considered:

- Achievement of analytical method and reporting limit requirements
- Adherence to and achievement of appropriate laboratory analytical QC requirements
- Achievement of required measurement performance criteria for data quality indicators (PARCCS)
- Adherence to sampling and sample handling procedures
- Adherence to the sampling design and deviations documented on field change notifications

Data verification, data validation, and data assessment were used to verify adherence to the QAPP procedures and requirements. These assessments were used to reconcile the planned objectives detailed in the QAPP against the investigation results. The outputs serve to verify that the collected data are of sufficient quality to support their intended use.

5.3.2 Sample Analysis

U.S. EPA CLP laboratories including A4 Scientific, Inc., Mitkem Laboratories, Shealy Environmental Services, KAP Technologies, Spectrum Analytical, Inc., and Chemtech provided VOC analyses over the 10-year monitoring program.

In accordance with the QAPP, data were validated at a Level III validation. The CLP data was validated by the U.S. EPA ESAT contractor. CDM Smith reviewed the CLP validation reports and verified the sample results and applied qualifiers.

Field duplicates and MS/MSD samples were collected during the sampling events. The laboratories performed field duplicate and MS/MSD analyses as required by the methods. The individual data validation reports in **Appendix B** show the field duplicate samples and relative percent differences (RPD). The CLP validators did not qualify sample results based on field duplicate RPDs. Field duplicate RPDs met criteria a majority of the time. Field duplicate RPDs/CRQL criteria not met were minimal and did not impact precision data quality objectives.

5.3.3 Validation Summaries

Overall, a majority of the quality control criteria was met. Some analytes were qualified as estimated (J/UJ), estimated biased high (J+) or biased low (J-), non-detect (U) and/or rejected (R) based on validation criteria.

Throughout the course of the quarterly and semiannual sampling events, some results were rejected. A comparison was made by sample and by analyte, if the result was rejected, to see if there were non-rejected results for that analyte that were sampled either before or after the rejected result. For almost all of the rejected results, non-rejected usable data was achieved for

that analyte, in a sample collected from that location, during a previous or subsequent sampling event. In other cases, it was determined that a particular compound was not a critical data point for that location. For the rejected results the following conclusions have been determined:

- Rejected 1,4-dioxane results do not impact data quality objectives as this analyte is not a site-related COC and the analytical method was not well established for 1,4-dioxane analyses.
- All other rejected analytes do not affect project objectives as they were rejected only once or twice throughout the sampling activities, and the majority of analytes were not site-related COCs.

The following summaries provide general sample result qualifications based on validation activities throughout the sampling activities. The individual data validation reports are provided in **Appendix B**.

Applicable sample results were qualified as estimated (J), (UJ), (J+) biased high, (J-) biased low, and/or nondetect (U) based on the following quality control parameters:

- Matrix spike recoveries and relative percent differences
- Surrogate recoveries
- Laboratory and field blank contamination
- Internal standard area counts
- Sample results outside of the calibration ranges
- Carryover from sample results with high concentrations
- Calibration recoveries

The collected and analyzed data for the Area 4 GMZ activities are considered usable for project decisions with appropriate qualifiers applied if required. Rejected results are not considered usable, but as discussed previously the rejected analytes are not contaminants of concern for the site and/or that particular analyte had valid results in other samples collected from that particular monitoring well.

2009

SDG: E3WN2 (Case # 39227)

Laboratory: A4 Scientific, Inc.

- Nondetect trace bromomethane results were rejected (R) based on initial and continuing calibration relative response factors (RRFs) outside criteria. All bromomethane results were nondetect for all samples and qualified as rejected (R).

- The chlorobenzene result in the parent sample for the matrix spike analyses was rejected based on the low spike recovery (%R) result.
- Applicable detected sample results were qualified as estimated (J) based on surrogate recoveries above the upper limit of the criteria window.
- Applicable detect and nondetect sample results were qualified as estimated (J/UJ) based on surrogate recoveries less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- Methylene chloride, acetone and toluene were detected in laboratory method blanks and/or field blanks. Associated detected sample results were qualified as nondetect (U) at the contract required quantitation limit (CRQL) or at two times the CRQL if required.
- The CLP validation report noted that all trace volatile compounds were properly identified except for chlorobenzene in the MSD sample. The chromatogram was reviewed by the validators and they reported that it appears chlorobenzene was present. No further action was required for this discrepancy as this is a quality control sample.
- Some samples had analyte concentrations that exceeded the instrument calibration range. Detected sample results were qualified (J).

2010

SDGs: E3WP2 (Case 39470); E5279 (Case 40256); E52A0 (Case 40644); E52C0 (Case 40644)

Laboratories: A4 Scientific, Inc., Mitkem Laboratories, Shealy Environmental Services

- Nondetect trace 1,4-dioxane results in SDGs E52A0 and E52C0 were rejected (R) based on initial and continuing calibration RRFs outside criteria. Detected sample results were qualified as estimated (J).
- In SDG E5279 it was reported that three samples had internal standard (IS) area counts below the lower limit criteria. Associated nondetect results were rejected (R) based on the low IS area count. Detected results were qualified as estimated (J).
- Applicable detected sample results were qualified as estimated (J) based on surrogate recoveries above the upper limit of the criteria window.
- Applicable detect and nondetect sample results were qualified as estimated (J/UJ) based on surrogate recoveries less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- In SDG E52A0 one sample had surrogate recoveries below the 20% limit. Associated detected analytes were qualified as estimated (J) and nondetect results were qualified as rejected (R).
- Applicable results in the parent sample for the matrix spike analyses were qualified as estimated (J) based on spike %R's greater than the upper limit of acceptable criteria result.

- Methylene chloride, acetone, chloromethane and toluene were detected in laboratory method blanks and/or field blanks. Associated detected sample results were qualified as nondetect (U) at the CRQL, the adjusted CRQL, at two times the CRQL, or at five times the CRQL if required.
- Some samples had analyte concentrations that exceeded the instrument calibration range. Detected results were qualified (J). Sample results were diluted accordingly and were used as the final concentration for the affected analytes.
- Insufficient volume was provided for three samples in SDG E52A0. Sample results for one analyte in these three samples were estimated by the laboratory since the concentrations exceeded the instrument calibration range. Three other samples in this SDG were analyzed at a dilution due to anticipated high levels of compounds and insufficient volume was provided for these samples.
- In SDG EF2C0 one sample result for 1,1,1-trichloroethane was qualified as estimated by the laboratory due to the result exceeding the instrument calibration range and not enough sample was provided for dilution.
- In SDG E52A0, two sample results for 1,1,1-trichloroethane were qualified as estimated due to potential carryover from a previously analyzed sample.

2011

SDGs: E52F3 (Case 40952); E52H2 (Case 41255); E52L5 (Case 41580); E52P7 (Case 41863); E52K2 (Case 41255); E52N8 (Case 41778)

Laboratories: Shealy Environmental Services, KAP Technologies, ALS Laboratory Group

- Nondetect trace 1,4-dioxane results were rejected (R) based on initial and continuing calibration RRFs outside criteria in SDGs E52F3, E52H2, E52K2 and E52L5. All 1,4-dioxane results were nondetect for all samples and qualified as rejected (R) in SDGs E52F3, and E52L5. Detected results in SDG E52H2 were qualified as estimated (J).
- Applicable results in the parent sample for the matrix spike analyses were qualified as estimated (J/UJ) based on spike %Rs less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window or an RPD outside of criteria. Some detected applicable results in the parent sample were qualified as estimated (J) as the %R was above criteria. Nondetect results did not require qualification.
- Applicable detect sample results were qualified as estimated (J) based on surrogate recoveries above the upper limit of the criteria window.
- Applicable detect and nondetect sample results were qualified as estimated (J/UJ) based on surrogate recoveries less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- Acetone, toluene, 1,3-dichlorobenzene, chloroform, 1,1-dichloroethene, chlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2,3-trichlorobezene, 1,2,4-trichlorobenzene and

methylene chloride were detected in laboratory method blanks. Associated detected sample results were qualified as nondetect (U) at the CRQL or at two or five times the CRQL if required.

- Some trace volatile samples in SDG E52F3 were analyzed after a sample with compounds exceeding calibration and no intervening instrument blank, detects were qualified as estimated (J) as they may be a result of carryover.
- Some samples had analyte concentrations that exceeded the instrument calibration range. Detected sample results were qualified as estimated (J). Sample results were diluted accordingly and were used as the final concentration for the affected analytes. No sample volume was left for sample dilution for samples associated with SDG E52H2 as samples were re-analyzed based on surrogate recoveries outside of criteria.

2012

SDGs: E52P7 (Case 42130); E3X98 (Case 42746): Note: USEPA used the SDG number E52P7 twice – once for samples collected in 2011 and once for samples collected in 2012.

Laboratories: KAP Technologies, Spectrum Analytical, Inc.

- Nondetect trace 1,4-dioxane results in each of the SDGs were rejected (R) based on initial and continuing calibration RRFs outside criteria. Detected results in SDG E3X98 were qualified as estimated (J), based on initial and continuing calibration RRFs outside criteria. All 1,4-dioxane results were nondetect for all samples and qualified as rejected (R) in SDG E52P7.
- Nondetect bromoform results in SDG E52P7 were qualified as estimated (UJ) based on the continuing calibration %D outside of criteria.
- Applicable detect sample results were qualified as estimated (J) based on surrogate recoveries above the upper limit of the criteria window.
- Applicable detect and nondetect sample results were qualified as estimated (J/UJ) based on surrogate recoveries less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- Applicable results in the parent sample for the matrix spike analyses in SDG E52P7 were qualified as estimated (UJ) based on spike percent recoveries (%R) less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- Methylene chloride, acetone and toluene were detected in laboratory method blanks. Associated detected sample results were qualified as nondetect (U) at the CRQL or at two times the CRQL if required.
- Some samples had analyte concentrations that exceeded the instrument calibration range. Detected sample results were qualified as estimated (J). Sample results were diluted accordingly and were used as the final concentration for the affected analytes.

2013

SDGs: E3XD9 (Case 43246); E3XH7 (Case 43671); E3XH9 (Case 43671); E3XK7 (Case 44043); E3XK8 (Case 44043)

Laboratories: Spectrum Analytical, Mitkem, KAP Technologies

- Nondetect trace 1,4-dioxane results were rejected (R) based on initial and continuing calibration RRFs outside criteria in SDG E3XK8. All 1,4-dioxane results were nondetect for all samples in this SDG and therefore were qualified as rejected (R).
- Applicable detect and nondetect 1,2,4-trichlorobenzene, 1,2,3-trichlorobenzene, and bromoform results in SDGs E3XD9 and/or E3XH7 were qualified as estimated (J/UJ) based on continuing calibration %Ds outside criteria.
- Applicable detected sample results were qualified as estimated (J) based on surrogate recoveries above the upper limit of the criteria window.
- Applicable detect and nondetect sample results were qualified as estimated (J/UJ) based on surrogate recoveries less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- Applicable results in the parent sample for the matrix spike analyses in SDG E3XH7 were qualified as estimated (J/UJ) based on spike %Rs less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- Applicable detect and nondetect results in the parent sample for the matrix spike analyses in SDGs E3XH9 and E3XK7 were qualified as estimated (J/UJ) based on calculated RPDs outside criteria.
- Methylene chloride, methyl acetate, and toluene were detected in laboratory method and/or field/trip blanks for SDGs E3XD9 and E3XH7. Associated detected sample results were qualified as nondetect (U) at the CRQL or at two or five times the CRQL if required.
- One trace volatile sample in SDG E3XH7 was analyzed after a sample with compounds exceeding calibration and no intervening instrument blank. The detected sample result for 1,1,1-trichloroethane was qualified as estimated (J) as it may be a result of carryover.
- Some samples had analyte concentrations that exceeded the instrument calibration range. Detected sample results were qualified as estimated (J). Sample results were diluted accordingly and were used as the final concentration for the affected analytes.

2014

SDGS: E3XM6 (Case 44380); E3XN7 (Case 44380); E3XR0 (Case 44966)

Laboratory: CompuChem-Liberty, Chemtech Consulting

- The nondetect trace 1,4-dioxane result for the one sample in SDG E3XN7 was rejected (R) based on initial and continuing calibration RRFs outside criteria.
- Nondetect bromoform, 1,2,4-trichlorobenzene, and 1,2,3-trichlorobenzene results associated with samples in SDG E3XR0 were qualified as estimated (UJ) based on the continuing calibration %Ds outside of criteria.
- Applicable detected sample results were qualified as estimated (J) based on surrogate recoveries above the upper limit of the criteria window.
- Applicable detect and nondetect sample results were qualified as estimated (J/UJ) based on surrogate recoveries less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- Applicable detected results in the parent sample for the matrix spike analyses in SDG E3XM6 were qualified as estimated (J) based on calculated RPDs outside criteria.
- Acetone, toluene, m/p-xylene, o-xylene, 2-butanone, 1,1,1-trichloroethane, ethylbenzene, benzene, and chloromethane were detected in laboratory method blanks and/or field blanks. Associated detected sample results were qualified as nondetect (U) at the CRQL, two times the CRQL or at the blank concentration if required.
- Two trace volatile samples in SDG E3XR0 were analyzed after a sample with compounds exceeding calibration and no intervening instrument blank. Detected results for 1,1,1-trichloroethane were qualified as estimated (J) as they may be a result of carryover.
- Some samples had analyte concentrations that exceeded the instrument calibration range. Detected sample results were qualified (J). Sample results were diluted accordingly and were used as the final concentration for the affected analytes.

2015

SDG: E3XS9 (Case 45304)

Laboratory: KAP Technologies

- Applicable nondetect dichlorodifluoromethane, chloromethane, bromomethane, chloroethane, and carbon disulfide sample results in one sample were rejected (R) based on surrogate recoveries less than the expanded lower limit of the criteria window of 20%.
- Applicable detect and nondetect bromomethane, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, and styrene results were qualified as estimated (J/UJ) based on initial and/or continuing calibration %RSDs/%Ds (respectively) outside criteria.
- Methylene chloride, acetone, m/p-xylene, toluene, ethylbenzene, and o-xylene were detected in laboratory method and/or field blanks. Associated detected sample results were qualified as nondetect (U) at the CRQL, at two times the CRQL, or at the blank concentration if required.

- Applicable detect and nondetect results in the parent sample for the matrix spike analyses were qualified as estimated (J/UJ) based on spike %Rs less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- Some samples had analyte concentrations that exceeded the instrument calibration range. Detected sample results were qualified as estimated (J). Sample results were diluted accordingly and were used as the final concentration for the affected analytes.

2016

SDG: E3XX8 (Case 45067); E3Y07 (Case 46501)

Laboratory: Chemtech

- Nondetect carbon disulfide results for samples in SDG E3XX8 were qualified as estimated (UJ) based on the continuing calibration %D outside of criteria.
- Applicable detected sample results were qualified as estimated biased high (J+) based on surrogate recoveries above the upper limit of the criteria window.
- Applicable detect and nondetect sample results were qualified as estimated biased low (J-/UJ) based on surrogate recoveries less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- Ethylbenzene, o-xylene, m/p-xylene, and toluene were detected in the field trip blanks. Associated detected sample results were qualified as nondetect (U) at the CRQL or at the reported concentration if required.
- Some samples had analyte concentrations that exceeded the instrument calibration range. Detected sample results were qualified (J). Sample results were diluted accordingly and were used as the final concentration for the affected analytes.

2017

SDGs: E3Y53 (Case 47011); E3Y69 (Case 43729)

Laboratories: Chemtech, Shealy Environmental

- Applicable detect and nondetect 1,1-dichloroethane results in SDG E3Y53 were qualified as estimated (J/UJ) based on initial and continuing calibration %RSD and %Ds (respectively) outside criteria.
- Toluene and m/p-xylene were detected in field trip blank associated with SDG E3Y69. Associated detected sample results were qualified as nondetect (U) at the CRQL if required.
- Benzene was detected in the field blank in SDG E3Y69. The blank result was reported as the sample analyte result if required.

2018

SDG: E3YA0 (Case # 47660)

Laboratory: Shealy Environmental Services

- Applicable detect and nondetect sample results were qualified as estimated biased low (J-/UJ) based on surrogate recoveries less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- Applicable results in the parent sample for the matrix spike analyses were qualified as estimated (J/UJ) based on spike %Rs less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window.
- Bromodichloromethane, toluene, acetone and chloroform were detected in laboratory method and/or field blanks. Associated detected sample results were qualified as nondetect (U) at the CRQL, at two times the CRQL, or at the blank concentration if required.

5.3.4 Leachate RA - Treatment System Influent and Effluent Monitoring

As previously mentioned, the Area 4 leachate component RA consisted of hydraulic containment with treatment. All groundwater monitoring was performed by CDM Smith through the GMZ program. The O&M contractor, under separate contract to Illinois EPA, performed the influent and effluent sampling for the treatment system. Governing documents for this influent and effluent sampling consisted of an approved SAP and a draft QAPP. The general purpose of these documents is to outline the procedures to be followed for the sampling, collection, and analysis of project samples that help to meet the project data quality objectives.

The samples for the influent and effluent sampling were analyzed by Test America Laboratories Inc. in Chicago, Illinois. Samples were analyzed for VOCs by Method SW-846 8260B which references the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, November 1986 and its updates. The results reported by the laboratory meet all 2003 National Environmental Laboratory Accreditation Conference (NELAC) and the 2009 NELAC Institute (TNI) requirements for accredited parameters.

CDM Smith reviewed influent and effluent sampling results from 2010, 2011, 2013 and 2017. All effluent sample concentrations were either nondetect or below all required goals. All nondetect reporting limits were also below the required standards.

Laboratory data packages for these samples were also reviewed based on laboratory quality control parameters and almost all quality control results met laboratory criteria. Data quality for the influent and effluent sample results was confirmed through appropriate analytical procedures and appropriate quality control results. Sample results are usable for project decisions.

5.3.5 Soil RA

As specified in the original QAPP, field duplicates were taken at a rate of 1 per 10 investigative samples (i.e., 10 percent) and matrix spike/matrix spike duplicate (MS/MSD) samples at the rate of 1 per 20 samples (i.e., 5 percent).

A data evaluation/validation review was conducted on the Rockford Area 4 soil component RA soil data. Quality assurance (QA) objectives for data are expressed in terms of measurement performance data quality indicators, precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS). QA objectives provide a mechanism for ongoing quality control (QC) and evaluating and measuring data quality throughout the project. These QA objectives are outlined in the QAPP (CDM Smith 2016).

A review of the collected data is necessary to identify if the measurement performance criteria established in the QAPP have been met. In general, the following data measurement objectives were considered:

- Achievement of analytical method and reporting limit requirements
- Adherence to and achievement of appropriate laboratory analytical QC requirements
- Achievement of required measurement PARCCS
- Adherence to sampling and sample handling procedures
- Adherence to the sampling design and deviations documented on field change notifications

Data verification, data validation, and data assessment were used to verify adherence to the QAPP procedures and requirements. These assessments were used to reconcile the planned objectives detailed in the QAPP against the investigation results. The outputs serve to verify that the collected data are of sufficient quality to support their intended use.

5.3.5.1 Sample Analysis

Test America Laboratories Inc., University Park, Illinois; STAT Analysis Corporation, Chicago, Illinois; and the U.S. EPA Contract Laboratory Program, Chemtech Consulting Group, Mountainside, New Jersey provided all volatile organic compound analyses.

There were five data packages from Test America, six data packages from STAT and three data packages from Chemtech. Each laboratory analyzed a subset of the same samples in order to confirm the sample results for the site. In accordance with the QAPP, the Test America and STAT data were validated at a Level IV validation. The CLP data was validated by the U.S. EPA. CDM Smith reviewed the CLP validation reports and verified the sample results and applied qualifiers.

Field duplicates and MS/MSD samples were collected during the sampling events. The laboratories performed field duplicate and MS/MSD analyses as required by the methods. The individual data validation reports in soil component RA report show the field duplicate samples and relative percent differences.

The level IV validation was performed following the National Functional Guidelines for Organic Superfund Methods Data Review (U.S. EPA 2017). Some of the earlier data packages were validated with previous versions of the guidelines. For this report, all the data was reviewed against the latest 2017 guidelines and any required changes have been appropriately addressed. Data validation reports for the 14 validated packages are provided in the soil component RA report.

5.3.5.2 Validation Summary

Specific details of the validation are provided in the soil component RA report. In summary, some analytes were qualified as estimated (J/UJ), estimated biased high (J+) or biased low (J-) and/or non-detect (U), based on validation criteria. No sample results were rejected. A summary of the qualifications is provided in the following section.

5.3.5.2.1 Test America Data

Sample delivery groups (SDGs): 680-121487-01; 680-121487-02; 500-121609-01; 500-122698-01; J124029-01

- Applicable sample results for 1,2-dichloropropane, carbon disulfide and chloroethane were qualified as estimated (J/UJ) based on laboratory control sample criteria.
- 1,1,2,2-Tetrachloroethane matrix spike percent recovery was outside of criteria for samples in SDG. The associated sample results were non-detect so no qualification was required.
- Applicable detected sample results for benzene, chlorobenzene, ethylbenzene, toluene and xylenes were qualified as estimated biased high (J+) based on surrogate recovery criteria.

5.3.5.2.2 STAT Data

SDGs: 16120484; 16120511; 17010423; 17010472; 17020519; 17050731

- Associated sample results for methylene chloride, acetone, carbon disulfide and 2-butanone, were qualified as estimated (J/UJ) based on initial and continuing calibration results.
- 1,1,2,2-Tetrachloroethane, 2-hexanone, bromoform, ethylbenzene and tetrachloroethene were detected in the method blank for one SDG. No qualifiers were required though as associated sample results were either non-detect or greater than the blank action criteria. Trichloroethene was also detected in a method blank. All associated sample results were non-detect so no qualifiers were required. Ethylbenzene, toluene and chloroform were detected in another SDG method blank. Associated sample results for toluene were qualified as non-detect. Ethylbenzene and chloroform results were non-detect in the associated samples, so no qualifiers were required. Methylene chloride was detected in another SDG method blank. It was detected in 3 of the associated samples and was qualified non-detect (U).
- Applicable sample results for carbon disulfide were qualified as estimated (J/UJ) based on laboratory control sample criteria.
- Applicable 1,1,2,2-tetrachloroethane results were qualified as estimated biased high (J+/UJ) based on internal standard criteria.
- Bromoform, carbon tetrachloride, chlorobenzene, ethylbenzene, styrene, toluene, and total xylenes, results in sample A4-GP12A-161215 were qualified as estimated (J/UJ) based on matrix spike recovery results. 1,1,2,2-tetrachloreothane was also outside of matrix spike recovery criteria (high) but the sample result was non-detect so no qualifiers were

required. Bromomethane, chloroethane and 1,1,2,2-tetrachloroethane matrix spike recoveries were also outside of criteria for sample A4-GP008A-170117. Sample results were qualified as estimated (J/UJ) except for 1,1,2,2-tetrachloroethane as that result was non-detect and not require qualification. The matrix spike recoveries for 1,1,2,2-tetrachloroethane, 2- hexanone, 4-methyl-2-pentanone, bromoform, styrene and xylenes were outside of criteria (high) for sample A4-GP09A-170216. Sample results for styrene, bromoform, and xylenes were qualified (J/UJ) and all other results were non-detect so qualification was required.

- Applicable sample results for benzene, chlorobenzene, ethylbenzene, toluene and xylenes were qualified as estimated biased low (J-/UJ) based on surrogate recovery criteria.

5.3.5.2.3 CLP Data

SDGs: E3Y20; E3Y31; E3Y39

- Methylene chloride was detected in the method blanks. Applicable sample results were qualified as non-detect (U).
- Surrogate recoveries were outside of criteria (high) for a few of the samples. Associated detected sample results were qualified as estimated biased high (J+). Non-detect results did not require qualification. Surrogate recoveries were also outside of criteria (low) for a few of the samples. Associated sample results were qualified as estimated (UJ).
- Some internal standard recoveries were outside of criteria. Associated sample results were qualified as biased high (J+/UJ). Some internal standards were below the appropriate criteria. Detected results were qualified as biased high (J+).
- The initial calibration result for o-xylene was outside of criteria. The associated sample results were non-detect so no qualification was required.

In summary, the validated and reviewed data are suitable for their intended use for site characterization with two exceptions. Two results for 1,2-dibromo-3-chlolorpropane were rejected in the CLP samples A4-GP11B-161215 and A4-GP15B-161214. Sample results that were qualified as estimated are usable for project decisions. Results that have been rejected are not usable for project decisions. The two rejected sample results do not impact the data quality objectives for this project as the compound with rejected results is not a COC.

5.3.5.3 Laboratory Analytical Results Comparison

Split samples were analyzed between STAT, Test America and CLP laboratories. Not all split samples were analyzed between all three laboratories.

For Round 1 data, split sample results between the three laboratories, STAT, Test America and CLP have comparable sample results for most of the samples. There were a couple of samples between Test America and CLP where the differences between the results above the remediation goal were not as precise as other results. In these cases, the Test America reporting limits were higher than the CLP reporting limits. Even though the precision between the detected values for samples analyzed by these two laboratories is not as comparable as other results, there doesn't

seem to be any major deficiencies in data quality as variability is common between samples and laboratories. Using the highest detected value between these results for project purposes is a conservative approach. The reporting limits between the laboratories were the most similar between STAT and CLP in most of the sample comparisons.

For Round 2 data, the reporting limits were both higher for STAT and CLP results for most of the samples. Test America reporting limits were lower in most cases and similar to the reporting limits in Round 3. Most of the detected results that were above the remediation goal had good duplicate precision between the laboratories. One sample had a larger discrepancy between the laboratory results for PCE. As the detected concentrations were below or near the remediation goal this does not indicate data quality objectives are compromised.

For Round 3 data, the split sample results between the three laboratories, STAT, Test America and CLP have comparable sample results. Only one sample had a detected result from STAT while the other sample results were non-detect. The detected result for tetrachloroethene was below the reporting limit but above the method detection limit. It was also below the remediation goal.

When sample results are close to the reporting limits, it is common practice to review the difference between the results. In this case, the difference between the two results is less than (two times – common soil limit) the reporting limit indicating good precision between the two results.

The reporting limits for STAT and CLP laboratories were consistently more similar and lower than the Test America results. This is not unexpected as variability between laboratories is common due to instrument sensitivities and capabilities.

Section 6

Final Inspections and Certifications

This section presents a summary of the results of the various SERGC Source Area 4 RA contract inspections, health and safety concerns during RA construction, implementation of ICs, and remedy O&F determinations for the leachate and soil components of the RA.

6.1 Remedial Action Inspections

6.1.1 Leachate Component RA

The original pre-final inspection following construction of the leachate control system was conducted on October 6, 2010 and the checklist is included in the leachate component RA report. Representatives from Illinois EPA, U.S. EPA, CDM Smith, and Bodine were present. Several punch list items were identified including areas of bare vegetation and removal of construction debris. Because the punch list items were all minor and did not impact operation of the overall treatment system, the inspection was considered to be the final inspection and the remedy was declared O&F on the same day. All punch list items were subsequently completed.

6.1.2 ERH System

On October 11, 2016, a readiness review was conducted on site with TRS, CDM Smith, Illinois EPA, U.S. EPA, and Bodine. This readiness review was held to obtain authorization from the Illinois EPA to operate the ERH system at full capacity. On October 12, 2016, the Illinois EPA deemed the Area 4 soil component RA operationally ready and gave TRS permission to start operation of the ERH system. The ERH system began operating on October 17, 2016.

6.2 Health and Safety

The primary health and safety concerns at the Site for both the leachate and soil RAs were contaminant exposure, weather exposure (heat and cold stress), motorized traffic, and general site concerns (slips, trips, and falls; safe use of equipment). No accidents or events relating to health and safety occurred at the Site during either RA.

6.3 Institutional Controls

The IC applicable to both leachate and soil RAs, as defined in the ROD, include the restriction of groundwater use within the Area 4 GMZ. The primary groundwater use restriction IC for the entire SERGC site is through ordinances enacted by the City of Rockford and Winnebago County restricting the installation of private water supply wells. Previously, Illinois EPA notified appropriate property owners regarding the presence of the groundwater contamination as a condition of the OU1 and OU2 RODs. The Illinois EPA and U.S. EPA continue to coordinate additional institutional control activities.

6.4 Remedy Operational and Functional Determination

The National Contingency Plan (NCP), Title 40 Code of Federal Regulations Section 300 (40 CFR§300.435[f][2]), states, "A remedy becomes 'operational and functional' either one year after construction is complete, or when the remedy is determined concurrently by the regulatory agencies [i.e., Illinois EPA and U.S. EPA] to be functioning properly and is performing as designed, whichever is earlier." During the O&F period, minor adjustments may be made to the remedy as it undergoes testing and shakedown. Formal O&F determinations are made for Fund-financed remedies because, in combination with the long LTRA period, the O&F milestone governs when the U.S. EPA will turn the remedies over to the state for operation and maintenance (O&M). At a minimum, the attainment of O&F is documented in the Interim RA Report. The end of the O&F period initiates the LTRA period, which can have a duration of up to 10 years. It is important to note that for groundwater treatment remedies such as the OU3 leachate component RA at Area 4, the O&F determination did not imply that RAOs had been met, but rather that the remedy was operating properly.

6.4.1 Leachate Control system

The Illinois EPA and U.S. EPA agreed that the leachate control system remedy was officially O&F on October 6, 2010 after the final inspection had been completed the same day and after approximately one year of performance testing.

The remedy for the leachate component of the Area 4 RA was declared O&F because contaminant concentrations in groundwater immediately downgradient of the groundwater extraction system had decreased and the treatment of contaminated effluent was operating as designed.

6.4.2 ERH System Soil Remedy

On October 11, 2016, a readiness review was conducted on site with TRS, CDM Smith, Illinois EPA, U.S. EPA, and Bodine. This readiness review was held to obtain authorization from the Illinois EPA to operate the ERH system at full capacity. On October 12, 2016, the Illinois EPA deemed the Area 4 soil component RA operationally ready and gave TRS permission to start operation of the ERH system. The ERH system began operating on October 17, 2016.

6.5 Equipment Demobilization and Well Abandonment

6.5.1 Leachate Control System

The leachate control system was turned off on October 25, 2018. The leachate control system was turned off on October 25, 2018.

On December 4, 2018, the three extraction wells located in the middle of Marshall Street were abandoned by Bloyer Well & Pump. Photographs of the leachate control system demobilization are located in **Appendix D**. Bloyer used a truck-mounted lift to remove the extraction pumps from each of the wells. The pumps along and electrical wiring located inside of the wells were removed from the well. Once the pump was removed, bentonite chips were slowly poured into the well until the chips were even with the top of the PVC casing.

On December 13, 2018, the leachate control system trailer and the well valve vault were removed by Stiles, Inc (Stiles). Once the trailer was taken off site, the fill located in the area was scraped using a skid steer and loaded into a truck for transportation over to Area 7.

On May 20, 2019, Stiles removed the manhole vaults that surrounded each of the 3 extraction wells. The PVC riser was cut approximately 2 feet bgs. Once the riser was cut, the metal vault was removed, and fill was placed in the hole. The fill was compacted, and asphalt was placed on top that matched the thickness of the existing asphalt.

6.5.2 ERH System

On February 22, 2017, Illinois EPA and CDM Smith completed a final review of analytical data received from the third round of confirmation sampling and notified TRS that they could discontinue ERH application and begin demobilizing equipment off site.

On February 23, 2017, TRS began disconnecting all cables from the MPE electrodes, disconnecting and cutting all conveyance pipes on site, and disconnecting all monitoring equipment. All large equipment (PCU, blower, condenser unit, cooling towers, etc.) was mobilized off site on March 7, 2017.

On March 13, 2017, TRS began to abandon all above grade monitoring wells. TRS first broke the grout seal around each of the above grade MPE electrodes and monitoring points to expose the below ground piping. A miniature excavator was then used to excavate down approximately 3 feet bgs next to each point. After the casing was exposed, Jackson Welding was on site to cut each MPE electrode and monitoring point approximately 2 feet below grade. After the casing was cut, TRS used the miniature excavator to lift on the black iron steel pipe so that the attached copper extraction pipe could be cut into smaller lengths.

On March 22, 2017, PJ's Concrete Pumping Services was on site to abandon all MPE electrodes and monitoring points. Each MPE electrode and all monitoring points were abandoned using a concrete mixture delivered to the site by Ozinga. Concrete was poured from the truck into a pump provided by PJ's Concrete which was then used to slowly pump the concrete mixture into each point that needed to be abandoned. The concrete mixture was allowed to settle for a period of time before it was topped off. Once each point was abandoned, excavated material was placed back in the surrounding excavated area up to 6 inches below existing grade and topped with the concrete mixture until it was flush with the surrounding grade. All below grade wells were abandoned by pumping a concrete slurry through the conveyance pipes to each below grade well until they were completely full. Once the conveyance pipes were filled, each CPVC pipe was cut below existing grade and the area was topped with Portland Type 1 cement.

On April 6, 2017, a final demobilization completion meeting was held at the site between TRS, CDM Smith, Bodine, the Illinois EPA, and U.S. EPA. The purpose of the meeting was to confirm that the site had been returned to its original condition. After the meeting was completed, it was determined that the site had been returned as close as possible to its previous condition. The one exception was that the interior loading ramp that was removed for electrode/probe installation was not replaced or restored because the building had been condemned and would almost certainly be demolished. In addition, two drums of spent carbon and the external process tank were onsite at the time but were eventually removed on April 28, 2017. Refer to the soil

component RA report for the demobilization memorandum that was submitted to the Illinois EPA on April 10, 2017. The memo includes punch list items inspected during the final demobilization completion meeting.

6.6 Final Source Area 4 RA Completion

A pre-final inspection of the entire source area was conducted on July 9, 2019. The purpose of this pre-final inspection was primarily to document the demobilization of the Area 4 leachate component equipment as the soil component demobilization had already been completed and documented. Photographs taken during the pre-final inspection are located in **Appendix D**.

The only punch list item identified was final seeding of the former leachate component treatment unit and valve vault areas, which was performed on July 17, 2019. As of August 1, the grass is growing in, but is spotty in places. It is expected that the grass will mostly fill in by this fall and completely by next Spring. Because Illinois EPA and its contractors will maintain a continued presence in Rockford performing work at Areas 7 and 11, the grass at Area 4 will be monitored. Refer to **Appendix E** for the pre-final checklist and punch list items.

All RGs for Area 4 leachate and soil have been achieved. The following RAOs were established for Area 4 and they have been attained.

- Prevent the public from ingestion of soil, and direct contact with soil containing contamination in excess of state or federal standards or that poses a threat to human health
  - *The soil component RA successfully remediated soil to concentrations below the RGs established based on state and federal standards.*
- Prevent the public from inhalation of airborne contaminants in excess of state or federal standards or that pose a threat to human health
  - *A soil gas and vapor intrusion study conducted by U.S. EPA (U.S. EPA 2017) indicated that soil gas concentrations in samples collected following completion of the soil component RA had decreased and were below applicable vapor intrusion screening levels.*
- Prevent the further migration of contamination from Area 4 that would result in degradation of site-wide groundwater or surface water to levels in excess of state or federal standards, or that pose a threat to human health or the environment
  - *Based on groundwater samples collected during the GMZ sampling program, remaining groundwater contamination at Area 4 is the result of sources other than Area 4 and falls under OU2 (site-wide groundwater).*

Section 7

Operation and Maintenance Activities

This section generally summarizes the activities for post-construction O&M such as ongoing groundwater and effluent monitoring activities. For the Area 4 leachate component, O&M activities began after construction and continued for almost nine years until it was determined that remedial goals had been achieved and the leachate RA was complete. For the Area 4 soil component RA, O&M activities began after ERH system installation and continued for four months until confirmation sampling indicated that remedial goals had been achieved and the soil component RA was complete. With the completion of both the leachate and soil components, no further RA-related O&M activities specific to Area 4 will be conducted.

However, as part of the larger SERGC site and its location hydrogeologically upgradient of Area 11, Area 4 may be subject to future monitoring as it relates to activities related to these other actions.

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Section 8

Area 4 Contact Information

A summary of the key personnel contacts for the Area 4 RAs is presented in **Table 8-1** below.

Table 8-1. Key Area 4 Personnel Contacts

Name	Title	Organization	Contact Information
Brian Conrath	Remedial Project Manager	Illinois Environmental Protection Agency	Bureau of Land 1021 North Grand Avenue East Springfield, Illinois 62794 217-557-8155 Brian.Conrath@illinois.gov
Karen Kirchner	Remedial Project Manager	U.S. Environmental Protection Agency	77 West Jackson Boulevard Mail Code: SR-6J Chicago, IL 60604 312-353-4669 Karen.kirchner@epa.gov
Troy McFate	Senior Project Manager (leachate component)	Bodine Environmental Services, Inc.	5350 East Firehouse Road Decatur, Illinois 62521 217-519-3955 tmcfate@bodineservices.com
Chris Thomas	Senior Project Manager (soil component)	TRS Group, Inc.	PO Box 737 Longview, Washington 98632 847-376-3691 cthomas@thermalrs.com
John Grabs	Senior Project Manager	CDM Smith, Inc.	125 S. Wacker Drive, Suite 700 Chicago, Illinois 312-346-5000 grabsjc@cdmsmith.com

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Section 9

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Figures

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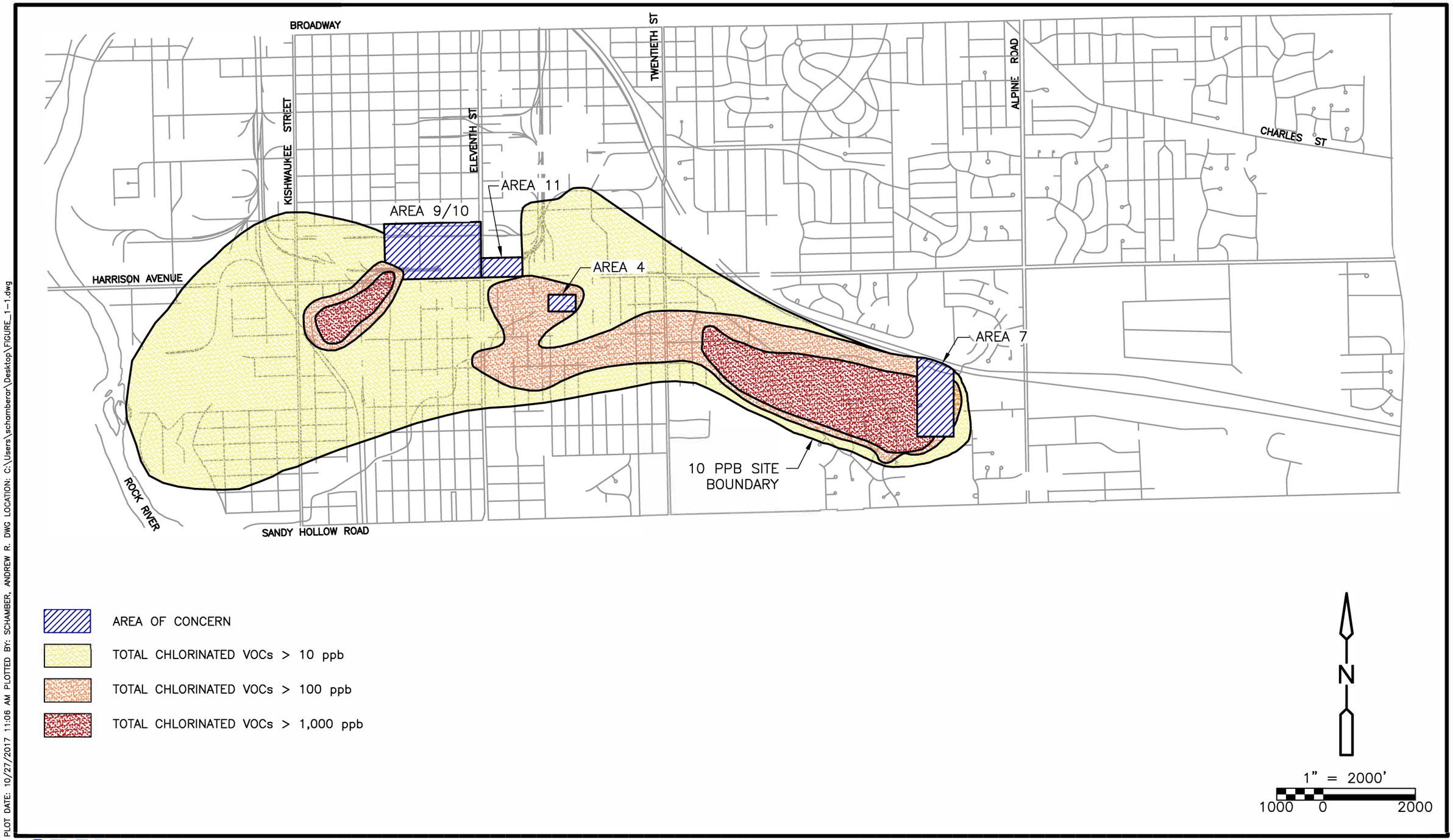

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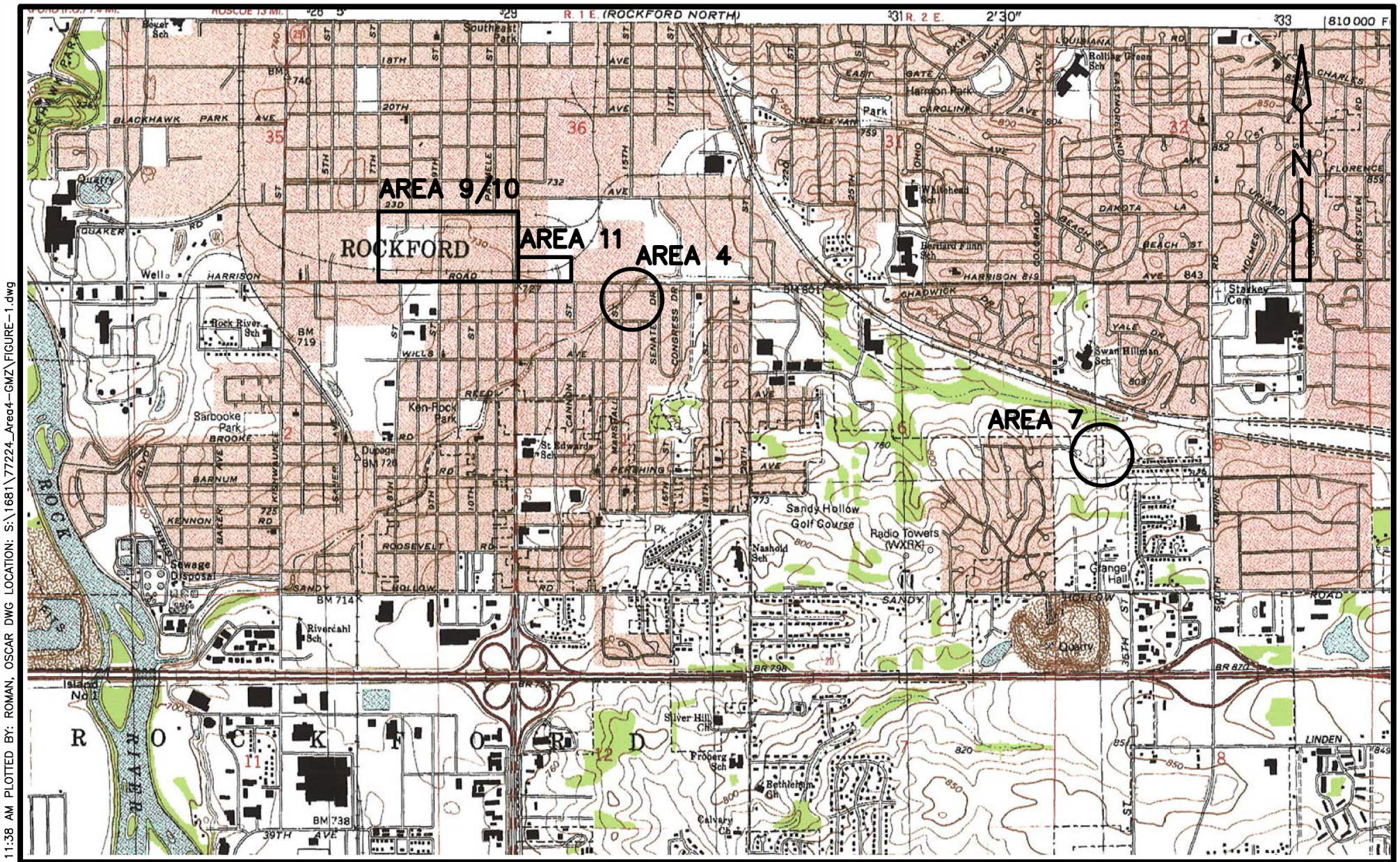
CDM Smith
125 South Wacker Drive, Suite 700
Chicago, Illinois 60606
Tel: (312) 346-5000

Figure 1-1
Southeast Rockford Groundwater Contamination Superfund Site
Rockford, IL



SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION SUPERFUND SITE
SOURCE CONTROL OPERABLE UNIT
ROCKFORD, ILLINOIS

CDM Smith

SOURCE AREA LOCATIONS

Figure No. 1-2

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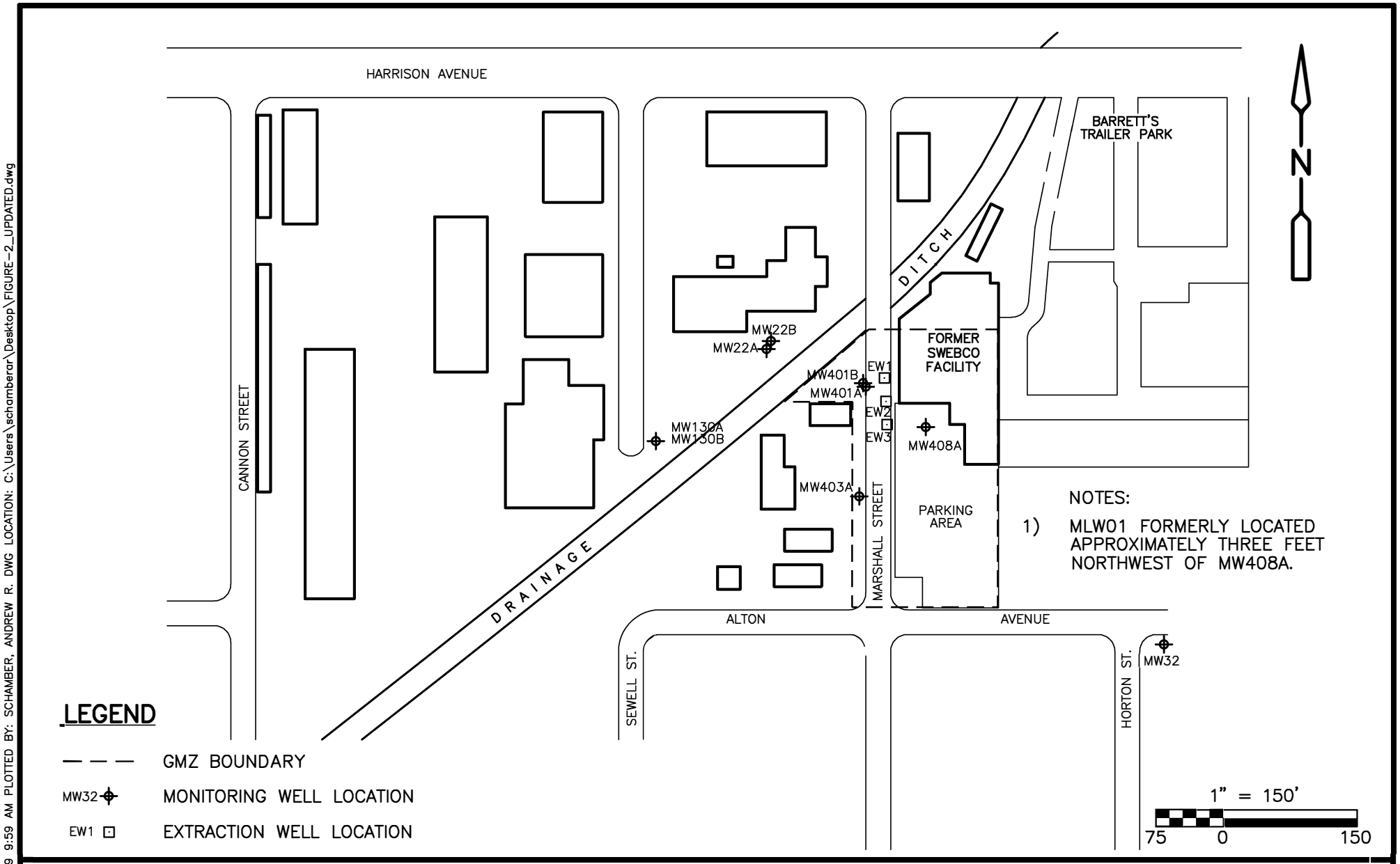

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION SUPERFUND SITE
SOURCE CONTROL OPERABLE UNIT
ROCKFORD, ILLINOIS

CDM

SOURCE AREA 4 LAYOUT

Figure No. 2-1

PLOT DATE: 9/12/2019 9:59 AM PLOTTED BY: SCHAMBER, ANDREW R. DWG LOCATION: C:\Users\schamberar\Desktop\FIGURE-2_UPDATED.dwg

Tables

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Table 5-2
Source Area 4 GMZ Summary of Detections (2010 - 2018)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3WP2	E5279	E52L9	E52P7	E52R3	E3X98	E3Y53	E3Y77	180522
	Station Location	A4-EW001	A4-EW001	A4-EW001	A4-EW001	A4-EW001	A4-EW001	A4-EW001	A4-EW001	A4-EW001
	Interval (ft. bgs)	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42
	Date	2/11/2010	6/14/2010	7/20/2011	10/11/2011	1/11/2012	7/26/2012	5/30/2017	11/14/2017	5/22/2018
Analyte Name	**RG**									
1,1,1-Trichloroethane	200	34	15	14	8.9	7.9	14	7.5	8	5.3
1,1-Dichloroethane	1400	8.9	4.5	5.3	3.2J	4.2J	5.4	5.9J	8.7	6.7
1,1-Dichloroethene	7	0.5U	1.3	2J	5U	5U	5U	1.6	1.3	0.56
Benzene	5	0.5U	0.5U	0.41J	5U	5U	5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	5.6	2.9	3.2J	5U	2.5J	2.4J	1.7	1.7	1.3
Tetrachloroethene	5	0.49J	0.35J	0.4J	5U	5U	0.51J	0.42J	0.39J	0.31J
Toluene	1000	0.5U	0.5U	5U	3.1J	5.8	5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.25J	0.5U	5U	5U	5U	5U	0.23J	0.22J	0.18J
Trichloroethene	5	3	1.7	2.1J	5U	1.2J	1.6J	1.3	1.6	1.2
Trichlorofluoromethane (Freon 11)	2100	0.14J	0.5U	5U	5U	5U	5U	0.5U	0.5U	0.5U

	EPA Sample ID	E3WP3	E5280	E52B0	E52F3	E52H5	E52M0	E52P8	E52R4	E3X99	E3XD9	E3XH8	E3XK7	E3XN6	E3XS1	E3XW0	E3XX8	E3Y54	E3Y75	180522
	Station Location	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002
	Interval (ft. bgs)	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43	25 - 43
	Date	2/11/2010	6/14/2010	10/7/2010	1/12/2011	4/18/2011	7/19/2011	10/11/2011	1/11/2012	7/26/2012	1/16/2013	7/22/2013	12/17/2013	5/21/2014	12/16/2014	5/19/2015	4/6/2016	5/30/2017	11/14/2017	5/22/2018
Analyte Name	**RG**																			
1,1,1-Trichloroethane	200	**250D**	93	**280J**	77	39	77	31	26	65	23	46D	32D	27D	64D	84D	73D	5.9	7.4	6.1
1,1-Dichloroethane	1400	14	7.9	15	7.4	7.1	9.1	4.8J	5.9	7.6	6	6	3.1	7.6	12	18D	11	12J	9.9	8.1
1,1-Dichloroethene	7	4.7J	2.4J	5U	1.5J	5U	3.1J	5U	5U	5U	5U	**7**	0.29J	1.2	1.8	1.7	0.5UJ	6.1	1.7	1.1
1,4-Dichlorobenzene	75	0.5U	0.5U	5U	0.45J	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5UJ	0.5U	0.5U	0.5U
1,4-Dioxane	7.7	NA	NA	**8J**	100R	100R	100R	100U	100R	100R	100U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	0.2*	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	**0.57**	**0.43J**	0.13J	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	5.5J	3.5J	6	3.5J	4.2J	3.2J	5U	2.4J	2.3J	5U	1.2	0.43J	1.5	2.1	2.5JD	1.5J-	1.9	2.1	1.6
Dichlorodifluoromethane (Freon 12)	1400*	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.11J	0.5U	0.5U	0.5U
Isopropyl Benzene	700	0.16J	0.22	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.88	0.62	0.82J	0.58J	5U	0.64J	5U	5U	0.62J	5U	0.32J	0.5U	0.39J	0.59	0.44J	0.43J	0.63	0.42J	0.45J
trans-1,2-Dichloroethene	100	0.24J	0.2J	5U	0.3J	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.13J	0.34J	0.5U	0.17J-	0.27J	0.27J	0.23J
Trichloroethene	5	3.3	1.8	3.6J	2.7J	2.8J	2.4J	5U	1.4J	1.8J	5U	0.94	0.25J	1.1	1.4	1.4	1.1	1.3	1.4	1.4
Xylene (Total)	10,000	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.24J	0.5U	0.5U

	EPA Sample ID	E3WP4	E5281	E52B1	E52F4	E52H6	E52M1	E52P9	E52R5	E3XA0	E3XE0	E3XH9	E3XK8	E3XN7	E3XS2	E3XW1	E3Y14	E3Y55	E3Y76	180522
	Station Location	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003
	Interval (ft. bgs)	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42	25 - 42
	Date	2/11/2010	6/14/2010	10/7/2010	1/12/2011	4/18/2011	7/19/2011	10/11/2011	1/11/2012	7/26/2012	1/16/2013	7/22/2013	12/17/2013	5/21/2014	12/16/2014	5/19/2015	10/3/2016	5/30/2017	11/14/2017	5/22/2018
Analyte Name	**RG**																			
1,1,1-Trichloroethane	200	**2400D**	**910D**	**1500J**	**1900D**	**2900**	**1200**	**740**	**710**	**670D**	**260D**	**370D**	**310**	190	52D	160	**210D**	6.1	6.1	4
1,1,2-Trichloroethane	5	**8.6J**	1.2	2.1J	1.2J	500U	10U	5U	10U	5U	5U	5U	10U	5U	0.15J	5U	5U	5U	5U	0.5U
1,1-Dichloroethane	1400	130	41J	42	35	500U	23	13	22	15	13	22	30	19	8.4D	24	59	11	8.6	5.6
1,1-Dichloroethene	7	13U	**45J**	**26**	**8.7J**	**81J**	**27**	5U	10U	3.4J	5U	3.6J	10 U	5.4	3.2	5U	5U	**7.1**	5U	1.3
1,4-Dioxane	7.7	NA	NA	7.5J	200R	10000R	200R	100U	200R	100R	100U	100U	200R	100R	NA	100U	NA	NA	NA	NA
2-Butanone	4200*	130U	500U	10UJ	20U	1000U	20U	10U	20U	10U	10U	10U	30U	10U	5U	10U	3.3J	10U	10U	5U
Acetone	6300*	130U	500U	20UJ	20U	1000U	40U	10U	20U	20U	10U	10U	20U	10U	5U	10U	2.6J	2.1J	10U	5U
Carbon Tetrachloride	5	13U	0.5U	5U	10U	500U	10U	5U	10U	5U	5U	5U	10U	5U	0.5U	**20**	5U	5U	5U	0.5U
cis-1,2-Dichloroethene	70	20	8.8J	8.2	5.9J	500U	4.6J	3J	10U	3.9J	3.1J	3.8J	10U	2.5J	3.5	2.4J	3.2J	2.3J	1.8J	1.2
Ethyl Benzene	700	13U	0.42J	0.76J	0.77J	500U	0.71J	5U	10U	0.36J	5U	5U	10U	5U	0.5U	5U	5U	5U	5U	0.24J
Isopropyl Benzene	700	13U	0.41J	0.67J	0.57J	500U	0.54J	5U	10U	0.28J	5U	5U	10U	5U	0.4J	5U	5U	5U	5U	0.22J
Tetrachloroethene	5	3.1J	1.4	2.5J	2.2J	500U	2.1J	5U	2.2J	1.1J	5U	5U	10U	0.75J	0.84	5U	5U	5U	5U	0.46J
Toluene	1000	13U	0.5U	0.54J	0.72J	500U	0.65J	5U	6.8J	0.31J	5U	5UJ	10U	0.49J	0.5U	5U	5U	5U	5U	0.5U
trans-1,2-Dichloroethene	100	13U	0.32J	5U	10U	500U	10U	5U	10U	5U	5U	5	10U	5U	0.44J	5U	5U	5U	5U	0.16J
Trichloroethene	5	**9.8J**	3.3	**10**	**8.9J**	500U	**6.6J**	2.8J	**5.4J**	2.9J	2.1J	2.1J	10U	1.3J	1.6	5U	1.3J	1.4J	1.5J	0.92
Xylene (Total)	10,000	13U	2.8	4.9J	5.0J	500U	4.4J	5U	4.5J	1.91J	5U	5U	10U	1.29J	1.2	5U	1J	3.5J	1.6J	1.41

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D = Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

CDM Smith

Table 5-2
Source Area 4 GMZ Summary of Detections (2010 - 2018)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3WP7	E5284	E52B4	E52F7	E52H9	E52Q2	E52Q8	E3XA7	E3XE2	E3XJ1	E3XL0	E3XM8	E3XR4	E3XT3	E3XY1
	Station Location	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A
	Interval (ft. bgs)	30 - 35	30 - 35	30 - 35	30 - 35	30 - 35	30 - 35	30 - 35	30 - 35	30 - 35	30 - 35	30 - 35	30 - 35	30 - 35	30 - 35	30 - 35
	Date	2/10/2010	6/14/2010	10/7/2010	1/12/2011	4/19/2011	10/11/2011	1/11/2012	7/26/2012	1/15/2013	7/22/2013	12/17/2013	5/21/2014	12/16/2014	5/21/2015	4/5/2016
Analyte Name	**RG**															
1,1,1-Trichloroethane	200	7.4	4.1	6.5	5.5	6.6	5U	4.5J	4.3J	3.9J	2.8	3.2	4.1	4.2J	3.7	3.6
1,1-Dichloroethane	1400	8.6	4.3	6.9	6.7	5.9	3.2J	5.4	4.8J	5.1	4.5	4.7	5.6J	7	7.2	5.9
1,1-Dichloroethene	7	0.5U	0.7	5U	1.5J	5U	5U	5U	5U	5U	0.46J	0.31J	0.53	0.75	0.77	0.5U
1,4-Dioxane	7.7	NA	NA	**12J**	100R	100R	100U	100R	100R	100U	NA	NA	NA	NA	NA	NA
Carbon Disulfide	700	0.5U	0.5U	5UJ	5U	5U	5U	5U	0.21J	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	9.6	2.8	4.5J	3.2J	3.7J	5U	3J	2.1J	5U	1.3	1.3	1.4	1.6	1.5	1.1
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	5UJ	5U	2.9J	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.27J	0.5U	5U	0.23J	5U	5U	5U	0.3J	5U	0.5U	0.32J	0.3J	0.35J	0.23J	0.26J
Toluene	1000	0.5U	0.5U	5U	5U	5U	4.7J	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.24J	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.1J	0.23J	0.5U	0.13J
Trichloroethene	5	1.6	0.99	1.6J	5U	1.6J	5U	1.3J	1.1J	2.8J	0.72	0.67	0.75J	0.87	0.52	0.73
Trichlorofluoromethane (Freon 11)	2100	0.17J	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.17J	0.19J	0.5U	0.5U

	EPA Sample ID	E3WP8	E5285	E52B5	E52F8	E52J0	E52Q3	E52Q9	E3XA6	E3XE3	E3XJ2	E3XL1	E3XM9	E3XR5	E3XT4	E3XY2
	Station Location	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B
	Interval (ft. bgs)	39 - 44	39 - 44	39 - 44	39 - 44	39 - 44	39 - 44	39 - 44	39 - 44	39 - 44	39 - 44	39 - 44	39 - 44	39 - 44	39 - 44	39 - 44
	Date	2/10/2010	6/15/2010	10/7/2010	1/12/2011	4/19/2011	10/11/2011	1/11/2012	7/26/2012	1/15/2013	7/22/2013	12/17/2013	5/21/2014	12/16/2014	5/21/2015	4/5/2016
Analyte Name	**RG**															
1,1,1-Trichloroethane	200	9	5.3	7.6	6.9	8.3	3.1J	3.9J	5	4.3J	3.4	4	5.3	5.8	5.4	6.1
1,1-Dichloroethane	1400	8.4	4.1	6.5	4.9J	5.7	3J	3.8J	4.6J	4.4J	4.8	5.8	7.6J	10	9.9	7.9
1,1-Dichloroethene	7	0.5U	0.95J	5U	1.3J	5U	5U	5U	5U	5U	0.97	0.67	1.2	1.5	0.5U	0.5U
cis-1,2-Dichloroethene	70	4.5	2.7J	4.7J	3.5J	4.4J	5U	2.1J	1.8J	5U	1.6	1.6	1.6	2.4	2.2	1.8
Tetrachloroethene	5	0.54	0.32J	0.55J	0.54J	5U	5U	5U	5U	5U	0.32J	0.51	0.51	0.59	0.39J	0.48J
Toluene	1000	0.5U	0.5U	5U	5U	5U	5.9	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.24J	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.13J	0.32J	0.21J	0.21J
Trichloroethene	5	2.6	1.7	2.8J	2.5J	2.9J	5U	1.3J	1.4J	5U	0.82	0.5U	0.8	0.94	0.63	1.1

	EPA Sample ID	E3WP9	E5286	E52B6	E52F9	E52J1	E52Q4	E52R0	E3XA5	E3XE4	E3XJ3	E3XL2	E3XN2	E3XR6	E3XT5	E3XY3
	Station Location	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C
	Interval (ft. bgs)	48 - 53	48 - 53	48 - 53	48 - 53	48 - 53	48 - 53	48 - 53	48 - 53	48 - 53	48 - 53	48 - 53	48 - 53	48 - 53	48 - 53	48 - 53
	Date	2/10/2010	6/15/2010	10/7/2010	1/12/2011	4/19/2011	10/11/2011	1/11/2012	7/26/2012	1/15/2013	7/22/2013	12/17/2013	5/21/2014	12/16/2014	5/21/2015	4/5/2016
Analyte Name	**RG**															
1,1,1-Trichloroethane	200	9.2	5.1	7.9	6.8	8.7	2.7J	3J	5	5.5	3.4	4	5	5.6	5.5	6.6
1,1-Dichloroethane	1400	8.9	4.3	6.6	5J	5.7	2.8J	3.3J	4.9J	5.5	4.7	5.8	6.9	9.4	10	8.1
1,1-Dichloroethene	7	0.5U	1J	5U	1.4J	5U	5U	5U	5U	5U	0.93	0.72	1.1	1.5	1.5	0.5U
1,4-Dioxane	7.7	NA	NA	**8.5J**	100R	100R	100U	100R	100R	100UJ	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	4.6	2.8J	4.7J	3.3J	4.2J	5U	1.7J	2.2J	2.1J	1.5	1.8	1.5	2.1	2.2	1.9
Tetrachloroethene	5	0.5	0.42J	0.57J	0.5J	5U	5U	5U	0.56J	5U	0.34J	0.47J	0.49J	0.55	0.39J	0.42J
Toluene	1000	0.5U	0.5U	5U	5U	5U	5U	5.4	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.28J	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.13J	0.35J	0.22J	0.22J
Trichloroethene	5	2.6	1.7	2.7J	2.6J	2.9J	5U	1.1J	1.4J	5U	0.74	0.77	0.78	0.93	0.63	1.2

	EPA Sample ID	E3WQ0	E5287	E52B7	E52G0	E52J2	E52Q5	E52R1	E3XA4	E3XE5	E3XJ4	E3XL3	E3XN2	E3XR7	E3XT6	E3XY4
	Station Location	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D
	Interval (ft. bgs)	57 - 62	57 - 62	57 - 62	57 - 62	57 - 62	57 - 62	57 - 62	57 - 62	57 - 62	57 - 62	57 - 62	57 - 62	57 - 62	57 - 62	57 - 62
	Date	2/10/2010	6/15/2010	10/7/2010	1/12/2011	4/19/2011	10/11/2011	1/11/2012	7/26/2012	1/15/2013	7/22/2013	12/17/2013	5/21/2014	12/16/2014	5/21/2015	4/5/2016
Analyte Name	**RG**															
1,1,1-Trichloroethane	200	7.9	5.6	8.1	7.5	9	2.8J	2.8J	4.8J	5.9	3.1	3.9	5	5.5	4.8	5.4
1,1-Dichloroethane	1400	7.5	4.4	7.3	6	5.3	2.9J	3.1J	4.6J	5.8	4.3	4.9	6.9J	9.1	10	7.6
1,1-Dichloroethene	7	0.5U	1.2J	5U	5U	5U	5U	5U	5U	5U	0.88	4.9	1.1J	1.3	1.4	0.5U
1,4-Dioxane	7.7	NA	NA	6.6J	100R	100R	100U	100R	100R	100U	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	3.4	2.8J	5J	4.2J	4.1J	5U	2.2J	2.2J	2.1J	1.7	1.6	1.7J	2.3	2.2	1.7
Dichlorodifluoromethane (Freon 12)	1400	0.87	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.39J	0.39J	0.55J	0.45J	5U	5U	5U	0.51J	5U	0.26J	0.61	0.54J	0.59	0.47J	0.45J
Toluene	1000	0.5U	0.5U	5U	5U	5U	5U	5.5	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.25J	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.14J	0.31J	0.25J	0.23J
Trichloroethene	5	2.1	1.6	2.7J	2.7J	2.8J	5U	1.1J	1.5J	5U	0.82	0.81	0.8J	0.94	0.65	1
Trichlorofluoromethane (Freon 11)	2100	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.19J	0.21J	0.15J	0.5U

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D = Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

CDM Smith

Table 5-2
Source Area 4 GMZ Summary of Detections (2010 - 2018)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3WQ1	E5288	E52B8	E52G1	E52J3	E52Q6	E52R2	E3XA3	E3XE6	E3XL4
	Station Location	A4-MLW01E	A4-MLW01E	A4-MLW01E	A4-MLW01E	A4-MLW01E	A4-MLW01E	A4-MLW01E	A4-MLW01E	A4-MLW01E	A4-MLW01E
	Interval (ft. bgs)	66 - 71	66 - 71	66 - 71	66 - 71	66 - 71	66 - 71	66 - 71	66 - 71	66 - 71	66 - 71
	Date	2/10/2010	6/15/2010	10/7/2010	1/12/2011	4/19/2011	10/11/2011	1/11/2012	7/26/2012	1/15/2013	12/17/2013
Analyte Name	**RG**										
1,1,1-Trichloroethane	200	**2300D**	**1800D**	**840J**	**1200D**	**300**	180	200	**920D**	**4200D**	**5700**
1,1-Dichloroethane	1400	57	81J	38	36	32	16	25	16	170	250U
1,1-Dichloroethene	7	**19J**	**92J**	**15**	6.8J	5.3J	5U	5U	**7.4**	**25J**	250U
1,2-Dichlorobenzene	600	2.5U	0.49J	0.93J	10U	25U	5U	5U	5U	25U	250U
1,4-Dioxane	7.7	NA	NA	5.3J	200R	500R	100U	100R	100R	500U	5000R
2-Butanone	4200	25U	11J	4J	20U	7.8J	10U	10U	10U	50U	500U
Acetone	6300	25U	800U	20U	20U	50U	31	10U	10U	50U	500U
cis-1,2-Dichloroethene	70	20J	33J	15	10	16J	11	28	14	16J	250U
Dichlorodifluoromethane (Freon 12)	1400	5.2	80U	5U	10U	25U	5U	5U	5U	25U	250U
Ethyl Benzene	700	10	9.4	15	11	10J	4.6J	14	8.4	14J	250U
Isopropyl Benzene	700	6.7	5.1	9.7	8.9J	7.7J	3.6J	8.4	9.6	25U	250U
Methyl Acetate	--	2.5U	20J	5U	10U	25U	71	180	8.2	50U	250U
Methylcyclohexane	--	0.64J	0.5UJ	1.2J	0.89J	25U	5U	5U	0.77J	25U	250U
Tetrachloroethene	5	**22**	**16**	**30**	**25**	**18J**	**6.2**	3.7J	**9**	25U	250U
Toluene	1000	2.5U	0.92	0.71J	1.7J	25U	3.9J	5.5	1.5J	25U	250U
Trichloroethene	5	3.3	1.5	2.5J	4.5J	25U	5U	5U	3J	**12J**	250U
Xylene (Total)	10,000	49	53J	61	48	46J	22.4	60	49	78	250U

	EPA Sample ID	E3WN4	E3WQ2	E5289	E52B9	E52C0	E52G2	E52G3	E52J6	E52J7	E52M3	E52Q7	E52Q1	E3XA8	E3XF0	E3XJ6	E3XL8	E3XN9	E3XS4	E3XW3	E3XY9	E3Y16	E3Y59
	Station Location	A4-MW022A	A4-MW022A	A4-MW022A	A4-MW022A	A4-MW022A-D	A4-MW022A	A4-MW022A-D	A4-MW022A	A4-MW022A-D	A4-MW022A	A4-MW022A	A4-MW022A	A4-MW022A	A4-MW22A	A4-MW022A	A4-MW022A	A4-MW022A	A4-MW022A	A4-MW022A	A4-MW022A	A4-MW022A	A4-MW022A
	Interval (ft. bgs)	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38
	Date	11/11/2009	2/11/2010	6/14/2010	10/7/2010	10/7/2010	1/13/2011	1/13/2011	4/18/2011	4/18/2011	7/19/2011	10/11/2011	1/10/2012	7/25/2012	1/15/2013	7/22/2013	12/18/2013	5/21/2014	12/16/2014	5/20/2015	4/6/2016	10/3/2016	5/30/2017
Analyte Name	**RG (ug/L)**																						
1,1,1-Trichloroethane	200	99D	47	48	48	48	35	33	33	26	15	20	15	13	9.3	4.9	6.1	4.1	3.8	2.1	4.6	0.69	6.7
1,1-Dichloroethane	1400	4.6	2.8	1.3	1.4J	1.5J	2.4J	2.1J	1J	0.95J	5U	5U	5U	5U	5U	0.52	0.64	0.12J	0.5U	0.65	0.58	0.5U	0.5UJ
1,1-Dichloroethene	7	3.3J	0.5U	1	5U	5U	1.5J	1.4J	5U	1.3J	5U	5U	5U	5U	5U	0.77	0.5U	0.5U	0.17J	0.5U	0.5U	0.5U	0.5U
Acetone	6300	10U	5U	5U	10U	10U	10U	20U	20U	20U	20U	24	10U	10U	10U	5U	5U	5U	5U	5U	5U	5U	5U
Chloroethane	--	0.043J	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	2.3J	1.5	0.77	0.89J	0.85J	1.8J	1.6J	0.7J	0.8J	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.13J	0.5U	0.5U
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.92	0.5U	0.5U	0.5U
m,p-Xylene	10,000+	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	10U	10U	5U	10U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.52
Methylene Chloride	5**	0.5U	1.0U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.4J	0.29J	0.5U	0.54U	0.5U	0.5U	0.5U	0.27J
o-Xylene	10,000+	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.23J
Tetrachloroethene	5	0.29J	0.23J	0.5U	5U	5U	0.19J	5U	5U	0.62J	5U	5U	5U	5U	5U	0.5U	0.22J	0.057J	0.5U	0.5U	0.5U	0.5U	0.5U
Toluene	1000	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	1.1J	5U	0.5U	0.25J	1.1U	0.5U	0.5U	0.5U	0.5U	0.58
trans-1,2-Dichloroethene	100	0.5U	0.097J	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Trichloroethene	5	1.6	1.3J	0.73	0.66J	0.66J	5U	5U	0.83J	0.82J	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.11J	0.5U

	EPA Sample ID	E3Y82	180523
	Station Location	A4-MW022A	A4-MW22A
	Interval (ft. bgs)	28 - 38	28 - 38
	Date	11/15/2017	5/23/2018
Analyte Name	**RG (ug/L)**		
1,1,1-Trichloroethane	200	12	2.9
1,1-Dichloroethane	1400	0.5U	0.5U
1,1-Dichloroethene	7	0.5U	0.5U
Acetone	6300	5U	5U
Chloroethane	--	0.5U	0.5U
cis-1,2-Dichloroethene	70	0.5U	0.5U
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U
m,p-Xylene	10,000+	0.5U	0.5U
Methylene Chloride	5**	0.5U	0.5U
o-Xylene	10,000+	0.5U	0.5U
Tetrachloroethene	5	0.5U	0.5U
Toluene	1000	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.5U	0.5U
Trichloroethene	5	0.5U	0.5U

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D = Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

CDM Smith

Table 5-2
Source Area 4 GMZ Summary of Detections (2010 - 2018)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3WN3	E5290	E52C1	E52G4	E52J8	E52M4	E52Q8	E52Q9	E52Q0	E3XA9	E3XB0	E3XF1	E3XJ7	E3XL9	E3XO1	E3XS5	E3XW4	E3XZ0	E3Y17	E3Y60	E3Y80	180523
	Station Location	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW22B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW22B
	Interval (ft. bgs)	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46	36 - 46
	Date	11/11/2009	6/14/2010	10/6/2010	1/13/2011	4/18/2011	7/19/2011	10/11/2011	10/11/2011	1/10/2012	7/25/2012	7/25/2012	1/15/2013	7/22/2013	12/18/2013	5/21/2014	12/16/2014	5/20/2015	4/6/2016	10/3/2016	5/30/2017	11/15/2017	5/23/2018
Analyte Name	**RG**																						
1,1,1-Trichloroethane	200	12J	5	7.7	6.4	6.7	4.4J	2.7J	2.9J	5.1	6	5.8	5.4	4	4.4	6.6	7	7.5	8.5	7.6	7.2	9	5.1
1,1-Dichloroethane	1400	9.9	4	7.6	6.4	5.9	5.4	3.7J	3.8J	6.6	6.9	7	8	6.9	6.1	8.6	9.8	11	9.6	9.5	12J	10	6.9
1,1-Dichloroethene	7	0.5U	1	5U	1.5J	1.5J	5U	5U	5U	5U	5U	5U	5U	0.98	0.72	0.95	1.5	1.4	0.5U	1.6	1.2	1.2	0.94
1,4-Dioxane	7.7	NA	NA	**8.9J**	100R	100R	100R	100U	100U	100R	100R	100R	100UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	6300	5U	5U	20U	20U	20U	20U	24J	20	10U	10U	20U	10U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Benzene	5	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.9	0.5U
cis-1,2-Dichloroethene	70	12	3.1	5.4	3.7J	3.6J	2.8J	5U	5U	3.3J	2.6J	2.8J	2.2J	1.8	1.6	1.8	2.1	2.4	1.9	1.8	1.8	1.9	1.4
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	5.9	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.13J	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.49J	0.3J	5U	0.31J	0.61J	0.32J	5U	5U	5U	5U	0.51J	5U	0.3J	0.55	0.4 J	0.44J	0.38J	0.43J	0.37J	0.4J	0.46J	0.29J
Toluene	1000	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	0.92J	0.91J	5U	0.5U	0.58	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.56	0.5U
trans-1,2-Dichloroethene	100	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.21J	0.39J	0.3J	0.3J	0.29J	0.29J	0.3J	0.19J
Trichloroethene	5	3.7	1.4	2.2J	5U	1.7J	1.2J	5U	5U	1.2J	1.2J	1.3J	5U	0.85	0.74	1	1.3	0.95	1.5	1.2	1.4	1.6	1
Trichlorofluoromethane (Freon 11)	2100	0.5UJ	0.5U	5U	0.25J	5U	5U	5U	5U	5U	0.71J	0.72J	5U	0.5U	0.5U	0.54	0.5J	0.35J	0.31J	0.4J	0.3J	0.43J	0.17J
Xylene (Total)	10,000	0.5U	0.5U	5U	5U	5U	0.15J	5U	5U	5U	0.28J	5U	5U	0.22J	1.34	0.5U	0.5U	0.5U	0.66	0.5U	0.21J	0.5U	0.5U

	EPA Sample ID	E3WN5	E3WQ3	E5291	E52C4	E52G5	E52J9	E52M5	E52R0	E52P7	E3XB1	E3XF2	E3XF3	E3XK1	E3XK2	E3XM0	E3XM1	E3XO6	E3XR1	E3XR2	E3XT0	E3XT1	E3XZ1
	Station Location	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW32	A4-MW32	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032-D	A4-MW032
	Interval (ft. bgs)	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45
	Date	11/10/2009	2/10/2010	6/14/2010	10/6/2010	1/12/2011	4/18/2011	7/19/2011	10/11/2011	1/10/2012	7/25/2012	1/15/2013	1/15/2013	7/22/2013	7/22/2013	12/17/2013	12/17/2013	5/21/2014	12/16/2014	12/16/2014	5/19/2015	5/19/2015	4/5/2016
Analyte Name	**RG**																						
1,1,1-Trichloroethane	200	22D	17	11	16	14	15	8.3	7.2	8.4	8.5	9.1	9.1	4.5	4.7	5.5	5.4 J	5.1	5.3	6.2	5.6	5.3	4.8
1,1-Dichloroethane	1400	18	17	9.3	16	13	12	7.5	6.7	7.8	8.8	12	12	6.7	6.6	5.5	5.5	5.6	7.5	8	8.4	8.4	5.8
1,1-Dichloroethene	7	5.1J	1.6	2.6	5U	3.7J	1.7J	5U	5U	5U	5U	5U	5U	0.6	0.55	0.68	0.72	0.79	1.1	1.1	1.2	0.99	0.5U
Acetone	6300	5U	5U	5U	20U	20U	20U	20U	22	10U	10U	10U	10U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Bromodichloromethane	0.2*	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	**0.34J**	**0.74**	**0.86**	**0.99**	**0.94**	**1.8**
Carbon Disulfide	700	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	0.16J	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5UJ
Chloroform	70	0.5U	**0.21J**	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.22J	0.5U	0.64	1.4	1.5	2.1	2.1	2.2
Chloromethane	--	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	36D	8.9	5.9	11	8.7	10	7.3	4.3J	7.1	3.8J	3.8J	3.8J	2.2	1.9	1.6	1.6	1.4	2	2.2	2.5	2.3	1.9
Dibromochloromethane	140*	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	0.39J	5U	5U	0.5U	0.5U	0.5U	0.5U	0.18J	0.48J	0.55	0.64	0.63	1.4
Methylene Chloride	5**	0.5UJ	1U	0.5U	5U	5U	5U	5U	10U	5U	5U	10U	10U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5	0.7	0.67	0.47J	0.7J	0.75J	1J	0.54J	5U	5U	5U	5U	5U	0.47J	0.5U	0.6	0.64	0.57	0.66	0.75	0.59	0.56	0.51
trans-1,2-Dichloroethene	100	0.6J	0.79	0.32J	0.56J	0.42J	0.83J	0.63J	5U	5U	5U	5U	5U	0.33J	0.27J	0.5U	0.5U	0.15J	0.27J	0.34J	0.21J	0.24J	0.5U
Trichloroethene	5	**9.3**	**7.8**	**5.4**	**8**	**8.1**	**8.1**	**5.1**	2.8J	5	4.3J	3.8J	3.8J	2	2	2.1	2.1	1.4	1.6	1.8	1.4	1.2	1.4

	EPA Sample ID	E3XZ2	E3Y08	E3Y61	E3Y62	E3Y70	E3Y71	180522	180522
	Station Location	A4-MW032-D	A4-MW032	A4-MW032	A4-MW032-D	A4-MW032	A4-MW032-D	A4-MW032	A4-MW032-D
	Interval (ft. bgs)	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45	35 - 45
	Date	4/5/2016	10/3/2016	5/30/2017	5/30/2017	11/14/2017	11/14/2017	5/22/2018	5/22/2018
Analyte Name	**RG**								
1,1,1-Trichloroethane	200	5.8	4.5	5.2	5.4	9	9.5	9.3	9.9
1,1-Dichloroethane	1400	5.7	5.7	5.8J	9.3J	11	11	11	12
1,1-Dichloroethene	7	0.5U	1.1	0.99	1	1.8	1.8	2.1	2.2
Acetone	6300	5U	5U	5U	5U	5U	5U	5U	5U
Bromodichloromethane	0.2*	**1.8**	**0.94**	**0.95**	**0.99**	**0.41J**	0.5U	0.5U	0.5U
Carbon Disulfide	700	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Chloroform	70	2.1	1.4	1.2	1.2	0.62	0.63	0.5U	0.5U
Chloromethane	--	0.5U	0.5U	0.5U	0.5U	0.5U	0.18J	0.5U	0.5U
cis-1,2-Dichloroethene	70	1.7	1.6	2	2	2.5	2.5	2.3	2.5
Dibromochloromethane	140*	1.3	0.63	0.72	0.71	0.27J	0.33J	0.5U	0.5U
Methylene Chloride	5**	0.5U	0.5U	0.5U	0.22J	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.63	0.6	0.59	0.61	0.65	0.65	0.58	0.61
trans-1,2-Dichloroethene	100	0.21J	0.5U	0.22J	0.24J	0.32J	0.3J	0.31J	0.34J
Trichloroethene	5	1.7	1.3	1.5	1.6	2.3	2.5	3	3.3

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D = Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

CDM Smith

Table 5-2
Source Area 4 GMZ Summary of Detections (2010 - 2018)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3WN6	E3WQ4	E5292	E52C2	E52G6	E52K1	E52M6	E52R1	E52Q4	E3XB2	E3XE7	E3XJ8	E3XL5	E3XO2	E3XS6	E3XW5	E3XY6	E3Y18	E3Y57	E3Y81	180523
	Station Location	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A
	Interval (ft. bgs)	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38
	Date	11/11/2009	2/11/2010	6/15/2010	10/7/2010	1/13/2011	4/18/2011	7/19/2011	10/12/2011	1/11/2012	7/26/2012	1/16/2013	7/22/2013	12/18/2013	5/22/2014	12/16/2014	5/21/2015	4/6/2016	10/3/2016	5/30/2017	11/15/2017	5/23/2018
Analyte Name	**RG**																					
1,1,1-Trichloroethane	200	**370D**	**580D**	**520D**	**630**	**630**	**290**	140	120	130	53	64	20	11J	11	7.8	12	7.5	8	8.5	11	5.9
1,1,2-Trichloroethane	5	0.51	0.94	1.6	1.8J	1.1J	20U	0.5J	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5J
1,1-Dichloroethane	1400	35	39J	31	48	33	24	13	9.8	12	7.2	8.9	6.6	6.4J	8	10	11	9.3	9.6	14J	17	8.2
1,1-Dichloroethene	7	**7.4J**	**13J**	**12J**	**18**	**8.5**	**9.2J**	5	5UJ	5U	5U	5U	3.4	1.2	1.3	1.7	1.2	0.5U	1.8	1.8	3.3	2
Bromodichloromethane	0.2*	0.5U	0.5U	0.5UJ	5U	5U	20U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.19J	0.19J	0.12J	0.5U	0.5U	0.5U	0.5J
Carbon Tetrachloride	5	0.5UJ	**84J**	0.5U	5U	5U	20U	5U	5U	5U	5U	5U	0.5U	0.5UJ	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5J
cis-1,2-Dichloroethene	70	14J	10J	15J	13	7.8	6.9J	4.5J	3.4J	4.7J	2.9J	2.3J	1.9	2.2	1.8	2.3	2.2	2.1	2	2	2.1	1.4
Dichlorodifluoromethane (Freon 12)	1400	6.3	0.5U	20U	0.58J	5U	20U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5J
m,p-Xylene	10,000+	0.5U	0.5U	0.5U	5U	5U	20U	5U	5U	5U	5U	5U	0.5U	1.1J	0.5U	0.5U	0.5U	0.7	0.5U	0.5U	0.5U	0.5U
o-Xylene	10,000+	0.5U	0.5U	0.5U	5U	5U	20U	5U	5U	5U	5U	5U	0.5U	0.91	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.26J	0.5U
Tetrachloroethene	5	0.88	0.99	0.78	5U	0.72J	20U	0.61J	5U	5U	0.7J	5U	0.26J	0.97	0.45J	0.57	0.45J	0.44J	0.41J	045J	0.46J	0.31J
Toluene	1000	0.5U	0.5U	0.5U	5U	5U	20U	5U	5U	8.2	0.54J	5U	0.5U	0.51	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.69	0.5U
trans-1,2-Dichloroethene	100	0.38J	0.28J	20U	5U	0.39J	20U	5U	5UJ	5U	5U	5U	0.5U	0.32J	0.17J	0.39J	0.25J	0.26J	0.23J	0.26J	0.35J	0.19J
Trichloroethene	5	3.6	3.7	2.5	4.9J	4.1J	3.4J	2.8J	5U	2.5J	2.1J	2J	1.3	1.6	1.3	1.5	0.96	1.4	1.4	1.5	1.7	1.3
Trichlorofluoromethane (Freon 11)	2100	0.5UJ	0.5UJ	20U	5U	5U	20U	5U	5U	5U	0.25J	5U	0.5U	0.47J	0.31J	0.39J	0.21J	0.25J	0.5U	0.5U	0.27J	0.5U

	EPA Sample ID	E3WN7	E3WN8	E3WQ5	E5293	E5294	E52C3	E52G7	E52K2	E52M7	E52R2	E52Q2	E3XB3	E3XE8	E3XE9	E3XJ9	E3XK0	E3XL6	E3XL7	E3XO3	E3XO4	E3XS7	E3XS8
	Station Location	A4-MW130B	A4-MW130B-D	A4-MW130B	A4-MW130B	A4-MW130B-D	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B
	Interval (ft. bgs)	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55
	Date	11/11/2009	11/11/2009	2/10/2010	6/15/2010	6/15/2010	10/7/2010	1/13/2011	4/18/2011	7/19/2011	10/12/2011	1/11/2012	7/26/2012	1/16/2013	1/16/2013	7/22/2013	7/22/2013	12/18/2013	12/18/2013	5/22/2014	5/22/2014	12/16/2014	12/16/2014
Analyte Name	**RG**																						
1,1,1-Trichloroethane	200	110D	82D	**260D**	110	100	110	60	49	20	5U	17	12	8.1	13	4.6	4.4	6.1	6.4	6.5	6.4	7.4	7.5
1,1,2-Trichloroethane	5	0.18J	0.16J	0.55	0.27J	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
1,1-Dichloroethane	1400	16	17	19	10	10	14	11	9.9	6.2	5U	8.1	6.7	7	11	6.8	6.6	8.3	8.2	8.2	8.3	11	11
1,1-Dichloroethene	7	3.8	4.4J	6.1J	3J	3.2J	5U	2.5J	2.7J	2.1J	5U	5U	5U	5U	5U	1.1	1.2	1.4J	1.3J	1.2	1.3	1.7	1.8
1,4-Dioxane	7.7	NA	NA	NA	NA	NA	12J	100R	11J	100R	100U	100R	100R	100U	100UJ	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	0.2*	0.5U	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.12J	0.12J
cis-1,2-Dichloroethene	70	8.2	8.7J	7.6J	4.7J	4.7J	7.1	4.7J	5.4	3.3J	5U	4J	3J	2.2J	2.8J	1.9	1.9	2.1J	2.1J	1.7	1.8	2.3	2.5
Dichlorodifluoromethane (Freon 12)	1400	9.1	0.5U	0.5U	0.5U	0.5U	2.6J	5U	5U	5U	5U	5U	5U	13	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
m,p-Xylene	10,000+	0.5U	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.4J	0.41J	0.34J	0.28J	0.5U	0.5U	0.5U	0.5U
Methylene Chloride	5**	0.5U	0.5UJ	1U	0.5U	0.5U	5U	5U	5U	5U	10U	5U	5U	10U	10U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
o-Xylene	10,000+	0.5U	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.2J	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.57	0.63	0.52	0.36J	0.33J	0.53J	0.4J	0.78J	0.41J	5U	5U	5U	5U	5U	0.28J	0.29J	0.49J	0.52	0.38J	0.38J	0.57	0.53
Toluene	1000	0.5U	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	6.9	0.86J	5U	5U	0.5U	0.5U	0.23J	0.5U	1.1 U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.5U	0.4J	0.21J	0.5U	0.5U	5U	0.3J	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.28J	0.2J	0.2J	0.39J	0.44J
Trichloroethene	5	3.6	4.1	3.1	1.9	1.8	3.2J	3.1J	3J	1.7J	5U	1.7J	1.5J	5U	5U	1.1	0.97	1.2	1.3	1	1	1.5	1.6
Trichlorofluoromethane (Freon 11)	2100	0.5U	0.5UJ	0.17J	0.5U	0.5U	5U	5U	5U	5U	5U	5U	0.54J	5U	5U	0.5U	0.5U	0.5U	0.64	0.42J	0.49J	0.39J	0.43J

	EPA Sample ID	E3XW6	E3XW7	E3XY7	E3XY8	E3Y19	E3Y58	E3Y82	E3Y98
	Station Location	A4-MW130B	A4-MW130B-D	A4-MW130B	A4-MW130B-D	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B
	Interval (ft. bgs)	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55	45 - 55
	Date	5/21/2015	5/21/2015	4/6/2016	4/6/2016	10/3/2016	5/30/2017	11/15/2017	5/23/2018
Analyte Name	**RG**								
1,1,1-Trichloroethane	200	7.4	7.6	7.6	7.3	8.6	7.9	9.7	7.3
1,1,2-Trichloroethane	5	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5J
1,1-Dichloroethane	1400	11	12	10	9.8	11	13J	13	10
1,1-Dichloroethene	7	1.5	1.6	0.5U	0.5U	1.9	1.5	1.8	1.5
1,4-Dioxane	7.7	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	0.2*	0.5U	0.5U	0.11J	0.1J	0.5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	2.4	2.3	2.2	2.1	2.2	2	2.1	2.1
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
m,p-Xylene	10,000+	0.5U	0.5U	0.5U	0.5U	0.5U	0.23J	0.57	0.21J
Methylene Chloride	5**	0.5U	0.5U	0.5U	0.5U	0.5U	0.24J	0.5U	0.5U
o-Xylene	10,000+	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.28J	0.5U
Tetrachloroethene	5	0.34J	0.34J	0.43J	0.37J	0.38J	0.43J	0.36J	0.38J
Toluene	1000	0	0.5U	0.5U	0.5U	0.5U	0.23J	0.57	0.5U
trans-1,2-Dichloroethene	100	0.5U	12	0.31J	0.23J	0.28J	0.28J	0.3J	0.24J
Trichloroethene	5	0.95	0.97	1.4	1.4	1.4	1.5	1.6	1.5
Trichlorofluoromethane (Freon 11)	2100	0.34J	0.35J	0.29J	0.27J	0.34J	0.25J	0.39J	0.2J

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D = Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

CDM Smith

Table 5-2
Source Area 4 GMZ Summary of Detections (2010 - 2018)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3WN9	E3WQ6	E3WQ7	E5295	E52C5	E52C6	E52G8	E52K3	E52M8	E52M9	E52R3	E52P9	E3XB4	E3XF4	E5296	E3XK3	E3XM2	E3XN4	E3XR9	E3XT8	E3XZ3	E3Y11
	Station Location	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A-D	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A
	Interval (ft. bgs)	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38	28 - 38
	Date	11/11/2009	2/11/2010	2/11/2010	6/14/2010	10/6/2010	10/6/2010	1/12/2011	4/18/2011	7/19/2011	7/19/2011	10/11/2011	1/10/2012	7/25/2012	1/15/2013	6/14/2010	7/22/2013	12/17/2013	5/21/2014	12/16/2014	5/20/2015	4/5/2016	10/3/2016
Analyte Name	**RG**																						
1,1,1-Trichloroethane	200	**320D**	8.7	8.9	5.9	9.9	9.9	9.6	10	4.7J	4.7J	3.3J	5.8	8.5	13	5.9	8.6	6.4	16	9.8	9.4	12	4.2
1,1-Dichloroethane	1400	16	7.2	7.5	4.8	8.6	8.4	5U	8.5	5.3	5.4	3.9J	6.1	4.8J	3.9J	5	0.36J	4.9J	0.25J	0.5J	5.5	6.8	4.4
1,1-Dichloroethene	7	**11J**	1.5	0.5U	1.1	5U	5U	5U	1.3J	5U	1.7J	5UJ	5U	5U	5U	1.3J	0.84	0.7	0.5U	0.5U	0.94	0.5U	0.88
1,4-Dioxane	7.7	NA	NA	NA	NA	**13J**	100R	100R	100R	100R	100R	100U	100R	100R	100U	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	6300*	5U	5U	5U	5U	20U	10U	20U	20U	20U	20U	10U	10U	20U	10U	5U	5U	5U	5U	5U	5U	2.5J+	5U
Benzene	5	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Bromodichloromethane	0.2*	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5UJ	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.15J	0.5U
Chloromethane	-	1.2	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	1.8J	4.8	4.9	3.3	5.9	5.8	5U	5.4	3.4J	3.4J	5U	3.5J	1.9J	5U	3.6J	0.5U	1.4	0.5U	0.5U	1.2	1.6	1
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	0.5U	0.67J	0.62J	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Methylene Chloride	5**	0.5UJ	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	10U	5U	5U	10U	0.5U	0.5U	0.5U	0.5U	0.5U	1U	0.5U	0.5U
Tetrachloroethene	5	0.81	0.22J	0.23J	0.27J	5U	5U	5U	0.54J	0.28J	0.28J	5U	5U	5U	5U	0.25J	0.5U	0.37J	0.09J	0.15J	0.33J	0.22J	0.14J
Toluene	1000	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	0.63J	5U	0.5U	0.5U	0.28J	0.5U	0.5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.5U	0.18J	0.19J	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.18J	0.5U
Trichloroethene	5	**6.3**	2.3	2.3	2	3.1J	3.1J	5U	3.1J	1.7J	1.7J	5U	1.5J	1.3J	5U	1.8	0.5U	1.1	0.26J	0.2J	0.75	0.86	0.48J
Trichlorofluoromethane (Freon 11)	2100	0.5UJ	0.13J	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	0.29J	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Xylene (Total)	10,000	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	0.17J	0.27J	5U	5U	0.22J	5U	0.5U	0.5U	0.34J	0.5U	0.5U	0.5U	0.77	0.5U

	EPA Sample ID	E3Y63	E3Y73	180522
	Station Location	A4-MW401A	A4-MW401A	A4-MW401A
	Interval (ft. bgs)	28 - 38	28 - 38	28 - 38
	Date	5/30/2017	11/14/2017	5/22/2018
Analyte Name	**RG**			
1,1,1-Trichloroethane	200	8.5	8.4	6
1,1-Dichloroethane	1400	8.7J	10	8.2
1,1-Dichloroethene	7	1.5	1.4	1.3
1,4-Dioxane	7.7	NA	NA	NA
Acetone	6300*	5U	5U	5U
Benzene	5	0.5U	4.4	0.5U
Bromodichloromethane	0.2*	0.5U	0.5U	0.5U
Chloromethane	-	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	1.8	2	1.7
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U
Methylene Chloride	5**	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.35J	0.41J	0.39J
Toluene	1000	0.5U	0.53	0.5U
trans-1,2-Dichloroethene	100	0.26J	0.3J	0.22J
Trichloroethene	5	1.3	1.5	1.4
Trichlorofluoromethane (Freon 11)	2100	0.5U	0.33J	0.12J
Xylene (Total)	10,000	0.5U	0.79J	0.5U

	EPA Sample ID	E3WP0	E3WQ8	E3WQ9	E5297	E52C7	E52G9	E52H0	E52K4	E52N0	E52R4	E52R5	E52P8	E52Q6	E52Q7	E3XB5	E3XB6	E3XF5	E3XK4	E3XM3	E3XN5	E3XS0	E3XT9
	Station Location	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B
	Interval (ft. bgs)	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65	61 - 65
	Date	11/11/2009	2/10/2010	2/10/2010	6/14/2010	10/6/2010	1/13/2011	1/13/2011	4/18/2011	7/19/2011	10/11/2011	10/11/2011	1/10/2012	1/10/2012	1/10/2012	7/25/2012	7/25/2012	1/15/2013	7/22/2013	12/17/2013	5/21/2014	12/16/2014	5/20/2015
Analyte Name	**RG**																						
1,1,1-Trichloroethane	200	15	12J	10	6.1	10	9.2	8.8	10	6.3	4.6J	4J	6.6	8.1	6.9	6.7	6.2	7.2	4.3	5.3	6.2	8	7.1
1,1-Dichloroethane	1400	16	10	9.5	5.2	10	8.8	8.4	8.2	6.6	5.1	4.6J	6.6	8.2	7.9	7	6.4	8.5	7	6.8	8.6	12	11
1,1-Dichloroethene	7	0.5U	2	0.5U	1	5U	1.7J	1.9J	1.4J	1.9J	5U	5U	5U	5U	5U	5U	5U	5U	1.2	0.78J	1.3J	2	1.6
1,2,3-Trichlorobenzene	--	0.5U	0.5U	0.5U	0.5U	5UJ	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.32J
1,2,4-Trichlorobenzene	70*	0.5U	0.5U	0.5U	0.5U	5UJ	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.21J
Bromodichloromethane	0.2*	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5UJ	0.5U	0.5U	0.13J
cis-1,2-Dichloroethene	70	34D	7.1	6.7	3.8	6.8	5.2	5J	5.3	4J	3.2J	2.7J	4.1J	5J	3.6J	3J	2.9J	2.8J	2.2	1.9	1.9	2.7	2.5
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	0.5U	0.74J	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U
Methylene Chloride	5**	1U	0.5UJ	0.5U	0.5U	5U	5U	5U	5U	5U	12U	12U	5U	5U	5U	5U	5U	10U	0.5U	0.5U	0.5U	0.5U	1U
Tetrachloroethene	5	0.45J	0.38J	0.33J	0.5U	5U	0.35J	0.35J	5U	0.34J	5U	5U	5U	5U	5U	0.57J	5U	5U	0.29J	0.72	0.4J	0.53	0.4J
Toluene	1000	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5.7	5.8	0.72J	0.69J	5U	0.51J	0.29J	0.5U	2.3U	0.5U
trans-1,2-Dichloroethene	100	0.46J	0.27J	0.27J	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.18J	0.47J	0.28J
Trichloroethene	5	4.8	3.7	3.3	1.8	3.4J	3.2J	3.3J	3J	2.5J	5U	5U	2.5J	2.9J	1.4J	2.2J	2.1J	2J	1.3J	1.3	1.2	1.7	1.2
Trichlorofluoromethane (Freon 11)	2100	0.5U	0.5UJ	0.5U	0.5U	5U	0.14J	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.36J	0.43J	0.21J
Xylene (total)	10,000	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.37J	0.27J	0.5U	5	0.5U

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D = Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

CDM Smith

Table 5-2
Source Area 4 GMZ Summary of Detections (2010 - 2018)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID Station Location Interval (ft. bgs) Date	E3XZ4 A4-MW401B 61 - 65 4/5/2016	E3Y12 A4-MW401B 61 - 65 10/3/2016	E3Y64 A4-MW401B 61 - 65 5/30/2017	E3Y74 A4-MW401B 61 - 65 11/14/2017	180522 A4-MW401B 61 - 65 5/22/2018
Analyte Name	**RG**					
1,1,1-Trichloroethane	200	6.3	8	7	8.8	6
1,1-Dichloroethane	1400	11	11	13J	12	8.3
1,1-Dichloroethene	7	0.5U	0.5U	1.4	1.6	1.4
1,2,3-Trichlorobenzene	--	0.5U	0.5U	0.5U	0.5U	0.5U
1,2,4-Trichlorobenzene	70*	0.5U	0.5U	0.5U	0.5U	0.5U
Bromodichloromethane	0.2*	0.14J	0.5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	2.4	2.4	2.1	2.4	1.7
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	0.5U	0.5U
Methylene Chloride	5**	0.5U	0.5U	0.25J	0.5U	0.5U
Tetrachloroethene	5	0.31J	0.4J	0.45J	0.41J	0.34J
Toluene	1000	0.5U	0.5U	0.5U	0.64	0.5UJ
trans-1,2-Dichloroethene	100	0.23J	0.32J	0.27J	0.36J	0.24J
Trichloroethene	5	1.3	1.4	1.4	1.6	1.4J
Trichlorofluoromethane (Freon 11)	2100	0.22J	0.5U	0.23J	0.25J	0.5U
Xylene (total)	10,000	0.5U	0.5U	0.5U	0.93J	0.14J

	EPA Sample ID Station Location Interval (ft. bgs) Date	E3XH7 A4-MW403 30 - 40 7/22/2013	E3XM5 A4-MW403 30 - 40 12/17/2013	E3XM7 A4-MW403 30 - 40 5/21/2014	E3XM6 A4-MW403 30 - 40 5/21/2014	E3XR3 A4-MW403 30 - 40 12/16/2014	E3XT2 A4-MW403 30 - 40 5/19/2015	E3XZ5 A4-MW403 30 - 40 4/5/2016	E3Y10 A4-MW403 30 - 40 10/3/2016	E3Y65 A4-MW403 30 - 40 5/30/2017	E3Y72 A4-MW403 30 - 40 11/14/2017	180523 A4-MW403 30 - 40 5/23/2018
Analyte Name												
1,1,1-Trichloroethane	200	24D	13	12	14	42D	3.9	70D	12	2	2.3	2.1
1,1-Dichloroethane	1400	7.7	3.1J	4.7	5.8J	14	6.7	20	2.7	3.3J	2.1	3.5
1,1-Dichloroethene	7	2.6	0.39J	0.55	0.67J	1.3	0.73	4.1	0.99J-	1.1	0.4J	0.56
Acetone	6300*	5U	5U	10U	5U	5U	5U	5U	3.3J	5U	5U	5U
Benzene	5	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	3	0.5U
Chloromethane	-	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.27J	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	0.98	0.91	1	1.3J	1.6	1.6	1	0.59J-	0.58	0.46J	0.69
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	0.5U	0.5U	0.38J	0.5U	0.5U	0.5U	0.5U	0.5U
Methylene Chloride	5**	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.22J	0.5U	0.5U
Tetrachloroethene	5	0.5U	0.25J	0.32J	0.39J	0.45J	0.37J	0.22J	0.19J	0.25J	0.5U	0.19J
Toluene	1000	0.5U	0.38J	0.5U	0.5U	2.3U	0.5U	0.5U	0.5U	0.25J	0.55	0.5U
trans-1,2-Dichloroethene	100	0.5U	0.5U	0.077J	0.094J	0.2J	0.5U	0.5U	0.5UJ	0.5U	0.5U	0.5U
Trichloroethene	5	0.58	0.79	0.67	0.8	0.89	0.53	0.55	0.33J	0.5U	0.22J	0.35J
Xylene (total)	10,000	0.32J	0.39J	0.5U	0.5U	2.3	0.5U	0.5U	0.1J	0.27J	0.97J	0.19J

	EPA Sample ID Station Location Interval (ft. bgs) Date	E3Y66 A4-MW408A 30 - 40 5/30/2017	E3Y68 A4-MW408A-D 30 - 40 5/30/2017	E3Y83 A4-MW408A 30 - 40 11/15/2017	E3Y84 A4-MW408A-D 30 - 40 11/15/2017	180523 A4-MW408A 30 - 40 5/23/2018	180523 A4-MW408A-D 30 - 40 5/23/2018
Analyte Name							
1,1,1-Trichloroethane	200	4.4J	4.6J	5U	5U	3.5	3.5
1,1-Dichloroethane	1400	8.9	9.6	9	8.5	9.9	9.9
1,1-Dichloroethene	7	5U	5U	5U	5U	1.6	1.7
Benzene	5	5U	5U	3.6J	3.3J	0.5U	0.5U
cis-1,2-Dichloroethene	70	2J	2.1J	1.9J	1.8J	1.9	1.9
Tetrachloroethene	5	5U	5U	5U	5U	0.24J	0.25J
Toluene	1000	5U	5U	5U	0.58J	0.5U	0.5U
trans-1,2-Dichloroethene	100	5U	5U	5U	5U	0.26J	0.25J
Trichloroethene	5	5U	5U	0.72J	0.68J	0.72	0.72
Xylenes (total)	10,000	5U	5U	5U	5U	0.15J	0.16J

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D = Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

CDM Smith

Appendix A

As-Built Documentation

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SCALE BAR, EACH BLOCK IS 12" LONG

EAST
NORTH SOUTH
WEST

** CIVIL CONSTRUCTION NOTES **

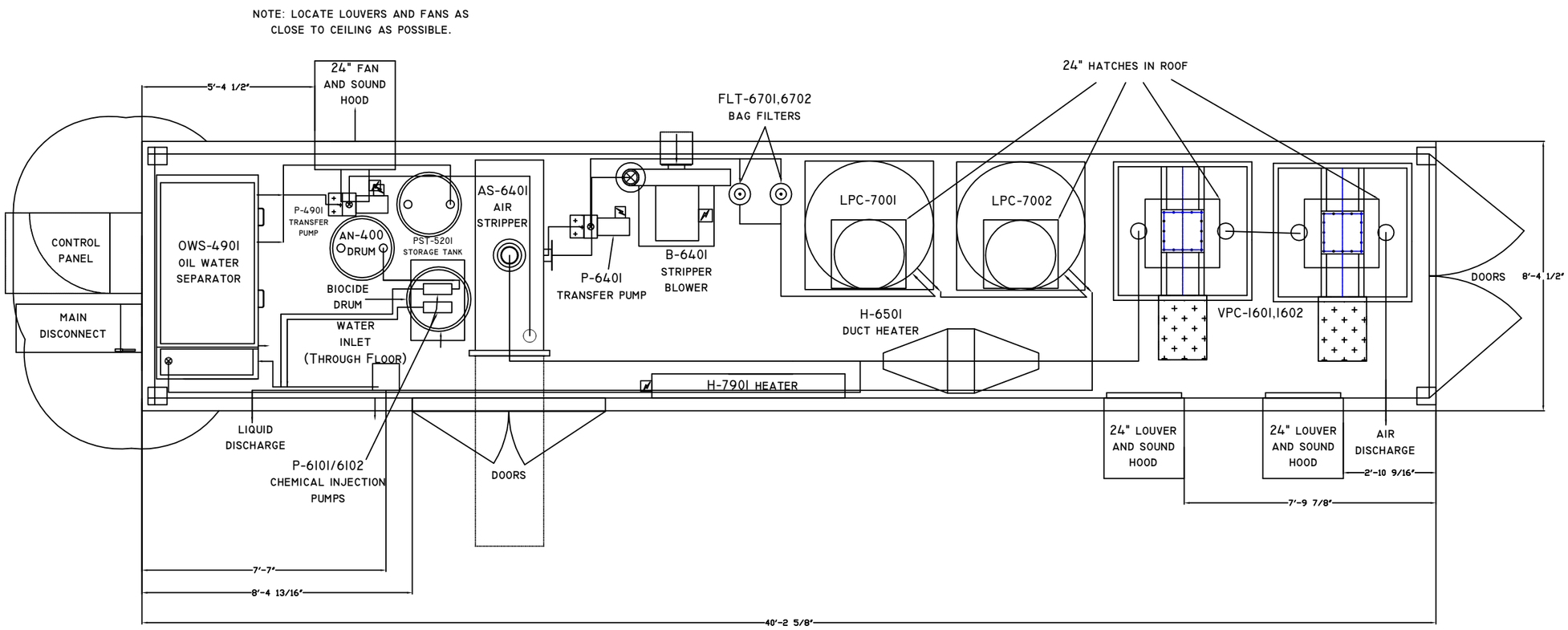
- THERMAL INSULATION ON WALLS AND CEILING
- THERMAL INSULATION ON FLOOR
- STEEL SIDING
- OVERHEAD LIGHT IN CONTROL PANELS
- SUNSHIELDS ON PANELS
- PANEL HEATER KITS
- DOCUMENT HOLDER IN PANELS

**MECH./ELECT. ASS'Y NOTES **

- LOCATE COOLING THERMOSTAT IN THE WARMEST LOCATION AT CEILING LEVEL.
- LOCATE HEATING THERMOSTAT AT FLOOR LEVEL.
- VIBRATION ISOLATORS UNDER EQUIPMENT.
- MAXIMUM WIDTH FOR SHIPPING IS 102". THIS INCLUDES ALL CONNECTIONS THAT PROTRUDE THROUGH THE SIDES OF THE ENCLOSURE.

*** COMMISSIONING NOTES ***

- BUILDINGS NEED TO BE SHIMMED ON SITE TO ALLOW DOORS TO OPEN FREELY. PLEASE HAVE SHIMMING MATERIAL READY DURING BUILDING INSTALLATION.
- FAN AND LOUVER HOODS NEED TO BE INSTALLED ON SITE. CANNOT SHIP WITH HOODS ATTACHED.
- FOR BUILDINGS IN COLD WEATHER CLIMATES, WHERE THE BUILDING IS ELEVATED, A SKIRT MUST BE BUILT AROUND THE BASE TO PREVENT THE FLOOR FROM FREEZING.



*** PACKING LIST ***

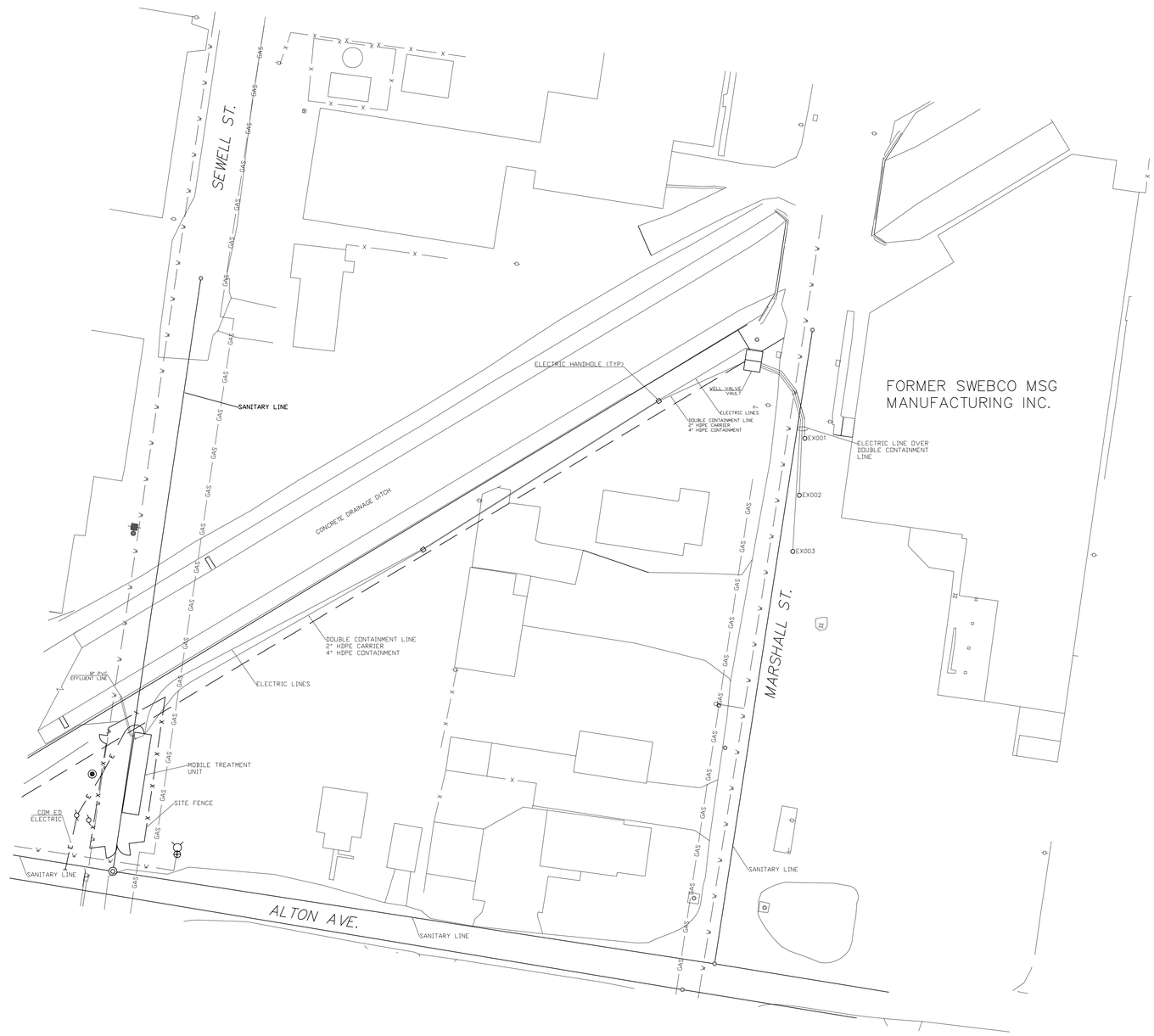
DESCRIPTION	DIM (L X W X H)	WEIGHT
REMEDIATION SYSTEM	40'X8'X10'	28000 LBS

FLOW DIRECTION
ELECTRICAL CONNECTION
FLOW INTO THE PAGE
FLOW OUT OF THE PAGE
THIS AREA REPRESENTS SERVICE SPACE REQUIRED

THIS INFORMATION IS THE PROPERTY OF MLEE INC. AND CANNOT BE REUSED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF MLE EQUIPMENT INC.

LEVEL	DATE:	BY	REVISION:
E	NOV 08, 10	MH	FIELD MODIFICATIONS
C	OCT 09, 09	JH	AS BUILT
B	JUN 15, 09	JH	FOR PRODUCTION
A	MAR 17, 09	JH	FOR APPROVAL

DWG. NO: 50570- 02
TITLE: SYSTEM LAYOUT
CUSTOMER: SE ROCKFORD
BODINE ENVIRONMENTAL SERVICES
MLE EQUIPMENT INC.



=EASEMENT
=GAS LINE
=WATER LINE
=ELECTRIC LINE
=FENCE LINE
=OPEN STORM DRAIN
=MANHOLE
=FIRE HYDRANT

BODINE ENVIRONMENTAL SERVICES, INC.

Bodine Environmental Services, Inc.
5350 East Firehouse Road
Decatur, Illinois 62521-9601
(800) 637-2379

30 0 30
15

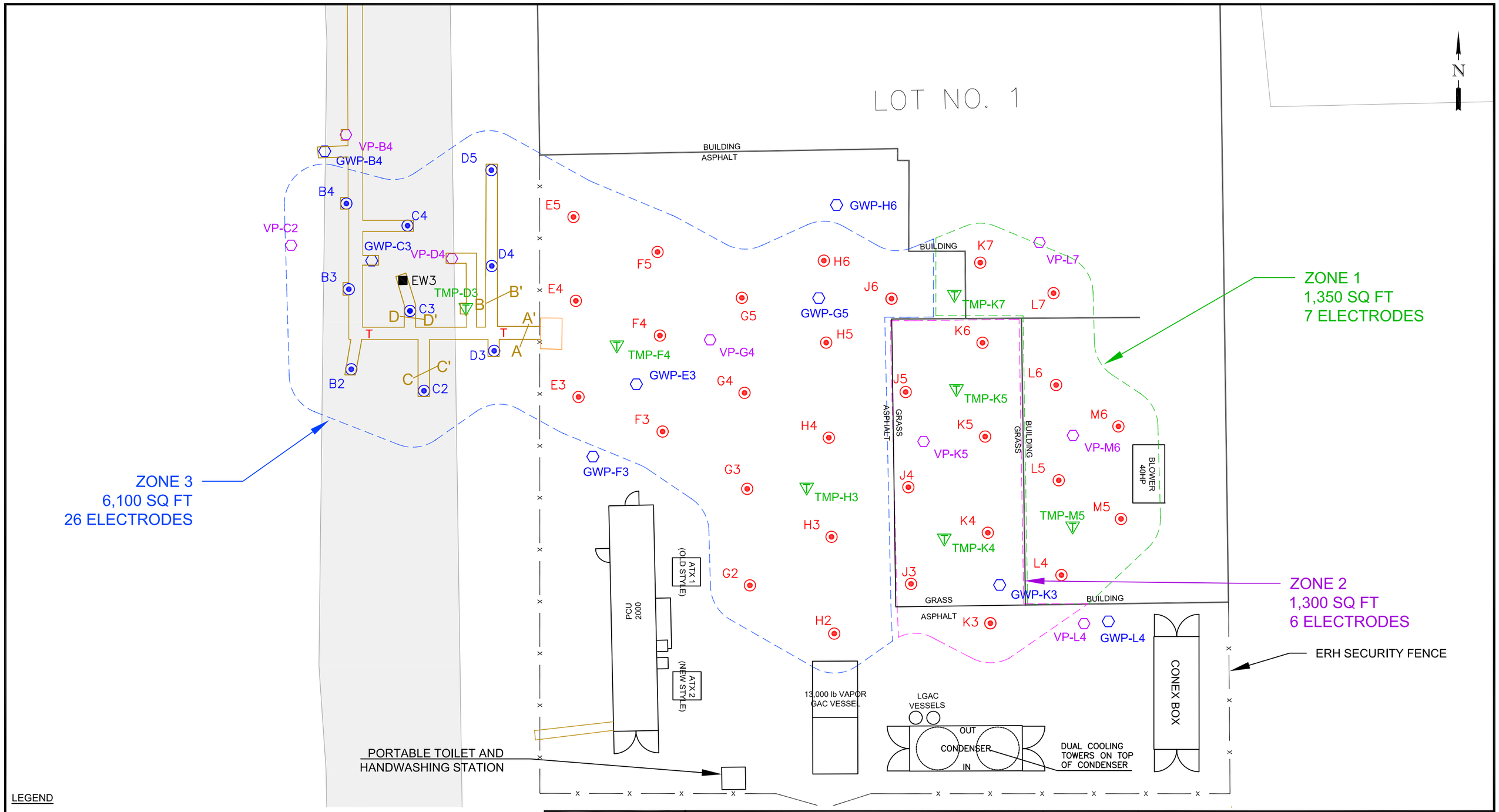
SCALE: 1" = 30'-0"

DRAWN BY: J. MARTIN | DATE: 01-14-11 | CK. BY:

SE ROCKFORD AREA #4

IEPA – SE ROCKFORD AREA #4
2630 MARSHALL STREET
ROCKFORD, ILLINOIS 61104

DRAWING NO:



LEGEND

- ELECTRODE (QTY 30)
- BELOW GRADE ELECTRODE (QTY 9)
- TEMPERATURE MONITORING POINT (QTY 7)
- VAPOR PIEZOMETER (QTY 8)
- EXISTING EXTRACTION WELL TO BE COOLED
- T TEMPERATURE SENSING DEVICE FOR TRENCH MONITORING
- GROUNDWATER PIEZOMETER (QTY 8)
- A' / A TRENCH CROSS SECTION LOCATION

0 8 16 32
SCALE IN FEET

LICENSED PROFESSIONAL ENGINEER
DANIEL W. OBERLE
062.066003
OF ILLINOIS
06/15/16
ENGINEER SIGNATURE / DATE

TRS Accelerating Value
TRS GROUP, INC. 338 COMMERCE AVE., SUITE 304, LONGVIEW, WA 98632

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DESIGNED BY	C. LANSING
DRAWN BY	A. WAGNER
CHECKED BY	D. OBERLE
PROJECT MANAGER	B. MORRIS
QSAT REVIEW	06/06/16

SITE	SOUTHEAST ROCKFORD AREA 4
LOCATION	ROCKFORD, ILLINOIS
CLIENT	IL, EPA

FIGURE 1

APPROVED FOR CONSTRUCTION	DATE 05/20/2016	PROJECT RFD75	
BY		SHEET	
DATE 06/15/16			

Appendix B
GMZ Data Validation Reports

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2009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 11/30/09

FROM: Stephen L. Ostrodka, Chief (SRT-4J)
Superfund Field Services Section

TO: Data User: CDM

We have reviewed the data for the following case:

SITE Name: Southeast Rockford GW Contamination (IL)

Case Number: 39227 SDG Number: E3WN2

Number and Type of Samples: 10 water (TVOA)

Sample Numbers: E3WN2-E3WN9, E3WP0, E3WP1

Laboratory: A4 Scientific, Inc Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SRT-4J

Case Number: 39227 SDG Number: E3WN2
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: A4 Scientific

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Ten (10) preserved volatile samples labeled E3WN2 through E3WN9, E3WP0 and E3WP1 were shipped to A4 Scientific located in The Woodlands, TX. All samples were collected on November 10 and 11, 2009, and received on November 12, 2009, intact and properly cooled. All samples were analyzed for the trace volatile target compounds. The samples were analyzed according to CLP SOW SOM01.2 (08/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.4).

Sample E3WN4 was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

Sample E3WP1 was identified as a trip blank. Sample E3WN2 was identified as a field blank. Samples E3WN7/N8 was identified as a field duplicate pair.

Case Number: 39227 SDG Number: E3WN2
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: A4 Scientific

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following trace volatile samples are associated with an initial calibration with relative response factors (RRFs) outside criteria. Bromomethane was not detected in the samples. Non-detected Bromomethane is qualified "R".

Bromomethane
E3WN2, E3WN3, E3WN4, E3WN4DL, E3WN5, E3WN5DL, E3WN6, E3WN6DL, E3WN7, E3WN7DL, E3WN8, E3WN8DL, E3WN9, E3WN9DL, E3WP0, E3WP1, VBLKFC, VBLKFD

The following trace volatile samples are associated with a CCV with relative response factors (RRFs) outside criteria. Bromomethane was not detected in the samples. Non-detected Bromomethane is qualified "R".

Bromomethane
E3WN4DL, E3WN5DL, E3WN6DL, E3WN7DL, E3WN8DL, E3WN9, E3WN9DL, E3WP0, VBLKFD

4. BLANKS

The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte concentration is less than 2x the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Non-detected Methylene chloride in E3WN6 is qualified "UJ" because of low surrogate recovery. Reported sample concentrations have been elevated to the 2x CRQL.

Methylene Chloride
E3WN4DL, E3WN4MS, E3WN4MSD, E3WN6, E3WN6DL, E3WN7DL, E3WN8DL, E3WP0

The following trace volatile samples have TIC concentrations less than 5X the associated method blank concentration. Detected compounds are qualified "U" and deleted from the TIC report.

Unknown @ 13.97 (VBLKFD)
E3WN5DL, E3WN7DL, E3WN8DL

The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated field blank has common contaminant analyte concentration is less than 2x the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the 2x CRQL.

Acetone
E3WN4, E3WP0DL

The following trace volatile samples have analyte concentrations reported below the CRQL. The associated field blank concentration is less than the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Toluene
E3WN4, E3WN6, E3WN7, E3WN9

The following trace volatile samples have TIC concentrations less than 5X the associated field blank concentration. Detected compounds are qualified "U" and deleted from the TIC report.

Unknown @ 2.69 (E3WN2)
E3WN3, E3WN4, E3WN5, E3WN7, E3WN8, E3WN9, E3WP0

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following trace volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Non-detected compounds are not qualified for this criterion. Non-detected Bromomethane is ultimately qualified "R" because of very low RRF values in the standards.

E3WN4
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane,
1,1-Dichloroethene, Carbon disulfide, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

E3WN4MS, E3WN4MSD, E3WN5, E3WN6, E3WN8, E3WN9
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

E3WN5DL, E3WN6DL, E3WN9DL
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane,
Carbon disulfide

E3WN7DL
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, Cyclohexane,
Benzene, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane

E3WP0
Dichlorodifluoromethane, Chloromethane, Vinyl chloride, Bromomethane, Chloroethane, Carbon disulfide

The following trace volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit (20%) of the criteria window. Detected compounds are qualified "J". Non-detected compounds are qualified "UJ".

E3WN2, E3WN3, E3WN5, E3WN6, E3WN8, E3WN9
Trichlorofluoromethane, 1,1,2- Trichloro-1,2,2-trifluoroethane, Methyl acetate, Methylene chloride, Methyl tert-butyl ether, 1,1,1-Trichloroethane, Carbon tetrachloride, 1,2-Dichloroethane, 1,2-Dibromoethane, 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-Chloropropane

E3WN4, E3WN7, E3WP0
1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-Chloropropane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3WN4 was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

The relative percent difference (RPD) between the following trace volatile matrix spike and matrix spike duplicate recoveries is outside criteria. The compound was not detected in the un-spiked samples. Non-detected compound in the un-spiked samples (E3WN4 and E3WN4DL) is qualified "R" because of very low MSD recovery.

E3WN4MS, E3WN4MSD
Chlorobenzene

The following trace volatile matrix spike/matrix spike duplicate samples have percent recoveries that are less than the expanded lower acceptance limit. The compound was not detected in the un-spiked samples. Non-detected compound in the un-spiked samples (E3WN4 and E3WN4DL) is qualified "R".

E3WN4MSD
Chlorobenzene

The following trace volatile matrix spike/matrix spike duplicate samples have percent recoveries greater than the upper acceptance criteria. The compound was not detected in the un-spiked samples. Non-detected compound in the un-spiked samples (E3WN4 and E3WN4DL) is not qualified.

E3WN4MS, E3WN4MSD
Toluene

6B. LABORATORY CONTROL SAMPLE

Not applicable.

7. FIELD BLANK AND FIELD DUPLICATE

Sample E3WP1 was identified as a trip blank. Sample E3WN2 was identified as a field blank. Samples E3WN7/N8 was identified as a field duplicate pair.

One (1) sample; E3WP1 was identified as a trip blank. Results are summarized in the following table:

	E3WP1
Trace Volatile analytes:	µg/L
# of VOA TICs	1

One (1) sample; E3WN2 was identified as a field blank. Results are summarized in the following table:

	E3WN2
Trace Volatile analytes:	µg/L
Acetone	2.8
Toluene	0.14
# of VOA TICs	1

Sample E3WN7 was identified as a field duplicate of sample E3WN8. Results are summarized in the following table:

	E3WN7	E3WN8	RPDs	E3WN7DL	E3WN8DL	RPDs
DF	1	1		10	10	
Trace Volatile analytes:	µg/L	µg/L		µg/L	µg/L	
Dichlorodifluoromethane	9.1	ND	200	ND	ND	---
Chloromethane	0.69	ND	200	ND	ND	---
1,1-Dichloroethene	3.8	4.4	15	ND	ND	---
trans-1,2-Dichloroethene	ND	0.4	200	0.16	ND	200
1,1-Dichloroethane	16	17	6	21	17	21
cis-1,2- Dichloroethene	8.2	8.7	6	11	8.4	27
1,1,1-Trichloroethane	90	110	20	110	82	29
Trichloroethene	3.6	4.1	13	4.3	3.0	36
1,1,2-Trichloroethane	0.18	0.16	12	ND	ND	---
Tetrachloroethene	0.57	0.63	10	ND	ND	---
# of VOA TICs	1	2		1	1	

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all trace volatile compounds were properly identified except for Chlorobenzene in sample E3WN4MSD. After reviewing the chromatogram, it appears that Chlorobenzene is present. A copy of the chromatogram is included with the hardcopy data package. In order to determine the amount of Chlorobenzene present, the laboratory would need to reprocess the data.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following trace volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E3WN2
Acetone, Toluene

E3WN3
Tetrachloroethene

E3WN4
Chloroethane, Tetrachloroethene

E3WN4MS, E3WN4MSD
trans-1,2-Dichloroethene, Carbon tetrachloride, Tetrachloroethene

E3WN5DL, E3WN6
trans-1,2-Dichloroethene

E3WN6DL
cis-1,2-Dichloroethene

E3WN7
1,1,2-Trichloroethane

E3WN7DL
trans-1,2-Dichloroethene, Trichloroethene

E3WN8
trans-1,2-Dichloroethene, 1,1,2-Trichloroethane

E3WN8DL
Trichloroethene

E3WN9
Chloroethane

E3WN9DL
1,1-Dichloroethane

E3WP0
trans-1,2-Dichloroethene, Tetrachloroethene

E3WP0DL
Chloromethane, Methylene chloride, trans-1,2-Dichloroethene, Tetrachloroethene

VBLKFC, VBLKFD
Methylene chloride

A library search indicates a match at or above 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified "NJ".

CAS NO. 000556-67-2 Cyclotetrasiloxane, octamet.
E3WN5DL, E3WN7DL, E3WN8DL, E3WP0

A library search indicates a match below 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified "J".

Unknown @ 1.41
E3WN3, E3WN4, E3WN8

Unknown @ 2.39
E3WN9

Unknown @ 2.69
E3WN2

Unknown @ 7.05
E3WN7, E3WN8

Unknown @ 8.08; Unknown @ 15.37
E3WN5DL

Unknown @ 13.97
E3WN5DL, E3WP1, VBLKFD

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following trace volatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". The results from the diluted analyses should be considered the final concentrations for the affected compounds.

E3WN4, E3WN7, E3WN8, E3WN9
1,1,1-Trichloroethane

E3WN5
cis-1,2-Dichloroethene, 1,1,1-Trichloroethane

E3WN6
1,1-Dichloroethane, 1,1,1-Trichloroethane

E3WP0
cis-1,2-Dichloroethene

The following volatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". No dilution was required because these are laboratory QC samples.

E3WN4MS, E3WN4MSD
1,1,1-Trichloroethane

Case Number: 39227 SDG Number: E3WN2
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: A4 Scientific

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

2010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: March 1, 2010

FROM: Stephen L. Ostrodka, Chief (SRT-5J)
Superfund Field Services Section

TO: Data User: CDM

We have reviewed the data for the following case:

Site Name: Southeast Rockford GW Contamination (IL)

Case Number: 39470 SDG Number: E3WP2

Number and Type of Samples: 19 waters (trace volatile)

Sample Numbers: E3WP2 – E3WP9, E3WQ0 – E3WQ9, E3WR0

Laboratory: A4 Scientific, Inc. Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SRT-5J

Reviewed by: Steffanie Tobin/Techlaw-ESAT
Date: March 12, 2010

Case Number: 39470 SDG Number: E3WP2
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: A4 Scientific, Inc.

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nineteen (19) preserved water samples labeled E3WP2 – E3WP9, E3WQ0 – E3WQ9 and E3WR0 were shipped to A4 Scientific, Inc. located in The Woodlands, TX. All samples were collected 02-10-2010 and 02-11-2010 and received on 02-13-2010 intact and properly cooled.

All nineteen (19) samples were analyzed for only the trace volatile target compounds. The samples were analyzed according to CLP SOW SOM01.2 (08/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.4).

Sample E3WQ2 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

Sample E3WR0 was identified as a trip blank. Samples E3WP5 and E3WP6 were identified as field blanks. Samples E3WQ6 / E3WQ7 and E3WQ8 / E3WQ9 were identified as field duplicate pairs.

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following trace volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Bromomethane was not detected in the samples. Non-detected compounds are not qualified for this criterion.

E3WP2, E3WP2DL, E3WP4, E3WP5, E3WP7, E3WP8, E3WP9, E3WQ2, E3WQ2DL, E3WQ2MS, E3WQ2MSD, E3WQ3, E3WQ4DL, E3WQ5DL, E3WR0, VBLK2Y, VBLK3A, VHBLK01
Bromomethane

4. BLANKS

The following trace volatile samples have common contaminant analyte concentrations reported less than 2X the CRQLs. The associated trip blank common contaminant concentration is less than 2X the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2X the CRQLs.

E3WP2DL, E3WP4, E3WP6, E3WP7, E3WP8, E3WP9, E3WQ0, E3WQ2, E3WQ2DL, E3WQ2MS, E3WQ2MSD, E3WQ3, E3WQ5
Methylene chloride

E3WQ1DL
Acetone

The following trace volatile samples have analyte concentrations reported less than the CRQL. The associated trip blank concentration is less than the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E3WP2, E3WP3, E3WP5, E3WP6, E3WQ1, E3WQ2DL
Toluene

The following trace volatile sample has analyte concentrations reported below the CRQL. The associated trip blank concentration is greater than the concentration criteria. Detected

compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E3WQ0
Chloromethane

The following trace volatile sample has analyte concentrations reported greater than or equal to the CRQL and less than the blank concentration. The associated trip blank concentration is greater than the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Blank concentrations have been reported as the adjusted CRQL.

E3WP7
Chloromethane

The following trace volatile sample has analyte concentrations reported greater than or equal to the CRQL and greater than the blank concentration. The associated trip blank concentration is greater than the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Sample concentrations have been reported as the adjusted CRQL.

E3WP9
Chloromethane

The following trace volatile samples have TIC concentrations reported less than 5X the trip blank concentration. Detected compounds are qualified "U" and deleted from the TIC report.

CAS No. 141-78-6 Ethyl Acetate
E3WP2, E3WP2DL, E3WP7, E3WQ2, E3WQ3

The following trace volatile samples have TIC concentrations reported less than 5X the field blank concentration. Detected compounds are qualified "U" and deleted from the TIC report.

CAS No. 556-67-2 Cyclotetrasiloxane, octamet...
E3WQ5

Unknown @ 2.68
E3WP7, E3WP8

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following trace volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are not qualified for this criterion.

E3WP2
Vinyl Chloride

E3WP3, E3WQ1, E3WQ2MS, E3WQ2MSD, E3WQ4, E3WQ5
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

E3WP5
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Carbon Disulfide

E3WQ1DL
4-Methyl-2-pentanone, 2-Hexanone

The following trace volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are qualified "UJ".

E3WP3, E3WP5, E3WP7, E3WQ0, E3WQ2, E3WQ2MS, E3WQ2MSD, E3WQ3, E3WQ7
1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

E3WP2, E3WQ4, E3WQ8
Trichlorofluoromethane, 1,1,2-Trichloro-1,2,2,-trifluoroethane, Methyl Acetate, Methylene Chloride, Methyl tert-Butyl Ether, 1,1,1-Trichloroethane, Carbon Tetrachloride, 1,2-Dichloroethane, 1,2-Dibromoethane, 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3WQ2 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

The following trace volatile matrix spike/matrix spike duplicate samples have percent recoveries greater than the upper acceptance criteria. Detected Trichloroethene in the unspiked samples (E3WQ2 and E3WQ2DL) is qualified "J". Non-detected 1,1-Dichloroethene, Benzene and Toluene in the unspiked samples are not qualified for this criterion.

E3WQ2MS
1,1-Dichloroethene, Toluene

E3WQ2MSD
1,1-Dichloroethene, Benzene, Trichloroethene, Toluene

6B. LABORATORY CONTROL SAMPLE

Not applicable to this analysis.

7. FIELD BLANK AND FIELD DUPLICATE

Case Number: 39470 SDG Number: E3WP2
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: A4 Scientific, Inc.

Sample E3WR0 was identified as a trip blank. Samples E3WP5 and E3WP6 were identified as field blanks. Samples E3WQ6 / E3WQ7 and E3WQ8 / E3WQ9 were identified as field duplicate pairs. Results for the trip blank and field blanks are summarized in the following table:

Analytes	QC ID	Trip blank	Field blanks	
	Sample ID	E3WR0	E3WP5	E3WP6
	DF, units	1, ug/L	1, ug/L	1, ug/L
Chloromethane		0.64	ND	ND
Acetone		4.0	ND	ND
Methylene chloride		0.47	ND	ND
1,1,1-Trichloroethane		ND	ND	0.22
Toluene		0.23	ND	ND
VOA TICs		1	1	2

Results and RPDs for the field duplicate pairs E3WQ6 / E3WQ7 and E3WQ8 / E3WQ9 are summarized in the following tables:

Analytes	Sample ID	E3WQ6	E3WQ7	RPDs
	DF, units	1, ug/L	1, ug/L	
Trichlorofluoromethane		0.13	ND	200
1,1-Dichloroethene		1.5	ND	200
trans-1,2-Dichloroethene		0.18	0.19	5.4
1,1-Dichloroethane		7.2	7.5	4.1
cis-1,2-Dichloroethene		4.8	4.9	2.1
1,1,1-Trichloroethane		8.7	8.9	2.3
Trichloroethene		2.3	2.3	0.0
Tetrachloroethene		0.22	0.23	4.4
VOA TICs		1	1	

Analytes	Sample ID	E3WQ8	E3WQ9	RPDs
	DF, units	1, ug/L	1, ug/L	
1,1-Dichloroethene		2.0	ND	200
trans-1,2-Dichloroethene		0.27	0.27	0
1,1-Dichloroethane		10	9.5	5.1
cis-1,2-Dichloroethene		7.1	6.7	5.8
1,1,1-Trichloroethane		12	10	18.2

Analytes	Sample ID / DF, units	E3WQ8 / 1, ug/L	E3WQ9 / 1, ug/L	RPDs
Trichloroethene		3.7	3.3	11.4
Tetrachloroethene		0.38	0.33	14.1
VOA TICs		1	1	

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all trace volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following trace volatile samples have compound concentrations less than the CRQL. Detected compounds are qualified “J”.

E3WP2, E3WP7, E3WQ6
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene

E3WP3
trans-1,2-Dichloroethene, Isopropylbenzene

E3WP3DL
Acetone, cis-1,2-Dichloroethene

E3WP4
Trichloroethene, 1,1,2-Trichloroethane, Tetrachloroethene

E3WP4DL, E3WQ1DL
1,1-Dichloroethane

E3WP6
1,1,1-Trichloroethane

E3WP8, E3WP9, E3WQ4
trans-1,2-Dichloroethene

E3WQ0, E3WQ2, E3WQ7, E3WQ8, E3WQ9
trans-1,2-Dichloroethene, Tetrachloroethene

E3WQ1
Methylcyclohexane

E3WQ2DL
1,1-Dichloroethane, cis-1,2-Dichloroethene, Trichloroethene

E3WQ2MS
Dichlorodifluoromethane, Tetrachloroethene

E3WQ2MSD
Tetrachloroethene

E3WQ3
Chloroform

E3WQ4DL
1,1-Dichloroethane, cis-1,2-Dichloroethene

E3WQ5
Trichlorofluoromethane, trans-1,2-Dichloroethene

E3WQ5DL
cis-1,2-Dichloroethene, Trichloroethene

E3WR0
Acetone, Methylene chloride, Toluene

A library search indicates a match at or above 85% for a TIC compound in the trace volatile samples. Detected compounds are qualified “NJ”.

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro-
E3WQ5, E3WQ7

CAS No. 95-63-6 Benzene, 1,2,4-trimethyl-
E3WP3, E3WQ1DL

CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-;
CAS No. 620-14-4 Benzene, 1-ethyl-3-methyl-
E3WP3, E3WQ1

CAS No. 95-93-2 Benzene, 1,2,4,5-tetramethyl-
CAS No. 103-65-1 Benzene, propyl-

CAS No. 488-23-3 Benzene, 1,2,3,4-tetramethyl- (01) @ 14.24
CAS No. 488-23-3 Benzene, 1,2,3,4-tetramethyl- (02) @ 14.29
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl- (03) @ 13.31
CAS No. 527-84-4 Benzene, 1-methyl-2-(1-meth... (01) @ 13.17
CAS No. 527-84-4 Benzene, 1-methyl-2-(1-meth... (02) @ 14.16
CAS No. 824-90-8 1-Phenyl-1-butene
CAS No. 933-98-2 Benzene, 1-ethyl-2,3-dimethyl-
CAS No. 1074-55-1 Benzene, 1-methyl-4-propyl-
CAS No. 1758-88-9 Benzene, 2-ethyl-1,4-dimethyl- (01) @ 13.82
CAS No. 1758-88-9 Benzene, 2-ethyl-1,4-dimethyl- (02) @ 13.91
CAS No. 119-64-2 Naphthalene, 1,2,3,4-tetrah...
E3WQ1

CAS No. 108-83-8 4-Heptanone, 2,6-dimethyl-
CAS No. 873-94-9 Cyclohexanone, 3,3,5-trimet...
E3WQ1DL

CAS No. 526-73-8 Benzene, 1,2,3-trimethyl- (01) @ 12.52
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl- (02) @ 12.90
E3WP3, E3WP4, E3WQ1

CAS No. 527-84-4 Benzene, 1-methyl-2-(1-meth... (01) @ 13.91
CAS No. 527-84-4 Benzene, 1-methyl-2-(1-meth... (02) @ 14.65
E3WP3

CAS No. 556-67-2 Cyclotetrasiloxane, octamet...
E3WP6

CAS No. 141-78-6 Ethyl Acetate
E3WR0

A library search indicates a match below 85% for a TIC compound in the trace volatile samples. Detected compounds are qualified “J”.

Unknown @ 2.09
E3WP3 E3WQ4, E3WQ6, E3WQ8, E3WQ9

Unknown @ 2.68
E3WP5

Unknown @ 5.07
E3WP6

Unknown @ 13.52
E3WP3, E3WQ1

Unknown @ 14.02
E3WP3

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following trace volatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". The results from the diluted analyses should be considered the final concentrations for the affected compounds.

E3WP2, E3WP3, E3WP4, E3WQ1, E3WQ2, E3WQ5
1,1,1-Trichloroethane

E3WQ4
1,1-Dichloroethane, 1,1,1-Trichloroethane, Carbon tetrachloride

The following trace volatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". No dilution was required because these are laboratory QC samples.

E3WQ2MS, E3WQ2MSD
1,1,1-Trichloroethane

Case Number: 39470 SDG Number: E3WP2
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: A4 Scientific, Inc.

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Steffanie Tobin/Techlaw-ESAT
Date: March 12, 2010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: June 30, 2010

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM

We have reviewed the data for the following case:

Site Name: Southeast Rockford GW Contamination (IL)

Case Number: 40256 SDG Number: E5279

Number and Type of Samples: 20 water (trace VOA)

Sample Numbers: E5279 thru E5298

Laboratory: Mitkem Laboratories Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SRT-5J

Case Number: 40256 SDG Number: E5279
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: Mitkem Laboratories

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twenty (20) water samples labeled E5279 thru E5298 were collected on 06/14/2010 and 06/15/2010. The samples were received by Mitkem Laboratories located in Warwick, RI on 06/16/2010. All samples arrived intact and at the proper shipping temperature range of 2 - 6°C. All samples were analyzed for the trace volatile target compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.4).

Sample E5290 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

Samples E5282 and E5283 were identified as field blanks. Sample E5298 was identified as a trip blank. Samples E5294 and E5296 were identified as field duplicates of samples E5293 and E5295, respectively.

Case Number: 40256 SDG Number: E5279
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: Mitkem Laboratories

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

No problems were found.

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are not qualified for this criterion. Some non-detects in samples E5281, E5288 and E5292 are ultimately qualified "R" because not all IS criteria was met.

E5280, E5280DL, E5285, E5286, E5287, E5288DL, E5289DL, E5293, E5294, E5296
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

E5281
Dichlorodifluoromethane, Chloromethane, Vinyl chloride, Bromomethane, Chloroethane, 1,1-Dichloroethene, Carbon disulfide, trans-1,2-Dichloroethene, 1,1-Dichloroethane, cis-1,2-Dichloroethene, Bromochloromethane, Chloroform, Dibromochloromethane, Bromoform

E5288
Dichlorodifluoromethane, Chloromethane, Vinyl chloride, Bromomethane, Chloroethane, 1,1-Dichloroethene, Acetone, Carbon disulfide, trans-1,2-Dichloroethene, 1,1-Dichloroethane, cis-1,2-Dichloroethene, 2-Butanone, Bromochloromethane, Chloroform, Dibromochloromethane, Bromoform

E5292
1,1-Dichloroethene, trans-1,2-Dichloroethene, 1,1-Dichloroethane, cis-1,2-Dichloroethene, Bromochloromethane, Chloroform, Dibromochloromethane, Bromoform

The following trace volatile samples have one or more DMC/SMC recovery values is less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. The compounds were not detected in the samples. Non-detected compounds are qualified "UJ".

E5281, E5288, E5292
Cyclohexane, Benzene, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E5290 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

No problems were found.

6B. LABORATORY CONTROL SAMPLE

NA

7. FIELD BLANK AND FIELD DUPLICATE

Samples E5282 and E5283 were identified as field blanks. Sample E5298 was identified as a trip blank. Samples E5294 and E5296 were identified as field duplicates of samples E5293 and E5295, respectively. No target compounds were detected in the field blanks and trip blank. The results for the field duplicate samples are summarized in the following tables.

Sample Number : Units : Dilution Factor :	E5293 ug/L 1.0	E5294 ug/L 1.0		E5293DL ug/L 8.0	E5294DL ug/L 8.0	
Trace Volatile Compound	Results	Results	RPDs	Results	Results	RPDs
1,1-Dichloroethene	3.0	3.2	-6.5	2.6	2.0	26
1,1-Dichloroethane	10	10	0.0	6.9	6.4	7.5
cis-1,2-Dichloroethene	4.7	4.7	0.0	ND	ND	0
1,1,1-Trichloroethane	85	88	-3.5	110	100	9.5
Trichloroethene	1.9	1.8	5.4	ND	ND	0
1,1,2-Trichloroethane	0.27	ND	200	ND	ND	0
Tetrachloroethene	0.36	0.33	8.7	ND	ND	0

Sample Number : Units : Dilution Factor :	E5295 ug/L 1.0	E5296 ug/L 1.0	
Trace Volatile Compound	Results	Results	RPDs
1,1-Dichloroethene	1.1	1.3	-17
1,1-Dichloroethane	4.8	5.0	-4.1
cis-1,2-Dichloroethene	3.3	3.6	-8.7
1,1,1-Trichloroethane	5.9	5.9	0.0
Trichloroethene	2.0	1.8	11
Tetrachloroethene	0.27	0.25	7.7

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

The following trace volatile samples have internal standard area counts that are outside the lower limit of primary criteria. Detected compounds are qualified “J”. Non-detected compounds are qualified “R”.

E5281, E5288, E5292
Dichlorodifluoromethane, Chloromethane, Vinyl Chloride, Bromomethane, Chloroethane, Trichlorofluoromethane, 1,1-Dichloroethene, 1,1,2-Trichloro-1,2,2,-trifluoroethane, Acetone, Carbon Disulfide, Methyl Acetate, Methylene Chloride, trans-1,2-Dichloroethene, Methyl tert-Butyl Ether, 1,1-Dichloroethane, cis-1,2-Dichloroethene, 2-Butanone, Bromochloromethane, Chloroform, 1,2-Dichloroethane

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following trace samples have compound concentrations less than the CRQL. Detected compounds are qualified “J”.

E5279, E5285, E5286, E5287, E5290, E5294, E5295, E5296
Tetrachloroethene

E5280
trans-1,2-Dichloroethene, Isopropylbenzene

E5280DL
1,1-Dichloroethane

E5281
trans-1,2-Dichloroethene, Ethylbenzene, Isopropylbenzene

E5288
1,2-Dichlorobenzene

E5288DL, E5293DL, E5294DL
1,1-Dichloroethene

E5289DL
cis-1,2-Dichloroethene, Trichloroethene

E5290MS, E5290MSD
Trichlorofluoromethane, Tetrachloroethene

E5291
trans-1,2-Dichloroethene, Tetrachloroethene

E5292DL
1,1-Dichloroethene, cis-1,2-Dichloroethene

E5293
1,1,2-Trichloroethane, Tetrachloroethene

A library search indicates a match at or above 85% for a TIC compound in the trace volatile samples. Detected compounds are qualified "NJ".

CAS No. 74-93-1 Methanethiol;
CAS No. 135-01-3 Benzene, 1,2-diethyl-;
CAS No. 135-98-8 Benzene, (1-methylpropyl)-;
CAS No. 488-23-3 Benzene, 1,2,3,4-tetramethyl-;
CAS No. 527-84-4 Benzene, 1-methyl-2-(1-methylethyl)- @ 12.23;
CAS No. 527-84-4 Benzene, 1-methyl-2-(1-methylethyl)- @ 13.13;
CAS No. 535-77-3 Benzene, 1-methyl-3-(1-methylethyl)-;
CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-;
CAS No. 767-99-7 Benzene, (1-methyl-1-propenyl)-, (Z)-;
CAS No. 874-41-9 Benzene, 1-ethyl-2,4-dimethyl-;
CAS No. 933-98-2 Benzene, 1-ethyl-2,3-dimethyl-;
CAS No. 934-80-5 Benzene, 4-ethyl-1,2-dimethyl-;
CAS No. 1074-43-7 Benzene, 1-methyl-3-propyl-;
CAS No. 13395-76-1 Cyclohexanone, 2,3-dimethyl-
E5288

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro-
E5290, E5295

CAS No. 95-63-6 Benzene, 1,2,4-trimethyl-
E5280, E5281

CAS No. 95-93-2 Benzene, 1,2,4,5-tetramethyl-;
CAS No. 103-65-1 Benzene, propyl-;
CAS No. 119-64-2 Naphthalene, 1,2,3,4-tetrahydro-
E5281, E5288

CAS No. 98-82-8 Benzene, (1-Methyl ethyl)-;
E5288, E5288DL

CAS No. 108-67-8 Benzene, 1,3,5-trimethyl-;
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl- @ 11.90
E5280, E5288

CAS No. 526-73-8 Benzene, 1,2,3-trimethyl- @ 11.44;
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl- @ 11.69;
CAS No. 622-96-8 Benzene, 1-ethyl-4-methyl-;
CAS No. 1074-55-1 Benzene, 1-methyl-4-propyl-;
CAS No. 1758-88-9 Benzene, 2-ethyl-1,4-dimethyl-;
CAS No. 2870-04-4 Benzene, 2-ethyl-1,3-dimethyl-
E5281

CAS No. 620-14-4 Benzene, 1-ethyl-3-methyl-
E5280, E5281, E5288

A library search indicates a match below 85% for a TIC compound in the trace volatile samples. Detected compounds are qualified “J”.

Unknown @ 1.95
E5279, E5280, E5284, E5288, E5289, E5289DL, E5292, E5293, E5294, E5296, E5297

Unknown @ 10.22; Unknown @ 10.51; Unknown @ 12.67; Unknown @ 13.1; Unknown @ 13.38
E5288

Unknown @ 10.6; Unknown @ 12.68; Unknown @ 13.14; Unknown @ 13.38; Unknown @ 14.31
E5281

Unknown @ 11.34
E5280

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following trace volatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". The results from the diluted analyses should be considered the final concentrations for the affected compounds.

E5280, E5289, E5293, E5294
1,1,1-Trichloroethane

E5281
1,1-Dichloroethene, 1,1-Dichloroethane, 1,1,1-Trichloroethane

E5288
1,1-Dichloroethene, Methyl acetate, 1,1-Dichloroethane, cis-1,2-Dichloroethene, 1,1,1-Trichloroethane, m,p-Xylene

E5292
1,1-Dichloroethene, 1,1-Dichloroethane, 1,1,1-Trichloroethane

Case Number: 40256 SDG Number: E5279
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: Mitkem Laboratories

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Steffanie Tobin/Techlaw-ESAT
Date: August 10, 2010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: October 25, 2010

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Groundwater (IL)

Case Number: 40644 SDG Number: E52A0

Number and Type of Samples: 20 Water Samples (Low/Med VOA)

Sample Numbers: E52A0-E52A9, E52B0-E52B9

Laboratory: Shealy Environmental Services, Inc. Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SRT-5J

Case Number: 40644 SDG Number: E52A0
Site Name: Southeast Rockford Groundwater (IL) Laboratory: Shealy Environmental

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twenty (20) preserved water samples labeled E52A0-E52A9, and E52B0-E52B9, were shipped to Shealy Environmental Services, Inc. located in Cayce, SC. All samples were collected between 10/04/10 and 10/07/10 and received between 10/06/10 and 10/08/10 intact and properly cooled.

All samples were analyzed for the Low/Med list of VOA compounds. All samples were analyzed according to CLP SOW SOM01.2 (10/2006) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.4).

Sample E52A1 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Sample E52A9 was identified as a trip blank. Samples E52A8, E52B2, and E52B3 were identified as field blanks. Samples E52A5 and E52A6 were identified as field duplicates.

Case Number: 40644 SDG Number: E52A0
Site Name: Southeast Rockford Groundwater (IL) Laboratory: Shealy Environmental

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration and opening / closing CCVs with relative response factors (RRFs) outside criteria. Detected compounds are qualified "J". Non-detected compounds are qualified "R".

E52A0, E52A1, E52A1MS, E52A1MSD, E52A2, E52A3, E52A4, E52A5, E52A6, E52A7, E52A7RE, E52A8, E52A9, E52B0, E52B1, E52B2, E52B3, E52B4, E52B5, E52B6, E52B7, E52B8, E52B9, VBLKVK, VBLKVM, VBLKWM, VHBLK01
1,4-Dioxane

The following volatile samples are associated with an initial calibration and opening / closing CCVs in which a DMC did not meet relative response factor (RRF) criteria. Detected and non-detected compounds are not qualified for this criteria.

E52A0, E52A1, E52A1MS, E52A1MSD, E52A2, E52A3, E52A4, E52A5, E52A6, E52A7, E52A7RE, E52A8, E52A9, E52B0, E52B1, E52B2, E52B3, E52B4, E52B5, E52B6, E52B7, E52B8, E52B9, VBLKVK, VBLKVM, VBLKWM, VHBLK01
1,4-Dioxane-d8

4. BLANKS

The following trace volatile samples were analyzed after a sample with compounds exceeding calibration and no intervening instrument blank. Detection of these compounds should be qualified "J" as they may be a result of carryover.

E52B1, E52B8
1,1,1-Trichloroethane

The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank common contaminant analyte concentration is less than 2x the concentration criteria. Reported sample concentrations have been elevated to the 2x the CRQL and qualified "U".

E52A4, E52A9, E52B0, E52B1, E52B4, E52B5, E52B6, E52B7, E52B8
Acetone

The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated field blank common contaminant analyte concentration is less than 2x the concentration criteria. Reported sample concentrations have been elevated to the 2x the CRQL and qualified "U". The compound is ultimately qualified "R" in sample E52A7 due to low surrogate recovery.

E52A0, E52A3, E52A7
Acetone

The following volatile samples have analyte concentrations greater than or equal to the CRQL and less than 5 times the CRQL. The associated field blank is less than the concentration criteria. Reported sample values have been raised to 5x the CRQL and qualified "U". The compound is ultimately qualified "R" in sample E52A7 due to low surrogate recovery.

E52A7, E52A7RE
cis-1,2-Dichloroethene

The following volatile samples have analyte concentrations reported less than the CRQL. The associated field blank concentration is less than the concentration criteria. Reported sample concentrations have been elevated to the CRQL and qualified "U". The compound is ultimately qualified "R" in sample E52A7 due to low surrogate recovery.

E52A0, E52A7, E52A7RE
1,1,1-Trichloroethane

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are not qualified.

E52A1MS, E52A1MSD
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

The following volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are qualified "UJ". 1,4-Dioxane is ultimately qualified "R" in samples E52A7, E52A7RE, and E52A9 due to RRFs in the ICAL.

E52A7
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Carbon disulfide, 1,4-Dioxane

E52A7RE, E52A9, E52B7, E52B8, E52B9

1,4-Dioxane

E52B1
Acetone, 2-Butanone, 1,4-Dioxane

E52B4
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Carbon disulfide

The following volatile samples have one or more DMC/SMC recovery values less than the expanded lower limit (20%). Detected compounds are qualified "J". Non-detected compounds are qualified "R".

E52A7
Vinyl chloride, Trichlorofluoromethane, 1,1-Dichloroethene, 1,1,2-Trichloro-1,2,2-trifluoroethane, Acetone, Methyl acetate, Methylene chloride, trans-1,2-Dichloroethene, Methyl-tert-butyl ether, 1,1-Dichloroethane, cis-1,2-Dichloroethene, 2-Butanone, Bromochloromethane, Chloroform, 1,1,1-Trichloroethane, Cyclohexane, Carbon tetrachloride, Benzene, 1,2-Dichloroethane, Trichloroethene, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane, cis-1,3-Dichloropropene, 4-Methyl-2-pentanone, Toluene, trans-1,3-Dichloropropene, 1,1,2-Trichloroethane, Tetrachloroethene, 2-Hexanone, Dibromochloromethane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, o-Xylene, m,p-Xylene, Styrene, Bromoform, Isopropylbenzene, 1,1,2,2-Tetrachloroethane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E52A1 was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

No problems found.

6B. LABORATORY CONTROL SAMPLE

Not applicable to Low/Med VOA analysis.

7. FIELD BLANK AND FIELD DUPLICATE

One (1) sample; E52A9 was identified as a trip blank. Results are non-detect for all compounds.

Samples E52A8, E52B2, and E52B3 were identified as field blanks. Results are summarized in the following table:

	E52A8	E52B2	E52B3
Volatile analytes:	µg/L	µg/L	µg/L
Acetone	2.8	6.1	3.7
cis-1,2-Dichloroethene	1.2	ND	ND
1,1,1-Trichloroethane	0.63	ND	ND
# of TICs	1	1	1

Sample E52A5 was identified as a field duplicate of sample E52A6. Results are summarized in the following table:

	E52A5	E52A6	
Volatile analytes:	µg/L	µg/L	%RPDs
Acetone	1.0	1.5	40

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No Problems Found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOA compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified “J”.

E52A0
1,1-Dichloroethene, trans-1,2-Dichloroethene, 1,1-Dichloroethane, Chloroform

E52A1
Acetone, 1,1-Dichloroethane, Trichloroethene, Tetrachloroethene

E52A1MS, E52A1MSD
Acetone, 1,1-Dichloroethane, Tetrachloroethene

E52A2
Acetone, Trichloroethene, Ethylbenzene, o-Xylene

E52A3
1,1-Dichloroethene, trans-1,2-Dichloroethene, 1,1-Dichloroethane

E52A5, E52A6, E52B2, E52B3, VBLKVM
Acetone

E52A7, E52A7RE
trans-1,2-Dichloroethene, 1,1-Dichloroethane, Chloroform, Trichloroethene, Tetrachloroethene

E52A8
Acetone, cis-1,2-Dichloroethene, 1,1,1-Trichloroethane

E52B0
1,4-Dioxane, Trichloroethene, Tetrachloroethene

E52B1
1,4-Dioxane, Toluene, 1,1,2-Trichloroethane, Tetrachloroethene, Ethylbenzene, o-Xylene, m,p-Xylene, Isopropylbenzene

E52B4
cis-1,2-Dichloroethene, 1,4-Dioxane, Trichloroethene

E52B5
cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene

E52B6, E52B7
cis-1,2-Dichloroethene, 1,4-Dioxane, Trichloroethene, Tetrachloroethene

E52B8
2-Butanone, 1,4-Dioxane, Trichloroethene, Methylcyclohexane, Toluene, 1,2-Dichlorobenzene

E52B9
1,1-Dichloroethane, cis-1,2-Dichloroethene, Trichloroethene

A library search indicates a match at or above 85% for a TIC compound in the volatile sample. Detected compounds are qualified “NJ”.

CAS No. 95-93-2 Benzene, 1,2,4,5-tetramethyl-;
CAS No. 103-65-1 Benzene, propyl-;
CAS No. 119-64-2 Naphthalene, 1,2,3,4-tetrahydro-;
CAS No. 135-98-8 Benzene, (1-methylpropyl)-;
CAS No. 527-53-7 Benzene, 1,2,3,5-tetramethyl-;
CAS No. 527-84-4 Benzene, 1-methyl-2-(1-methylethyl)-;
CAS No. 1074-55-1 Benzene, 1-methyl-4-propyl-;
CAS No. 1758-88-9 Benzene, 2-ethyl-1,4-dimethyl-
E52B8

CAS No. 108-67-8 Benzene, 1,3,5-trimethyl-;
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl-
CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-
E52B1, E52B8

CAS No. 2317-91-1 Ethene, 1-chloro-1-fluoro-
E52B4

A library search indicates a match below 85% for a TIC compound in the volatile sample. Detected compounds are qualified "J".

Unknown @ 1.41
E52A8, E52B2, E52B3

Unknown @ 11.15; Unknown @ 12.66; Unknown @ 13.08;
E52B8

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following volatile samples have reported concentrations that exceed the instrument's linear calibration range. The results are flagged "E" by the laboratory and are estimated "J". There was insufficient sample volume for dilution.

E52B0, E52B1, E52B8
1,1,1-Trichloroethane

Insufficient sample volume was provided for E52A0, E52A2, and E52A3. The samples were analyzed at dilutions due to anticipated high level compounds.

Case Number: 40644 SDG Number: E52A0
Site Name: Southeast Rockford Groundwater (IL) Laboratory: Shealy Environmental

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Michele Traina / Techlaw-ESAT
Date: 11/12/2010

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: October 25, 2010

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Groundwater (IL)

Case Number: 40644 SDG Number: E52C0

Number and Type of Samples: 9 Waters Samples (Low/Med Volatiles)

Sample Numbers: E52C0-E52C8

Laboratory: Shealy Environmental Services, Inc. Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SRT-5J

Case Number: 40644 SDG Number: E52C0
Site Name: Southeast Rockford Groundwater (IL) Laboratory: Shealy Environmental

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nine (9) preserved water samples labeled E52C0-E52C8, were shipped to Shealy Environmental Services, Inc. located in Cayce, SC. All samples were collected between 10/06/10 and 10/07/10 and received on 10/08/10 intact and properly cooled.

All samples were analyzed for Low/Med Volatiles. All samples were analyzed according to CLP SOW SOM01.2 (10/2006) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.4).

Sample E52C7 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Sample E52C8 was identified as a trip blank. Samples E52C5 and E52C6 were identified as field duplicates.

Case Number: 40644 SDG Number: E52C0
Site Name: Southeast Rockford Groundwater (IL) Laboratory: Shealy Environmental

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration and opening / closing CCVs with relative response factors (RRFs) outside criteria. Detected compounds are qualified "J". Non-detected compounds are qualified "R".

E52C0, E52C1, E52C2, E52C3, E52C4, E52C5, E52C6, E52C7, E52C7MS, E52C7MSD, E52C8, VBLKVK, VBLKVM, VBLKWG, VBLKWM, VHBLK01
1,4-Dioxane

The following volatile samples are associated with an initial calibration and opening / closing CCVs in which a DMC did not meet relative response factor (RRF) criteria. Detected and non-detected compounds are not qualified for this criteria.

E52C0, E52C1, E52C2, E52C3, E52C4, E52C5, E52C6, E52C7, E52C7MS, E52C7MSD, E52C8, VBLKVK, VBLKVM, VBLKWG, VBLKWM, VHBLK01
1,4-Dioxane-d8

The following volatile samples are associated with an opening CCV percent difference (%D) outside criteria. The compounds were not detected in the samples. Non-detected compounds are qualified "UJ".

E52C7MS, E52C7MSD, VBLKWG
Bromomethane, 1,1,2,2-Tetrachloroethane

The following volatile samples are associated with a continuing calibration in which a DMC exceeded percent difference (%D) criteria. Detected and non-detected compounds are not qualified.

E52C7MS, E52C7MSD, VBLKWG
1,1,2,2-Tetrachloroethane-d2

4. BLANKS

The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank common contaminant analyte

concentration is less than 2x the concentration criteria. Reported sample concentrations have been elevated to the 2x the CRQL and qualified "U".

E52C1, E52C2, E52C3, E52C4, E52C5, E52C7
Acetone

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are not qualified.

E52C7MS, E52C7MSD
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

The following volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are qualified "UJ". 1,4-Dioxane in samples E52C0, E52C2, and E52C7 is ultimately qualified "R" due to RRF responses in the ICAL and CCVs.

E52C0, E52C1, E52C2
1,4-Dioxane

E52C7
1,4-Dioxane, Chlorobenzene, 1,1,2,2-Tetrachloroethane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

E52C7MSD
1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E52C7 was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

No Problems Found.

6B. LABORATORY CONTROL SAMPLE

Not applicable to Low/Med Volatile analyses.

7. FIELD BLANK AND FIELD DUPLICATE

One (1) sample; E52C8 was identified as a trip blank. Results are summarized in the following table:

Volatile analytes:	µg/L
Acetone	5.7

Sample E52C5 was identified as a field duplicate of sample E52C6. Results are summarized in the following table:

	E52C5	E52C6	
Volatile analytes:	µg/L	µg/L	%RPDs
Dichlorodifluoromethane	0.67	0.62	8
1,1-Dichloroethane	8.6	8.4	2
cis-1,2-Dichloroethane	5.9	5.8	2
1,1,1-Trichloroethane	9.9	9.9	0
1,4-Dioxane	13	ND	200
Trichloroethene	3.1	3.1	0

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No Problems Found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all Low/Med VOA compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified “J”.

E52C0
1,1-Dichloroethane, cis-1,2-Dichloroethene, Trichloroethene

E52C1
1,4-Dioxane, Trichloroethene

E52C2
Dichlorodifluoromethane, Trichloroethene, 1,1,2-Trichloroethane, Tetrachloroethene

E52C3
Dichlorodifluoromethane, 1,4-Dioxane, Trichloroethene, Tetrachloroethene

E52C4
trans-1,2-Dichloroethene, Tetrachloroethene

E52C5
Dichlorodifluoromethane, 1,4-Dioxane, Trichloroethene

E52C6, E52C7
Dichlorodifluoromethane, Trichloroethene

E52C7MS
1,4-Dioxane, Tetrachloroethene

E52C8, VBLKVM
Acetone

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following volatile samples have reported concentrations that exceed the instrument's linear calibration range. The results are flagged "E" by the laboratory and are estimated "J". There was insufficient sample volume for dilution.

E52C2
1,1,1-Trichloroethane

Case Number: 40644 SDG Number: E52C0
Site Name: Southeast Rockford Groundwater (IL) Laboratory: Shealy Environmental

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Michele Traina / Techlaw-ESAT
Date: 11/12/2010

2011

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 31 January 2011

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM
Level 3 Data Validation

We have reviewed the data for the following case:

SITE Name: SE Rockford GW Contamination SF Site (IL)

Case Number: 40952 SDG Number: E52F3

Number and Type of Samples: 19 Water Samples (Low/Med VOA)

Sample Numbers: E52F3-E52F9, E52G0-E52G9, E52H0-E52H1

Laboratory: ALS Laboratory Group (SLC) Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Reviewed by: Michele Traina / Techlaw-ESAT
Date: 02/14/2011

Case Number: 40952 SDG Number: E52F3
Site Name: SE Rockford GW Contamination SF Site (IL) Laboratory: ALS Laboratory Group

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nineteen (19) preserved water samples labeled E52F3-E52F9, E52G0-E52G9, and E52H0-E52H1, were shipped to ALS Laboratory Group located in Salt Lake City, UT. All samples were collected between 01/12/11 and 01/13/11 and received on 01/17/11 intact and properly cooled.

All samples were analyzed for the Low/Med VOA list of compounds. All samples were analyzed according to CLP SOW SOM01.2 and reviewed according to the NFG for SOM01.2 (6/2007) and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.4.1).

Sample E52G4 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Samples E52F5 and E52F6 were identified as field blanks. Sample E52H1 was identified as a trip blank. Samples E52G2 and E52G3 were identified as field duplicates.

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration and opening / closing CCVs with relative response factors (RRFs) outside criteria. The compound was not detected in the samples. Non-detected compounds are qualified "R".

E52F3, E52F4, E52F4DL, E52F5, E52F6, E52F7, E52F8, E52F9, E52G0, E52G1, E52G1DL, E52G2, E52G3, E52G4, E52G4MS, E52G4MSD, E52G5, E52G6, E52G6DL, E52G7, E52G8, E52G9, E52H0, E52H1, VBLKW1, VBLKW2, VHBLKW1
1,4-Dioxane

The following volatile samples are associated with an initial calibration and opening / closing CCVs in which a DMC did not meet relative response factor (RRF) criteria. Detected and non-detected compounds are not qualified for this criteria. 1,4-Dioxane is ultimately qualified "R" due to RRF response in the ICAL.

E52F3, E52F4, E52F4DL, E52F5, E52F6, E52F7, E52F8, E52F9, E52G0, E52G1, E52G1DL, E52G2, E52G3, E52G4, E52G4MS, E52G4MSD, E52G5, E52G6, E52G6DL, E52G7, E52G8, E52G9, E52H0, E52H1, VBLKW1, VBLKW2, VHBLKW1
1,4-Dioxane-d8

4. BLANKS

The following volatile samples were analyzed after a sample with compounds exceeding calibration and no intervening instrument blank. Detection of these compounds should be qualified "J" as they may be a result of carryover.

E52G1, E52G6
1,1,1-Trichloroethane

The following volatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Reported sample concentrations have been elevated to the CRQL and qualified "U".

E52F3
1,3-Dichlorobenzene

E52F6
Toluene, 1,3-Dichlorobenzene

E52G5, E52H1
Toluene

The following volatile samples have common analyte concentrations reported less than 2x the CRQL. The associated trip blank concentration is less than 2x the concentration criteria. Reported sample concentrations have been elevated to 2x CRQL and qualified "U".

E52F3, E52F5, E52F6, E52F7, E52F8, E52F9, E52G3, E52G4, E52G4MS, E52G4MSD, E52G5, E52G8, E52G9, E52H0
Acetone

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No Problems Found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E52G4 was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

No Problems Found.

6B. LABORATORY CONTROL SAMPLE

Not applicable to Low/Med VOA analysis.

7. FIELD BLANK AND FIELD DUPLICATE

One (1) sample; E52H1 was identified as a trip blank. Results are summarized in the following table:

E52H1	
Volatile analytes:	µg/L
Acetone	6.9

Samples E52F5 and E52F6 were identified as field blanks. Results are non-detect for target compounds.

Sample E52G2 was identified as a field duplicate of sample E52G3. Results are summarized in the following table:

	E52G2	E52G3	%RPDs
	µg/L	µg/L	
1,1-Dichloroethene	1.5	1.4	7
1,1-Dichloroethane	2.4	2.1	13
cis-1,2-Dichloroethene	1.8	1.6	12
1,1,1-Trichloroethane	35	33	6
Tetrachloroethene	0.19	ND	200
# of VOA TICs	1	ND	200

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No Problems Found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all Low/Med VOA compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified “J”.

E52F3
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene, 1,4-Dichlorobenzene

E52F4
1,1-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, Toluene, 1,1,2-Trichloroethane, Tetrachloroethene, Ethylbenzene o-Xylene, m,p-Xylene, Isopropylbenzene

E52F4DL
Methylene chloride, 1,1-Dichloroethane

E52F7
1,1-Dichloroethene, cis-1,2-Dichloroethene, Tetrachloroethene

E52F8, E52F9
1,1-Dichloroethene, 1,1-Dichloroethane, cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene

E52G0
cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene

E52G1
1,1-Dichloroethene, Trichloroethene, Methylcyclohexane, Toluene, Isopropylbenzene

E52G1DL
1,1-Dichloroethane, cis-1,2-Dichloroethene, Tetrachloroethene, Ethylbenzene o-Xylene, m,p-Xylene, Isopropylbenzene

E52G2
1,1-Dichloroethene, 1,1-Dichloroethane, cis-1,2-Dichloroethene, Tetrachloroethene

E52G3
1,1-Dichloroethene, 1,1-Dichloroethane, cis-1,2-Dichloroethene

E52G4
Trichlorofluoromethane, 1,1-Dichloroethene, cis-1,2-Dichloroethene, Tetrachloroethene

E52G4MS
Trichlorofluoromethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, Tetrachloroethene

E52G4MSD
Trichlorofluoromethane, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, Tetrachloroethene

E52G5
1,1-Dichloroethene, trans-1,2-Dichloroethene, Tetrachloroethene

E52G6
trans-1,2-Dichloroethene, Trichloroethene, 1,1,2-Trichloroethane, Tetrachloroethene

E52G6DL
1,1-Dichloroethene, cis-1,2-Dichloroethene

E52G7
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene

E52G9
Trichlorofluoromethane, 1,1-Dichloroethene, Trichloroethene, Tetrachloroethene

E52H0
1,1-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene

E52H1
Acetone

VBLKW1
Toluene, Chlorobenzene, Styrene, 1,3-Dichlorobenzene, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

VBLKW2
Styrene, 1,3-Dichlorobenzene, 1,2,4-Trichlorobenzene

A library search indicates a match below 85% for a TIC compound in the volatile sample. Detected compounds are qualified "J".

Unknown @ 1.83
E52G2, E52G7

Unknown @ 13.21; Unknown @ 13.78
E52G1

A library search indicates a match at or above 85% for a TIC compound in the volatile sample. Detected compounds are qualified "NJ".

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro-
E52G4, E52G9

CAS No. 99-87-6 Benzene, 1-methyl-4-(1-methylethyl)-;
CAS No. 103-65-1 Benzene, propyl-;
CAS No. 119-64-2 Naphthalene, 1,2,3,4-tetrahydro-;
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl-;
CAS No. 527-53-7 Benzene, 1,2,3,5-tetramethyl-;
CAS No. 535-77-3 Benzene, 1-methyl-3-(1-methylethyl)-;
CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-;
CAS No. 874-41-9 Benzene, 1-ethyl-2,4-dimethyl-;
CAS No. 933-98-2 Benzene, 1-ethyl-2,3-dimethyl-;
CAS No. 1758-88-9 Benzene, 2-ethyl-1,4-dimethyl-
E52G1

CAS No. 108-67-8 Benzene, 1,3,5-trimethyl-
E52G1, E52G1DL

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

A Form I was not provided for the storage/holding blank. Sample results are non-detect for target compounds. No qualifications were made for this non-compliance.

The following volatile samples have reported concentrations that exceed the instrument's linear calibration range. The results are flagged "E" by the laboratory and are estimated "J". The results from the diluted samples should be used for result validation.

E52F4, E52G1, E52G6
1,1,1-Trichloroethane

After comparing the VOA chromatograms for the TICs identified as Unknown @ 1.83 in samples E52G2 and E52G7 to CAS No. 75-68-3 1-chloro-1,1-difluoro- in samples E52G4 and E52G9, the reviewer concluded that the same compound was being described in each sample. Copies of the chromatograms are enclosed.

Case Number: 40952 SDG Number: E52F3
Site Name: SE Rockford GW Contamination SF Site (IL) Laboratory: ALS Laboratory Group

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: May 19, 2011

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM
Email Address: GrabsJC@cdm.com

Level 3 Automated Validation

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Groundwater Contamination Site (IL)

Case Number: 41255 SDG Number: E52K2

Number and Type of Samples: 13 Waters (Low/Medium Volatiles)

Sample Numbers: E52K2 - E52K9, E52L0 – E52L4

Laboratory: Shealy Environmental Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 41255 SDG Number: E52K2
Site Name: SE Rockford Groundwater (IL) Laboratory: Shealy Environmental

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Thirteen (13) preserved water samples labeled E52K2 through E52K9 and E52L0 through E52L4 were shipped to Shealy Environmental Services, Incorporated located in West Columbia, SC. The samples were collected April 18–20, 2011 and received on April 20th and 22nd, 2011 intact with a cooler temperatures of 1.8 °C and 1.9 °C. All samples were analyzed as low level volatile samples according to CLP SOW SOM01.2 (10/2006) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.5.2).

Sample E52K4 was designated by the samplers to be used for the laboratory QC, i.e. MS/MSD analyses.

Samples E52K5 and E52L4 were identified as trip blanks. Sample E52K6 was identified as a field blank.

Case Number: 41255 SDG Number: E52K2
Site Name: SE Rockford Groundwater (IL) Laboratory: Shealy Environmental

1. HOLDING TIME

The following preserved volatile water samples are outside the primary analytical holding time criteria (14 days). Detected compounds are qualified "J". Non-detected compounds are qualified "R".

E52K7DL, E52L0RE, E52L2RE

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration with relative response factors (RRFs) outside criteria (<0.005). Detected compounds are qualified "J". Non-detected compounds are qualified "R".

1,4-Dioxane
E52K2, E52K3, E52K4, E52K4MS, E52K4MSD, E52K5, E52K6, E52K7, E52K7DL, E52K8, E52K9, E52L0, E52L0RE, E52L1, E52L2, E52L2RE, E52L3, E52L4, VBLKKQ, VBLKLA, VBLKLB, VBLKMH, VBLKMS, VBLKMZ, VHBLK01

The following volatile samples are associated with an initial calibration in which a DMC did not meet relative response factor (RRF) criteria (<0.005). Detected and non-detected compounds are not qualified.

1,4-Dioxane-d8
E52K2, E52K3, E52K4, E52K4MS, E52K4MSD, E52K5, E52K6, E52K7, E52K7DL, E52K8, E52K9, E52L0, E52L0RE, E52L1, E52L2, E52L2RE, E52L3, E52L4, VBLKKQ, VBLKLA, VBLKLB, VBLKMH, VBLKMS, VBLKMZ, VHBLK01

The following volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria (<0.05). The compound was not detected in these samples. Non-detected compounds are not qualified for noncompliance with this criterion.

Bromomethane
E52K5, E52K6, E52L4, VBLKKQ

The following volatile samples are associated with a CCV with relative response factors (RRF50) outside criteria (<0.005). Detected compounds are qualified "J". Non-detected compounds are qualified "R".

1,4-Dioxane
E52K2, E52K3, E52K4, E52K4MS, E52K4MSD, E52K5, E52K6, E52K7, E52K7DL, E52K8, E52K9, E52L0, E52L0RE, E52L1, E52L2, E52L2RE, E52L3, E52L4, VBLKKQ, VBLKLA, VBLKLB, VBLKMH, VBLKMS, VBLKMZ, VHBLK01

The following volatile samples are associated with a CCV in which a DMC did not meet relative response factor (RRF) criteria (<0.005). Detected and non-detected compounds are not qualified.

1,4-Dioxane-d8
E52K2, E52K3, E52K4, E52K4MS, E52K4MSD, E52K5, E52K6, E52K7, E52K7DL, E52K8, E52K9, E52L0, E52L0RE, E52L1, E52L2, E52L2RE, E52L3, E52L4, VBLKKQ, VBLKLA, VBLKLB, VBLKMH, VBLKMS, VBLKMZ, VHBLK01

The following volatile samples are associated with an opening CCV percent difference (%D) outside criteria (>20%). These compounds were not detected in the samples. Non-detected compounds are qualified "UJ".

Bromomethane, Bromoform
E52K7, E52L1, E52L2, E52L3, VBLKLB

4. BLANKS

The following volatile sample was analyzed after a highly contaminated sample with no intervening instrument blank. Detected compounds are qualified "J" due to the possibility of carry-over.

E52K8
M,p-Xylene

E52L2
Methylcyclohexane, Ethylbenzene, m,p-Xylenes

The following volatiles samples have analyte concentrations reported less than the CRQL. The associated method blank is less than the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL. Non-detected 1,4-Dioxane is qualified "R" because all calibration criteria were not met.

1,1-Dichloroethene
E52K7

1,4-Dioxane
E52L2, E52L3

Chloroform
E52K4, E52K4MS

The following volatiles samples have analyte concentrations reported less than the CRQL. The associated trip blank concentration is less than the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL. The non-detected compounds are ultimately qualified "R" because all holding time criteria were not met.

Toluene
E52K7DL

The following volatiles samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated trip blank is less than the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL. Some non-detected compounds are qualified "UJ" because surrogate recoveries were outside the acceptance criteria. The non-detected compounds in sample E52L0RE are ultimately qualified "R" because all holding time criteria were not met.

Acetone
E52K2, E52K3, E52K4, E52K4MS, E52K4MSD, E52K6, E52K7, E52K8, E52K9, E52L0, E52L0RE

The following volatile samples have TIC concentrations less than 5x the method blank concentration. The compounds were qualified "U" as non-detects and removed from the TIC Report.

Unknown @ RT 9.060
E52L2RE

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are qualified "UJ".

E52K4MS, E52K7, E52K9, E52L1, E52L3
1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

E52L0
Dichlorodifluoromethane, Chloromethane, Vinyl chloride, Bromomethane, Chloroethane, Trichlorofluoromethane, 1,1-Dichloroethene, 1,1,2-Trichloro-1,2,2-trifluoroethane, Acetone, Carbon disulfide, Methyl acetate, Methylene chloride, trans-1,2-Dichloroethene, Methyl tert-butyl ether, 1,1-Dichloroethane, cis-1,2-Dichloroethene, 2-Butanone, Bromochloromethane, Chloroform, 1,1,1-Trichloroethane, Cyclohexane, Carbon tetrachloride, Benzene, 1,2-Dichloroethane, Trichloroethene, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane, cis-1,3-Dichloropropene, Toluene, trans-1,3-Dichloropropene, 1,1,2-Trichloroethane, Tetrachloroethene, Dibromochloromethane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, o-Xylene, m,p-Xylene, Styrene, Bromoform, Isopropylbenzene, 1,1,2,2-Tetrachloroethane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

E52L2
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Trichlorofluoromethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, Acetone, Carbon disulfide, Methyl acetate, Methylene chloride, Methyl tert-butyl ether, 1,1-Dichloroethane, 2-Butanone, Bromochloromethane, Chloroform, 1,1,1-Trichloroethane, Cyclohexane, Carbon tetrachloride, Benzene, 1,2-Dichloroethane, Trichloroethene, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane, cis-1,3-Dichloropropene, 4-Methyl-2-pentanone, Toluene, trans-1,3-Dichloropropene, 1,1,2-Trichloroethane, Tetrachloroethene, 2-Hexanone, Dibromochloromethane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, o-Xylene, m,p-Xylene, Styrene, Bromoform, Isopropylbenzene, 1,1,2,2-Tetrachloroethane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified “J”. Non-detected compounds are not qualified for this criterion. The non-detected compounds in sample E52K7DL are ultimately qualified “R” because all holding time criteria were not met.

E52K2
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Carbon disulfide

E52K4MS, E52L2
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

E52K6
Dichlorodifluoromethane, Chloromethane, Vinyl chloride, Bromomethane, Chloroethane, Carbon disulfide, 1,1-Dichloroethane, Bromochloromethane, Chloroform, Benzene, Trichloroethene, Toluene, Tetrachloroethene, Dibromochloromethane, Ethylbenzene, o-Xylene, m,p-Xylene, Styrene, Bromoform, Isopropylbenzene

E52K7DL
Dichlorodifluoromethane, Chloromethane, Vinyl chloride, Bromomethane, Chloroethane, Carbon disulfide, Benzene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E52K4 was designated by the samplers to be used for the laboratory QC, i.e. MS/MSD analyses.

The relative percent difference (RPD) between the following volatile matrix spike and matrix spike duplicate recoveries is outside criteria. The detected compound in the unspiked sample, E52K4, is qualified "J".

E52K4MS, E52K4MSD
1,1-Dichloroethene

6B. LABORATORY CONTROL SAMPLE

Not applicable to these analyses.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E52K5 and E52L4 were identified as trip blanks. All detections are summarized in the following table:

	E52K5	**E52L4**
Collection date	4/20/2011	4/22/2011
Compound	µg/L	µg/L
Acetone	7.6	4.6
Toluene	0.59	2.0

Sample E52K6 was identified as a field blank. No compounds were reported for this sample.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E52K2
1,1-Dichloroethene, 1,4-Dioxane, Trichloroethene, Tetrachloroethene

E52K3
1,1-Dichloroethene, Trichloroethene, Tetrachloroethene

E52K4
1,1-Dichloroethene, Trichloroethene

E52K4MS
Dichlorodifluoromethane

E52K4MSD
1,4-Dioxane

E52K5, E52L4
Acetone, Toluene

E52K7DL
Methylcyclohexane

E52K8
1,1-Dichloroethene, 1,4-Dioxane

E52K9
1,1-Dichloroethene

E52L0
1,1-Dichloroethene, 1,1-Dichloroethane, cis-1,2-Dichloroethene, Trichloroethene

E52L0RE
1,1-Dichloroethane, cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene

E52L1
Dichlorodifluoromethane, Chloroethane, Benzene, Tetrachloroethene, m,p-Xylene

E52L2
1,1,2-Trichloro-1,2,2-trifluoroethane, trans-1,2-Dichloroethene, Methylcyclohexane, Ethylbenzene

E52L2RE
1,1-Dichloroethane, Trichloroethene, Tetrachloroethene

E52L3
Chloroethane, trans-1,2-Dichloroethene, Cyclohexane, 1,2-Dichloroethane, 1,1,2-Trichloroethane, m,p-Xylene, Isopropylbenzene

VBLKLA
1,1,2-Trichloro-1,2,2-trifluoroethane, Chloroform

VBLKLB
1,1-Dichloroethene, Chloroform, 1,4-Dioxane

VBLKMH
Chloroform

VBLKMS
1,1,2-Trichloro-1,2,2-trifluoroethane

A library search indicates a match above 85% for a TIC compound in the volatile sample. Detected compounds are qualified “NJ”.

CAS No. 99-87-6 Benzene, 1-methyl-4-(1-methylethyl) (RT @ 11.570);
CAS No. 99-87-6 Benzene, 1-methyl-4-(1-methylethyl) (RT @ 11.760);
CAS No. 103-65-1 Benzene, n-propyl-;
CAS No. 119-64-2 Naphthalene, 1,2,3,4-tetrahydro;
CAS No. 135-01-3 Benzene, 1,2-diethyl-;
CAS No. 275-51-4 Azulene;
CAS No. 488-23-3 Benzene, 1,2,3,4-tetramethyl (RT @ 12.440);
CAS No. 488-23-3 Benzene, 1,2,3,4-tetramethyl (RT @ 12.480);
CAS No. 488-23-3 Benzene, 1,2,3,4-tetramethyl (RT @ 12.770);
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl- (RT @ 11.080);
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl- (RT @ 11.380);
CAS No. 611-15-4 Benzene, 1-ethenyl-2-methyl-;
CAS No. 620-14-4 Benzene, 1-ethyl-3-methyl-;
CAS No. 872-56-0 Isopropylcyclobutane;
CAS No. 933-98-2 Benzene, 1-ethyl-2,3-dimethyl;
CAS No. 934-80-5 Benzene, 4-ethyl-1,2-dimethyl;
CAS No. 1074-55-1 Benzene, 1-methyl-4-propyl- (RT @ 11.500);
CAS No. 1074-55-1 Benzene, 1-methyl-4-propyl- (RT @ 12.030);
CAS No. 1640-89-7 Cyclopentane, ethyl-;
CAS No. 1758-88-9 Benzene, 2-ethyl-1,4-dimethyl;
CAS No. 2050-24-0 Benzene, 1,3-diethyl-5-methyl;
CAS No. 2453-00-1 Cyclopentane, 1,3-dimethyl- (RT @ 6.080);
CAS No. 2453-00-1 Cyclopentane, 1,3-dimethyl- (RT @ 6.150);
CAS No. 3454-07-7 Benzene, 1-ethenyl-4-ethyl-;
CAS No. 6876-23-9 Cyclohexane, trans-1,2-dimethyl-,
E52K7

CAS No. 526-73-8 Benzene, 1,2,3-trimethyl- (RT @ 11.690)
CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-
E52K7, E52K7DL

CAS No. 95-63-6 Benzene, 1,2,4-trimethyl-
CAS No. 108-67-8 Benzene, 1,3,5-trimethyl-
E52K7DL

A library search indicates a match below 85% for a TIC compound in the volatile sample. Detected compounds are qualified “J”.

Unknown @ RT 1.450
VBLKMH

Unknown @ RT 1.720; Unknown @ RT 1.750
VBLKLB

Unknown @ RT 9.060
E52L0RE, VBLKMS

Unknown @ RT 9.250; Unknown @ RT 12.250
E52K7

Unknown @ RT 9.850
E52L1

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following volatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". The results from the most diluted analyses for the affected compound should be considered the final result for that compound.

E52K7
Methylcyclohexane, Ethylbenzene, m,p-Xylene

E52K7DL
m,p-Xylene

E52L2
1,1-Dichloroethene, 1,1,1-Trichloroethane

Case Number: 41255 SDG Number: E52K2
Site Name: SE Rockford Groundwater (IL) Laboratory: Shealy Environmental

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Allison Harvey / Techlaw-ESAT
Date: June 17, 2011

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 10 August 2011

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM
grabsjc@cdm.com

Level 3 Data Validation

We have reviewed the data for the following case:

SITE Name: SE Rockford GW Contamination (IL)

Case Number: 41580 SDG Number: E52L5

Number and Type of Samples: 20 Waters (VOA)

Sample Numbers: E52L5-E52L9; E52M0-E52M9; E52N0-E52N4

Laboratory: ALS Laboratory Group - DATAC Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 41580 SDG Number: E52L5
Site Name: SE Rockford GW Contamination (IL) Laboratory: ALS Laboratory Group

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twenty (20) water samples labeled E52L5-E52L9; E52M0-E52M9 and E52N0-E52N4 were shipped to ALS Laboratory Group located in Salt Lake City, UT. Samples E52L5-E52L9 and E52N1-E52N4 were collected July 20, 2011. Samples E52M0-E52M9 and E52N0 were collected July 19, 2011. All samples were received July 21,2011 intact and at the proper temperature.

All samples were analyzed for the VOA list of compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6).

Samples E52L7 and E52M9 are field duplicates of E52L6 and E52M8 respectively. Sample E52L8 was identified as a trip blank. Samples E52M2 and E52N4 were identified as field blanks.

Sample E52N0 was designated for laboratory QC, i.e. MS / MSD analyses.

Case Number: 41580 SDG Number: E52L5
Site Name: SE Rockford GW Contamination (IL) Laboratory: ALS Laboratory Group

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration with relative response factors (RRFs) outside criteria. The compound is not detected in any of the samples. Non-detected compounds are qualified "R".

E52L5, E52L5DL, E52L6, E52L7, E52L8, E52L9, E52M0, E52M1, E52M1DL, E52M2, E52M3, E52M4, E52M5, E52M6, E52M7, E52M8, E52M9, E52N0, E52N0MS, E52N0MSD, E52N1, E52N1DL, E52N2, E52N3, E52N4, VBLKW1, VBLKW2, VHBLKW1
1,4-Dioxane

The following volatile samples are associated with an initial calibration in which a DMC did not meet relative response factor (RRF) criteria. Detected and non-detected compound was not qualified

E52L5, E52L5DL, E52L6, E52L7, E52L8, E52L9, E52M0, E52M1, E52M1DL, E52M2, E52M3, E52M4, E52M5, E52M6, E52M7, E52M8, E52M9, E52N0, E52N0MS, E52N0MSD, E52N1, E52N1DL, E52N2, E52N3, E52N4, VBLKW1, VBLKW2, VHBLKW1
1,4-Dioxane-d8

The following volatile samples are associated with a CCV with relative response factors (RRF50) outside criteria. The compound is non-detected in all samples and qualified "R".

E52L5, E52L5DL, E52L6, E52L7, E52L8, E52L9, E52M0, E52M1, E52M1DL, E52M2, E52M3, E52M4, E52M5, E52M6, E52M7, E52M8, E52M9, E52N0, E52N0MS, E52N0MSD, E52N1, E52N1DL, E52N2, E52N3, E52N4, VBLKW1, VBLKW2, VHBLKW1
1,4-Dioxane

4. BLANKS

The following volatile samples were analyzed after a sample with compounds exceeding calibration and no intervening instrument blank. Detection of these compounds should be qualified "J" as they may be a result of carryover.

VHBLKW1
Toluene

The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte concentration less than 2x the concentration criteria. Detected compounds are qualified "U". Reported sample concentrations have been elevated to the 2x the CRQL.

Acetone
E52L5, E52L5DL, E52L6, E52L7, E52L8, E52L9, E52M0, E52M1, E52M2, E52M3, E52M4, E52M5, E52M6, E52M7, E52M8, E52M9, E52N0, E52N0MS, E52N0MSD, E52N1, E52N2, E52N3, E52N4

Methylene Chloride
E52L8

The following volatile samples have analyte concentrations reported less than 2x the CRQL. The field blank concentration is less than 2x the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Methylene chloride
E52N1, E52N2, E52N3

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. The compound is not detected in the sample. Non-detected compounds are not qualified.

E52L6
1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-Chloropropane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E52N0 was used for laboratory QC, i.e. MS / MSD analyses.

No Problems were found.

6B. LABORATORY CONTROL SAMPLE

Not required for volatile analyses.

Case Number: 41580 SDG Number: E52L5
Site Name: SE Rockford GW Contamination (IL) Laboratory: ALS Laboratory Group

7. FIELD BLANK AND FIELD DUPLICATE

Sample E52L8 was identified as a trip blank. No compounds were detected in the trip blank. Samples E52M2 and E52N4 were identified as field blanks. Results are summarized in the following table:

	E52M2	**E52N4**
Volatile analytes:	ug/L	ug/L
Methylene chloride	0.63	0.47
Toluene	0.31	U

Samples E52L7 and E52M9 are field duplicates of E52L6 and E52M8 respectively. Results are summarized in the following table:

	E52L6	**E52L7**	%RPDs
Volatile analytes:	ug/L	ug/L	
1,1-Dichloroethene	3.6	3.8	5.4%
trans-1,2-Dichloroethene	0.5	U	200%
1,1-Dichloroethane	13	13	0%
cis-1,2-Dichloroethene	4.6	4.7	2.1%
1,1,1-Trichloroethane	38	38	0%
Trichloroethene	1.4	1.4	0%
Tetrachloroethene	0.40	0.41	2.4%
Ethylbenzene	0.18	0.23	24%
m,p-Xylene	0.31	0.49	45%

	E52M8	**E52M9**	%RPDs
Volatile analytes:	ug/L	ug/L	
1,1-Dichloroethene	U	1.7	200%
1,1-Dichloroethane	5.3	5.4	1.9%
cis-1,2-Dichloroethene	3.4	3.4	0%
1,1,1-Trichloroethane	4.7	4.7	0%
Trichloroethene	1.7	1.7	0%
Tetrachloroethene	0.28	0.28	0%
m,p-Xylene	0.17	0.27	45%
TIC - Ethane, 1-chloro- 1,1-diflouro	6.7	7.0	

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No Problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E52L5
1,1,2-Trichloroethane, Tetrachloroethene, Ethylbenzene, m,p-Xylene

E52L5DL
cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene, m,p-Xylene

E52L6
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene, Ethylbenzene, m,p-Xylene

E52L7
1,1-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene, Ethylbenzene, m,p-Xylene

E52L9
1,1-Dichloroethene, cis-1,2-Dichloroethene, Benzene, Trichloroethene, Tetrachloroethene

E52M0, E52M7, E52N0
1,1-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene

E52M1
cis-1,2-Dichloroethene, Trichloroethene, Toluene, Tetrachloroethene, Ethylbenzene, o-Xylene, m,p-Xylene, Isopropylbenzene

E52M1DL
1,1-Dichloroethane, Trichloroethene, Tetrachloroethene

E52M2
Methylene chloride, Toluene

E52M4, E52M8
cis-1,2-Dichloroethene, 1,1,1-Trichloroethane, Trichloroethene, Tetrachloroethene, m,p-Xylene

E52M5
trans-1,2-Dichloroethene, Tetrachloroethene

E52M6
cis-1,2-Dichloroethene, Trichloroethene, 1,1,2-Trichloroethane, Tetrachloroethene

E52M9
1,1-Dichloroethene, cis-1,2-Dichloroethene, 1,1,1-Trichloroethane, Trichloroethene, Tetrachloroethene, m,p-Xylene

E52N0MS, E52N0MSD
Methylene chloride, cis-1,2-Dichloroethene, Tetrachloroethene

E52N1
Ethylbenzene, o-Xylene, m,p-Xylene

E52N1DL
Ethylbenzene, m,p-Xylene

E52N2
Trichloroethene, Tetrachloroethene

E52N3
Benzene, 1,2-Dichloropropane, Ethylbenzene, o-Xylene, m,p-Xylene

E52N4
Methylene chloride

VBLKW1
Acetone, Methylene chloride

VBLKW2
Acetone

VHBLKW1
Toluene

A library search indicates a match below 85% for a TIC compound in the volatile samples. Detected compounds are qualified “J”.

Unknown n-Butyl ether @ 10.58
E52N3

A library search indicates a match at or above 85% for a TIC compound in the volatile sample. Detected compounds are qualified "NJ".

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro-
E52L5, E52M4, E52M7, E52M8, E52M9, E52N0

CAS No. 526-73-8 Benzene, 1,2,3-trimethyl-
E52M1

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following volatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". The results from the diluted analyses should be considered the final concentrations for the affected compounds.

E52L5, E52M1
1,1,1-Trichloroethane

E52N1
Toluene

Since the compound, Toluene, detected in the holding blank, VHBLKW1, was most probably caused by carryover from sample, E52N1, the field samples were not compared against the holding blank.

Case Number: 41580 SDG Number: E52L5
Site Name: SE Rockford GW Contamination (IL) Laboratory: ALS Laboratory Group

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Matthew Kobus / Techlaw-ESAT
Date: 9/13/2011

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 16 August 2011

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM
grabsjc@cdm.com

Level 3 Data Validation

We have reviewed the data for the following case:

SITE Name: SE Rockford GW Contamination (IL)

Case Number: 41580 SDG Number: E52N5

Number and Type of Samples: 3 Waters Samples (VOA)

Sample Numbers: E52N5-E52N7

Laboratory: ALS Laboratory Group Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 41580 SDG Number: E52N5
Site Name: SE Rockford GW Contamination (IL) Laboratory: ALS Laboratory Group

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Three (3) preserved water samples labeled E52N5-E52N7 were shipped to ALS Laboratory Group located in Salt Lake City, UT. Samples E52N5-E52N7 were collected July 21, 2011. Samples were received July 22, 2011 intact and at the proper temperature.

All samples were analyzed for the VOA list of compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6).

Sample E52N7 was identified as a trip blank. No field duplicates or laboratory QC samples were identified.

Case Number: 41580 SDG Number: E52N5
Site Name: SE Rockford GW Contamination (IL) Laboratory: ALS Laboratory Group

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration with relative response factors (RRFs) outside criteria. The compound was not detected in the samples. The non-detected compound is qualified "R".

E52N5, E52N5DL, E52N6, E52N6DL, E52N7, VBLKW1, VHBLKW1
1,4-Dioxane

The following volatile samples are associated with an initial calibration in which a DMC did not meet relative response factor (RRF) criteria. Detected and non-detected compound was not qualified

E52N5, E52N5DL, E52N6, E52N6DL, E52N7, VBLKW1, VHBLKW1
1,4-Dioxane-d8

The following volatile samples are associated with a CCV with relative response factors (RRF50) outside criteria. The compound was not detected in the samples. The non-detected compound is qualified "R".

E52N5, E52N5DL, E52N6, E52N6DL, E52N7, VBLKW1, VHBLKW1
1,4-Dioxane

4. BLANKS

The following volatile samples were analyzed after a sample with compounds exceeding calibration and no intervening instrument blank. Detection of these compounds should be qualified "J" as they may be a result of carryover.

E52N5
Ethylbenzene, m,p-Xylene

VHBLKW1
m,p-Xylene

The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte

concentration less than 2x the concentration criteria. Detected compounds are qualified "U". Reported sample concentrations have been elevated to the 2x the CRQL.

Acetone
E52N5DL, E52N6, E52N7, VHBLKW1

The following volatile samples have analyte concentrations reported less than the CRQL. The associated trip blank concentration is less than the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Toluene
E52N5, E52N5DL, E52N6

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No Problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No MS/MSD was performed with this set of samples. E-mail communications explained that there was not enough sample volume to analyze MS/MSD. Direction from Region was to analyze and note in SDG narrative.

6B. LABORATORY CONTROL SAMPLE

Not required for volatile analyses.

7. FIELD BLANK AND FIELD DUPLICATE

Sample E52N7 was identified as a trip blank. The sample contained Toluene at a concentration of 0.61 µg/L; Ethylbenzene at a concentration of 0.14 µg/L and m,p-Xylene at a concentration of 0.94 µg/L.

8. INTERNAL STANDARDS

No Problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E52N5DL
Methylene chloride, Methylcyclohexane, o-Xylene, Isopropylbenzene

E52N6
Methylene chloride, cis-1,2-Dichloroethene, Cyclohexane, o-Xylene

E52N6DL
1,1,1-Trichloroethene, Methylcyclohexane, o-Xylene, Isopropylbenzene

E52N7
Toluene, Ethylbenzene, m,p-Xylene

VBLKW1
Acetone

VHBLKW1
M,p-Xylene

A library search indicates a match below 85% for a TIC compound in the volatile samples. Detected compounds are qualified "J".

Unknown Decane, 4-methylene-@ 8.3575
Unknown Benzene, 1-methyl-4-propyl-@12.7408
Unknown Benzene, 1-methyl-3-propyl-@13.2285
E52N6

A library search indicates a match at or above 85% for a TIC compound in the volatile sample. Detected compounds are qualified "NJ".

CAS No. 95-93-2 Benzene, 1,2,4,5-tetramethyl-
CAS No. 527-53-7 Benzene, 1,2,3,5-tetramethyl-
CAS No. 611-15-4 Benzene, 1-ethenyl-2-methyl-
CAS No. 2870-04-4 Benzene, 2-ethyl-1,3-dimethyl-
E52N5

CAS No. 103-65-1 Benzene, propyl-
CAS No. 527-84-4 Benzene, 1-methyl-2-(1-methylethyl)-
CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-
CAS No. 1758-88-9 Benzene, 2-ethyl-1,4-dimethyl-
E52N5, E52N6

CAS No. 108-67-8 Benzene, 1,3,5-trimethyl-
E52N5, E52N5DL, E52N6

CAS No. 526-73-8 Benzene, 1,2,3-trimethyl-
E52N5, E52N6, E52N6DL

CAS No. 874-41-9 Benzene, 1-ethyl-2,4-dimethyl-
CAS No. 933-98-2 Benzene, 1-ethyl-2,3-dimethyl-
CAS No. 1587-04-8 Benzene, 1-methyl-2-(2-propenyl)-
E52N6

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following volatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". The results from the diluted analyses should be considered the final concentrations for the affected compounds.

E52N5, E52N6
Ethylbenzene, m,p-Xylene

Since the compound, Toluene, detected in the holding blank, VHBLKW1, was most probably caused by carryover from sample, E52N5, the field samples were not compared against the holding blank.

Case Number: 41580 SDG Number: E52N5
Site Name: SE Rockford GW Contamination (IL) Laboratory: ALS Laboratory Group

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Matthew Kobus / Techlaw-ESAT
Date: 9/14/2011

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: October 14, 2011

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM
Email Address: GrabsJC@cdm.com

Level 3 Data Validation

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Groundwater Contamination Site (IL)

Case Number: 41778 SDG Number: E52N8

Number and Type of Samples: 9 Waters (Low/Medium Volatiles)

Sample Numbers: E52N8, E52N9, E52P0 - E52P6

Laboratory: A4 Scientific, Inc. Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 41778 SDG Number: E52N8
Site Name: SE Rockford Groundwater (IL) Laboratory: A4 Scientific, Inc.

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nine (9) preserved water samples labeled E52N8, E52N9 and E52P0 through E52P6 were shipped to A4 Scientific, Incorporated located in The Woodlands, TX. The samples were collected September 21–22, 2011 and received on September 23, 2011 intact with a cooler temperature of 4 °C. All samples were analyzed as low level volatile samples according to CLP SOW SOM01.2 and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6).

Sample E52P4 was designated by the samplers to be used for the laboratory QC, i.e. MS/MSD analyses.

Sample E52P6 was identified as a trip blank. Sample E52N8 was identified as a field blank. Sample E52P3 was identified as a field duplicate of sample E52P2.

Case Number: 41778 SDG Number: E52N8
Site Name: SE Rockford Groundwater (IL) Laboratory: A4 Scientific, Inc.

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. The compounds were not detected in the samples. Non-detected compounds are not qualified for noncompliance with this criterion.

Bromomethane, Bromoform
E52N8, E52N9, E52P0, E52P1, E52P2, E52P3, E52P4, E52P4MS, E52P4MSD, E52P5, E52P6, VBLK4U, VHBLKCH

4. BLANKS

The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated trip blank (E52P6) concentration has common contaminant analyte concentration less than 2X the CRQL. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Acetone
E52N8, E52P1

Methylene chloride
E52N8, E52P2, E52P3, E52P4, E52P4MS, E52P4MSD, E52P5

The following volatile samples have contaminant analyte concentrations reported less than the CRQL. The associated trip blank (E52P6) concentration has contaminant analyte concentration less than the CRQL. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Chlorobenzene
E52P0, E52P1, E52P2, E52P3, E52P4, E52P5

1,4-Dichlorobenzene
E52P2, E52P3, E52P4, E52P4MS, E52P4MSD, E52P5

1,2-Dichlorobenzene
E52P3, E52P4, E52P4MS, E52P4MSD, E52P5

The following volatile samples have contaminant analyte concentrations reported greater than the CRQL and less than 2x the CRQL. The associated trip blank (E52P6) concentration has contaminant analyte concentration less than the CRQL. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Chlorobenzene
E52N8, E52N9

1,4-Dichlorobenzene
E52N9, E52P0, E52P1

1,2-Dichlorobenzene
E52N9, E52P0, E52P1, E52P2

The following volatile samples have TIC concentrations less than 5x the trip blank concentration. The compounds were qualified "U" as non-detects and removed from the TIC Report.

CAS No. 141-78-6 Ethyl Acetate
E52N9, E52P1

The following volatile samples have contaminant analyte concentrations reported less than the CRQL. The associated field blank (E52N8) concentration has contaminant analyte concentration less than the CRQL. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

1,3-Dichlorobenzene, 1,2,3-Trichlorobenzene
E52N9, E52P0, E52P1, E52P2, E52P4

The following volatile samples have contaminant analyte concentrations reported greater than the CRQL and less than 2x the CRQL. The associated field blank (E52N8) concentration has contaminant analyte concentration greater than the CRQL. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the Blank concentration.

1,2,4-Trichlorobenzene
E52N9, E52P0, E52P1, E52P2, E52P4

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. The compounds were not detected in the samples. Non-detected compounds are qualified "UJ".

E52N8
1,4-Dioxane

E52N9, E52P0, E52P1, E52P3, E52P4, E52P4MS, E52P4MSD, E52P5
1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

E52P6
1,4-Dioxane, 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are not qualified for this criterion.

E52N8, E52N9, E52P0, E52P4, E52P6
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Carbon disulfide

E52P2, E52P3, E52P4MS
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, 1,1-Dichloroethene, Carbon disulfide, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

E52P4MSD, E52P5
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E52P4 was designated by the samplers to be used for the laboratory QC, i.e. MS/MSD analyses.

The following volatile matrix spike/matrix spike duplicate samples have percent recovery greater than the upper acceptance criteria. Detected compounds in the unspiked sample, E52P4, is qualified "J".

E52P4MS
Trichloroethene

6B. LABORATORY CONTROL SAMPLE

Not applicable to these analyses.

7. FIELD BLANK AND FIELD DUPLICATE

Sample E52P6 was identified as a trip blank. Sample E52N8 was identified as a field blank. Samples E52N8 and E52P6 were identified as the QC blanks. All detections are summarized in the following table:

	E52N8	**E52P6**
Blank type	Field	Trip
Compound	µg/L	µg/L
Acetone		5.7
Methyl chloride		6.1
Carbon disulfide	2.7	
Chlorobenzene		1.4
1,3-Dichlorobenzene	1.2	
1,4-Dichlorobenzene		2.0
1,2-Dichlorobenzene		2.3
1,2,4-Trichlorobenzene	5.6	
1,2,3-Trichlorobenzene	2.3	
# of TICs	0	1

Sample E52P3 was identified as a field duplicate of sample E52P2. All detections and RPDs are summarized in the following table:

	E52P2	**E52P3**	RPD
Compounds	µg/L	µg/L	%
1,1-Dichloroethene	27	31	13.8
Trans-1,2-Dichloroethene	3.3	3.2	3.1
1,1-Dichloroethane	120	110	8.7
Cis-1,2-Dichloroethene	38	35	8.2
1,1,1-Trichloroethane	78	77	1.3
Trichloroethene	33	34	3.0

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E52N8
Carbon disulfide, 1,3-Dichlorobenzene, 1,2,3-Trichlorobenzene

E52N9
Cis-1,2-Dichloroethene, Carbon tetrachloride, Trichloroethene, Tetrachloroethene

E52P0
1,1-Dichloroethane, Cis-1,2-Dichloroethene, Trichloroethene

E52P1, E52P2, E52P3, E52P4, E52P4MS, E52P4MSD, E52P5
Trans-1,2-Dichloroethene

E52P6
Acetone, Chlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene

A library search indicates a match above 85% for a TIC compound in the volatile sample. Detected compounds are qualified "NJ".

CAS No. 75-09-2 Methylene chloride
E52N9, E52P0

CAS No. 141-78-6 Ethyl acetate
E52P6

CAS No. 556-67-2 Cyclotetrasiloxane, octamet.
E52P1

A library search indicates a match below 85% for a TIC compound in the volatile sample. Detected compounds are qualified "J".

Unknown @ 4.18
E52P4, E52P5

Unknown @ RT 11.87
E52N9

Unknown @ RT 13.97
E52P1

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following volatile samples have a volatile target analyte identified as a volatile TIC. Detected analytes are qualified "J". Non-detected compounds are qualified "UJ".

CAS No. 75-09-2 Methylene chloride
E52N9, E52P0

Case Number: 41778 SDG Number: E52N8
Site Name: SE Rockford Groundwater (IL) Laboratory: A4 Scientific, Inc.

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Allison Harvey / Techlaw-ESAT
Date: November 7, 2011

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: Nov 1, 2011

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Field Services Section

TO: Data User: CDM

Level 3 Data Validation

We have reviewed the data for the following case:

SITE Name: SE Rockford GW Contamination (IL)

Case Number: 41863 SDG Number: E52P7

Number and Type of Samples: 20 water Samples (VOA)

Sample Numbers: E52P7-E52P9; E52Q0-E52Q9; E52R0-E52R6

Laboratory: KAP Technologies Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SRT-5J

Case Number: 41863 SDG Number: E52P7
Site Name: RSE Rockford GW Contamination (IL) Laboratory: KAP Technologies

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twenty (20) water samples labeled E52P7 through E52P9; E52Q0 through E52Q9; and E52R0 through E52R6 were shipped to KAP Technologies, in The Woodlands, TX. Seventeen (17) samples; E52P7 through E52P9; E52Q0, E52Q2 through E52Q9; E52R0, R52R3, E52R4 and E52R5, were collected on 10/11/2011 and four (4) samples; E52Q1, E52R1, E52R2 and E52R6, were collected on 10/12/11. All samples were received on 10/13/11 intact and properly cooled.

All samples were analyzed according to CLP SOW SOM01.2 and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.3).

Sample E52R3 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Samples E52Q0 and E52Q1were identified as field blanks. Samples E52Q8 and E52Q9 are field duplicates. Samples E52R4 and E52R5 are field duplicates. Sample E52R6 is a trip blank

Case Number: 41863 SDG Number: E52P7
Site Name: RSE Rockford GW Contamination (IL) Laboratory: KAP Technologies

1. HOLDING TIME

No Problems Found

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found

3. CALIBRATION

The following volatile samples are associated with an opening CCV in which a DMC exceeded percent difference (%D) criteria. Detected and non-detected compounds are not qualified.

E52P7, E52P8, E52Q0, E52Q1, E52Q2, E52Q3, E52Q4, E52Q5, E52Q6, E52Q7, E52Q8, E52Q9, E52R0, E52R2, VBLK5Q
1,1-Dichloroethene-d2

4. BLANKS

The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank common contaminant concentration is less than 2x the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Methylene chloride
E52P9, E52P9DL, E52Q6DL

The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated trip blank common contaminant concentration is greater than 2x the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Methylene chloride
E52P7, E52P8, E52Q0, E52Q1, E52Q2, E52Q3, E52Q4, E52Q5, E52Q6, E52Q7, E52Q8, E52Q9, E52R0, E52R2, E52R3

The following volatile samples have common contaminant analyte concentrations reported greater than 2x but less the 4x the CRQL. The associated trip blank common contaminant concentration is greater than 2x the concentration criteria. Reported sample concentrations are qualified “U”. Non-detected compounds are not qualified.

Methylene chloride
E52R1, E52R4, E52R5

The following volatile samples have TIC concentrations reported less than 5X the associated method blank concentration. Detected compounds are re-qualified "U" and deleted from the TIC report.

Unknown @ 10.76
E52P7, E52P8, E52P9, E52P9DL, E52Q0, E52Q1, E52Q2, E52Q3, E52Q4, E52Q5, E52Q6, E52Q6DL, E52Q7, E52Q8, E52Q9, E52R0, E52R1, E52R2, E52R3, E52R4, E52R5, E52R6

Unknown @ 11.01
VHBLK01

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Non-detected compounds are not qualified.

E52Q0, E52Q5
4-Methyl-2-pentanone, 2-Hexanone

E52Q3, E52Q7, E52R3MSD, E52R6
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

E52Q6
Cyclohexane, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane, 4-Methyl-2-pentanone, 2-Hexanone, 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

E52Q8
Acetone, 2-Butanone, 4-Methyl-2-pentanone, 2-Hexanone, 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

E52R0
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, 4-Methyl-2-pentanone, 2-Hexanone

E52R1
1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

E52R2
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, 1,1-Dichloroethene, Carbon disulfide, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

E52R4
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Carbon disulfide

E52R5
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Carbon disulfide, 4-Methyl-2-pentanone, 2-Hexanone

The following volatile samples have one or more DMC/SMC recovery values is less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected compounds are qualified J. Non-detected compounds are qualified UJ.

E52R1
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

E52R3MSD, E52R6
1,4-Dioxane

E52R3MS
1,1-Dichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene, 1,4-Dioxane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E52R3 was designated by the samplers to be used for laboratory QC, i.e. matrix spike / matrix spike duplicate analyses.

The relative percent difference (RPD) between the following volatile matrix spike and matrix spike duplicate recoveries is outside criteria. The compound was not detected in the unspiked E52R3. Non-detected compounds are qualified “UJ”.

1,1-Dichloroethene
E52R3MS, E52R3MSD

The following volatile matrix spike/matrix spike duplicate samples have percent recovery greater than or equal to the expanded lower acceptance limit but less than the primary lower acceptance limit The compound was not detected in the unspiked E52R3. Non-detected compounds are qualified “UJ”.

1,1-Dichloroethene
E52R3MS

6B. LABORATORY CONTROL SAMPLE

Not Required for this Analysis.

7. FIELD BLANK AND FIELD DUPLICATE

Sample E52R6 is identified as a trip blank. Results are summarized in the following table:

	E52R6
Volatile analytes:	µg/L
Methylene Chloride	14
# of TICs	0

E52Q0 and E52Q1 were identified as field blanks. Results are summarized in the following table:

	E52Q0	E52Q1
Volatile analytes:	µg/L	µg/L
Toluene	0	4.7
# of VOA TICs		

Sample E52Q8 was identified as a field duplicate of sample E52Q9. Results are summarized in the following table:

	E52Q8	E52Q9	%RPDs
	µg/L	µg/L	
Acetone	25	20	22%
1,1-Dichloroathane	3.7	3.8	-2.7%
1,1,1-Trichloroethane	2.7	2.9	-7.1%
# of VOA TICs	0	0	

Sample E52R4 was identified as a field duplicate of sample E52R5. Results are summarized in the following table:

	E52R4	E52R5	%RPDs
	µg/L	µg/L	
1,1-Dichloroethane	5.1	4.6	10.3%
Cis-1,2-Dichloroethene	3.2	2.7	16.9%
1,1,1-Trichloroethane	4.6	4.0	14.0%
# of VOA TICs	0	0	

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No Problems Found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOA compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified J.

E52P7
1,1-Dichloroethane, Toluene

E52P8
1,1-Dichloroethane

E52P9
Cis-1,2-Dichloroethene, Trichloroethene

E52Q1
Toluene

E52Q2
1,1-Dichloroethane, Toluene

E52Q3, E52Q4, E52Q5, E52Q8, E52Q9, E52R3, E52R3MS, E52R3MSD
1,1-Dichloroethane, 1,1,1-Trichloroethane

E52Q6
Toluene, Ethylbenzene, Isopropylbenzene

E52Q6DL
Acetone, cis-1,2-Dichloroethene, 1,1-Dichloroethane, m,p-Xylene

E52R0
cis-1,2-Dichloroethene, Trichloroethene

E52R1
cis-1,2-Dichloroethene

E52R4
cis-1,2-Dichloroethene, 1,1,1-Trichloroethane

E52R5
1,1-Dichloroethane, cis-1,2-Dichloroethene, 1,1,1-Trichloroethane

VBLK5Q
1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene

A library search indicates a match at or above 85% for a TIC compound in the volatile sample
Detected compounds are qualified NJ.

CAS No. 95-63-6 Benzene, 1,2,4-trimethyl-;
CAS No. 108-67-8 Benzene, 1,3,5-trimethyl-;
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl-
E52P9, E52Q6, E52Q6DL

CAS No. 99-87-6 Benzene, 1-methyl-4-(1-methylethyl)-;
CAS No. 527-53-7 Benzene, 1,2,3,5-tetramethyl-;
CAS No. 527-84-4 Benzene, 1-methyl-2-(1-methylethyl)-;
CAS No. 934-80-5 Benzene, 4-ethyl-1,2-dimethyl-
E52Q6

CAS No. 103-65-1 Benzene, propyl-;
CAS No. 496-11-7 Indane;
CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-
E52Q6, E52Q6DL

CAS No. 488-23-3 Benzene, 1,2,3,4-tetramethyl-;
CAS No. 620-14-4 Benzene, 1-ethyl-3-methyl-
E52Q6DL

A library search indicates a match below 85% for a TIC compound in the volatile sample
Detected compounds are qualified J.

Unknown-RT @ 2.71
E52P9

Unknown-RT @ 10.75
VBLK5Q, VBLK5S, VBLK79

Unknown-RT @ 19.14
E52Q6, E52Q6DL

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following trace volatile/volatile/semivolatile/pesticide/aroclor samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". The results from the diluted analyses should be considered the final concentrations for the affected compounds

E52P9, E52Q6
1,1,1-Trichloeoethane

Case Number: 41863 SDG Number: E52P7
Site Name: RSE Rockford GW Contamination (IL) Laboratory: KAP Technologies

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: T Sedlacek / Techlaw-ESAT
Date: 12/8/2011

2012

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 02 February 2012

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM
Email Address: grabsjc@cdm.com

Level 3 Data Validation

We have reviewed the data for the following case:

SITE Name: Southeast Rockford GW Contamination (IL)

Case Number: 42130 SDG Number: E52P7

Number and Type of Samples: 20 Water Samples (Low VOA)

Sample Numbers: E52P7-E52P9, E52Q0-E52Q9, E52R0-E52R6

Laboratory: KAP Technologies Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 42130 SDG Number: E52P7
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: KAP Technologies

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twenty (20) preserved water samples labeled E52P7-E52P9, E52Q0-E52Q9, and E52R0-E52R6, were shipped to KAP Technologies located in The Woodlands, TX . All samples were collected on 1/10/12 and 1/11/12 and received on 1/12/12 intact and properly cooled.

All samples were analyzed for the Low VOA list of compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6).

Sample E52P9 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Three (3) samples, E52Q3, E52Q5 and E52R6, are identified as field QC samples. As no samples have the same recorded collection dates/times and the samples are analyzed for only the volatile target compounds, they will be evaluated as trip blanks.

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration with relative response factors (RRFs) outside criteria. The compound was not detected in the samples. Non-detected compounds are qualified "R".

E52P7, E52P8, E52P9, E52P9MS, E52P9MSD, E52Q0, E52Q1, E52Q2, E52Q3, E52Q4, E52Q5, E52Q6, E52Q7, E52Q8, E52Q9, E52R0, E52R1, E52R2, E52R3, E52R4, E52R5, E52R5DL, E52R6, VBLK38, VBLK40, VBLK45, VHBLK01
1,4-Dioxane

The following volatile samples are associated with an opening CCV percent difference (%D) outside criteria. The compound was not detected in the samples. Non-detected compounds are qualified "UJ".

E52P7, E52P8, E52P9, E52Q0, E52Q1, E52Q2, E52Q3, E52Q4, E52Q5, E52Q6, E52Q7, E52Q8, E52Q9, E52R0, E52R1, E52R3, E52R4, E52R5, E52R6, VBLK38, VBLK40
Bromoform

4. BLANKS

The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte concentration less than 2x the concentration criteria. Reported sample concentrations have been elevated to 2x the CRQL and qualified "U".

E52P7, E52P8, E52P9, E52P9MS, E52P9MSD, E52Q0, E52Q1, E52Q2, E52Q3, E52Q4, E52Q5, E52Q6, E52Q7, E52Q8, E52Q9, E52R0, E52R1, E52R2, E52R3, E52R4, E52R5, E52R5DL, E52R6, VHBLK01
Methylene chloride

The following volatile samples have analyte concentrations reported less than the CRQL. The associated method blank concentration is less than the concentration criteria. Reported sample concentrations have been elevated to the CRQL and qualified "U".

E52P7, E52P8, E52P9, E52Q0, E52Q1, E52R5DL
Toluene

The following volatile samples have analyte concentrations reported greater than or equal to the CRQL and less than 2X the CRQL. The associated method blank concentration is less than the concentration criteria. Reported sample concentrations have been elevated to 2x the CRQL and qualified "U".

E52Q2, E52Q3, E52Q4, E52Q5, E52Q6, E52Q7, E52R2
Toluene

The following volatile samples have TIC concentrations reported less than 5X the method blank concentration. Detected compounds are qualified "U" and deleted from the TIC report.

Unknown @ 10.96;
Cas No. 541-05-9 Cyclotrisiloxane, hexamethyl-
E52P7, E52P8, E52P9, E52Q0, E52Q1, E52Q2, E52Q3, E52Q4, E52Q5, E52Q6, E52Q7, E52Q8, E52Q9, E52R0, E52R1, E52R3, E52R4, E52R5, E52R5DL, E52R6, VHBLK01

Cas No. 556-67-2 Cyclotetrasiloxane, octamethyl-
E52P7, E52P8, E52P9, E52Q0, E52Q1, E52Q2, E52Q3, E52Q4, E52Q5, E52Q6, E52Q7, E52Q8, E52Q9, E52R0, E52R1, E52R3, E52R4, E52R5

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. The compounds were not detected in the samples. Non-detected compounds are not qualified.

E52Q6, E52Q7, E52R5
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Carbon disulfide

The following volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit (20%) of the criteria window. The compounds were not detected in the samples. Non-detected compounds are qualified "UJ".

E52P7
1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

E52P9
Cyclohexane, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane, 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E52P9 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

The following volatile matrix spike/matrix spike duplicate samples have percent recovery greater than or equal to the expanded lower acceptance limit (20%) but less than the primary lower acceptance limit. The compounds were not detected in the unspiked sample (E52P9). Non-detected compounds in the unspiked sample (E52P9) are qualified "UJ".

E52P9MS, E52P9MSD
1,1-Dichloroethene, Benzene

6B. LABORATORY CONTROL SAMPLE

Not applicable to VOA analyses.

7. FIELD BLANK AND FIELD DUPLICATE

Three (3) samples, E52Q3, E52Q5 and E52R6, are identified as field QC samples. As no samples have the same recorded collection dates/times and the samples are analyzed for only the volatile target compounds, they will be evaluated as trip blanks. No target compounds or TICs are reported for samples E52Q2 and E52Q5. Sample E52R6 reported one (1) VOA TIC.

8. INTERNAL STANDARDS

No Problems Found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOA compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E52P8, E52P9, E52Q0, E52Q2, E52Q4, E52Q6, E52Q7, E52R4
cis-1,2-Dichloroethene, Trichloroethene

E52P9MS, E52P9MSD
cis-1,2-Dichloroethene

E52Q8
cis-1,2-Dichloroethene, 1,1,1-Trichloroethane, Trichloroethene

E52Q9, E52R0, E52R1
1,1-Dichloroethane, cis-1,2-Dichloroethene, 1,1,1-Trichloroethane, Trichloroethene

E52R2
Tetrachloroethene

E52R3
1,1-Dichloroethane, cis-1,2-Dichloroethene, Trichloroethene

E52R5
Trichloroethene, Toluene, Tetrachloroethene, o-Xylene, m,p-Xylene

E52R5DL
1,1-Dichloroethane

VBLK38
Methylene chloride, Toluene

VBLK40
Methylene chloride

VBLK45
Toluene

A library search indicates a match at or above 85% for a TIC compound in the volatile sample. Detected compounds are qualified "NJ".

Cas No. 95-63-6 Benzene, 1,2,4-trimethyl-;
Cas No. 108-67-8 Benzene, 1,3,5-trimethyl-;
Cas No. 526-73-8 Benzene, 1,2,3-trimethyl-
E52R2, E52R5

Cas No. 95-93-2 Benzene, 1,2,4,5-tetramethyl-;
Cas No. 99-87-6 Benzene, 1-methyl-4-(1-methyleth;
Cas No. 103-65-1 Benzene, propyl-;
Cas No. 527-53-7 Benzene, 1,2,3,5-tetramethyl-;
Cas No. 527-84-4 Benzene, 1-methyl-2-(1-methylethyl)-;
Cas No. 611-14-3 Benzene, 1-ethyl-2-methyl-;
Cas No. 620-14-4 Benzene, 1-ethyl-3-methyl-;
Cas No. 874-41-9 Benzene, 1-ethyl-2,4-dimethyl-;
Cas No. 1074-43-7 Benzene, 1-methyl-3-propyl-
E52R2

Cas No. 103-09-3 Acetic acid, 2-ethylhexyl ester
E52R6

Cas No. 541-05-9 Cyclotrisiloxane, hexamethyl-
VBLK38, VBLK40, VBLK45

Cas No. 556-67-2 Cyclotetrasiloxane, octamethyl-
VBLK38, VBLK40

A library search indicates a match below 85% for a TIC compound in the volatile sample. Detected compounds are qualified "J".

Unknown @ 5.28
E52R5, E52R5DL

Unknown @ 10.96
VBLK38, VBLK40, VBLK45

Unknown @ 11.01; Unknown @ 18.27
E52R2

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following volatile samples have reported concentrations that exceeded the instrument's linear calibration range. These results were flagged "E" by the laboratory and are estimated "J". The results from the diluted samples should be used for result validation.

E52R5
1,1,1-Trichloroethane

TICs with no CAS Numbers were not reported in the EXES Sample Summary Report for the volatile samples. Please refer to Word document "42130 SDG E52P7 TIC" for the validated TIC results.

After comparing the VOA chromatograms for the TICs identified as Unknown @ 11.87 in sample E52R4, to TICs identified as Cas No. 541-05-9 Cyclotrisiloxane, hexamethyl- in sample VBLK40, the reviewer concluded that the same compound was being described in each sample. Copies of the chromatograms are enclosed.

Case Number: 42130 SDG Number: E52P7
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: KAP Technologies

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Michele Traina / Techlaw-ESAT
Date: 02/23/2012

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 13 August 2012

FROM: Timothy Prendiville, Supervisor (**SR-6J**)
Superfund Contract Management Section

TO: Data User: CDM Smith
grabsjc@cdm.com

Level 3 Data Validation for EDM EXES Reports

We have reviewed the data for the following case:

SITE Name: SE Rockford GW Contamination Site (IL)

Case Number: 42746 SDG Number: E3X98

Number and Type of Samples: 20 Waters (volatiles)

Sample Numbers: E3X98, E3X99, E3XA0 – E3XA9, E3XB0 – E3XB7

Laboratory: PEL – Spectrum Analytical, Inc Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: **SA-5J**

Case Number: 42746 SDG Number: E3X98
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: PEL

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twenty (20) preserved water samples labeled E3X98, E3X99, E3XA0 thru E3XA9 and E3XB0 thru E3XB7, were shipped to PEL – Spectrum Analytical, Inc located in Tampa, FL. All samples were collected 7/25/12 and 7/26/12 and received 7/27/12 intact and properly cooled.

All samples were analyzed for the volatile list of compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6.2).

Sample E3XB4 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

Samples E3XA1 and E3XA2 were identified as field blanks and E3XB7 was identified as a trip blank.

Sample E3XB0 was identified as a field duplicate of sample E3XA9. Sample E3XB6 was identified as a field duplicate of sample E3XB5.

Case Number: 42746 SDG Number: E3X98
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: PEL

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration and continuing CCVs with relative response factors (RRFs) outside criteria. Detected compounds are qualified "J". Non-detected compounds are qualified "R".

E3X98, E3X99, E3XA0, E3XA0DL, E3XA1, E3XA2, E3XA3, E3XA3DL, E3XA4, E3XA5, E3XA6, E3XA7, E3XA8, E3XA9, E3XB0, E3XB1, E3XB2, E3XB3, E3XB4, E3XB4MS, E3XB4MSD, E3XB5, E3XB6, E3XB7, VBLK6K, VBLK6L, VHBLK6H
1,4-Dioxane

The following volatile samples are associated with an initial calibration and continuing CCVs in which a DMC did not meet relative response factor (RRF) criteria. Detected and non-detected compounds are not qualified.

E3X98, E3X99, E3XA0, E3XA0DL, E3XA1, E3XA2, E3XA3, E3XA3DL, E3XA4, E3XA5, E3XA6, E3XA7, E3XA8, E3XA9, E3XB0, E3XB1, E3XB2, E3XB3, E3XB4, E3XB4MS, E3XB4MSD, E3XB5, E3XB6, E3XB7, VBLK6K, VBLK6L, VHBLK6H
1,4-Dioxane-d8

4. BLANKS

The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte concentration less than 2x the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Acetone
E3X98, E3X99, E3XA0, E3XA0DL, E3XA1, E3XA2, E3XA3DL, E3XA4, E3XA6, E3XB0, E3XB4, E3XB7, VHBLK6H

Methylene chloride
E3XA3DL, VHBLK6H

Case Number: 42746 SDG Number: E3X98
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: PEL

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit (20%) of the criteria window. Detected compounds are qualified "J". Non-detected compounds are qualified "UJ".

E3XA0DL, E3XA3DL
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3XB4 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

No Problems Found.

6B. LABORATORY CONTROL SAMPLE

Not applicable to volatile analyses.

7. FIELD BLANK AND FIELD DUPLICATE

Samples E3XA1 and E3XA2 were identified as field blanks and E3XB7 was identified as a trip blank. Target compounds were not detected.

Sample E3XB0 was identified as a field duplicate of sample E3XA9. Sample E3XB6 was identified as a field duplicate of sample E3XB5. Results are summarized in the following table:

	E3XA9	E3XB0	%RPDs	E3XB5	E3XB6	%RPDs
Volatile analytes:	µg/L	µg/L		µg/L	µg/L	
Trichlorofluoromethane	0.71	0.72	1.4	---	---	---
1,1-Dichloroethane	6.9	7.0	1.44	7.0	6.4	9.0
cis-1,2-Dichloroethene	2.6	2.8	7.4	3.0	2.9	3.4
1,1,1-Trichloroethane	6.0	5.8	3.4	6.7	6.2	7.8
Trichloroethene	1.2	1.3	8.0	2.2	2.1	4.7
Toluene	0.92	0.91	1.1	0.72	0.69	4.3
Tetrachloroethene	ND	0.51	200	0.57	ND	200
m,p-Xylene	0.28	ND	200	---	---	---
# of VOA TICs	1	1		1	1	

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No Problems Found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified "J".

E3X98, E3X99
cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene

E3XA0
1,1-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, Toluene, Tetrachloroethene, Ethylbenzene, o-Xylene, m,p-Xylene, Isopropylbenzene

E3XA0DL
1,1-Dichloroethane, cis-1,2-Dichloroethene

E3XA3
Trichloroethene, Methylcyclohexane, Toluene

E3XA3DL
1,1-Dichloroethane, Toluene, Ethylbenzene, o-Xylene, m,p-Xylene, Isopropylbenzene

E3XA4
1,1-Dichloroethane, cis-1,2-Dichloroethene, 1,1,1-Trichloroethane, Trichloroethene, Tetrachloroethene

E3XA5
1,1-Dichloroethane, cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene

E3XA6
1,1-Dichloroethane, cis-1,2-Dichloroethene, Trichloroethene

E3XA7
Carbon disulfide, 1,1-Dichloroethane, cis-1,2-Dichloroethene, 1,1,1-Trichloroethane, Trichloroethene, Tetrachloroethene

E3XA8
Toluene

E3XA9
Trichlorofluoromethane, cis-1,2-Dichloroethene, Trichloroethene, Toluene, m,p-Xylene

E3XB0, E3XB2
Trichlorofluoromethane, cis-1,2-Dichloroethene, Trichloroethene, Toluene, Tetrachloroethene

E3XB1
Carbon disulfide, cis-1,2-Dichloroethene, Trichloroethene, Dibromochloromethane

E3XB3
Trichlorofluoromethane, cis-1,2-Dichloroethene, Trichloroethene, Toluene

E3XB4
Trichlorofluoromethane, 1,1-Dichloroethane, cis-1,2-Dichloroethene, Trichloroethene, Toluene, m,p-Xylene

E3XB4MS
Trichlorofluoromethane, m,p-Xylene

E3XB4MSD
cis-1,2-Dichloroethene, Tetrachloroethene, m,p-Xylene

E3XB5
cis-1,2-Dichloroethene, Trichlorethene, Toluene, Tetrachloroethene

E3XB6
cis-1,2-Dichloroethene, Trichlorethene, Toluene

VBLK6K, VBLK6L
Acetone, Methylene chloride

A library search indicates a match below 85% for a TIC compound in the volatile sample. Detected compounds are qualified “J”.

Unknown @ 2.06
E3X99, E3XB1

Unknown @ 11.35; Unknown @ 12.60; Unknown @ 13.18; Unknown @ 13.78
E3XA3

Unknown @ 13.94
E3XA0, E3XA3

A library search indicates a match at or above 85% for a TIC compound in the volatile sample. Detected compounds are qualified "NJ".

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro-
E3X98, E3X99, E3XA0, E3XA9, E3XB0, E3XB2, E3XB3, E3XB4, E3XB5, E3XB6

CAS No. 95-63-6 1,2,4-Trimethylbenzene
CAS No. 108-67-8 1,3,5-Trimethylbenzene
CAS No. 526-73-8 1,2,3-Trimethylbenzene
CAS No. 535-77-3 Benzene, 1-methyl-3-(1-meth
E3XA0

CAS No. 103-65-1 n-Propylbenzene
CAS No. 119-64-2 1,2,3,4-tetrahydronapthalene
CAS No. 135-98-8 sec-Butylbenzene
CAS No. 488-23-3 Benzene, 1,2,3,4-tetramethy
CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-
CAS No. 1074-55-1 Benzene, 1-methyl-4-propyl-
CAS No. 1758-88-9 Benzene, 2-ethyl-1,4-dimeth
CAS No. 2870-0404 Benzene, 2-ethyl-1,3-dimeth
CAS No. 4706-89-2 Benzene, 2,4-dimethyhl-1-(1-
E3XA3

CAS No. 108-67-8 1,3,5-Trimethlybenzene
CAS No. 620-14-4 Benzene, 1-ethyl-3-methyl-
E3XA3, E3XA3DL

CAS No. 526-73-8 1,2,3-Trimethylbenzene
E3XA3DL

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

When evaluating TIC compounds, a library search is supposed to be performed. Then, the three closest matches are to be included in the report. The laboratory did not always print the search results for the volatile samples.

Case Number: 42746 SDG Number: E3X98
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: PEL

The following volatile samples have reported concentrations that exceed the instrument's linear calibration range. The results are flagged "E" by the laboratory and are estimated "J". The results from the diluted samples should be used for result validation.

E3XA0, E3XA3
1,1,1-Trichloroethane

The following volatile samples reported TICs with CAS Nos. even though the percent matches were less than 85% which is compliant with Section XII.E.5 of the Functional Guidelines for Superfund Organic Methods Data Review.

E3X98, E3X99, E3XB0, E3XB2, E3XB3, E3XB4, E3XB5, E3XB6

The following volatile samples have a compound identified by CAS No. in some samples and as an Unknown TIC in other samples. A comparison of the chromatograms demonstrated that the same compound was present in the respective samples. Copies of the chromatograms are included with the validation report.

Unknown @ 1.37 / CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro-
E3X98, E3X99, E3XA0, E3XA9, E3XB0, E3XB2, E3XB3, E3XB4, E3XB5, E3XB6

Case Number: 42746 SDG Number: E3X98
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: PEL

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Deborah Connet / Techlaw-ESAT
Date: 9/6/2012

2013

Case Number: 43671 SDG Number: E3XH7
Site Name: SE Rockford GW Contamination (IL) Laboratory: Mitkem

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 14 August 2013

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM
Email Address: grabsjc@cdm.com

Level 3 Data Validation for EXES

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Groundwater Contamination (IL)

Case Number: 43671 SDG Number: E3XH7

Number and Type of Samples: 17 Water Samples (Trace VOA)

Sample Numbers: E3XH7, E3XH8, E3XJ0-E3XJ4, E3XJ6-E3XJ9, E3XK0-E3XK5

Laboratory: Spectrum Analytical, Inc. / Mitkem Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Reviewed by: Michele Traina / Techlaw-ESAT
Date: 08/28/2013

Case Number: 43671 SDG Number: E3XH7
Site Name: SE Rockford GW Contamination (IL) Laboratory: Mitkem

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Seventeen (17) preserved water samples labeled E3XH7, E3XH8, E3XJ0-E3XJ4, E3XJ6-E3XJ9 and E3XK0-E3XK5, were shipped to Spectrum Analytical, Inc., featuring Hanibal Technology Rhode Island Division. All samples were collected on 07/22/13 and received on 07/23/13 intact and properly cooled.

All samples were analyzed for the Trace VOA list of compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6.2).

Sample E3XK4 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Sample E3XK5 was identified as a trip blank. Sample E3XJ0 was identified as a field blank. Samples E3XJ9 / E3XK0 and E3XK1 / E3XK2 were identified as field duplicate pairs.

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found.

3. CALIBRATION

The following trace volatile samples are associated with an opening CCV percent difference (%D) outside criteria. The compound was not detected in the samples. Non-detected compounds are qualified "UJ".

E3XH7DL, E3XH8DL, VBLK1C, VHBLK1C
Bromoform

4. BLANKS

The following trace volatile samples were analyzed after a sample with compounds exceeding calibration and no intervening instrument blank. Detection of this compound is qualified "J" as the reported concentration may be a result of or supplemented by carryover.

E3XH8
1,1,1-Trichloroethane

The following trace volatile samples have analyte concentrations reported less than the CRQL. The associated trip blank (E3XK5) concentration is greater than the concentration criteria. Reported sample concentrations have been elevated to the CRQL and are qualified "U".

E3XH7, E3XJ0, E3XJ6, E3XJ7, E3XJ9, E3XK0, E3XK3
Toluene

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following trace volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. The compound was not detected in the samples. Non-detected compounds are not qualified.

E3XH8, E3XH8DL, E3XJ1, E3XJ2, E3XJ3, E3XJ4, E3XJ6, E3XJ7, E3XJ8, E3XJ9, E3XK0, E3XK4, E3XK4MS, E3XK4MSD
Vinyl chloride

The following trace volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit (20%) of the criteria

window. The compounds were not detected in the samples. Non-detected compounds are qualified "UJ".

E3XH7, E3XH8
cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, 1,1,2-Trichloroethane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3XK4 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

The following trace volatile matrix spike/matrix spike duplicate samples have percent recoveries greater than or equal to the expanded lower acceptance limit but less than the primary lower acceptance limit. Detected compounds in the unspiked sample (E3XK4) are qualified "J". Non-detected compounds in the unspiked sample (E3XK4) are qualified "UJ".

E3XK4MS, E3XK4MSD
Benzene, Trichloroethene, Toluene

6B. LABORATORY CONTROL SAMPLE

Not applicable to Trace VOA analyses.

7. FIELD BLANK AND FIELD DUPLICATE

Sample E3XK5 was identified as a trip blank. Sample E3XJ0 was identified as a field blank and found to be non-detect of all target compounds. Results are summarized in the following table:

E3XK5	
Volatile analytes:	µg/L
Toluene	0.52

Samples E3XJ9/E3XK0 and E3XK1/E3XK2 were identified as field duplicate pairs. Results are summarized in the following table:

	E3XK1	E3XK2	%RPD
Volatile analytes:	µg/L	µg/L	
1,1-Dichloroethene	0.60	0.55	9
trans-1,2-Dichloroethene	0.33	0.27	20
1,1-Dichloroethane	6.7	6.6	2
cis-1,2-Dichloroethene	2.2	1.9	15
1,1,1-Trichloroethane	4.5	4.7	4
Trichloroethene	2.0	2.0	0
Tetrachloroethene	0.47	ND	200

	E3XJ9	E3XK0	%RPD
Volatile analytes:	µg/L	µg/L	
1,1-Dichloroethene	1.1	1.2	9
1,1-Dichloroethane	6.8	6.6	3
cis-1,2-Dichloroethene	1.9	1.9	0
1,1,1-Trichloroethane	4.6	4.4	4
Trichloroethene	1.1	0.97	13
Tetrachloroethene	0.28	0.29	4
m,p-Xylene	0.40	0.41	2
o-Xylene	0.20	ND	200
# of TICS	1	1	---

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No Problems Found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all Trace VOA compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following trace volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified “J”.

E3XH7, E3XJ6, E3XK4MSD
m,p-Xylene

E3XH7DL, E3XH8DL
Trichloroethene

E3XH8, E3XJ2, E3XJ3, E3XJ4, E3XJ8
Tetrachloroethene

E3XJ1
1,1-Dichloroethene

E3XJ7, E3XK0, E3XK4, E3XK4MS
Tetrachloroethene, m,p-Xylene

E3XJ9
Tetrachloroethene, o-Xylene, m,p-Xylene

E3XK1
trans-1,2-Dichloroethene, Tetrachloroethene

E3XK2
trans-1,2-Dichloroethene

E3XK3
1,1-Dichloroethane

A library search indicates a match at or above 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified "NJ".

Cas No. 66-25-1 Hexanal;
Cas No. 124-19-6 Nonanal
E3XH8

Cas No. 108-67-8 Benzene, 1,3,5-trimethyl-;
Cas No. 620-14-4 Benzene, 1-ethyl-3-methyl-
E3XJ6

Cas No. 526-73-8 Benzene, 1,2,3-trimethyl-
E3XK4

Cas No. 611-14-3 Benzene, 1-ethyl-2-methyl-
E3XJ9, E3XK0

A library search indicates a match below 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified "J".

Unknown @ 5.67
E3XH8

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following trace volatile samples have reported concentrations that exceeded the instrument's linear calibration range. These results were flagged "E" by the laboratory and are qualified as estimated "J". The results from the diluted samples should be used for result validation.

E3XH7, E3XH8
1,1,1-Trichloroethane

TICs with no CAS Numbers were not reported in the EXES Sample Summary Report for the VOA fraction. Please refer to Word document “43671 SDG E3XH7 TIC” for the validated TIC results.

Case Number: 43671 SDG Number: E3XH7
Site Name: SE Rockford GW Contamination (IL) Laboratory: Mitkem

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Michele Traina / Techlaw-ESAT
Date: 08/28/2013

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: February 5, 2013

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM
Email address: grabsjc@cdm.com

Level 3 Data Validation for EXES Database

We have reviewed the data for the following case:

Site Name: Southeast Rockford Groundwater Contamination (IL)

Case Number: 43246 SDG Number: E3XD9

Number and Type of Samples: 18 Waters (Low Volatiles)

Sample Numbers: E3XD9, E3XE0 – E3XE9, E3XF0 – E3XF6

Laboratory: KAP Technologies Hrs for Review: _____

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 43246 SDG Number: E3XD9
Site Name: SE Rockford GW Contamination (IL) Laboratory: KAP

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Eighteen (18) preserved water samples labeled E3XD9, E3XE0 thru E3XE9, and E3XF0 thru E3XF6; were collected on January 15 and 16, 2013. The samples were received by KAP Technologies located in The Woodlands, TX on January 17, 2013. All samples were received intact and within the proper shipping temperature range of 2 - 6°.

All samples were analyzed for only the low level volatile target compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6.2).

Sample E3XF5 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

Sample E3XF6 was identified as a trip blank. Sample E3XE1 was identified as a field blank. Sample E3XE9 was identified as a field duplicate of sample E3XE8. Sample E3XF3 was identified as a field duplicate of sample E3XF2.

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected 1,2,3-Trichlorobenzene in sample VBLK01 is qualified "J". Non-detected compounds are not qualified.

E3XD9, E3XE0, E3XE0DL, E3XE1, E3XE2, E3XE3, E3XE4, E3XE5, E3XE6, E3XE6DL, E3XE7, E3XE8, E3XE9, E3XF0, E3XF1, E3XF2, E3XF3, E3XF4, E3XF5, E3XF5MS, E3XF5MSD, E3XF6, VBLK01, VBLK03, VBLK05
1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

4. BLANKS

The following volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte concentration less than 2x the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Methylene chloride
E3XD9, E3XE0, E3XE0DL, E3XE1, E3XE2, E3XE6DL, E3XE8, E3XE9, E3XF0, E3XF1, E3XF2, E3XF3, E3XF4, E3XF5, E3XF5MS, E3XF5MSD, E3XF6

The following volatile samples have common contaminant analyte concentrations reported greater than or equal to 2x the CRQL and less than 4X the CRQL. The associated method blank common contaminant analyte concentration is less than 2X the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 4x the CRQL.

Methylene chloride
E3XE5, E3XE7

The following volatile samples have analyte concentrations greater than or equal to the CRQL. The associated method blank is less than the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Methyl acetate
E3XE6

The following volatile samples have TIC concentrations reported less than 5X the associated method blank concentration. Detected compounds are re-qualified "U" and deleted from the TIC report.

Unknown @ 2.71
E3XE1, E3XE3, E3XE5, E3XE6, E3XE7

Unknown @ 2.77
E3XD9, E3XE1, E3XE2, E3XE3, E3XE4, E3XE5, E3XE7, E3XE8, E3XE9, E3XF0, E3XF4

Unknown @ 9.57
VHBLK01

Unknown @ 10.39
E3XD9, E3XE0, E3XE0DL, E3XE1, E3XE2, E3XE3, E3XE4, E3XE5, E3XE6, E3XE6DL, E3XE7, E3XE8, E3XE9, E3XF0, E3XF1, E3XF2, E3XF3, E3XF4, E3XF5, E3XF6

The following volatile samples have analyte concentrations reported less than the CRQL. The associated storage blank concentration is less than the concentration criteria. Detected compounds are qualified "U". Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Toluene
E3XE6

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. The compounds were not detected in the samples. Non-detected compounds are not qualified.

E3XD9, E3XE0DL, E3XE5, E3XF3
1,4-Dioxane

The following volatile samples have deuterated monitoring compound recovery below the lower limit of the criteria window. The compounds were not detected in the samples. Non-detected compounds are qualified "UJ".

E3XE3
1,4-Dioxane, 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

E3XE4, E3XE9, E3XF0, E3XF1
1,4-Dioxane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3XF5 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses.

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable to the low volatile analysis.

7. FIELD BLANK AND FIELD DUPLICATE

Sample E3XF6 was identified as a trip blank. Sample E3XE1 was identified as a field blank. No compounds were detected in these samples.

Sample E3XE9 was identified as a field duplicate of sample E3XE8. Sample E3XF3 was identified as a field duplicate of sample E3XF2. Results are summarized in the following tables:

Sample ID **DF** **Units** **Volatile Analytes**	**E3XE8** 1 ug/L	**E3XE9** 1 ug/L	**RPD**
Dichlorodifluoromethane	13	ND	200
1,1-Dichloroethane	7.0	11	44
cis-1,2-Dichloroethene	2.2	2.8	24
1,1,1-Trichloroethane	8.1	13	46
#VOA TICs	1	1	

Sample ID **DF** **Units** **Volatile Analytes**	**E3XF2** 1 ug/L	**E3XF3** 1 ug/L	**RPD**
1,1-Dichloroethane	12	12	0
cis-1,2-Dichloroethene	3.8	3.8	0
1,1,1-Trichloroethane	9.1	9.1	0
Trichloroethene	3.8	3.8	0
#VOA TICs	0	0	

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all low volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have compound concentrations less than the CRQL. Detected compounds are qualified "J".

E3XE0, E3XE7, E3XF2, E3XF3, E3XF5
cis-1,2-Dichloroethene, Trichloroethene

E3XE0DL, E3XE6DL, E3XF4
1,1-Dichloroethane

E3XE2
1,1,1-Trichloroethane, Trichloroethene

E3XE3
1,1-Dichloroethane, 1,1,1-Trichloroethane

E3XE4, E3XE5, E3XE8, E3XE9, E3XF1, E3XF5MS, E3XF5MSD
cis-1,2-Dichloroethene

E3XE6
1,1-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, Ethylbenzene

VBLK01
Methyl acetate, Methylene chloride, 1,2,3-Trichlorobenzene

VBLK03, VBLK05
Methylene chloride

VHBLK01
Toluene

A library search indicates a match at or above 85% for a TIC compound in the volatile samples. Detected compounds are qualified "NJ".

CAS No. 95-63-6 Benzene, 1,2,4-trimethyl-;
CAS No. 535-77-3 Benzene, 1-methyl-3-(1-methylethyl)-
CAS No. 620-14-4 Benzene, 1-ethyl-3-methyl-;
CAS No. 622-96-8 Benzene, 1-ethyl-4-methyl-;
CAS No. 933-98-2 Benzene, 1-ethyl-2,3-dimethyl-
E3XE6

CAS No. 526-73-8 Benzene, 1,2,3-trimethyl-
E3XE0, E3XE6

CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-
E3XE0

A library search indicates a match below 85% for a TIC compound in the volatile samples. Detected compounds are qualified "J".

Unknown @ 2.70
VBLK01

Unknown @ 2.75(1); Unknown @ 2.79(1); Unknown @ 2.83; Unknown @ 2.88; Unknown @ 14.88; Unknown @ 15.61; Unknown @ 17.46; Unknown @ 17.68; Unknown @ 17.77
E3XE6

Unknown @ 2.75(2); Unknown @ 2.79(2)
E3XF1

Unknown @ 2.78
E3XE0DL, E3XE6DL, VBLK01, VBLK03

Unknown @ 2.86
E3XE2, E3XE4, E3XE8, E3XE9, E3XF0, VBLK03

Unknown @ 2.96
E3XD9

Unknown @ 9.57
VBLKKA

Unknown @ 10.39
VBLK01, VBLK03, VBLK05

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following volatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified "J". The results from the diluted analyses should be considered the final concentrations for the affected compounds.

E3XE0, E3XE6
1,1,1-Trichloroethane

The following volatile sample had compounds incorrectly listed on the Form I TIC and NFG Report 9. The compounds are considered column bleed and were removed by the reviewer. Chromatograms are included with the hard copy validation package.

CAS No. 556-67-2	Cyclotetrasiloxane, octamethyl- @ 15.43;
Unknown @ 11.31	(m/z 207 – siloxane)
E3XE6	

TICs with no CAS Numbers were not reported in the EXES Sample Summary Report for the volatile fraction. Please refer to Word document "43246 SDG E3XD9 TIC Report" for the validated TIC results.

Case Number: 43246 SDG Number: E3XD9
Site Name: SE Rockford GW Contamination (IL) Laboratory: KAP

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Christina Rice / Techlaw-ESAT
Date: February 25, 2013

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 07 August 2013

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM
Email Address: grabsjc@cdm.com

Level 3 Data Validation for EDM EXES database

We have reviewed the data for the following case:

SITE Name: SE Rockford Groundwater Contamination (IL)

Case Number: 43671 SDG Number: E3XH9

Number and Type of Samples: 1 Water Sample (Low VOA)

Sample Numbers: E3XH9

Laboratory: Spectrum Analytical, Inc. Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 43671 SDG Number: E3XH9
Site Name: SE Rockford GW Contamination (IL) Laboratory: Mitkem Laboratories

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

One (1) preserved water sample labeled E3XH9 was shipped to Spectrum Analytical, Inc., featuring Hanibal Technology Rhode Island Division. The sample was collected on 07/22/2013 and received on 07/23/2012 intact and properly cooled.

The sample was analyzed for the Low VOA list of compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6.2).

Sample E3XH9 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

No samples were identified as field blanks or field duplicates.

Case Number: 43671 SDG Number: E3XH9
Site Name: SE Rockford GW Contamination (IL) Laboratory: Mitkem Laboratories

1. HOLDING TIME

No Problems Found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No Problems Found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration and CCV in which a DMC did not meet relative response factor (RRF) criteria. Detected and non-detected compounds are not qualified.

E3XH9, E3XH9DL, E3XH9MS, E3XH9MSD, VBLKQ5, VHBLKQ5
1,4-Dioxane-d8

4. BLANKS

No Problems Found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected compounds are qualified "J". Non-detected compounds are qualified "UJ".

E3XH9DL
Benzene, Trichloroethene, Toluene, Tetrachloroethene, Ethylbenzene, m,p-Xylene, o-Xylene, Styrene, Isopropylbenzene

E3XH9MSD
Cyclohexane, Benzene, Trichloroethene, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane, Toluene, Tetrachloroethene, Ethylbenzene, m,p-Xylene, o-Xylene, Styrene, Isopropylbenzene

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3XH9 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

The relative percent difference (RPD) between the following volatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds in the unspiked sample (E3XH9 and E3XH9DL) are qualified "J". Non-detected compounds in the unspiked sample (E3XH9 and E3XH9DL) are qualified "UJ".

E3XH9MS, E3XH9MSD
Benzene, Trichloroethene, Toluene

6B. LABORATORY CONTROL SAMPLE

No applicable to VOA analyses.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as field blanks or field duplicates.

8. INTERNAL STANDARDS

No Problems Found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOA compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified “J”.

E3XH9
Dichlorodifluoromethane, 1,1-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene

E3XH9MS, E3XH9MSD
Dichlorodifluoromethane, cis-1,2-Dichloroethene

A library search indicates a match at or above 85% for a TIC compound in the volatile sample. Detected compounds are qualified “NJ”.

Cas No. 95-63-6	Benzene, 1,2,4-trimethyl-;
Cas No. 526-73-8	Benzene, 1,2,3-trimethyl-;
Cas No. 620-14-4	Benzene, 1-ethyl-3-methyl-

E3XH9

11. SYSTEM PERFORMANCE

GC/MS baselines indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following low volatile samples have reported concentrations that exceeded the instrument's linear calibration range. These results were flagged "E" by the laboratory and are qualified as estimated "J". The results from the diluted samples should be used for result validation.

E3XH9
1,1,1-Trichloroethane

The following low volatile samples have a compound concentration which exceeds the instruments calibration range. The detected result is qualified "J". No dilution was required because this is a laboratory QC sample.

E3XH9MS, E3XH9MSD
1,1,1-Trichloroethane

Case Number: 43671 SDG Number: E3XH9
Site Name: SE Rockford GW Contamination (IL) Laboratory: Mitkem Laboratories

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Michele Traina / Techlaw-ESAT
Date: 08/19/2013

2014

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: June 20, 2014

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM Smith
Email Address: grabsjc@cdm.com

Level 3 Data Validation for EDM EXES database

We have reviewed the data for the following case:

SITE Name: SE Rockford GW Contamination (IL)

Case Number: 44380 SDG Number: E3XN7

Number and Type of Samples: 1 water (low level volatiles)

Sample Numbers: E3XN7

Laboratory: CompuChem-Liberty Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Reviewed by: Steffanie Tobin / Techlaw-ESAT
Date: June 30, 2014

Case Number: 44380 SDG Number: E3XN7
Site Name: SE Rockford GW Contamination (IL) Laboratory: Liberty

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

One (1) preserved water sample; E3XN7, was collected on May 21, 2014 and shipped to Liberty Analytical Corporation (CompuChem) located in Cary, NC on May 22, 2014. The sample arrived at the laboratory on May 23, 2014 intact but below the preferred shipping temperature range of 2.0 - 6.0 °C.

The sample was analyzed for only the low level volatile compounds according to CLP SOW SOM01.2. The analytical data was reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6.2).

Sample E3XN7 was designated by the samplers to be used for the laboratory QC, i.e. MS/MSD analyses.

E3XN7 is not identified as trip blank, field blank or field duplicate.

1. HOLDING TIME

No problems found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration and CCVs with relative response factors (RRFs) outside criteria. 1,4-Dioxane was not detected in the samples. Nondetected 1,4-Dioxane is qualified R.

E3XN7, E3XN7MS, E3XN7MSD, VBLKCP, VHBLKYQ
1,4-Dioxane

The following volatile samples are associated with an initial calibration and CCVs in which a DMC did not meet relative response factor (RRF) criteria. Detected and nondetected compounds are not qualified.

E3XN7, E3XN7MS, E3XN7MSD, VBLKCP, VHBLKYQ
1,4-Dioxane-d_8

The following volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Bromomethane was not detected in the samples. Nondetected Bromomethane is not qualified.

E3XN7, E3XN7MS, E3XN7MSD, VBLKCP, VHBLKYQ
Bromomethane

4. BLANKS

No problems found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3XN7 was designated by the samplers to be used for the laboratory QC, i.e. MS/MSD analyses.

No problems found.

6B. LABORATORY CONTROL SAMPLE

Not applicable for this analysis.

7. FIELD BLANK AND FIELD DUPLICATE

E3XN7 is not identified as trip blank, field blank or field duplicate.

8. INTERNAL STANDARDS

No problems found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all low level volatile target compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following low level volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified J.

E3XN7
cis-1,2-Dichloroethene, Trichloroethene, Toluene, Tetrachloroethene, o-Xylene, m,p-Xylene

E3XN7MS, E3XN7MSD
cis-1,2-Dichloroethene, Tetrachloroethene, Ethylbenzene, o-Xylene, m,p-Xylene

A library search indicates a match at or above 85% for a TIC compound in the volatile sample. Detected compounds are qualified NJ.

Cas No. 75-68-3 Ethane, 1-chloro-1,1-difluoro-
E3XN7

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

None.

Case Number: 44380 SDG Number: E3XN7
Site Name: SE Rockford GW Contamination (IL) Laboratory: Liberty

EXES Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Steffanie Tobin / Techlaw-ESAT
Date: June 30, 2014

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 9 January 2014

FROM: Timothy Prendiville, Supervisor (**SR-6J**)
Superfund Contract Management Section

TO: Data User: CDM
grabsjc@cdm.com

Level 3 Data Validation for EDM EXES Reports

We have reviewed the data for the following case:

SITE Name: Southeast Rockford GW Contamination (IL)

Case Number: 44043 SDG Number: E3XK7

Number and Type of Samples: 17 Waters (trace volatiles)

Sample Numbers: E3XK7, E3XK9, E3XL0 – E3XL3, E3XL5 – E3XL9, E3XM0 – E3XM5

Laboratory: Spectrum (Mitkem) Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: **SA-5J**

Case Number: 44043 SDG Number: E3XK7
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: Spectrum (Mitkem)

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twenty (20) preserved water samples labeled E3XK7, E3XK9, E3XL0-E3XL3, E3XL5-E3XL9, and E3XM0-E3XM5, were shipped to Spectrum Analytical (Mitkem) located in North Kingstown, RI. All samples were collected between 12/17/13 and 12/18/13 and received on 12/19/13 intact and properly cooled.

All samples were analyzed for the trace volatile list of compounds. All samples were analyzed according to CLP SOW SOM01.2 (6/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6.2).

Sample E3XM3 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Sample E3XK9 was identified as a field blank. Sample E3XM4 was identified as a trip blank.

Sample E3XL7 was identified as a field duplicate of sample E3XL6. Sample E3XM1 was identified as a field duplicate of sample E3XM0.

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following trace volatile samples are associated with an opening continuing calibration percent difference (%D) outside criteria. The compound was not detected in the samples. Non-detected compounds are qualified UJ.

VBLKL5, VHBLKL5
1,2,3-Trichlorobenzene

4. BLANKS

No problems were found.

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following trace volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Non-detected compounds are not qualified.

E3XL6, E3XL7
Vinyl chloride, 1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

E3XL8, E3XM4
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

The following trace volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit (20%) of the criteria window. The compounds were not detected in the samples. Non-detected compounds are qualified UJ.

E3XK9, E3XL0, E3XL1, E3XL2, E3XL3, E3XM3MS, E3XM3MSD
cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, 1,1,2-Trichloroethane

E3XL5
Trichlorofluoromethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, Methyl acetate, Methylene chloride, Methyl tert-butyl ether, 1,1-Dichloroethane, Bromochloromethane, Chloroform, 1,1,1-Trichloroethane, Carbon tetrachloride, 1,2-Dichloroethane, Dibromochloromethane, 1,2-Dibromoethane, Bromoform

E3XM1
Trichlorofluoromethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, Methyl acetate, Methylene chloride, Methyl tert-butyl ether, 1,1,1-Trichloroethane, Carbon tetrachloride, 1,2-Dichloroethane, 1,2-Dibromoethane

E3XM2, E3XM4, E3XM5
1,1-Dichloroethane, Bromochloromethane, Chloroform, Dibromochloromethane, Bromoform

E3XM3
Cyclohexane, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, 1,1,2-Trichloroethane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3XM3 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

The relative percent difference (RPD) between the following trace volatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds in the sample are qualified J.

E3XM3MS, E3XM3MSD
1,1-Dichloroethene

The relative percent difference (RPD) between the following trace volatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds in the unspiked sample are qualified J.

E3XM3
1,1-Dichloroethene

6B. LABORATORY CONTROL SAMPLE

Not applicable to trace volatile analyses.

7. FIELD BLANK AND FIELD DUPLICATE

Sample E3XK9 was identified as a field blank. Sample E3XM4 was identified as a trip blank. No target compounds were detected.

Sample E3XL7 was identified as a field duplicate of sample E3XL6. Sample E3XM1 was identified as a field duplicate of sample E3XM0. Results are summarized in the following table:

	E3XL6	E3XL7	%RPDs	E3XM0	E3XM1	%RPDs
Volatile analytes:	µg/L	µg/L		µg/L	µg/L	
Trichlorofluoromethane	ND	0.64	200	ND	ND	--
1,1-Dichloroethene	1.4	1.3	7	0.68	0.72	6
trans-1,2-Dichloroethene	ND	0.28	200	ND	ND	--
1,1-Dichloroethane	8.3	8.2	1	5.5	5.5	0
cis-1,2-Dichloroethene	2.1	2.1	0	1.6	1.6	0
Chloroform	ND	ND	--	0.22	ND	200
1,1,1-Trichloroethane	6.1	6.4	5	5.5	5.4	2
Trichloroethene	1.2	1.3	8	2.1	2.1	0
Toluene	0.23	ND	200	ND	ND	--
Tetrachloroethene	0.49	0.52	6	0.60	0.64	6
m,p-Xylene	0.34	0.28	19	ND	ND	--
# of VOA TICs	1	1		0	0	

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all trace volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following trace volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified J.

E3XK7
1,1-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene

E3XL0
1,1-Dichloroethene, Tetrachloroethene

E3XL2
Tetrachloroethene

E3XL3
1,1-Dichloroethene

E3XL5
Trichlorofluoromethane, trans-1,2-Dichloroethene, Benzene, Ethylbenzene

E3XL6, E3XL8, E3XM2
Toluene, Tetrachloroethene, m,p-Xylene

E3XL7
trans-1,2-Dichloroethene, m,p-Xylene

E3XL9
Ethylbenzene

E3XM0
Chloroform

E3XM3
Toluene, m,p-Xylene

E3XM3MS, E3XM3MSD
m,p-Xylene

E3XM5
1,1-Dichloroethene, Toluene, Tetrachloroethene, m,p-Xylene

A library search indicates a match at or above 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified NJ.

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro
E3XL6, E3XM2, E3XM3

CAS No. 95-63-6 Benzene, 1,2,4-trimethyl-
E3XK7

CAS No. 526-73-8 Benzene, 1,2,3-trimethyl-
E3XK7

A library search indicates a match below 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified J.

Unknown @ 1.707
E3XL0, E3XL1, E3XL2, E3XL3, E3XL5, E3XL7

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following trace volatile samples have reported concentrations that exceed the instruments linear calibration range. The results are flagged E by the laboratory and are estimated J. The results from the diluted samples should be used for result validation.

E3XK7
1,1,1-Trichloroethane

The following trace volatile samples have a compound identified by CAS No. in some samples and as an Unknown TIC in other samples. A comparison of the chromatograms demonstrated that the same compound was present in the respective samples. Copies of the chromatograms are included with the validation report.

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro
E3XL6, E3XM2, E3XM3
versus
Unknown @ 1.707
E3XL0, E3XL1, E3XL2, E3XL3, E3XL5, E3XL7

TICs with no CAS Numbers were not reported in the EXES Sample Summary Report for the trace volatile fraction. Please refer to Word document “44043 E3XK7 TIC Report” for the validated TIC results.

When evaluating TIC compounds, a library search is supposed to be performed. Then, the three closest matches are to be included in the report. The laboratory did not always perform the search for the trace volatile samples.

Case Number: 44043 SDG Number: E3XK7
Site Name: Southeast Rockford GW Contamination (IL) Laboratory: Spectrum (Mitkem)

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Stephen Connet / TechLaw-ESAT
Date: 2/28/2014

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 9 January 2014

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM Smith
Email Addresses: grabsjc@cdm.com

Level 3 Data Validation for the EXES Database

We have reviewed the data for the following case:

SITE Name: SE Rockford Groundwater Contamination (IL)

Case Number: 44043 SDG Number: E3XK8

Number and Type of Samples: 2 Waters (VOAs)

Sample Numbers: E3XK8, E3XL4

Laboratory: MITKEM Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 44043 SDG Number: E3XK8
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: MITKEM

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Two (2) preserved water samples; E3XK8 and E3XL4, were shipped to Mitkem located in North Kingston, RI. The samples were collected December 17, 2013 and received on December 19, 2013 intact and properly cooled. All samples were analyzed for only the low/medium level volatiles according to CLP SOW SOM01.2 and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6.2).

Sample E3XK8 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

No samples were identified as either trip blanks, field blanks or field duplicates.

Case Number: 44043 SDG Number: E3XK8
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: MITKEM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following volatile samples are associated with an initial calibration and continuing CCVs with relative response factors (RRFs) outside criteria. The compound was not detected in the samples. Nondetected compounds are qualified R.

E3XK8, E3XK8MS, E3XK8MSD, E3XL4, VBLK10H, VHBLK10H
1,4-Dioxane

The following volatile samples are associated with an initial calibration and continuing CCVs in which a DMC did not meet relative response factors (RRF) criteria.

E3XK8, E3XK8MS, E3XK8MSD, E3XL4, VBLK10H, VHBLK10H
1,4-Dioxane-d_8

The following volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. The compounds were not detected in the samples. Nondetected compounds are not qualified.

E3XK8, E3XK8MS, E3XK8MSD, E3XL4, VBLK10H, VHBLK10H
1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

4. BLANKS

The following volatile samples have TIC concentrations less than 5x the storage blank concentration. The compounds were qualified U as non-detects and removed from the TIC Report.

Unknown @ RT 1.686
E3XK8, E3XL4

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

No problems were found.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3XK8 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable to this analysis.

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as either trip blanks, field blanks or field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all Volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

A library search indicates a match below 85% for a TIC compound in the volatile sample. Detected compounds are qualified J.

Unknown @ RT 1.686
VHBLK10H

Unknown @ RT 1.722
E3XK8

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Volatile TICs with no CAS Nunmbers were not included by EXES in the Sample Summary Reports. Please check the file titled '44043.E3XK8.TIC.doc' for a complete listing of the TICs found in each sample.

Case Number: 44043 SDG Number: E3XK8
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: MITKEM

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Allison Harvey / Techlaw-ESAT
Date: March 11, 2014

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 20 June 2014

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM Smith
Email Addresses: grabsjc@cdm.com

Level 3 Data Validation for the EXES Database

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Groundwater Contamination (IL)

Case Number: 44380 SDG Number: E3XM6

Number and Type of Samples: 17 Waters (Trace VOAs)

Sample Numbers: E3XM6 – E3XM9, E3XN1, E3XN2, E3XN4 – E3XN6, E3XN8, E3XN9, E3X01 – E3X06

Laboratory: LIBERTY Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case Number: 44380 SDG Number: E3XM6
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: LIBERTY

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Seventeen (17) preserved water samples; E3XM6 through E3XM9, E3XN1, E3XN2, E3XN4 through E3XN6, E3XN8, E3XN9 and E3X01 through E3X06, were shipped to Liberty Analytical Corporation (CompuChem) located in Cary, NC. The samples were collected May 21-22, 2014 and received on May 23, 2014 intact with a receipt temperature of 1.2 °C which is outside the recommended range of 2-6 °C. All samples were analyzed for only the trace level volatiles according to CLP SOW SOM01.2 and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.6.2).

Sample E3XN5 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

Sample E3X05 is identified as a trip blank. Sample E3XN8 is identified as a field blank. Sample E3X04 is identified as a field duplicate of sample E3X03. Sample E3XM6 is identified as a field duplicate of sample E3XM7.

Case Number: 44380 SDG Number: E3XM6
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: LIBERTY

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following trace volatile samples are associated with an opening continuing CCV in which a DMC did not meet the relative percent difference (%D) criteria. Detected and non-detected compounds are not qualified.

E3X06, E3XN5MS, E3XN5MSD, E3XN6DL, VBLKWV, VHBLKYP
Vinyl chloride-d_3

4. BLANKS

The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated trip blank (E3X05) common contaminant concentration is less than 2x the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

E3X04, E3XM7, E3XM8, E3XM9, E3XN5MSD, E3XN8
Acetone

E3XN4, E3XN8
2-Butanone

The following trace volatile samples have analyte concentrations reported below the CRQL. The associated trip blank (E3X05) concentration is less than the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E3XN8
1,1,1-Trichloroethane

E3X01, E3X02, E3X03, E3X04, E3X06, E3XM6, E3XM7, E3XN4, E3XN5, E3XN5MS, E3XN5MSD, E3XN8, E3XN9
Ethylbenzene, o-Xylene

E3X01, E3X02, E3X03, E3X04, E3X06, E3XM6, E3XM7, E3XM8, E3XM9, E3XN1, E3XN2, E3XN4, E3XN5, E3XN5MS, E3XN5MSD, E3XN6, E3XN8, E3XN9
M,p-Xylene

The following trace volatile samples have analyte concentrations reported below the CRQL. The associated trip blank (E3X05) concentration is greater than the CRQL. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E3X01, E3X02, E3X04, E3X06, E3XM6, E3XM7, E3XM8, E3XM9, E3XN1, E3XN2, E3XN4, E3XN5, E3XN6, E3XN6DL
Toluene

The following trace volatile samples have analyte concentrations reported greater than the CRQL but less than or equal to the trip blank (E3X05) concentration. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the blank concentration.

E3X03, E3XN8, E3XN9
Toluene

The following trace volatile samples have analyte concentrations reported below the CRQL. The associated field blank (E3XN8) concentration is less than the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

E3X01, E3X03, E3X04, E3XN4, E3XN9
Benzene

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following trace volatile samples have DMC/SMC recoveries above the upper limit of the criteria. Detected compounds are qualified J. Non-detected compounds are not qualified.

E3XM6
1,1-Dichloroethene, trans-1,2-Dichloroethene, 1,1-Dichloroethane, cis-1,2-Dichloroethene, Bromochloromethane, Chloroform, Dibromochloromethane, Bromoform

E3XM8
1,1-Dichloroethane, Bromochloromethane, Chloroform, Trichloroethene, Toluene, Tetrachloroethene, Dibromochloromethane, Ethylbenzene, o-Xylene, m,p-Xylene, Styrene, Bromoform, Isopropylbenzene

E3XM9
1,1-Dichloroethane, Bromochloromethane, Chloroform, Dibromochloromethane, Bromoform

E3XN2, E3XN5MSD
1,1-Dichloroethene, trans-1,2-Dichloroethene, 1,1-Dichloroethane, cis-1,2-Dichloroethene, Bromochloromethane, Chloroform, Trichloroethene, Toluene, Tetrachloroethene, Dibromochloromethane, Ethylbenzene, o-Xylene, m,p-Xylene, Styrene, Bromoform, Isopropylbenzene

E3XN5MS
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

The following trace volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. The compounds were not detected in the sample. Non-detected compounds are qualified UJ.

E3XM7
Cyclohexane, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3XN5 was designated by the samplers to be used for laboratory QC, i.e. MS/MSD analyses.

The relative percent difference (RPD) between the following trace volatile matrix spike and matrix spike duplicate recoveries is outside criteria. Detected compounds are qualified J.

E3XN5MS, E3XN5MSD
1,1-Dichloroethene

The relative percent difference (RPD) between the trace volatile matrix spike and matrix spike duplicate recoveries is outside criteria. The detected compound in the unspiked sample is qualified J.

E3XN5
1,1-Dichloroethene

6B. LABORATORY CONTROL SAMPLE

Not applicable for this analysis.

Case Number: 44380 SDG Number: E3XM6
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: LIBERTY

7. FIELD BLANK AND FIELD DUPLICATE

Sample E3X05 is identified as a trip blank. Sample E3X05 contained Acetone at a concentration of 8.6 µg/L, 2-Butanone at a concentration of 3.0 µg/L, 1,1,1-Trichloroethane at a concentration of 0.030 µg/L, Toluene at a concentration of 1.1 µg/L, Ethylbenzene at a concentration of 0.10 µg/L, o-Xylene at a concentration of 0.11 µg/L and m,p-Xylene at a concentration of 0.31 µg/L.

Sample E3XN8 is identified as a field blank. Sample E3XN8 contained Benzene at a concentration of 0.19 µg/L.

Sample E3X04 is identified as a field duplicate of sample E3X03. Sample E3XM7 is identified as a field duplicate of sample E3XM6. The sample results and RPDs are presented in the following table:

	E3X03	**E3X04**	RPD
Date/Collection time:	05/22/14 @ 9:30	05/22/14 @ 9:30	
Station Location:	A4-MW130B-140522	A4-MW130B-140522-D	
Units:	µg/L	µg/L	%
Trichlorofluoromethane	0.42	0.49	15.4
1,1-Dichloroethene	1.2	1.3	8.0
Trans-1,2-Dichloroethene	0.2	0.2	0.0
1,1-Dichloroethane	8.2	8.3	1.21
Cis-1,2-Dichloroethene	1.7	1.8	5.71
1,1,1-Trichloroethane	6.5	6.4	1.55
Trichloroethene	1	1	0.0
Tetrachloroethene	0.38	0.38	0.0
No. of TICs	1	1	

	E3XM6	**E3XM7**	RPD
Date/Collection time:	05/21/14 @ 12:05	05/21/14 @ 12:05	
Station Location:	A4-MW403-140521-D	A4-MW403-140521	
Units:	µg/L	µg/L	%
1,1-Dichloroethene	0.67	0.55	19.7
Trans-1,2-Dichloroethene	0.094	0.077	19.9
1,1-Dichloroethane	5.8	4.7	21.0
Cis-1,2-Dichloroethene	1.3	1.0	26.1
1,1,1-Trichloroethane	14.0	12.0	15.4
Trichloroethene	0.8	0.67	17.7
Tetrachloroethene	0.39	0.32	19.7
No. of TICs	1	1	

Sample results are not qualified based on the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all Trace volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following trace volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified J.

E3X01
Dichlorodifluoromethane, trans-1,2-Dichloroethene, Chloroform, Tetrachloroethene

E3X02
Trichlorofluoromethane, trans-1,2-Dichloroethene, Chloroform, Tetrachloroethene

E3X03, E3X04, E3XM8, E3XN1, E3XN5, E3XN5MS, E3XN5MSD, E3XN6
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene

E3X05
2-Butanone, 1,1,1-Trichloroethane, Ethylbenzene, o-Xylene, m,p-Xylene

E3X06
trans-1,2-Dichloroethene, Bromodichloromethane, Dibromochloromethane

E3XM6, E3XM7
trans-1,2-Dichloroethene, Tetrachloroethene

E3XM9, E3XN2
Trichlorofluoromethane, trans-1,2-Dichloroethene

E3XN4
1,1-Dichloroethane, Trichloroethene, Tetrachloroethene

E3XN6DL
Trichlorofluoromethane, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, Tetrachloroethene

E3XN8
Benzene

E3XN9
1,1-Dichloroethane, Tetrachloroethene

VBLKWS, VBLKWV
4-Methyl-2-pentanone, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

A library search indicates a match above 85% for a TIC compound in the volatile sample. Detected compounds are qualified NJ.

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro-
E3X01, E3X02, E3X03, E3X04, E3XM6, E3XM7, E3XM8, E3XM9, E3XN1, E3XN2, E3XN4, E3XN5, E3XN6, E3XN6DL, E3XN9

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The following trace volatile sample has a compound concentration which exceeds the instruments calibration range. The detected results are qualified J. The results from the diluted analyses should be considered the final concentration for the affected compound.

1,1,1-Trichloroethene
E3XN6

The following trace volatile samples had tentative identifications changed by the Reviewer following the guidelines stated in Trace Volatile Organic Analysis Section XII, Tentatively Identified Compounds (TICs) of the National Functional Guidelines for Superfund Organic Methods Data Review. A visual inspection of the chromatograms in the following samples indicate a match to a compound not identified as the most probable matches by the laboratories or positively identified in other samples. Copies of the chromatograms are included with the hardcopy validation package.

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro-
E3X01, E3X02, E3X03, E3X04, E3XM6, E3XM7, E3XM8, E3XM9, E3XN1, E3XN2, E3XN6, E3XN6DL
versus
Unknown @ RT 4.48 – 4.50
E3XN4, E3XN5, E3XN9

Trace volatile TICs with no CAS Numbers were not included by EXES in the Sample Summary Reports. Please check the file titled '44380.E3XM6.TIC.docx' for a complete listing of the TICs found in each sample.

Case Number: 44380 SDG Number: E3XM6
Site Name: SE Rockford GW Contamination Site (IL) Laboratory: LIBERTY

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Allison Harvey / Techlaw-ESAT
Date: July 9, 2014

2015

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: June 12, 2015

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM Smith
Email Address: grabsjc@cdm.com

Level 3 Data Validation for EDM EXES database

We have reviewed the data for the following case:

SITE Name: SE Rockford GW Contamination (IL)

Case Number: 45304 SDG Number: E3XS9

Number and Type of Samples: 18 Waters (17 Trace Volatiles & 1 Low Level Volatiles)

Sample Numbers: E3XS9, E3XT0 – E3XT6, E3XT8, E3XT9, E3XW0 – E3XW7

Laboratory: KAP Technologies (KAP) Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Reviewed by: Christina Rice / TechLaw-ESAT
Date: 7/14/2015

Case Number: 45304 SDG Number: E3XS9
Site Name: SE Rockford GW Contamination (IL) Laboratory: KAP

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Eighteen (18) preserved water samples labeled; E3XS9, E3XT0 through E3XT6, E3XT8, E3XT9, and E3XW0 through E3XW7; were shipped to KAP Technologies (KAP) located in The Woodlands, TX. All samples were collected between May 19 and 21, 2015 and received on May 22, 2015. All samples were received intact and within the required shipping temperature range of 2 – 6°C.

Seventeen (17) samples labeled; E3XS9, E3XT0 through E3XT6, E3XT8, E3XT9, E3XW0, and E3XW2 through E3XW7, were analyzed for the trace volatile list of target compounds. One (1) sample labeled; E3XW1, was analyzed for the low level volatile list of target compounds. All samples were analyzed according to CLP SOW SOM01.2 and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.7).

Sample E3XW1 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses, for the low level volatile fraction. No samples were designated or performed on the trace volatile fraction.

Sample E3XS9 was identified as a trip blank. Sample E3XW2 was identified as a field blank. The following samples were identified as a field duplicate pair based on sample identifier and sample time: E3XT0 / E3XT1 and E3XW6 / E3XW7. Samples E3XW3 and E3XW4 are not being evaluated as a field duplicate pair since, though they have the same sample time, they have different sample identifiers.

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following trace volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detected compounds are qualified J. Non-detected compounds are not qualified.

E3XS9, E3XT0, E3XT1, E3XT2, E3XT3, E3XT4, E3XT5, E3XT6, E3XT8, E3XT9, E3XW0, E3XW0DL, E3XW2, E3XW3, E3XW4, E3XW5, E3XW6, E3XW7, VBLK6A, VBLK6C, VHBLK01
1,2,3-Trichlorobenzene

The following trace volatile samples are associated with an opening CCV percent difference (%D) outside criteria. The compound was not detected in the samples. Non-detected compounds are qualified UJ.

E3XT6, E3XW0, E3XW0DL, E3XW6, E3XW7, VBLK6C, VHBLK01
Styrene

The following low level volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. The compound was not detected in the samples. Non-detected compounds are not qualified.

E3XW1, E3XW1MS, E3XW1MSD, VBLK38, VHBLK02
Bromomethane

The following low level volatile samples are associated with an opening CCV percent difference (%D) outside criteria. The compounds were not detected in the samples. Non-detected compounds are qualified UJ.

E3XW1, E3XW1MS, E3XW1MSD, VBLK38, VHBLK02
1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

4. BLANKS

The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte

concentration less than 2x the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Methylene chloride
E3XT5, E3XT6, E3XT8, E3XT9, E3XW0DL, E3XW2, E3XW4, E3XW5, VHBLK01

The following trace volatile sample has common contaminant analyte concentrations reported less than 2x the CRQL. The associated trip blank (E3XS9) has common contaminant analyte concentration less than 2x the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Acetone
E3XW2

The following trace volatile samples have analyte concentrations reported less than the CRQL. The associated trip blank (E3XS9) concentration is less than the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

m,p-Xylene
E3XT2, E3XT8, E3XT9, E3XW3, E3XW4, E3XW6, E3XW7

The following trace volatile samples have analyte concentrations reported less than the CRQL. The associated trip blank (E3XS9) concentration is greater than the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Toluene
E3XT2, E3XT9, E3XW6, E3XW7

The following trace volatile sample has analyte concentrations reported greater than the CRQL and less than the blank concentration. The associated trip blank (E3XS9) concentration is greater than the CRQL. Detected compounds are elevated to the blank concentration and qualified U.

Toluene
E3XW2

The following trace volatile sample has TIC concentrations reported less than 5X the associated trip blank (E3XS9) concentration. Detected compounds are re-qualified U and deleted from the TIC report.

Unknown @ 13.33
E3XW6

The following trace volatile sample has analyte concentrations reported less than the CRQL. The associated field blank (E3XW2) concentration is less than the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

Ethylbenzene
E3XT9

The following trace volatile sample has analyte concentrations reported less than the CRQL. The associated field blank (E3XW2) concentration is greater than the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.

o-Xylene
E3XT9

The following trace volatile sample has TIC concentrations reported less than 5X the associated field blank (E3XW2) concentration. Detected compounds are re-qualified U and deleted from the TIC report.

Unknown @ 2.92
E3XT0

The following low level volatile samples have TIC concentrations reported less than 5X the associated method blank concentration. Detected compounds are re-qualified U and deleted from the TIC report.

Unknown @ 18.62
E3XW1, VHBLK02

The following low level volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated storage blank (E5G79) has common contaminant analyte concentration less than 2x the concentration criteria. Detected compounds are qualified U. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL.

Methylene chloride
E3XW1, E3XW1MS, E3XW1MSD

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following trace volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. The compound was not detected in the samples. Non-detected compounds are not qualified.

E3XT3, E3XT4, E3XT5, E3XT6, E3XT8, E3XT9, E3XW0, E3XW0DL, E3XW2, E3XW3, E3XW4, E3XW5, E3XW6, E3XW7
Vinyl chloride

The following trace volatile sample has one or more DMC/SMC recovery values less than the expanded lower limit (20%). The compounds were not detected in the sample. Non-detected compounds are qualified R.

E3XW0
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Carbon disulfide

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3XW1 was designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses, for the low level volatile fraction. No samples were designated or performed on the trace volatile fraction.

The following low level volatile matrix spike/matrix spike duplicate samples have percent recoveries that are greater than or equal to the lower expanded criteria limit but less than the lower primary criteria acceptance limit. Detected compounds are qualified J.

E3XW1MS, E3XW1MSD
Toluene

The associated low level volatile matrix spike/matrix spike duplicate samples have percent recoveries greater than or equal to the expanded lower acceptance limit but less than the primary lower acceptance limit. The compound was not detected in the unspiked sample. Non-detected compounds in the unspiked sample are qualified UJ.

E3XW1
Toluene

6B. LABORATORY CONTROL SAMPLE

Not applicable to the trace volatile or low level volatile analyses.

7. FIELD BLANK AND FIELD DUPLICATE

Sample E3XS9 was identified as a trip blank. Sample E3XW2 was identified as a field blank. Results are summarized in the following table:

Blank Type	**Trip**	**Field**
Sample ID	**E3XS9**	**E3XW2**
DF, Units	1, ug/L	1, ug/L
Station Location	TB01	FB01
Sample Identifier	A4-TB01-150519	A4-FB01-150519
Collection Date/Time	5/19/15 @ 15:55	5/19/15 @ 16:00
Trace Volatile Analytes	**E3XS9**	**E3XW2**
Acetone	4.5	Non-detect
Toluene	1.3	Non-detect
Ethylbenzene	Non-detect	0.29
o-Xylene	Non-detect	0.88
m,p-Xylene	0.48	1.6
#TVOA TICs	1	1

The following samples were identified as a field duplicate pair based on sample identifier and sample time: E3XT0 / E3XT1 and E3XW6 / E3XW7. Results are summarized in the following tables:

Sample ID	**E3XT0**	**E3XT1**	
DF, Units	1, ug/L	1, ug/L	
Station Location	MW32	MW32	
Sample Identifier	A4-MW32-150519	A4-MW32-150519-D	
Collection Date/Time	5/19/15 @ 12:40	5/19/15 @ 12:40	
Trace Volatile Analytes	**E3XT0**	**E3XT1**	**RPD**
1,1-Dichloroethene	1.2	0.99	19
trans-1,2-Dichloroethene	0.21	0.24	13
1,1-Dichloroethane	8.4	8.4	0
cis-1,2-Dichloroethene	2.5	2.3	8.3
Chloroform	2.1	2.1	0
1,1,1-Trichloroethane	5.6	5.3	5.5
Trichloroethene	1.4	1.2	15
Bromodichloromethane	0.99	0.94	5.2
Tetrachloroethene	0.59	0.56	5.2
Dibromochloromethane	0.64	0.63	1.6
#TVOA TICs	0	0	---

Sample ID **DF, Units** **Station Location** **Sample Identifier** **Collection Date/Time**	**E3XW6** 1, ug/L MW130B A4-MW130B-150521 5/21/15 @ 07:50	**E3XW7** 1, ug/L MW130B A4-MW130B-150521-D 5/21/15 @ 07:50	
Trace Volatile Analytes	**E3XW6**	**E3XW7**	**RPD**
Trichlorofluoromethane	0.34	0.35	2.9
1,1-Dichloroethene	1.5	1.6	6.5
trans-1,2-Dichloroethene	0.29	0.21	32
1,1-Dichloroethane	11	12	8.7
cis-1,2-Dichloroethene	2.4	2.3	4.3
1,1,1-Trichloroethane	7.4	7.6	2.7
Trichloroethene	0.95	0.97	2.1
Tetrachloroethene	0.34	0.34	0
#TVOA TICs	1	1	---

Samples E3XW3 and E3XW4 are not being evaluated as a field duplicate pair since, though they have the same sample time, they have different sample identifiers.

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all trace volatile and low level volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following trace volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified J.

E3XS9
Acetone, m,p-Xylene

E3XT0, E3XT1
trans-1,2-Dichloroethene

E3XT2
Dichlorodifluoromethane, Tetrachloroethene

E3XT3, E3XT8
Tetrachloroethene

E3XT4, E3XT5
trans-1,2-Dichloroethene, Tetrachloroethene

E3XT6, E3XW4, E3XW6, E3XW7
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene

E3XT9
Trichlorofluoromethane, trans-1,2-Dichloroethene, Bromodichloromethane, Tetrachloroethene, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

E3XW0
Bromodichloromethane, Tetrachloroethene, Dibromochloromethane

E3XW0DL
cis-1,2-Dichloroethene

E3XW2
Ethylbenzene

E3XW5
Trichlorofluoromethane, trans-1,2-Dichloroethene, Bromodichloromethane, Tetrachloroethene

VBLK6A, VBLK6C
Methylene chloride

A library search indicates a match at or above 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified NJ. See Section 12 for additional information.

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro @ 2.18
E3XT8, E3XW6

A library search indicates a match below 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified J. See Section 12 for additional information.

Unknown @ 2.18
E3XT3, E3XT4, E3XT5, E3XT6, E3XT9, E3XW0, E3XW0DL, E3XW4, E3XW5, E3XW7

Unknown @ 2.79
E3XW0

Unknown @ 2.86
E3XT2, E3XW0DL, E3XW3

Unknown @ 2.91
E3XW2

Unknown @ 2.98
E3XT3, E3XT8

Unknown @ 10.94
E3XW3

Unknown @ 13.34
E3XS9

The following low level volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified J.

E3XW1, E3XW1MS, E3XW1MSD
cis-1,2-Dichloroethene

VHBLK02
Methylene chloride

A library search indicates a match at or above 85% for a TIC compound in the low level volatile sample. Detected compounds are qualified NJ.

CAS No. 108-67-8 Benzene, 1,3,5-trimethyl- @ 16.39
CAS No. 620-14-4 Benzene, 1-ethyl-3-methyl- @ 15.52
CAS No. 622-96-8 Benzene, 1-ethyl-4-methyl- @ 17.16
E3XW1

A library search indicates a match below 85% for a TIC compound in the low level volatile sample. Detected compounds are qualified J.

Unknown @ 18.63
VBLK38

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Manual integrations were reviewed and found to be acceptable. The laboratory provided only 'after' snapshots of the integrations for both the trace volatile and low level volatile fractions. Detected and non-detected compounds are not qualified for this criterion.

TICs with no CAS Numbers were not reported in the EXES Sample Summary Report or the EXES Dynamic Deliverables for the trace volatile and low level volatile fractions. Please refer to Word document "45304.E3XS9.TIC Report" for the validated TIC results.

The following trace volatile samples have compound concentrations which exceed the instruments calibration range. The detected results are qualified J. The results from the diluted analyses should be considered the final concentrations for the affected compounds.

E3XW0
1,1,1-Trichloroethane

A library search indicates a match below 85% for a TIC compound in the following trace volatile sample. The TIC is listed as an identified TIC with a CAS number. The compound is a known isomer of an added surrogate monitoring compound and considered a laboratory artifact. The compound was removed by the reviewer. Copies of the chromatograms are included with the validation report.

CAS No. 463-71-8 cis-1,3-Dichloropropene-d_4
E3XS9, E3XT0, E3XT1, E3XT2, E3XT3, E3XT4, E3XT5, E3XT6, E3XT8, E3XT9, E3XW0, E3XW0DL, E3XW2, E3XW3, E3XW4, E3XW5, E3XW6, E3XW7, VBLK6A, VBLK6C, VHBLK01

The following trace volatile samples have a compound identified by CAS No. in some samples and as an "unknown" TIC or different CAS No. in other samples. A comparison of the chromatograms demonstrated that the TICs are most probably the same compound in the respective samples. Copies of the chromatograms are included with the validation report.

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro @ 2.18
E3XT8, E3XW6
vs
Unknown @ 2.18
E3XT3, E3XT4, E3XT5, E3XT6, E3XT9, E3XW0, E3XW0DL, E3XW4, E3XW5, E3XW7

A library search indicates a match below 85% for a TIC compound in the following low level volatile sample. The TIC is listed as an identified TIC with a CAS number. The compound is a known isomer of an added surrogate monitoring compound and considered a laboratory artifact.

The compound was removed by the reviewer. Copies of the chromatograms are included with the validation report.

CAS No. 463-71-8 cis-1,3-Dichloropropene-d_4
E3XW1, VBLK38, VHBLK02

The following low level volatile samples have a compound incorrectly listed on the Form I TIC and NFG Report 9. The compound is considered septum or column bleed and was removed by the reviewer.

CAS No. 541-05-9 Cyclotrisiloxane, hexamethyl-
E3XW1

CAS No. 556-67-2 Cyclotetrasiloxane, octamethyl-
E3XW1, VBLK38

Case Number: 45304
Site Name: SE Rockford GW Contamination (IL)

SDG Number: E3XS9
Laboratory: KAP

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

Reviewed by: Christina Rice / TechLaw-ESAT
Date: 7/14/2015

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: 8 January 2015

FROM: Timothy Prendiville, Supervisor (**SR-6J**)
Superfund Contract Management Section

TO: Data User: CDM Smith
grabsjc@cdm.com

Level 3 Data Validation for EDM EXES Reports

We have reviewed the data for the following case:

SITE Name: SE Rockford GW Contamination (IL)

Case Number: 44966 SDG Number: E3XR0

Number and Type of Samples: 18 Waters (trace volatiles)

Sample Numbers: E3XR0-E3XR7, E3XR9, E3XS0-E3XS8

Laboratory: Chemtech Consulting Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: **SA-5J**

Case Number: 44966 SDG Number: E3XR0
Site Name: SE Rockford GW Contamination (IL) LabCode: CHEM

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Eighteen (18) preserved water samples labeled E3XR0-E3XR7, E3XR9, and E3XS0-E3XS8, were shipped to Chemtech located in Mountainside, NJ. All samples were collected on 12/16/14 and received on 12/17/14 intact and properly cooled.

All samples were analyzed for the trace volatile list of compounds. All samples were analyzed according to CLP SOW SOM01.2 (8/2007) and reviewed according to the NFG for SOM01.2 and the SOP for ESAT 5/TechLaw Validation of Contract Laboratory Program Organic Data (Version 2.7).

Samples E3XS0 and E3XS2 were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. The laboratory performed MS / MSD analysis on sample E3XS0.

Sample E3XR0 was identified as a trip blank. Sample E3XS3 was identified as a field blank. Sample E3XR2 was identified as a field duplicate of sample E3XR1. Sample E3XS8 was identified as a field duplicate of sample E3XS7.

Case Number: 44966 SDG Number: E3XR0
Site Name: SE Rockford GW Contamination (IL) LabCode: CHEM

1. HOLDING TIME

No problems were found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems were found.

3. CALIBRATION

The following trace volatile samples are associated with an opening continuing calibration percent difference (%D) outside criteria. The compound was not detected in the samples. Non-detected compounds are qualified UJ.

E3XR3DL, E3XS0, E3XS0MS, E3XS0MSD, E3XS1DL, E3XS2DL, E3XS3, E3XS4, E3XS5, E3XS6, E3XS7, E3XS8, VBLK01, VBLK54
Bromoform

E3XR4RE, VBLK57
1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

4. BLANKS

The following trace volatile samples were analyzed after a sample with compounds exceeding calibration and no intervening instrument blank. Detection of these compounds should be qualified J as the reported concentration may be a result of or supplemented by carryover.

1,1,1-Trichloroethane
E3XR4, E3XS2

The following trace volatile samples have analyte concentrations reported less than the CRQL. The associated trip blank concentration is less than the concentration criteria. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL and qualified U.

Chloromethane, Benzene
E3XS3

Ethylbenzene
E3XR3DL, E3XS2, E3XS4, E3XS6

The following trace volatile samples have analyte concentrations reported less than the 2x the CRQL. The associated trip concentration is less than the CRQL. Detected compounds are elevated to 2x the CRQL and qualified U.

Chloromethane
E3XS0, E3XS0MS, E3XS0MSD, E3XS5, E3XS6, E3XS7, E3XS8

Ethylbenzene
E3XR3, E3XS3

The following trace volatile samples have analyte concentrations reported less than the CRQL. The associated trip blank concentration is greater than the CRQL. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL and qualified U.

Toluene
E3XR9, E3XS2, E3XS4, E3XS5, E3XS6, E3XS7, E3XS8

o-Xylene
E3XR3DL, E3XS4, E3XS5, E3XS6, E3XS7, E3XS8

m,p-Xylene
E3XR9, E3XS5, E3XS6, E3XS7, E3XS8

The following trace volatile samples have analyte concentrations reported greater than or equal to the CRQL and less than 2x the associated blank concentration. The associated trip blank concentration is greater than the CRQL. Non-detected compounds are not qualified. Reported sample concentrations have not been modified and qualified U.

o-Xylene
E3XR3, E3XS3

m,p-Xylene
E3XS2, E3XS3

The following trace volatile samples have analyte concentrations reported greater than or equal to the CRQL and less than the associated blank concentration. The associated trip blank concentration is greater than the CRQL. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to the associated blank concentration and qualified U.

Toluene
E3XR3, E3XS0, E3XS3

m,p-Xylene
E3XS4

The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated trip blank has common contaminant analyte concentration less than 2x the concentration criteria. Non-detected compounds are not qualified. Reported sample concentrations have been elevated to 2x the CRQL and qualified U.

Acetone, 2-Butanone
E3XS3

5. DEUTERATED MONITORING COMPOUND AND SURROGATE RECOVERY

The following trace volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Non-detected compounds are not qualified.

E3XR4, E3XR4RE, E3XR5, E3XR6, E3XR7, E3XS0, E3XS1, E3XS2, E3XS5, E3XS6, E3XS7, E3XS8
Vinyl chloride

E3XS0MS, E3XS0MSD
Vinyl chloride, 1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

The following trace volatile samples have one or more DMC/SMC recovery values less than the primary lower limit but greater than or equal to the expanded lower limit (20%) of the criteria window. Detected compounds are qualified J. Non-detected compounds are qualified UJ.

E3XR4RE
cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, 1,1,2-Trichloroethane

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Samples E3XS0 and E3XS2 were designated by the samplers to be used for laboratory QC, i.e. MS / MSD analyses. The laboratory performed MS / MSD analysis on sample E3XS0.

No problems were found.

6B. LABORATORY CONTROL SAMPLE

Not applicable to trace volatile analyses.

7. FIELD BLANK AND FIELD DUPLICATE

Sample E3XR0 were identified as a trip blank. Sample E3XS3 was identified as a field blank. Results are summarized in the following table:

Case Number: 44966 SDG Number: E3XR0
Site Name: SE Rockford GW Contamination (IL) LabCode: CHEM

	Trip Blank	Field Blank
	E3XR0	**E3XS3**
Sample Identifier:	A4-TB01-141216	A4-FB01-141216
Station Location:	TB01	FB01
Collection Date/Time:	12-16-2014/07:55	12-16-2014/16:45
Volatile analytes:	**µg/L**	**µg/L**
Chloromethane	0.24	--
Acetone	5.2	--
2-Butanone	2.8	--
Benzene	0.37	--
4-Methyl-2-pentanone	--	0.64
Toluene	2.3	--
Ethylbenzene	0.31	--
o-Xylene	0.54	--
m,p-Xylene	1.1	--
# of VOA TICs	0	0
Associated samples:	(all)	(all)

Sample E3XR2 was identified as a field duplicate of sample E3XR1. Sample E3XS8 was identified as a field duplicate of sample E3XS7. Results are summarized in the following table:

	E3XR1	**E3XR2**	
Sample Identifier:	A4-MW32-141216	A4-MW32-141216-D	
Station Location:	MW32	MW32	
Collection Date/Time:	12-16-2014/10:05	12-16-2014/10:05	
Volatile analytes:	**µg/L**	**µg/L**	**%RPD**
Vinyl chloride	--	0.17	200
1,1-Dichloroethene	1.0	1.1	9.5
trans-1,2-Dichloroethene	0.27	0.34	23
1,1-Dichloroethane	7.5	8.0	6.5
cis-1,2-Dichloroethene	2.0	2.2	9.5
Chloroform	1.4	1.5	6.9
1,1,1-Trichloroethane	5.3	6.2	16
Trichloroethene	1.6	1.8	12
Bromodichloromethane	0.74	0.86	15
Tetrachloroethene	0.66	0.75	13
1,2-Dibromoethane	0.48	0.55	14
# of VOA TICs	0	0	

Sample E3XS8 was identified as a field duplicate of sample E3XS7. Results are summarized in the following table:

	E3XS7	**E3XS8**	
Sample Identifier:	A4-MW130B-141216	A4-MW130B-141216-D	
Station Location:	MW130B	MW130B	
Collection Date/Time:	12-16-2014/16:00	12-16-2014/16:00	
Volatile analytes:	**µg/L**	**µg/L**	**%RPD**
Trichlorofluoromethane	0.43	0.42	2.4
1,1-Dichloroethene	1.7	1.8	5.7
trans-1,2-Dichloroethene	0.44	0.44	0
1,1-Dichloroethane	11	11	0
cis-1,2-Dichloroethene	2.5	2.4	4.1
Chloroform	0.31	0.28	10
1,1,1-Trichloroethane	7.4	7.5	1.3
Trichloroethene	1.6	1.6	0
Bromodichloromethane	0.12	0.12	0
Tetrachloroethene	0.53	0.52	1.9
# of VOA TICs	1	1	

Results are not qualified based upon the results of the field duplicates.

8. INTERNAL STANDARDS

No problems were found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all trace volatile compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following trace volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified J.

E3XR0
Chloromethane, 2-Butanone, Benzene, Ethylbenzene

E3XR1
trans-1,2-Dichloroethene, Dibromochloromethane

E3XR2
Vinyl chloride, trans-1,2-Dichloroethene

E3XR3
trans-1,2-Dichloroethene, Tetrachloroethene

E3XR3DL
1,1-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, m,p-Xylene

E3XR4, E3XR4RE, E3XS5
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene

E3XR5, E3XR6, E3XR7, E3XS1
Trichlorofluoromethane, trans-1,2-Dichloroethene

E3XR9
1,1-Dichloroethane, Trichloroethene, Tetrachloroethene

E3XS0, E3XS0MSD
Trichlorofluoromethane, trans-1,2-Dichloroethene, Chloroform

E3XS0MS
Trichlorofluoromethane, Chloroform, 1,2-Dichloroethane

E3XS1DL
Chloromethane, 1,1-Dichloroethene, cis-1,2-Dichloroethene, Chloroform, Trichloroethene, Bromodichloromethane, Tetrachloroethene

E3XS2
Trichlorofluoromethane, trans-1,2-Dichloroethene, Chloroform, 1,1,2-Trichloroethane, Isopropylbenzene

E3XS2DL
1,1-Dichloroethene, cis-1,2-Dichloroethene

E3XS3
4-Methyl-2-pentanone

E3XS4
1,1-Dichloroethene

E3XS6
Trichlorofluoromethane, trans-1,2-Dichloroethene, Bromodichloromethane

E3XS7, E3XS8
Trichlorofluoromethane, trans-1,2-Dichloroethene, Chloroform, Bromodichloromethane

VBLK57
Methylene chloride, 4-Methyl-2-pentanone

A library search indicates a match at or above 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified NJ.

CAS No. 75-37-6 Ethane, 1,1-difluoro-
E3XR4RE, E3XR5, E3XR6, E3XR7, E3XS0, E3XS1, E3XS5, E3XS6, E3XS7, E3XS8

CAS No. 75-68-3 Ethane, 1-chloro-1,1-difluoro-
E3XR4RE

CAS No. 95-63-6 Benzene, 1,2,4-trimethyl-,
CAS No. 95-93-2 Benzene, 1,2,4,5-tetramethyl-,
CAS No. 103-65-1 Benzene, propyl-
CAS No. 108-67-8 Benzene, 1,3,5-trimethyl-,
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl-,
CAS No. 535-77-3 Benzene, 1-methyl-3-(1-methylethyl,
CAS No. 611-14-3 Benzene, 1-ethyl-2-methyl-,
CAS No. 620-14-4 Benzene, 1-ethyl-3-methyl-,
CAS No. 622-97-9 Benzene, 1-ethenyl-4-methyl-,
CAS No. 934-80-5 Benzene, 4-ethyl-1,2-dimethyl-,
CAS No. 1560-06-1 Benzene, 2-butenyl-
E3XS2

A library search indicates a match below 85% for a TIC compound in the trace volatile sample. Detected compounds are qualified J.

Unknown @ 5.33, Unknown @ 8.85
E3XS3

Unknown @ 9.27
E3XS2DL

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Manual integrations were performed. No snapshots of the chromatogram prior to the manual integrations were provided and are not mandated by the current SOW (SOM01.2). The manual integrations appear to follow Good Laboratory Practices.

The following trace volatile samples have reported concentrations that exceed the instruments linear calibration range. The results are flagged E by the laboratory and are estimated J. The results from the diluted samples should be used for result validation.

E3XR3, E3XS1
1,1,1-Trichloroethane

E3XS2
1,1-Dichloroethane, 1,1,1-Trichloroethane

TICs with no CAS Numbers were not reported in the EXES Sample Summary Report for the trace volatile fraction. Please refer to Word document "44966 E3RX0 TIC Report" for the validated TIC results.

Case Number: 44966 SDG Number: E3XR0
Site Name: SE Rockford GW Contamination (IL) LabCode: CHEM

EXES Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present.)

2016

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: April 28, 2016

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM Smith
Email Address: grabsjc@cdm.com

Electronic and Manual Validation for Region 5

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Ground Water Contamination (IL)

Case No: 46067 MA No: _____ SDG No: E3XX8

Number and Type of Samples: 17 waters (Trace Volatiles)

Sample Numbers: E3XX8, E3XY0 – E3XY4, E3XY6 – E3XY9, E3XZ0 – E3XZ6

Laboratory: CHM Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Reviewed by: Allison C Harvey / Techlaw-ESAT
Date: June 2, 2016

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Seventeen (17) preserved water samples labeled E3XX8, E3XY0 through E3XY4, E3XY6 through E3XY9 and E3XZ0 through E3XZ6 were shipped to Chemtech Consulting Group (CHM) located in Mountainside, NJ. The samples were collected April 5-6, 2016 and received on April 8, 2016 intact with a cooler temperature within the preferred range of 0-6 °C.

All samples were analyzed for the trace volatile target analytes by CLP SOW SOM02.3 (09/2015) and reviewed according to the August 2014 NFG for SOM02.2, the Summary of Changes: SOM02.2 to SOM02.3 and the ESAT5 Data Review/Validation of CLP Organic Data SOP.

Sample E3XZ4 was designated by the samplers to be used for the MS/MSD analyses.

Sample E3XZ6 was identified as a trip blank. Sample E3XY0 was identified as a field blank. Sample E3XY8 was identified as a field duplicate of sample E3XY7. Sample E3XZ2 was identified as a field duplicate of sample E3XZ1.

1. PRESERVATION AND HOLDING TIMES

No problems found.

2. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

No problems found.

3. INITIAL CALIBRATION

No problems found.

4. CONTINUING CALIBRATION

The following trace volatile samples are associated with a closing CCV with % Difference exceeding criteria. The compound was not detected in the samples. Nondetects are qualified as estimated UJ.

E3XZ1, E3XZ3, E3XZ4, E3XZ4MS, E3XZ4MSD, E3XZ5, VBLK53
Carbon disulfide

5. BLANKS

The following trace volatile samples have analyte results reported less than CRQLs. The associated trip blank (E3XZ6) results are less than CRQLs. Detects are qualified U. Sample results have been reported at CRQLs.

E3XY6, E3XZ0, E3XZ3
Ethylbenzene

E3XX8, E3XY0, E3XY6, E3XZ0, E3XZ3, E3XZ4MS
o-Xylene

E3XX8, E3XY0, E3XY7, E3XY8, E3XY9, E3XZ4, E3XZ4MS, E3XZ4MSD, E3XZ5
m,p-Xylene

The following trace volatile samples have analyte results reported less than CRQLs. The associated trip blank (E3XZ6) results are greater than CRQLs. Detects are qualified U. Sample results have been reported at CRQLs.

E3XX8, E3XY3, E3XY6, E3XY7, E3XY8, E3XY9, E3XZ0, E3XZ1, E3XZ2, E3XZ3, E3XZ4, E3XZ5
Toluene

The following trace volatile samples have analyte results reported greater than CRQLs but less than the blank results. The associated trip blank (E3XZ6) results are greater than CRQLs. Sample results are reported and qualified as not detected U.

E3XY0
Toluene

The following trace volatile samples have the same tentatively identified compounds (TICs) detected as in the associated trip blank, E3XZ6. TIC results reported in the sample and the blank exceed concentration criteria (> 0.5 µg/L). Detects are not qualified.

E3XX8, E3XY0
CAS No. 562-73-8 Benzene, 1,2,3-trimethyl-

6. DEUTERATED MONITORING COMPOUNDS / SURROGATES

The following trace volatile samples have DMC/surrogate percent recoveries greater than the primary maximum criteria. Detects are qualified as estimated J+. Nondetects are not qualified.

E3XY6, E3XY8, E3XZ0
Vinyl chloride

E3XZ1
Acetone, 2-Butanone

E3XZ3, E3XZ4MS, E3XZ4MSD, E3XZ5
Acetone, 2-Butanone, 4-Methyl-2-pentanone, 2-Hexanone, 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

The following trace volatile samples have DMC/surrogate percent recoveries less than the primary minimum criteria but greater than or equal to the expanded minimum criteria. Detect are qualified as estimated J-. Nondetects are qualified as estimated UJ. No results from the diluted analyses are reflected in the EXES Sample Summary.

E3XX8
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, Benzene, Chlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

E3XY0, E3XZ6
Chlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

E3XZ5DL
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene, Chlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

7. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No problems found.

8. FLORISIL CARTRIDGE PERFORMANCE CHECK

Not Applicable.

9. CLEANUP PROCEDURES

Not Applicable.

10. LABORATORY CONTROL SAMPLE

Not Applicable.

11. INTERNAL STANDARD

No problems found.

12. TARGET ANALYTE IDENTIFICATION

One or more target analytes exceeded the calibration range in the following trace volatile samples. Only the results from the most diluted analysis and its associated dilution factor is reported in the EXES Sample Summary.

E3XX8, E3XZ5
1,1,1-Trichloroethane

13. REPORTED CONTRACT QUANTITATION LIMIT

The following trace volatile samples have analyte results greater than or equal to detection limit (MDL) and below quantitation limit (CRQL). Detects are qualified as estimated J. No results from the diluted analyses are reflected in the EXES Sample Summary.

E3XX8
trans-1,2-Dichloroethene, Bromodichloromethane, Tetrachloroethene, Dibromochloromethane

E3XX8DL
cis-1,2-Dichloroethene, Trichloroethene

E3XY1, E3XY2, E3XY3, E3XY4
trans-1,2-Dichloroethene, Tetrachloroethene

E3XY6, E3XY7, E3XY8, E3XZ4, E3XZ4MS
Trichlorofluoromethane, trans-1,2-Dichloroethene, Bromodichloromethane, Tetrachloroethene

E3XY9
cis-1,2-Dichloroethene

E3XZ0
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene

E3XZ2
trans-1,2-Dichloroethene

E3XZ3
Acetone, trans-1,2-Dichloroethene, Bromodichloromethane, Tetrachloroethene

E3XZ4MSD
Trichlorofluoromethane, trans-1,2-Dichloroethene, Chloroform, Bromodichloromethane, Tetrachloroethene

E3XZ5
Tetrachloroethene

E3XZ6
Ethylbenzene, o-Xylene, m,p-Xylene

14. TENTATIVELY IDENTIFIED COMPOUNDS

Sample results are identified in the separate Data Validation Report titled ‘Tentatively Identified Compounds’. The manually reviewed report is titled ‘46067.E3XX8.TIC.rtf’.

15. SYSTEM PERFORMANCE

No problems found.

16. FIELD QC SAMPLES

Sample E3XZ6 was identified as a trip blank. Sample E3XY0 was identified as a field blank. Sample results are summarized in the following table:

QC Type:	Trip blank	Field blank
CLP Sample Number:	**E3XZ6**	**E3XY0**
Sample Identifier:	A4-TB01-160405	A4-FB01-160405
Station Location:	TB01	FB01
Collection Date/Time:	04/05/2016 08:00	04/05/2016 13:40
Units:	µg/L	µg/L
Target Analytes		
Toluene	0.83	U
Ethylbenzene	0.11	ND
o-Xylene	0.27	U
m,p-Xylene	0.37	U
No. of TICs	1	1
Associated samples:	E3XX8, E3XY0, E3XY1, E3XY2, E3XY3, E3XY4, E3XY6, E3XY7, E3XY8, E3XY9, E3XZ0, E3XZ1, E3XZ2, E3XZ3, E3XZ4, E3XZ5	E3XX8, E3XY1, E3XY2, E3XY3, E3XY4, E3XY6, E3XY7, E3XY8, E3XY9, E3XZ0, E3XZ1, E3XZ2, E3XZ3, E3XZ4, E3XZ5

ND = Not Detected. U = Qualified as a nondetect.

Sample E3XY8 was identified as a field duplicate of sample E3XY7. Sample E3XZ2 was identified as a field duplicate of sample E3XZ1. Sample results and RPDs are summarized in the following table:

CLP Sample Number:	**E3XY7**	**E3XY8**	
Sample Identifier:	A4-MW130B-160406	A4-MW130B-160406-D	
Station Location:	MW130B	MW130B	
Collection Date/Time:	04/06/2016 12:50	04/06/2016 12:50	
Units:	µg/L	µg/L	%RPDs
Target Analytes			
Trichlorofluoromethane	0.29	0.27	7.1
trans-1,2-Dichloroethene	0.31	0.23	30
1,1-Dichloroethane	10	9.8	2.0
cis-1,2-Dichloroethene	2.2	2.1	4.7
1,1,1-Trichloroethane	7.6	7.3	4.0
Trichloroethene	1.4	1.4	0.0
Bromodichloromethane	0.11	0.10	9.5
Tetrachloroethene	0.43	0.37	15
No. of TICs	2	3	

ND = Not Detected. U = Qualified as a non-detect

CLP Sample Number:	**E3XZ1**	**E3XZ2**	
Sample Identifier:	A4-MW32-160405	A4-MW32-160405-D	
Station Location:	MW32	MW32	
Collection Date/Time:	04/05/2016 12:10	04/05/2016 12:10	
Units:	µg/L	µg/L	%RPDs
Target Analytes			
trans-1,2-Dichloroethene	ND	0.21	200
1,1-Dichloroethane	5.8	5.7	1.7
cis-1,2-Dichloroethene	1.9	1.7	11
Chloroform	2.2	2.1	4.7
1,1,1-Trichloroethane	4.8	5.8	19
Trichloroethene	1.4	1.7	19
Bromodichloromethane	1.8	1.8	0.0
Tetrachloroethene	0.51	0.63	21
Dibromochloromethane	1.4	1.3	7.4
No. of TICs	0	1	

ND = Not Detected. U = Qualified as a non-detect

17. OVERALL ASSESSMENT

Manual integrations were reviewed and found to be acceptable. Both before and after snapshots of the chromatograms were provided.

All sample results are reported from the original analyses unless a dilution was performed to bring a target analyte concentration within the instrument's calibration range.

Case No: 46067 SDG No: E3XX8
Site Name: Southeast Rockford Ground Water Contamination (IL) Laboratory: CHM

Validation Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the results may be biased high.
J-	The result is an estimated quantity, but the results may be biased low.
NJ	The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
C	The target Pesticide or Aroclor analyte identification has been confirmed by Gas Chromatograph/Mass Spectrometer (GC/MS).
X	The target Pesticide or Aroclor analyte identification was not confirmed when GC/MS analysis was performed.

Reviewed by: Allison C Harvey / Techlaw-ESAT
Date: June 2, 2016

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: October 27, 2016

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM Smith
Email Address: grabsjc@cdm.com

Electronic and Manual Validation for Region 5

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Ground Water Contamination (IL)

Case No: 46501 SDG No: E3Y07

Number and Type of Samples: 12 waters (11 Trace Volatiles, 1 Low/Medium Volatiles)

Sample Numbers: E3Y07 – E3Y12, E3Y14 – E3Y19

Laboratory: CHM Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twelve (12) preserved water samples labeled E3Y07 through E3Y12 and E3Y14 through E3Y19 were shipped to Chemtech Consulting Group (CHM) located in Mountainside, NJ. The samples were collected on October 3, 2016 and received on October 4, 2016 intact with a cooler temperature within the preferred range of 0-6 °C.

Eleven (11) samples; E3Y07 through E3Y12 and E3Y15 through E3Y19 were analyzed for the trace volatile target analytes. One (1) sample; E3Y14, was analyzed for the low/medium level volatile target analytes. All samples were analyzed by CLP SOW SOM02.3 (09/2015) and reviewed according to the August 2014 NFG for SOM02.2, the Summary of Changes: SOM02.2 to SOM02.3 and the ESAT5 Data Review/Validation of CLP Organic Data SOP.

Sample E3Y14 was designated by the samplers to be used for the low/medium level volatile MS/MSD analyses and sample E3Y12 for the trace volatile MS/MSD analyses.

Sample E3Y07 was identified as a trip blank. Sample E3Y15 was identified as a field blank. Sample E3Y09 was identified as a field duplicate of sample E3Y08.

1. PRESERVATION AND HOLDING TIMES

No problems found.

2. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

No problems found.

3. INITIAL CALIBRATION

The following trace volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. No detects were found in the samples. Nondetects are not qualified.

E3Y07, E3Y08, E3Y09, E3Y10, E3Y11, E3Y12, E3Y12MS, E3Y12MSD, E3Y15, E3Y16, E3Y17, E3Y18, E3Y19, VBLK53, VBLK54, VBLK57, VBLK61, VHBLK01
cis-1,3-Dichloropropene

The following low/medium level volatile samples are associated with an initial calibration in which a DMC did not meet relative response factor (RRF) criteria. Detects are not qualified. Nondetects are not qualified.

E3Y14, E3Y14DL, E3Y14MS, E3Y14MSD, VBLK01, VBLK14, VBLK15, VHBLK02
trans-1,3-Dichloropropene-d_4

4. CONTINUING CALIBRATION

The following low/medium level volatile samples are associated with an opening and/or closing CCV with DMC RRF exceeding criteria. Detects are not qualified. Nondetects are not qualified.

E3Y14, E3Y14DL, E3Y14MS, E3Y14MSD, VBLK01, VBLK14, VBLK15, VHBLK02
trans-1,3-Dichloropropene-d_4

5. BLANKS

The following trace volatile samples have analyte results reported less than CRQLs. The associated trip blank (E3Y07) results are less than CRQLs. Detects are qualified U. Sample results have been reported at CRQLs.

E3Y08, E3Y09, E3Y10, E3Y11, E3Y12, E3Y15, E3Y16, E3Y17, E3Y18, E3Y19
Toluene

6. DEUTERATED MONITORING COMPOUNDS / SURROGATES

The following trace volatile samples have DMC/surrogate percent recoveries greater than the primary maximum criteria. Detects are qualified as estimated J+. Nondetects are not qualified.

E3Y12, E3Y16
Chlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

E3Y12MSD
Acetone, 2-Butanone, 4-Methyl-2-pentanone, 2-Hexanone, Chlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

E3Y15
4-Methyl-2-pentanone, 2-Hexanone, Chlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

The following trace volatile samples have DMC/surrogate percent recoveries less than the primary minimum criteria but greater than or equal to the expanded minimum criteria. Detects are qualified as estimated J-. Nondetects are qualified as estimated UJ.

E3Y07, E3Y10
1,1-Dichloroethene, trans-1,2-Dichloroethene, cis-1,2-Dichloroethene

7. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample E3Y14 was designated by the samplers to be used for the low/medium level volatile MS/MSD analyses and sample E3Y12 for the trace volatile MS/MSD analyses.

No problems found.

8. FLORISIL CARTRIDGE PERFORMANCE CHECK

Not Applicable.

9. CLEANUP PROCEDURES

Not Applicable.

10. LABORATORY CONTROL SAMPLE

Not Applicable.

11. INTERNAL STANDARD

No problems found.

12. TARGET ANALYTE IDENTIFICATION

One or more target analytes exceeded the calibration range in the following low/medium level volatile samples. Only the results from the most diluted analysis and its associated dilution factor is reported in the EXES Sample Summary.

E3Y14
1,1,1-Trichloroethene

One or more target analytes exceeded the calibration range in the following low/medium level volatile samples. The samples were not diluted as they are laboratory QC samples. Detects are qualified as estimated J.

E3Y14MS, E3Y14MSD
1,1,1-Trichloroethene

13. REPORTED CONTRACT QUANTITATION LIMIT

The following trace volatile samples have analyte results greater than or equal to detection limit (MDL) and below quantitation limit (CRQL). Detects are qualified as estimated J.

E3Y07
Toluene

E3Y09
trans-1,2-Dichloroethene

E3Y10
Chloromethane, Acetone, Trichloroethene, Tetrachloroethene, m,p-Xylene

E3Y11
Trichloroethene, Tetrachloroethene

E3Y12, E3Y12MS, E3Y12MSD, E3Y18
trans-1,2-Dichloroethene, Tetrachloroethene

E3Y16
Trichloroethene

E3Y17, E3Y19
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene

The following low/medium level volatile samples have analyte results greater than or equal to detection limit (MDL) and below quantitation limit (CRQL). Detects are qualified as estimated J. Only the results from the most diluted analysis and its associated dilution factor is reported in the EXES Sample Summary.

E3Y14
Acetone, cis-1,2-Dichloroethene, 2-Butanone, Trichloroethene, m,p-Xylene

E3Y14MS, E3Y214MSD
Acetone, cis-1,2-Dichloroethene, 2-Butanone, m,p-Xylene

14. TENTATIVELY IDENTIFIED COMPOUNDS

Sample results are identified in the separate Data Validation Report titled 'Tentatively Identified Compounds'. The manually reviewed report is titled '46501.E3Y07.TIC.rtf'.

15. SYSTEM PERFORMANCE

No problems found.

16. FIELD QC SAMPLES

Sample E3Y07 was identified as a trip blank. Sample E3Y15 was identified as a field blank. Sample results are summarized in the following table:

QC Type:	Trip blank	Field blank
CLP Sample Number:	**E3Y07**	**E3Y15**
Sample Identifier:	A4-TB01-161003	A4-FB01-161003
Station Location:	TB01	A4-FB01-161003
Collection Date/Time:	10/03/2016 10:30	10/03/2016 16:45
Units:	µg/L	µg/L
Target Analytes		
Toluene	0.17	U
Associated samples:	E3Y08, E3Y09, E3Y10 E3Y11, E3Y12, E3Y15 E3Y16, E3Y17, E3Y18 E3Y19	E3Y08, E3Y09, E3Y10 E3Y11, E3Y12, E3Y16 E3Y17, E3Y18, E3Y19

ND = Not Detected. U = Qualified as a nondetect.

Sample E3Y09 was identified as a field duplicate of sample E3Y08. Sample results and RPDs are summarized in the following table:

CLP Sample Number:	**E3Y08**	**E3Y09**	
Sample Identifier:	A4-MW32-161003	A4-MW32-161003-D	
Station Location:	MW32	MW32	
Collection Date/Time:	10/03/2016 10:20	10/03/2016 10:20	
Units:	µg/L	µg/L	%RPDs
Target Analytes			
1,1-Dichloroethene	1.1	0.96	13.6
trans-1,2-Dichloroethene	ND	0.18	200
1,1-Dichloroethane	5.7	5.8	1.7
cis-1,2-Dichloroethene	1.6	1.6	0
Chloroform	1.4	1.5	6.9
1,1,1-Trichloroethane	4.5	4.7	4.4
Trichloroethene	1.3	1.3	0
Bromodichloromethane	0.94	0.96	2.1
Tetrachloroethene	0.60	0.55	8.7
Dibromochloromethane	0.63	0.70	10.5
No. of TICs	0	0	

ND = Not Detected.

17. OVERALL ASSESSMENT

Manual integrations were reviewed and found to be acceptable. Both before and after snapshots of the chromatograms were provided.

All sample results are reported from the original analyses unless a dilution was performed to bring a target analyte concentration within the instrument's calibration range.

No explanation could be found by the Reviewer to explain why EXES flagged the majority of laboratory results for samples E3Y12MS, E3Y12MSD, E3Y14MS and E3Y14MSD with the '*' flag. The flags were not transferred over to the validation results by either EXES or the Reviewer. TICs are not supposed to be reported for the MS and MSD analyses; therefore, the "*" was removed from the TICs on the Sample Summary Report.

The following trace volatile samples has an identified TIC compound with a library match greater than or equal to 85%. The NFG file 'Tentatively Identified Compounds', Sample Summary Report, and Universal Deliverable did not include a "N" qualification to the named TIC according to NFG section Trace Volatile-XI-E-1. The flag was changed from J to NJ by the Reviewer.

CAS No. 2317-91-1 Ethene, 1-chloro-1-fluoro- @ 1.94
E3Y11, E3Y12, E3Y17, E3Y18, E3Y19

The following low/medium level volatile sample has identified TIC compounds with a library match greater than or equal to 85%. The NFG file 'Tentatively Identified Compounds', Sample Summary Report, and Universal Deliverable did not include a "N" qualification to the named TIC according to NFG section Low/Medium VOA-XI-E-1. The flag was changed from J to NJ by the Reviewer.

CAS No. 108-67-8 Mesitylene @ 11.16
CAS No. 526-73-8 Benzene, 1,2,3-trimethyl- @ 11.58
CAS No. 620-14-4 Benzene, 1-ethyl-3-methyl- @ 10.69
CAS No. 622-96-8 Benzene, 1-ethyl-4-methyl- @ 10.98
E3Y14

The following low/medium volatile sample has an identified TIC compound with a library match below 85%. According to NFG section Low/Medium VOA-XI-E-3-d, identification may be inferred from another sample with a valid library match and both similar RRT and the same ions. However, no other TIC identification was found in this SDG; therefore, the tentative identification is changed to 'Unknown' and qualified J. [Low/Medium VOA XI-E.2]

Unknown [Propane, 2,2-difluoro-] @ 1.31
E3Y14

Case No: 46501 SDG No: E3Y07
Site Name: Southeast Rockford Ground Water Contamination (IL) Laboratory: CHM

Validation Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the results may be biased high.
J-	The result is an estimated quantity, but the results may be biased low.
NJ	The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
C	The target Pesticide or Aroclor analyte identification has been confirmed by Gas Chromatograph/Mass Spectrometer (GC/MS).
X	The target Pesticide or Aroclor analyte identification was not confirmed when GC/MS analysis was performed.

2017

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: June 20, 2017

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM Smith
Email Address: grabsjc@cdm.com

Electronic and Manual Validation for Region 5

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Groundwater (IL)

Case No: 47011 MA No: N/A SDG No: E3Y53

Number and Type of Samples: 16 waters (13 Trace Volatiles, 3 Low/medium Volatiles)

Sample Numbers: E3Y53 – E3Y68

Laboratory: Chemtech Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Reviewed by: Allison C Harvey / Techlaw-ESAT
Date: July 3, 2017

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Sixteen (16) HCl-preserved water samples, E3Y53 through E3Y68, were shipped to Chemtech Consulting Group (CHM) located in Mountainside, NJ. The samples were collected May 30, 2017 and received on May 31, 2017, intact and properly cooled.

Thirteen (13) samples; E3Y53, E3Y54, E3Y56 through E3Y65 and E3Y67, were analyzed for the trace volatile analyte list according to CLP SOW SOM02.4 (October 2016). Three (3) samples; E3Y55, E3Y66 and E3Y68, were analyzed for the low/medium level volatile analyte list according to CLP SOW SOM02.4 (October 2016). The data package was reviewed according to the January 2017 NFG for SOM02.4 (EPA-540-R-2017-002) and the ESAT Region 5 Organic CLP Validation SOP.

Low/medium volatile sample E3Y55 and trace volatile sample E3Y64 were designated as the parent samples for the MS/MSD analyses.

Trace volatile sample, E3Y67, was identified as a trip blank. Trace volatile sample, E3Y56, was identified as a field blank. Trace volatile sample E3Y62 was identified as a field duplicate of trace volatile sample E3Y61. Low/medium volatile sample E3Y68 was identified as a field duplicate of low/medium volatile sample E3Y66.

1. PRESERVATION AND HOLDING TIMES

No problems found.

2. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

No problems found.

3. INITIAL CALIBRATION

The following trace volatile samples are associated with an initial calibration percent relative standard deviation (%RSD) outside criteria. Detects are qualified as estimated J. Non-detects are not qualified.

E3Y53, E3Y54, E3Y56, E3Y57, E3Y58, E3Y59, E3Y60, E3Y61, E3Y62, E3Y63, E3Y64, E3Y64MS, E3Y64MSD, E3Y65, E3Y67, VBLK66
1,1-Dichloroethane

The following low/medium volatile samples are associated with an initial calibration in which a DMC did not meet relative response factor (RRF) criteria. Detects are not qualified. Non-detects are not qualified.

E3Y55, E3Y55MS, E3Y55MSD, E3Y66, E3Y68, VBLK50, VHBLK02
trans-1,3-Dichloropropene-d_4

4. INITIAL CALIBRATION VERIFICATION

The following low/medium volatile samples are associated with an ICV with DMC RRF exceeding criteria. Detects are not qualified. Non-detects are not qualified.

E3Y55, E3Y55MS, E3Y55MSD, E3Y66, E3Y68, VBLK50, VHBLK02
trans-1,3-Dichloropropene-d_4

5. CONTINUING CALIBRATION

The following trace volatile samples are associated with a closing CCV with %Difference (%D) exceeding criteria. Detects are qualified as estimated J. Non-detects are qualified as estimated UJ.

E3Y53, E3Y54, E3Y56, E3Y57, E3Y58, E3Y59, E3Y60, E3Y61, E3Y62, E3Y63, E3Y64, E3Y64MS, E3Y64MSD, E3Y65, E3Y67, VBLK66
1,1-Dichloroethane

The following low/medium volatile samples are associated with an opening or closing CCV with DMC RRF exceeding criteria. Detects are not qualified. Non-detects are not qualified.

E3Y55, E3Y55MS, E3Y55MSD, E3Y66, E3Y68, VBLK50, VHBLK02
trans-1,3-Dichloropropene-d_4

6. BLANKS

No problems found.

7. DEUTERATED MONITORING COMPOUNDS / SURROGATES

The following low/medium volatile samples have a DMC/surrogate percent recoveries greater than the primary maximum criteria. The analytes were not detected in the sample. Non-detects are not qualified.

E3Y55
4-Methyl-2-pentanone, 2-Hexanone

8. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Low/medium volatile sample E3Y55 and trace volatile sample E3Y64 were designated as the parent samples for the MS/MSD analyses.

No problems found.

9. FLORISIL CARTRIDGE PERFORMANCE CHECK

Not required for these analyses.

10. CLEANUP PROCEDURES

Not required for these analyses.

11. LABORATORY CONTROL SAMPLE

Not required for these analyses.

12. INTERNAL STANDARD

No problems found.

13. TARGET ANALYTE IDENTIFICATION

No problems found.

14. REPORTED CONTRACT QUANTITATION LIMIT

The following trace volatile samples have analyte results greater than or equal to detection limit (MDL) and below quantitation limit (CRQL). Detects are qualified as estimated J.

E3Y53, E3Y57
trans-1,2-Dichloroethene, Tetrachloroethene

E3Y54
trans-1,2-Dichloroethene, o-Xylene

E3Y58
Trichlorofluoromethane, Methylene chloride, trans-1,2-Dichloroethene, Toluene, Tetrachloroethene, m,p-Xylene

E3Y59
Methylene chloride, o-Xylene

E3Y60
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene, m,p-Xylene

E3Y61
trans-1,2-Dichloroethene

E3Y62
Methylene chloride, trans-1,2-Dichloroethene

E3Y63
Methylene chloride, trans-1,2-Dichloroethene, Tetrachloroethene

E3Y64, E3Y64MSD
Trichlorofluoromethane, Methylene chloride, trans-1,2-Dichloroethene, Tetrachloroethene

E3Y64MS
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene

E3Y65
Methylene chloride, Toluene, Tetrachloroethene, m,p-Xylene

The following low/medium volatile samples have analyte results greater than or equal to detection limit (MDL) and below quantitation limit (CRQL). Detects are qualified as estimated J.

E3Y55
Acetone, cis-1,2-Dichloroethene, Trichloroethene, o-Xylene, m,p-Xylene

E3Y55MS, E3Y55MSD
Acetone, cis-1,2-Dichloroethene, o-Xylene, m,p-Xylene

E3Y66, E3Y68
Cis-1,2-Dichloroethene, 1,1,1-Trichloroethane

15. TENTATIVELY IDENTIFIED COMPOUNDS

Sample results are identified in the separate Data Validation Report titled 'Tentatively Identified Compounds'. The manually reviewed report is titled '47011.EPW14030.E3Y53.TIC.rtf'.

16. SYSTEM PERFORMANCE

No problems found.

17. FIELD QC SAMPLES

Trace volatile sample, E3Y67, was identified as a trip blank. Trace volatile sample, E3Y56, was identified as a field blank. Neither sample contained any target compounds (TCLs) or Tentatively Identified Compound (TICs).

Trace volatile sample E3Y62 was identified as a field duplicate of trace volatile sample E3Y61. Sample results and RPDs are summarized in the following table:

Sample Type:	Field Sample	Field Duplicate	
CLP Sample #:	**E3Y61**	**E3Y62**	
User Sample #:	A4-MW32-170530	A4-MW32-170530-D	
Location:	MW32	MW32	
Collection Date/Time:	5/30/2017 11:10	5/30/2017 11:10	RPDs
Units:	µg/L	µg/L	%
1,1-Dichloroethene	0.99	1.0	1.01
Methylene chloride	ND	0.22 J	200
trans-1,2-Dichloroethene	0.22 J	0.24 J	8.70
1,1-Dichloroethane	5.8	9.3	46.4
cis-1,2-Dichloroethene	2.0	2.0	0.00
Chloroform	1.2	1.2	0.00
1,1,1-Trichloroethane	5.2	5.4	3.77
Trichloroethene	1.5	1.6	6.45
Bromodichloromethane	0.95	0.99	4.12
Tetrachloroethene	0.59	0.61	3.33
Dibromochloromethane	0.72	0.71	1.40

Low/medium volatile sample E3Y68 was identified as a field duplicate of low/medium volatile sample E3Y66. Sample results and RPDs are summarized in the following table:

Sample Type:	Field Sample	Field Duplicate	
CLP Sample #:	**E3Y66**	**E3Y68**	
User Sample #:	A4-MW408A-170530	A4-MW-408A-170530-D	
Location:	MW0408A	MW0408A	
Collection Date/Time:	5/30/2017 13:20	5/30/2017 13:20	RPDs
Units:	µg/L	µg/L	%
1,1-Dichloroethane	8.9	9.6	7.57
cis-1,2-Dichloroethene	2.0 J	2.1 J	4.88
1,1,1-Trichloroethane	4.4 J	4.6 J	4.44

18. OVERALL ASSESSMENT

Manual integrations were performed for the following samples due to a "peak integrated by software incorrectly" according to the laboratory narrative. These manual integrations were reviewed by the reviewer and appear to be acceptable without additional qualifications.

QC Type	EPA samples	Date/Time analyzed	File ID	Analytes
TVOA ICAL	VSTD00167	30 May 2017 14:48	VV002125.D	TAL – Acetone
VOA FS	**E3Y55**	31 May 2017 14:17	VU016985.D	TAL – 1,1-Dichloroethene
VOA BS	VHBLK02	31 May 2017 16:27	VU016990.D	DMC – 2-Butanone-d_5

Case No: 47011 SDG No: E3Y53
Site Name: Southeast Rockford Groundwater (IL) Laboratory: CHM

Validation Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the results may be biased high.
J-	The result is an estimated quantity, but the results may be biased low.
NJ	The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
C	The target Pesticide or Aroclor analyte identification has been confirmed by Gas Chromatograph/Mass Spectrometer (GC/MS).
X	The target Pesticide or Aroclor analyte identification was not confirmed when GC/MS analysis was performed.

Reviewed by: Allison C Harvey / Techlaw-ESAT
Date: July 3, 2017

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: December 8, 2017

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM Smith
Email Address: grabsjc@cdm.com

Electronic and Manual Validation for Region 5

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Groundwater (IL)

Case No: 47329 MA No: N/A SDG No: E3Y69

Number and Type of Samples: 16 waters (13 Trace Volatiles, 3 Low/medium Volatiles)

Sample Numbers: E3Y69 – E3Y84

Laboratory: Shealy Environmental Services (EQI) Hrs. for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Sixteen (16) preserved water samples, E3Y69 through E3Y84, were shipped to Shealy Environmental Services (EQI) located in West Columbia, SC. The samples were collected November 14-15, 2017 and received on November 16, 2017, intact and properly cooled.

Thirteen (13) samples; E3Y69 through E3Y75 and E3Y77 through E3Y82, were analyzed for the trace volatile analyte list according to CLP SOW SOM02.4 (October 2016). Three (3) samples; E3Y76, E3Y83 and E3Y84, were analyzed for the low/medium level volatile analyte list according to CLP SOW SOM02.4 (October 2016). The data package was reviewed according to the January 2017 NFG for SOM02.4 (EPA-540-R-2017-002) and the ESAT Region 5 Organic CLP Validation SOP.

Low/medium volatile sample E3Y76 and trace volatile sample E3Y74 were designated as the parent samples for the MS/MSD analyses.

Trace volatile sample, E3Y69, was identified as a trip blank. Trace volatile sample, E3Y78, was identified as a field blank. Trace volatile sample E3Y71 was identified as a field duplicate of trace volatile sample E3Y70. Low/medium volatile sample E3Y84 was identified as a field duplicate of low/medium volatile sample E3Y83.

1. PRESERVATION AND HOLDING TIMES

No problems found.

2. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

No problems found.

3. INITIAL CALIBRATION

No problems found.

4. INITIAL CALIBRATION VERIFICATION

No problems found.

5. CONTINUING CALIBRATION

No problems found.

6. BLANKS

The following trace volatile samples have analyte results reported less than CRQL. The associated trip blank, E3Y69, results are less than CRQLs. Detects are qualified U. Sample results have been reported at CRQLs.

E3Y70, E3Y71, E3Y75, E3Y77, E3Y79
Toluene

E3Y71, E3Y75, E3Y79, E3Y80, E3Y81
m,p-Xylene

The following trace volatile samples have analyte results reported greater than or equal to CRQLs and less than the field blank, E3Y78, result. The associated field blank results are greater than or equal to CRQLs. Detects are qualified U. Blank results have been reported as the sample analyte results.

E3Y70, E3Y71, E3Y74, E3Y79
Benzene

7. DEUTERATED MONITORING COMPOUNDS / SURROGATES

No problems found.

8. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Low/medium volatile sample E3Y76 and trace volatile sample E3Y74 were designated as the parent samples for the MS/MSD analyses.

No problems found.

9. FLORISIL CARTRIDGE PERFORMANCE CHECK

Not required for these analyses.

10. CLEANUP PROCEDURES

Not required for these analyses.

11. LABORATORY CONTROL SAMPLE

Not required for these analyses.

12. INTERNAL STANDARD

No problems found.

13. TARGET ANALYTE IDENTIFICATION

No problems found.

14. REPORTED CONTRACT QUANTITATION LIMIT

The following trace volatile samples have analyte results greater than or equal to method detection limit (MDL) and below contract required quantitation limit (CRQL). Detects are qualified as estimated J.

E3Y69
Toluene, m,p-Xylene

E3Y70
trans-1,2-Dichloroethene, Bromodichloromethane, Dibromochloromethane

E3Y71
Chloromethane, trans-1,2-Dichloroethene, Dibromochloromethane

E3Y72
1,1-Dichloroethene, cis-1,2-Dichloroethene, Trichloroethene, o-Xylene

E3Y73, E3Y74, E3Y74MS, E3Y74MSD, E3Y81, E3Y82
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene, o-Xylene

E3Y75, E3Y77
trans-1,2-Dichloroethene, Tetrachloroethene

E3Y80
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene

The following low/medium volatile samples have analyte results greater than or equal to detection limit (MDL) and below quantitation limit (CRQL). Detects are qualified as estimated J.

E3Y76
cis-1,2-Dichloroethene, Trichloroethene, m,p-Xylene

E3Y76MS, E3Y76MSD
cis-1,2-Dichloroethene, m,p-Xylene

E3Y83
cis-1,2-Dichloroethene, Benzene, Trichloroethene

E3Y84
cis-1,2-Dichloroethene, Benzene, Trichloroethene, Toluene

15. TENTATIVELY IDENTIFIED COMPOUNDS

Sample results are identified in the separate Data Validation Report titled 'Tentatively Identified Compounds'. The manually reviewed report is titled '47329.EPW14035.E3Y69.TIC.rtf'.

16. SYSTEM PERFORMANCE

No problems found.

17. FIELD QC SAMPLES

Trace volatile sample, E3Y69, was identified as a trip blank. Sample E3Y69 contained Toluene with a concentration of 0.24 µg/L and m,p-Xylene with a concentration of 0.20 µg/L.

Trace volatile sample, E3Y78, was identified as a field blank. Sample E3Y78 contained Benzene with a concentration of 0.84 µg/L and one TIC.

Trace volatile sample E3Y71 was identified as a field duplicate of trace volatile sample E3Y70. Sample results and RPDs are summarized in the following table:

Sample Type:	Field Sample		Field Duplicate		
CLP Sample #:	**E3Y70**		**E3Y71**		
User Sample #:	A4-MW32-171114		A4-MW32-171114-D		
Location:	MW32		MW32		
Collection Date/Time:	11/14/2017 11:55		11/14/2017 11:55		RPDs
Units:	µg/L		µg/L		%
Chloromethane	ND		0.18	J	200
1,1-Dichloroethene	1.8		1.8		0.00
trans-1,2-Dichloroethene	0.32	J	0.30	J	6.50
1,1-Dichloroethane	11		11		0.00
cis-1,2-Dichloroethene	2.5		2.5		0.00
Chloroform	0.62		0.63		1.60
1,1,1-Trichloroethane	9.0		9.5		5.40
Trichloroethene	2.3		2.5		8.30
Bromodichloromethane	0.41	J	ND		200
Tetrachloroethene	0.65		0.65		0.00
Dibromochloromethane	0.27	J	0.33	J	20.0

Low/medium volatile sample E3Y84 was identified as a field duplicate of low/medium volatile sample E3Y83. Sample results and RPDs are summarized in the following table:

Sample Type:	Field Sample		Field Duplicate		
CLP Sample #:	**E3Y83**		**E3Y84**		
User Sample #:	A4-MW408A-171115		A4-MW408A-171115-D		
Location:	MW0408A		MW0408A		
Collection Date/Time:	11/15/2017 14:05		11/15/2017 14:05		RPDs
Units:	µg/L		µg/L		%
1,1-Dichloroethane	9.0		8.5		5.70
cis-1,2-Dichloroethene	1.9	J	1.8	J	5.40
Benzene	3.6	J	3.3	J	8.70
Trichloroethene	0.72	J	0.68	J	5.70
Toluene	ND		0.58	J	200

ND = Not Detected.

18. OVERALL ASSESSMENT

Manual integrations were performed for the following samples due to a “peak integrated by software incorrectly” according to the laboratory narrative. These manual integrations were reviewed by the reviewer and appear to be acceptable without additional qualifications.

Case No: 47329 SDG No: E3Y69
Site Name: Southeast Rockford Groundwater (IL) Laboratory: EQI

QC Type	EPA samples	Date/Time analyzed	File ID	Analytes
TVOA ICAL	VSTD001GX	20-Nov-2017 12:10	81120B06.D	TALs – Methylene acetate, Cyclohexane, 1,2-Dichloropropane, 1,2-Dibromoethane and Bromoform
TVOA ICAL	VSTD0.5GX	20-Nov-2017 12:36	81120B07.D	TALs – Methyl acetate, 1,2-Dichloroethane, 1,2-Dichloropropane, 1,2-Dibromoethane, Bromoform, 1,1,2,2-Tetrachloroethane and 1,2-Dibromo-3-chloropropane
VOA ICAL	VSTD005SN	24-Oct-2017 18:34	51024B03.D	DMCs – 2-Butanone-d_5, 1,2-Dichloroethane-d_4 and 2-Hexanone-d_5
VOA ICAL	VSTD010SN	24-Oct-2017 18:56	51024B04.D	DMC – 2-Butanone-d_5
VOA ICV	VICVSN	24-Oct-2017 20:50	51024B08.D	DMC – 2-Butanone-d_5
VOA CCV	VSTD050GZ	20-Nov-2017 09:30	51120A03.D	DMC – 2-Butanone-d_5

Reviewed by: Allison C. Harvey /Techlaw-ESAT
Date: January 3, 2018

Case No: 47329 SDG No: E3Y69
Site Name: Southeast Rockford Groundwater (IL) Laboratory: EQI

Validation Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the results may be biased high.
J-	The result is an estimated quantity, but the results may be biased low.
NJ	The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
C	The target Pesticide or Aroclor analyte identification has been confirmed by Gas Chromatograph/Mass Spectrometer (GC/MS).
X	The target Pesticide or Aroclor analyte identification was not confirmed when GC/MS analysis was performed.

Reviewed by: Allison C. Harvey /Techlaw-ESAT
Date: January 3, 2018

2018

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: June 13, 2018

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM Smith
Email Address: grabsjc@cdm.com

Electronic and Manual Validation for Region 5

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Groundwater (IL)

Case No: 47660 MA No: N/A SDG No: E3YA0

Number and Type of Samples: 16 waters (Trace Volatiles)

Sample Numbers: E3Y85 – E3Y99, E3YA0

Laboratory: Shealy Environmental Services (EQI) Hrs. for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Reviewed by: Allison C. Harvey /Techlaw-ESAT
Date: July 19, 2018

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Sixteen (16) preserved water samples, E3Y85 through E3Y99 and E3YA0, were shipped to Shealy Environmental Services (EQI) located in West Columbia, SC. The samples were collected May 22-23, 2018 and received on May 24, 2018, intact and properly cooled.

All samples were analyzed for the trace volatile analyte list according to CLP SOW SOM02.4 (October 2016). The data package was reviewed according to the January 2017 NFG for SOM02.4 (EPA-540-R-2017-002) and the ESAT Region 5 Organic CLP Validation SOP.

Trace volatile sample E3Y90 was designated as the parent sample for the MS/MSD analyses.

Trace volatile sample, E3Y85, was identified as a trip blank. Trace volatile sample, E3Y94, was identified as a field blank. Trace volatile sample E3Y87 was identified as a field duplicate of trace volatile sample E3Y86. Trace volatile sample E3YA0 was identified as a field duplicate of trace volatile sample E3Y99.

1. PRESERVATION AND HOLDING TIMES

No problems found.

2. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

No problems found.

3. INITIAL CALIBRATION

No problems found.

4. INITIAL CALIBRATION VERIFICATION

No problems found.

5. CONTINUING CALIBRATION

No problems found.

6. BLANKS

The following trace volatile samples have analyte results reported less than CRQL. The associated trip blank, E3Y85, results are less than CRQLs. Detects are qualified U. Sample results have been reported at CRQLs.

E3Y86
Bromodichloromethane

E3Y88, E3Y90, E3Y96, E3Y97, E3Y98, E3Y99, E3YA0
Toluene

E3Y93
Acetone

The following trace volatile samples have analyte results reported greater than CRQL and less than 2x CRQL. The associated trip blank, E3Y85, results are less than CRQLs. Detects are qualified U. Sample results have been reported at 2x CRQLs.

E3Y94
Acetone

The following trace volatile samples have analyte results reported less than CRQLs. The associated trip blank results are greater than or equal to CRQLs. Detects are qualified U. Blank results have been reported at the CRQLs.

E3Y86, E3Y87
Chloroform

The following trace volatile samples have analyte results reported greater than or equal to CRQLs and less than the trip blank, E3Y85, result. The associated trip blank results are greater than or equal to CRQLs. Detects are qualified U unless otherwise qualified for another criterion. Blank results have been reported as the sample analyte results.

E3Y92, E3Y94
Chloroform

The following trace volatile samples have the same tentatively identified compounds (TIC) detected as in the associated trip blank, E3Y85. TIC results reported in the associated trip blank exceed concentration criteria (> 0.5 µg/L). Detects are not qualified.

E3Y94
Unknown-01 @ RT 1.75

7. DEUTERATED MONITORING COMPOUNDS / SURROGATES

The following trace volatile samples have DMC/surrogate percent recoveries less than the primary minimum criteria but greater than or equal to the expanded minimum criteria. Detects are qualified as estimated J-. Nondetects are qualified as estimated UJ.

E3Y90MSD, E3Y92, E3Y96
Chlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

8. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Trace volatile sample E3Y90 was designated as the parent sample for the MS/MSD analyses.

The following trace volatile matrix/matrix spike duplicate samples have percent recoveries greater than or equal to the expanded minimum criteria but less than the primary minimum criteria. Detects in the unspiked sample, E3Y90, are qualified as estimated J. Nondetects in the unspiked sample, E3Y90, are qualified as estimated UJ.

E3Y90MSD
Trichloroethene, Toluene, Chlorobenzene

9. FLORISIL CARTRIDGE PERFORMANCE CHECK

Not required for these analyses.

10. CLEANUP PROCEDURES

Not required for these analyses.

11. LABORATORY CONTROL SAMPLE

Not required for these analyses.

12. INTERNAL STANDARD

No problems found.

13. TARGET ANALYTE IDENTIFICATION

No problems found.

14. REPORTED CONTRACT QUANTITATION LIMIT

The following trace volatile samples have analyte results greater than or equal to method detection limit (MDL) and below contract required quantitation limit (CRQL). Detects are qualified as estimated J.

E3Y85
Acetone, Bromodichloromethane, Toluene

E3Y86, E3Y87
trans-1,2-Dichloroethene

E3Y88
Trichloroethene, Tetrachloroethene, m.p-Xylene

E3Y89, E3Y96
Trichlorofluoromethane, trans-1,2-Dicloroethene, Tetrachloroethene

E3Y90, E3Y90MS, E3Y90MSD, E3Y99, E3YA0
trans-1,2-Dichloroethene, Tetrachloroethene, m,p-Xylene

E3Y91, E3Y93, E3Y97
trans-1,2-Dichloroethene, Tetrachloroethene

E3Y92
trans-1,2-Dichloroethene, Tetrachloroethene, Ethylbenzene, Isopropylbenzene

E3Y94
2-Butanone

E3Y98
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene, m,p-Xylene

15. TENTATIVELY IDENTIFIED COMPOUNDS

Sample results are identified in the separate Data Validation Report titled 'Tentatively Identified Compounds'. The manually reviewed report is titled '47660.EPW14035.E3YA0.TIC.rtf'.

16. SYSTEM PERFORMANCE

No problems found.

17. FIELD QC SAMPLES

Trace volatile sample, E3Y94, was identified as a field blank. Sample E3Y94 contained 2-Butanone with a concentration of 2.2 µg/L and one TIC.

Trace volatile sample, E3Y85, was identified as a trip blank. Sample results are summarized in the following table:

QC Type:	Trip Blank
Sample #:	A4-TB01-180522
Location:	TB01
CLP Sample #:	**E3Y85**
Collected:	5/22/2018
Sample Time:	18:25
Analytes/ Units	µg/L
Acetone	4.0 J
Chloroform	1.5
Bromodichloromethane	0.42 J
Toluene	0.12 J
No of TICs	2
Associated samples:	E3Y86, E3Y87, E3Y88 E3Y89, E3Y90, E3Y91 E3Y92, E3Y93, E3Y94 E3Y95, E3Y96, E3Y97 E3Y98, E3Y99, E3YA0

Trace volatile sample E3Y87 was identified as a field duplicate of trace volatile sample E3Y86. Trace volatile sample E3YA0 was identified as a field duplicate of trace volatile sample E3Y99. Sample results and RPDs are summarized in the following table:

Sample Type:	Field Sample	Field Duplicate	
CLP Sample #:	**E3Y86**	**E3Y87**	
User Sample #:	A4-MW32-180522	A4-MW32-180522-D	
Location:	MW32	MW32	
Collection Date/Time:	5/22/2018 11:40	5/22/2018 11:40	RPDs
Units:	µg/L	µg/L	%
1,1-Dichloroethene	2.1	2.2	4.7
trans-1,2-Dichloroethene	0.31 J	0.34 J	9.2
1,1-Dichloroethane	11	12	8.7
cis-1,2-Dichloroethene	2.3	2.5	8.3
1,1,1-Trichloroethane	9.3	9.9	6.3
Trichloroethene	3.0	3.3	9.5
Tetrachloroethene	0.58	0.61	5.0
# of TICs	0	0	

Sample Type:	Field Sample	Field Duplicate	
CLP Sample #:	**E3Y99**	**E3YA0**	
User Sample #:	A4-MW408A-180523	A4-MW408A-180523-D	
Location:	MW0408A	MW0408A	
Collection Date/Time:	5/23/2018 14:15	5/23/2018 14:15	RPDs
Units:	µg/L	µg/L	%
1,1-Dichloroethene	1.6	1.7	6.1
trans-1,2-Dichloroethene	0.26 J	0.25 J	3.9
1,1-Dichloroethane	9.9	9.9	0.0
cis-1,2-Dichloroethene	1.9	1.9	0.0
1,1,1-Trichloroethane	3.5	3.5	0.0
Trichloroethene	0.72	0.72	0.0
Tetrachloroethene	0.24	0.25	4.1
m,p-Xylene	0.15	0.16	6.5
# of TICs	4	3	

18. OVERALL ASSESSMENT

Manual integrations were performed for the following samples due to a “peak integrated by software incorrectly” according to the laboratory narrative. These manual integrations were reviewed by the reviewer and appear to be acceptable without additional qualifications.

Case No: 47660
Site Name: Southeast Rockford Groundwater (IL)

SDG No: E3YA0
Laboratory: EQI

QC Type	EPA samples	Date/Time analyzed	File ID	Analytes
TVOA ICAL	VSTD00.5II	29-May-2018 17:07	80529D02.D	Dichlorofluoromethane
	VSTD00.5II	29-May-2018 17:07	80529D02.D	Vinyl Chloride
	VSTD00.5II	29-May-2018 17:07	80529D02.D	Cyclohexane
	VSTD00.5II	29-May-2018 17:07	80529D02.D	1,2-Dichloroethane-d_4
	VSTD00.5II	29-May-2018 17:07	80529D02.D	1,2-Dichloropropane
	VSTD00.5II	29-May-2018 17:07	80529D02.D	1,2-Dibromoethane
	VSTD00.5II	29-May-2018 17:07	80529D02.D	Bromoform
TVOA ICAL	VSTD001II	29-May-2018 17:33	80529D03.D	Dichlorofluoromethane
	VSTD001II	29-May-2018 17:33	80529D03.D	Cyclohexane
	VSTD001II	29-May-2018 17:33	80529D03.D	1,2-Dibromoethane
TVOA ICAL	VSTD001KA	01-Jun-2018 14:29	80601B05.D	Cyclohexane
	VSTD001KA	01-Jun-2018 14:29	80601B05.D	1,2-Dibromoethane
	VSTD001KA	01-Jun-2018 14:29	80601B05.D	Bromoform
TVOA ICAL	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	Cyclohexane
	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	1,2-Dichloropropane
	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	1,2-Dibromoethane
	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	Chlorobenzene
	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	Bromoform
	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	1,2-Dibromo-3-chloropropane
TVOA ICV	VICVKA	01-Jun-2018 16:13	80601B07.D	Trichlorofluoromethane
	VICVKA	01-Jun-2018 16:13	80601B07.D	Cyclohexane
TVOA CCV	VSTD005KG	01-Jun-2018 16:52	80601B08.D	Trichlorofluoromethane

Case No: 47660 SDG No: E3YA0
Site Name: Southeast Rockford Groundwater (IL) Laboratory: EQI

Validation Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the results may be biased high.
J-	The result is an estimated quantity, but the results may be biased low.
NJ	The analyte has been “tentatively identified” or “presumptively” as present and the associated numerical value is the estimated concentration in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
C	The target Pesticide or Aroclor analyte identification has been confirmed by Gas Chromatograph/Mass Spectrometer (GC/MS).
X	The target Pesticide or Aroclor analyte identification was not confirmed when GC/MS analysis was performed.

Reviewed by: Allison C. Harvey /Techlaw-ESAT
Date: July 19, 2018

Appendix C

GMZ Termination Memorandum

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, ACTING DIRECTOR

MEMORANDUM

DATE: March 28, 2019

TO: Bureau of Land File

FROM: Paul Lake, Manager
Federal Site Remediation Section
Division of Remediation Management
Bureau of Land

SUBJECT: 2010300074 – Winnebago County
Southeast Rockford Groundwater Contamination NPL Site – Source Area 4
Superfund / Technical File

The purpose of this memorandum is to serve as formal concurrence and documentation for the termination of the Groundwater Management Zone (GMZ) for the Southeast Rockford Groundwater Contamination National Priorities List Site, Source Area 4 Operable Unit in Rockford, Illinois.

On December 16, 2010, Clarence L. Smith, Manager of the Federal Site Remediation Section, signed off on a Memorandum to the File formally approving of the GMZ for the Southeast Rockford Groundwater Contamination National Priorities List Site, Source Area 4 Operable Unit.

In a Technical Memorandum dated March 14, 2019 and submitted on behalf of Illinois EPA, CDM Smith provided the historical monitoring data for the GMZ at Source Area 4, from initiation through the last monitoring event in May of 2018. That memorandum concluded that

"*Based on contaminant concentrations in groundwater samples collected during semiannual events in November 2017 and May 2018 from within and downgradient of Area 4 following completion of the Area 4 soil component RA, it appears that Area 4 has been successfully remediated. Soil is no longer acting as a source of groundwater contamination and residual groundwater contamination from the Area 4 source has dissipated.*

Associated with the overall completion of the Area 4 RA project completion, CDM Smith recommends that Illinois EPA terminate the Area 4 GMZ."

That Technical Memorandum was reviewed, and approval was recommended by Brian A. Conrath (Remedial Project Manager) and Christopher A. Hill (Acting Unit Manager) in a briefing memorandum to Paul T. Lake dated March 15, 2019 (attached). The attached request for termination

of the GMZ at Source Area 4 is hereby approved in accordance with Illinois Administrative Code 620.250 by the following signature:

Paul T. Lake
Manager, Federal Site Remediation Section

Date 3/28/19

Attachment (Briefing Memorandum)

BAC:mvh:ptl:H:\SERockford\Area 4\GMZTerminationconcmemo.docx
MVH

cc: Brian Conrath, FSRS
Chris Hill, FSRS
Paul Lake, FSRS
Brandon Hargrave, BOL, LPC

Conrath

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, ACTING DIRECTOR

BRIEFING MEMORANDUM

DATE: March 15, 2019

TO: Paul Lake, Manager
Federal Site Remediation Section
Division of Remediation Management
Bureau of Land

FROM: Brian A. Conrath, Project Manager, FSRS
Chris Hill, Acting Unit Supervisor, FSRS

SUBJECT: 2010300074 – Winnebago County
Southeast Rockford Groundwater Contamination NPL Site – Source Area 4
Superfund / Technical File

PURPOSE AND RECOMMENDATION

The purpose of this memorandum is to recommend the termination, in accordance with Illinois Administrative Code 620.250, of the Groundwater Management Zone (GMZ) currently in place at Source Area 4 (the former Swebco Manufacturing property located at 2630 Marshall Avenue), which is part of the Southeast Rockford Groundwater Contamination National Priorities List (NPL) Site.

BACKGROUND

The Southeast Rockford Groundwater Site is located within the southeast portion of Rockford, Winnebago County, Illinois and consists of an area approximately 3 miles long by 2 1/2 miles wide. Area 4 is one of the primary source areas contributing to the groundwater contamination.

Source Area 4 is located within a residential neighborhood in the City of Rockford, with some surrounding businesses located just north of the site. The site is bounded on the west by Marshall Street, on the east by a trailer park, by Alton Street on the south, and a large concrete-lined stormwater drainage ditch to the north.

The primary remediation objective for the site was to meet the Class I Groundwater Standards pursuant to 35 Illinois Administrative Code 620.410.

The leachate component remedy selected for Area 4 in the Operable Unit 3 (OU3 or Source Control Operable Unit) Record of Decision (ROD) consisted of the hydraulic containment of leachate,

treatment, and onsite discharge. Construction of the leachate component RA began in August of 2009, was substantially complete in December 2009, and was declared operational and functional on October 6, 2010. The Area 4 leachate component RA is documented in, "Interim Leachate Component Remedial Action Completion Report, Source Area 4, Southeast Rockford Groundwater Contamination Superfund Site" dated February 2011, and was approved by USEPA on February 18, 2011. Although modifications were made to the system to mitigate iron-related bacteria fouling and various parts have been replaced over time, the system is still operating as originally designed.

The Area 4 leachate component remedy also included groundwater monitoring through the establishment of a Groundwater Management Zone (GMZ). The GMZ sampling network includes 9 monitoring wells and 3 groundwater extraction wells for a total of 12 monitoring points. Starting with a baseline groundwater sampling event conducted in November 2009 just before the treatment system started operation, GMZ monitoring was performed quarterly for two years and then semiannually beginning in 2012 with the most recent monitoring event conducted in May 2018.

The soil component remedy originally selected for Area 4 in the ROD was ex-situ thermal remediation through excavation and onsite low-temperature thermal desorption. The remedy was subsequently modified to in situ thermal remediation by electrical resistance heating (ERH) through an Explanation of Significant Differences. Construction of the Area 4 soil component began in July 2016. Soil treatment activities were completed on February 22, 2017 after three rounds of confirmatory soil sampling. Demobilization was finished on April 16, 2017. The Area 4 soil component RA is documented in the "Soil Component Remedial Action Completion Report, Source Area 4, Southeast Rockford Groundwater Contamination Superfund Site", dated December 2017. In a letter dated December 13, 2017, U.S. EPA notified Illinois EPA of their approval of the Final Completion Report for the Soil Component of the Source Area 4 Remedial Action.

On September 17, 2018, Illinois EPA issued a letter to U.S. EPA requesting concurrence that all the remedial activities at Source Area 4 were complete. U.S. EPA provided a letter, dated October 24, which stated "EPA agrees with the information presented in your letter and finds it appropriate to begin shut down and decommissioning of the leachate system at Source Area 4."

FULL DISCUSSION

In a Technical Memorandum dated March 14, 2019 and submitted on behalf of Illinois EPA (attached), CDM Smith provided the historical monitoring data for the GMZ at Source Area 4, from initiation through the last monitoring event in May of 2018. That memorandum concluded that

"Based on contaminant concentrations in groundwater samples collected during semiannual events in November 2017 and May 2018 from within and downgradient of Area 4 following completion of the Area 4 soil component RA, it appears that Area 4 has been successfully remediated. Soil is no longer acting as a source of groundwater contamination and residual groundwater contamination from the Area 4 source has dissipated.

Associated with the overall completion of the Area 4 RA project completion, CDM Smith recommends that Illinois EPA terminate the Area 4 GMZ."

The Project Manager for this site has reviewed the Technical Memorandum and concurs with the findings and recommendation therein.

Recommended Action or Resolution:

The Project Manager recommends the Bureau of Land, Federal Site Remediation Section concur with the Technical Memorandum and subsequently terminate the Groundwater Management Zone in place at Source Area 4 of the Southeast Rockford Groundwater Contamination NPL Site. This determination will be documented in a memorandum to the file, and subsequently, in the final, comprehensive Remedial Action Completion Report for Source Area 4. Once that document is approved by U.S. EPA, the remedial action activities at Source Area 4 will be considered complete. This will result in a clean closure of this source area as all residual contamination is below the remediation goals specified in the Record of Decision.

BAC:mvh:ptl:H:\SERockford\Area 4\GMZTerminationmemo.docx
MVH

cc: Bureau File
Chris Hill, FSRS
Brian Conrath, FSRS
Paul Lake, FSRS

CDM Smith

Memorandum

To: *Brian Conrath, Illinois EPA*

From: *John Grabs, CDM Smith*

Date: *March 14, 2019*

Subject: *Termination of Source Area 4 Groundwater Management Zone*

Under contract to the Illinois Environmental Protection Agency (Illinois EPA), CDM Smith Inc. (CDM Smith) submitted the *Source Area 4 Groundwater Management Zone 2017 Report* to the Illinois EPA in May 2018 for the groundwater management zone (GMZ) at Source Area 4 (Area 4). Area 4 is part of the Southeast Rockford Groundwater Contamination (SERGC) Superfund site, located in Rockford, Winnebago County, Illinois (**Figure 1**). In the 2017 report, CDM Smith recommended that one additional round of semiannual sampling be conducted in May 2018, and that provided the groundwater contaminant concentrations from the May 2018 sampling event continue along the same below background, low-level trend observed, Illinois EPA should consider completion of the Area 4 groundwater component remedial action (RA), termination of the GMZ, and completion of the overall Area 4 RA.

Following receipt of the May 2018 sampling results that indicated no contaminant source remains at Area 4, Illinois EPA determined, with U.S. Environmental Protection Agency concurrence, that the Area 4 RA was complete. Therefore, CDM Smith recommends that Illinois EPA terminate the GMZ for Area 4 based on the May 2018 sampling event results and trends discussed herein. (The Area 4 RA project completion report is currently being prepared.)

The GMZ sampling network currently includes 9 monitoring wells and 3 groundwater extraction wells for a total of 12 monitoring points. The GMZ boundaries and current monitoring well network are shown on **Figure 2**. The GMZ application prepared by CDM Smith is dated December 4, 2009 and was approved by Illinois EPA on December 16, 2010.

The establishment of the GMZ for Area 4 was part of the leachate component remedy identified in the Operable Unit 3 (OU3, or Source Control Operable Unit [SCOU]) Record of Decision (ROD). The OU3 ROD specifies remedies for "leachate" (i.e., shallow, contaminated groundwater within the general boundaries of the source area) and soil. The leachate control system began operation immediately after the baseline sampling event on December 2009 and was declared operational and functional on October 6, 2010. Baseline sampling was followed by quarterly groundwater monitoring for two years. In 2012, the quarterly monitoring was adjusted to semiannual because the treatment system achieved a relatively steady state condition after two years.

In accordance with the Explanation of Significant Differences (ESD) signed on July 27, 2012, the soil component remedy was modified to electrical resistance heating (ERH). The ERH RA installation began in July 2016 and treatment was deemed complete in February 2017. Following demobilization and preparation of the RA completion report, the USEPA approved the RA completion report and considered the Area 4 soil component complete on December 13, 2017. The soil component RA is documented in *Soil Component Remedial Action Completion Report, Source Area 4, Southeast Rockford Groundwater Contamination Superfund Site* dated December 2017.

Summary of Monitoring Event Data for Source Area 4 GMZ

The May 2018 sampling event was conducted on May 22 and 23, 2018. All sampling activities were performed in accordance with the approved project plans. **Table 1** provides a summary of the results of the May 2018 sampling event and lists all compounds that were detected in any well for that sampling event. The complete data set for the May 2018 are included in the appendix. **Table 2** provides a summary of previous sampling rounds and lists all compounds detected at least once in a given well.

The following sections discuss the May 2018 results as a continuation of the 2017 GMZ evaluation.

Extraction Wells

All three extraction wells EW001, EW002 and EW003 were operational during most of 2018 before being taken offline permanently on October 25, 2018. The May 2018 results for extraction well EW003 for 1,1-dichloroethene (1,1-DCE) did not exceed the remediation goal (RG) which was consistent with the November 2017 results. The May 2017 groundwater sampling event had concentrations of 1,1-DCE above the RG.

The compounds 1,1-DCE and trichloroethene (TCE) were found over the RG in several groundwater monitoring events at EW003 during the first two years of quarterly monitoring. The compound 1,1-DCE was just above the RG in the May 2017 event, but the concentrations of both compounds were under the RG in the November 2017 and May 2018 groundwater sampling events. EW003 also had 1,1,1-trichloroethane (TCA) above the RG in all sampling events during the first three years of monitoring and the concentration was significantly higher than the RG during the first quarter of 2010 and 2011. However, the concentration of TCA in EW003 has decreased gradually after three years of leachate treatment system operation but slightly increased to above the RG in the second semiannual groundwater sampling event in 2016. The compound TCA was not detected above the RG for either semiannual sampling event in 2017 or the May 2018 sampling event.

Monitoring Wells

The last samples collected from multi-port well MLW01 were in April 2016 before it was abandoned in August 2016 during the soil component RA. Samples collected from the deeper ports of multi-port well MLW01 (Ports A through D) always had low-level VOC concentrations, but samples collected from the upper-most port, Port E, typically contained several VOCs at higher concentrations that exceed their respective RGs. Unfortunately, Port E malfunctioned and could not

be sampled after 2013. During the latter part of the soil component RA, monitoring well MW-408A was installed as a water table well a few feet from the location of the former multi-level well, but with a slightly different screened interval than the upper-most port of former MLW01. Although results from the former MLW01 Port E are not directly comparable to those from MW-408A, the significant decrease in contaminant concentrations was used, in part, to confirm the success of the soil component RA.

Monitoring well MW-401A, located just west of EW001, had detections of several VOCs above the RG during the baseline event. Once the system was operational, the concentrations of VOCs decreased significantly, and no VOCs have been detected above their RGs for any of the quarterly or semiannual monitoring events through May 2018.

The downgradient wells MW-22A and B, are considered compliance wells for the GMZ. In both wells, no VOCs exceed their RG and the concentrations either decreased slightly or remained constant from the baseline through the May 2018 groundwater sampling event.

The other two compliance wells, MW-130A and B, had no detections of VOCs that exceeded the RGs for both semiannual events in 2017 or the May 2018 sampling event. The only exceedance that MW-130B had since the baseline event was TCA in the first quarter of 2010. After that, the concentration has decreased gradually and remained below the RG. TCA and 1,1-DCE were two major contaminants found at MW-130A above their RGs from 2010 to the second quarter of 2011; however, both chemicals have decreased gradually over time. After the second quarter of 2011, neither chemical was detected over the RG and the concentrations in these wells did not show any significant changes over the year monitoring period.

The trihalomethane (THM) bromodichloromethane has been detected above the RG in the samples collected from background well MW-32 for all 2014, 2015, 2016, and 2017 groundwater sampling events. During this same time, the THMs chloroform and bromodichloromethane have also been routinely detected, but at concentrations well below their respective RGs. As a group, these THMs, along with bromoform which has not been detected, are generally referred to as disinfection by-products that result from chlorine treatment of drinking water. Therefore, the source of these THMs is almost certainly a leaking potable water line. During the May 2018 event, THMs chloroform and bromodichloromethane were not detected in the sample collected from MW-32. A variety of other VOCs have been detected in MW-32 at low concentrations since the start of GMZ sampling, including TCE at concentrations greater than its RG from 2009 to 2011, which is considered representative of background conditions of the overall SERGC site.

During the May 2018 sampling event, the only concentration detected which exceeded an RG for Area 4 was for THM bromodichloromethane within the trip blank for the event. All concentrations within the extraction and monitoring wells were below the RGs.

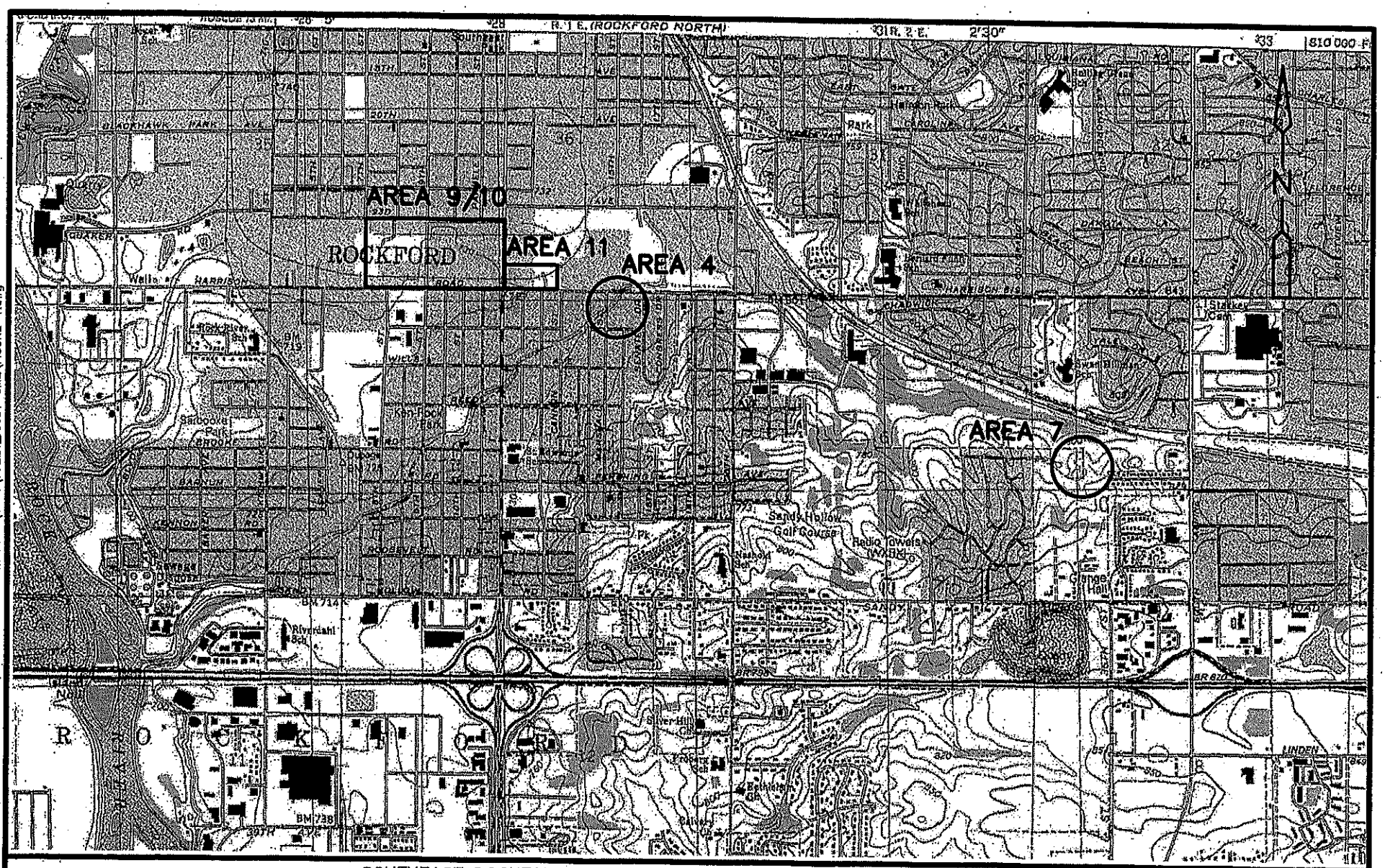
Recommendation

Groundwater contaminant concentrations from the May 2018 sampling event have continued along the same low-level trend observed previously. Groundwater contaminant concentrations listed in the Area 4 GMZ are below the RGs established under 35 Ill. Adm. Code Part 620.505(a) for Class I groundwater as documented by the extraction and monitoring wells data presented in Table 1, having no exceedances of the RGs, except for background well MW-32. Although a number of VOCs were detected in groundwater samples collected from the Area 4 monitoring wells, almost all concentrations were less than the background concentrations detected in well MW-32.

Based on contaminant concentrations in groundwater samples collected during semiannual events in November 2017 and May 2018 from within and downgradient of Area 4 following completion of the Area 4 soil component RA, it appears that Area 4 has been successfully remediated. Soil is no longer acting as a source of groundwater contamination and residual groundwater contamination from the Area 4 source has dissipated.

Associated with the overall completion of the Area 4 RA project completion, CDM Smith recommends that Illinois EPA terminate the Area 4 GMZ.

FIGURES



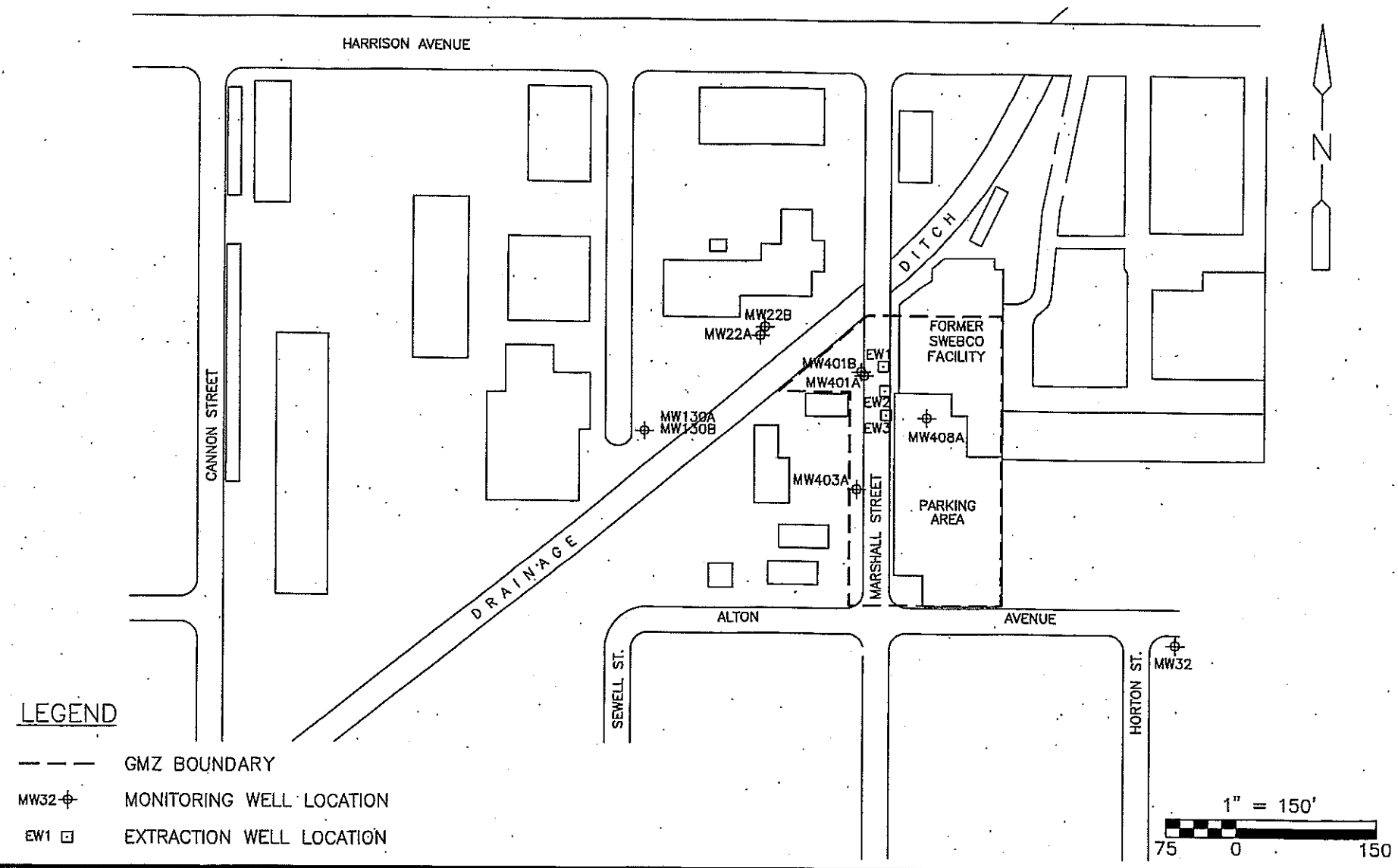
SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION SUPERFUND SITE
SOURCE CONTROL OPERABLE UNIT
ROCKFORD, ILLINOIS

CDM Smith

AREA MAP

Figure No. 1

PLOT DATE: 6/3/2011 11:38 AM PLOTTED BY: ROMAN, OSCAR DWG LOCATION: S:\1681\77224_Area4-GMZ\FIGURE-1.dwg



LEGEND

GMZ BOUNDARY

MW32 MONITORING WELL LOCATION

EW1 EXTRACTION WELL LOCATION

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION SUPERFUND SITE
SOURCE CONTROL OPERABLE UNIT
ROCKFORD, ILLINOIS

CDM Smith

AREA 4 VICINITY MAP

Figure No. 2

PLOT DATE: 2/12/2018 8:30 AM PLOTTED BY: SCHAMBER, ANDREW R. DWG LOCATION: C:\Users\schamberar\Desktop\FIGURE-2.dwg

TABLES

Table 1
Source Area 4 GMZ May 2018 Detections
Southeast Rockford Groundwater Contamination Superfund Site

Station Location:		A4-EW001		A4-EW002		A4-EW003		A4-MW130A		A4-MW130B		A4-MW22A		A4-MW22B		A4-MW32	
Sample ID:		A4-EW001-180522		A4-EW002-180522		A4-EW003-180522		A4-MW130A-180523		A4-MW130B-180523		A4-MW22A-180523		A4-MW22B-180523		A4-MW32-180522	
Sample Date:		5/22/2018		5/22/2018		5/22/2018		5/23/2018		5/23/2018		5/23/2018		5/23/2018		5/22/2018	
Sample Type:		N		N		N		N		N		N		N		N	
Analyte	RG																
1,1,1-Trichloroethane	200	5.3		6.1		4		5.9		7.3		2.9		5.1		9.3	
1,1-Dichloroethane	1,400	6.7		8.1		5.6		8.2		10		0.5	U	6.9		11	
1,1-Dichloroethene	7	0.56		1.1		1.3		2		1.5		0.5	U	0.94		2.1	
2-Butanone	4,200	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	6,300	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	0.2*	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	70	0.5	U	0.5	U	0.63	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	70	1.3		1.6		1.2		1.4		2.1		0.5	U	1.4		2.3	
Ethyl Benzene	700	0.5	U	0.5	U	0.24	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Isopropyl Benzene	700	0.5	U	0.5	U	0.22	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m,p-Xylene	NA	0.5	U	0.5	U	0.81		0.5	U	0.21	J	0.5	U	0.5	U	0.5	U
o-Xylene	NA	0.5	U	0.5	U	0.6		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	5	0.31	J	0.45	J	0.46	J	0.31	J	0.38	J	0.5	U	0.29	J	0.58	
Toluene	1,000	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	100	0.18	J	0.23	J	0.16	J	0.19	J	0.24	J	0.5	U	0.19	J	0.31	J
Trichloroethene	5	1.2		1.4		0.92		1.3		1.5		0.5	U	1		3	
Trichlorofluoromethane (Freon 11)	2,100	0.5	U	0.5	U	0.5	U	0.5	U	0.2	J	0.5	U	0.17	J	0.5	U
Total Xylenes	10,000	0.5	U	0.5	U	1.41		0.5	U	0.21	J	0.5	U	0.5	U	0.5	U

Notes:
All units in microgram per liter (ug/L)
Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410
* = Remediation goal from TACO (35 IAC 742)
U = Analyte included in the analysis, but not detected at or above the quantitation limit.
UJ = The analyte was not detected at or above the quantitation limit. The quantitation limit is an estimate.
J = The identification of the analyte is acceptable; the reported value is an estimate.

CDM Smith

Table 1
Source Area 4 GMZ May 2018 Detections
Southeast Rockford Groundwater Contamination Superfund Site

Station Location:		A4-MW32		A4-MW401A		A4-MW401B		A4-MW403		A4-MW408A		A4-MW408A		A4-FB01-180522		A4-TB01-180522	
Sample ID:		A4-MW32-180522-D		A4-MW401A-180522		A4-MW401B-180522		A4-MW403-180523		A4-MW408A-180523		A4-MW408A-180523-D					
Sample Date:		5/22/2018		5/22/2018		5/22/2018		5/23/2018		5/23/2018		5/23/2018		5/22/2018		5/22/2018	
Sample Type:		FD		N	N	N	N	N	N	N	N	FD		FB		TB	
Analyte	RG																
1,1,1-Trichloroethane	200	9.9		6		6		2.1		3.5		3.5		0.5	U	0.5	U
1,1-Dichloroethane	1,400	12		8.2		8.3		3.5		9.9		9.9		0.5	U	0.5	U
1,1-Dichloroethene	7	2.2		1.3		1.4		0.56		1.6		1.7		0.5	U	0.5	U
2-Butanone	4,200	5	U	5	U	5	U	5	U	5	U	5	U	2.2	J	5	U
Acetone	6,300	5	U	5	U	5	U	5	U	5	U	5	U	10	U	4	J
Bromodichloromethane	0.2*	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.42	J
Chloroform	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	1.5	
cis-1,2-Dichloroethene	70	2.5		1.7		1.7		0.69		1.9		1.9		0.5	U	0.5	U
Ethyl Benzene	700	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Isopropyl Benzene	700	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m,p-Xylene	NA	0.5	U	0.5	U	0.14	J	0.19	J	0.15	J	0.16	J	0.5	U	0.5	U
o-Xylene	NA	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	5	0.61		0.39	J	0.34	J	0.19	J	0.24	J	0.25	J	0.5	U	0.5	U
Toluene	1,000	0.5	U	0.5	U	0.5	UJ	0.5	U	0.5	U	0.5	U	0.5	U	0.12	J
trans-1,2-Dichloroethene	100	0.34	J	0.22	J	0.24	J	0.5	U	0.26	J	0.25	J	0.5	U	0.5	U
Trichloroethene	5	3.3		1.4		1.4	J	0.35	J	0.72		0.72		0.5	U	0.5	U
Trichlorofluoromethane (Freon 11)	2,100	0.5	U	0.12	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Total Xylenes	10,000	0.5	U	0.5	U	0.14	J	0.19	J	0.15	J	0.16	J	0.5	U	0.5	U

Notes:
All units in microgram per liter (ug/L)
Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410
* = Remediation goal from TACO (35 IAC 742)
U = Analyte included in the analysis, but not detected at or above the quantitation limit.
UJ = The analyte was not detected at or above the quantitation limit. The quantitation limit is an estimate.
J = The identification of the analyte is acceptable; the reported value is an estimate.

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Table 2
Source Area 4 GMZ Summary of Detections (2010 - 2017)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3WP2	E5279	E5219	E52P7	E51R5	E3X96	E3Y53	E3Y77
	Station Location	A4-EW001	A4-EW001	A4-EW001	A4-EW001	A4-EW001	A4-EW001	A4-EW001	A4-EW001
	Date	2/12/2010	6/14/2010	7/20/2011	10/11/2011	1/11/2012	7/24/2012	5/30/2017	11/14/2017
Analyte Name	RG								
1,1,1-Trichloroethane	200	34	15	24	8.9	7.8	14	7.5	8
1,1-Dichloroethane	1400	8.9	4.5	5.3	3.2J	4.2J	5.4	5.9J	8.7
1,1-Dichloroethene	7	0.5U	1.3	2J	5U	5U	5U	1.6	1.2
Benzene	5	0.5U	0.5U	0.45J	5U	5U	5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	5.6	3.9	3.2J	5U	2.5J	2.4J	1.7	2.7
Tetrachloroethene	5	0.49J	0.35J	0.4J	5U	5U	0.51J	0.42J	0.39J
Toluene	1000	0.5U	0.5U	5U	3.1J	5.8	5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.25J	0.5U	5U	5U	5U	5U	0.23J	0.22J
trans-1,3-Dichloropropene	--	0.5U	0.5U	5U	5U	5U	5U	0.5U	0.5U
Trichloroethene	5	3	1.7	2.3J	5U	1.2J	1.6J	1.9	1.6
Trichlorofluoromethane (Freon 11)	2100	0.24J	0.5U	5U	5U	5U	5U	0.5U	0.5U

	EPA Sample ID	E3WP3	E5280	E52BQ	E52F3	E52H5	E52M0	E52P8	E52R6	E3X99	E3XD9	E3XH8	E3XK7	E3XN6	E3XS1	E3XW0	E3XX4	E3Y54	E3Y75
	Station Location	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW002	A4-EW001
	Date	2/11/2010	6/14/2010	10/7/2010	1/12/2011	4/12/2011	7/19/2011	10/11/2011	1/11/2012	7/26/2012	1/16/2013	7/23/2013	12/17/2013	5/21/2014	11/18/2014	5/19/2015	4/6/2016	5/30/2017	11/14/2017
Analyte Name	RG																		
1,1,1-Trichloroethane	200	2500	93	780	77	39	77	31	26	65	73	460	320	270	640	840	730	5.9	7.4
1,1-Dichloroethane	1400	14	7.9	15	7.4	7.1	9.1	4.8J	5.9	7.6	6	6	3.1	7.6	12	18D	11	12J	9.9
1,1-Dichloroethene	7	4.7J	2.4J	5U	1.5J	5U	3.1J	5U	5U	5U	5U	0.75J	1.2	3.8	1.7	0.5UJ	6.1	1.7	1.7
1,4-Dichlorobenzene	75	0.5U	0.5U	5U	0.45J	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
1,4-Dioxane	7.7	NA	NA	81	100R	100R	100R	100U	100R	100R	100U	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	0.3*	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.57	0.41J	0.23J	0.5U	0.5U
cis-1,2-Dichloroethene	70	5.5J	3.5J	6	3.5J	4.2J	3.2J	5U	2.4J	2.3J	5U	1.2	0.42J	1.6	2.1	2.5D	1.5J	1.9	2.1
Dichlorodifluoromethane (Freon 12)	1400*	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.17J	0.5U	0.5U
Isopropyl Benzene	700	0.16J	0.22	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.88	0.62	0.82J	0.58J	5U	0.64J	5U	5U	0.62J	5U	0.32J	0.5U	0.39J	0.55	0.44J	0.43J	0.63	0.42J
trans-1,2-Dichloroethene	100	0.24J	0.2J	5U	0.3J	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.33J	0.34J	0.5U	0.17J	0.27J	0.27J
Trichloroethene	5	3.3	1.8	3.6J	2.7J	2.8J	2.4J	5U	1.4J	1.8J	5U	0.94	0.2U	1.1	3.4	3.4	1.1	1.3	2.4
Xylene (Total)	10,000	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.24J	0.5U

	EPA Sample ID	E3WP4	E5281	E52B1	E52F4	E52H6	E52M1	E52P9	E52R5	E3XA0	E3XE0	E3XH9	E3XK8	E3XN7	E3XS2	E3XW1	E3Y34	E3Y55	E3Y76
	Station Location	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003	A4-EW003
	Date	2/11/2010	6/14/2010	10/7/2010	1/12/2011	4/18/2011	7/19/2011	10/11/2011	1/11/2012	7/26/2012	1/16/2013	7/23/2013	12/17/2013	5/21/2014	11/18/2014	5/19/2015	10/3/2016	5/30/2017	11/14/2017
Analyte Name	RG																		
1,1,1-Trichloroethane	200	29000	9100	1800	19000	2900	1200	240	710	1700	2800	3700	310	190	510	160	2100	6.1	6.1
1,1,2-Trichloroethane	5	0.8J	1.2	2.1J	1.2J	500U	30U	5U	10U	5U	5U	5U	10U	5U	0.15J	5U	5U	5U	5U
1,1-Dichloroethane	1400	230	41J	42	35	500U	23	13	22	35	13	22	32	19	9.4D	24	59	11	8.6
1,1-Dichloroethene	7	13U	45J	26J	4.7J	8J	17	5U	10U	2.4J	5U	3.6J	10U	5.4	1.2	5U	5U	7.1	5U
1,4-Dioxane	7.7	NA	NA	7.5J	200R	10000R	200R	100U	200R	100R	100U	100U	200R	100R	NA	100U	NA	NA	NA
2-Butanone	4200*	130U	500U	10U	20U	1000U	20U	10U	20U	10U	10U	10U	20U	10U	5U	10U	3.3J	10U	10U
Acetone	6300*	130U	500U	30U	20U	1000U	40U	20U	20U	20U	10U	10U	20U	10U	5U	10U	2.6J	2.1J	10U
Carbon Tetrachloride	5	13U	0.5U	5U	20U	500U	10U	5U	10U	5U	5U	5U	10U	5U	0.5U	20	5U	5U	5U
cis-1,2-Dichloroethene	70	20	6.8J	8.2	5.9J	500U	4.6J	3J	10U	3.9J	3.1J	3.8J	10U	2.5J	2.5	2.4J	3.7J	2.3J	1.8J
Ethyl Benzene	700	13U	0.43J	0.76J	0.77J	500U	0.71J	5U	10U	0.38J	5U	5U	10U	5U	0.5U	5U	5U	5U	5U
Isopropyl Benzene	700	13U	0.45J	0.67J	0.57J	500U	0.54J	5U	10U	0.28J	5U	5U	10U	5U	0.4J	5U	5U	5U	5U
Tetrachloroethene	5	3.1J	3.4	2.5J	2.3J	500U	2.3J	5U	2.2J	1.1J	5U	5U	10U	0.75J	0.8	5U	5U	5U	5U
Toluene	1000	13U	0.5U	0.54J	0.72J	500U	0.65J	5U	6.8J	0.31J	5U	5UJ	10U	0.49J	0.5U	5U	5U	5U	5U
trans-1,2-Dichloroethene	100	13U	0.32J	5U	10U	500U	10U	5U	10U	5U	5U	5	10U	5U	0.44J	5U	5U	5U	5U
Trichloroethene	5	0.8J	3.3	1.8	0.8J	500U	0.6J	2.8J	0.4J	2.9J	2.1J	2.1J	10U	1.3J	3.6	5U	2.3J	2.4J	1.5J
Xylene (Total)	10,000	13U	2.8	4.9J	5.9J	500U	4.4J	5U	4.5J	1.9J	5U	5U	10U	1.7J	1.2	5U	2J	3.5J	1.6J

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D = Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

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Table 2
Source Area 4 GMZ Summary of Detections (2010 - 2017)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3WF7	E5Z84	E5Z84	E5Z7	E5ZR9	E5ZQ1	E5ZQ8	E3XA7	E3XE2	E3XJ1	E3XL0	E3XM8	E3XR4	E3XT3	E3XY1
	Station Location	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A	A4-MLW01A
	Date	2/10/2010	6/14/2010	10/7/2010	1/12/2011	4/19/2011	10/11/2011	1/11/2012	7/26/2012	1/15/2013	7/23/2013	12/17/2013	5/21/2014	12/16/2014	5/21/2015	4/5/2016
Analyte Name	RG															
1,1,1-Trichloroethane	200	7.4	4.1	6.5	5.5	6.6	SU	4.5J	4.3J	3.9J	2.8	3.2	4.3	4.2J	3.7	3.6
1,1-Dichloroethane	1400	8.6	4.3	6.9	6.7	5.9	3.3J	5.4	4.8J	5.1	4.5	4.7	5.6J	7	7.2	5.9
1,1-Dichloroethene	7	0.5U	0.7	SU	1.3J	SU	SU	SU	SU	SU	0.46J	0.31J	0.53	0.75	0.77	0.5U
1,4-Dioxane	7.7	NA	NA	[illegible]	100R	100R	100U	100R	100R	100U	NA	NA	NA	NA	NA	NA
Carbon Disulfide	700	0.5U	0.5U	5U	SU	SU	SU	SU	0.21J	SU	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	5.6	2.8	4.5J	3.2J	3.7J	SU	3J	2.3J	SU	1.3	1.3	1.4	1.6	1.5	1.1
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	5U	SU	2.9J	SU	SU	SU	SU	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.27J	0.5U	5U	0.23J	SU	SU	SU	0.3J	SU	0.5U	0.32J	0.3J	0.35J	0.23J	0.26J
Toluene	1000	0.5U	0.5U	5U	SU	SU	4.7J	SU	SU	SU	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.24J	0.5U	5U	SU	SU	SU	SU	SU	SU	0.5U	0.5U	0.1J	0.23J	0.5U	0.13J
Trichloroethene	5	2.6	0.99	2.6J	SU	3.6J	SU	1.3J	1.1J	2.8J	0.72	0.67	0.75J	0.87	0.52	0.73
Trichlorofluoromethane (Freon 11)	2100	0.17J	0.5U	5U	SU	SU	SU	SU	SU	SU	0.5U	0.5U	0.17J	0.19J	0.5U	0.5U

	EPA Sample ID	E3WF8	E5Z85	E5Z85	E5Z8	E5ZQ0	E5ZQ3	E5ZQ9	E3XA6	E3XE3	E3XJ2	E3XL1	E3XM9	E3XA5	E3XT4	E3XY2
	Station Location	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B	A4-MLW01B
	Date	2/10/2010	6/14/2010	10/7/2010	1/12/2011	4/19/2011	10/11/2011	1/11/2012	7/26/2012	1/15/2013	7/23/2013	12/17/2013	5/21/2014	12/16/2014	5/21/2015	4/5/2016
Analyte Name	RG															
1,1,1-Trichloroethane	200	9	5.3	7.6	6.8	6.3	3.1J	3.9J	5	4.3J	3.4	4	5.3	5.8	5.4	6.1
1,1-Dichloroethane	1400	8.4	4.1	6.5	4.9J	5.7	3J	3.8J	4.6J	4.4J	4.8	5.6	7.6J	10	9.9	7.9
1,1-Dichloroethene	7	0.5U	0.95J	5U	1.3J	5U	5U	5U	5U	5U	0.97	0.67	1.2	1.5	0.6U	0.5U
cis-1,2-Dichloroethene	70	4.5	2.7J	4.7J	3.5J	4.4J	5U	2.1J	1.8J	5U	1.6	1.6	1.6	2.4	2.2	1.8
Tetrachloroethene	5	0.54	0.32J	0.55J	0.54J	5U	5U	5U	5U	5U	0.32J	0.51	0.51	0.59	0.39J	0.48J
Toluene	1000	0.5U	0.5U	5U	5U	5U	5.9	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.24J	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.13J	0.32J	0.23J	0.21J
Trichloroethene	5	2.6	1.7	2.8J	2.5J	2.9J	5U	1.3J	1.4J	5U	0.83	0.5U	0.8	0.94	0.63	1.1

	EPA Sample ID	E3WP9	E5Z86	E5Z86	E5Z9	E5ZJ1	E5ZQ4	E5ZR0	E3XA5	E3XE4	E3XJ3	E3XL2	E3XN2	E3XA6	E3XT5	E3XY3
	Station Location	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C	A4-MLW01C
	Date	2/10/2010	6/15/2010	10/7/2010	1/12/2011	4/19/2011	10/11/2011	1/13/2012	7/26/2012	1/15/2013	7/23/2013	12/17/2013	5/21/2014	12/16/2014	5/21/2015	4/5/2016
Analyte Name	RG															
1,1,1-Trichloroethane	200	9.2	5.1	7.9	6.8	6.7	2.7J	3J	5	5.5	3.4	4	5	5.6	5.5	6.6
1,1-Dichloroethane	1400	8.5	4.3	6.6	5J	5.7	2.8J	3.3J	4.9J	5.5	4.7	5.8	6.9	9.4	10	8.1
1,1-Dichloroethene	7	0.5U	3J	5U	1.4J	5U	5U	5U	5U	5U	0.93	0.72	1.1	1.5	1.6	0.5U
1,4-Dioxane	7.7	NA	NA	[illegible]	100R	100R	100U	100R	100R	100U	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	4.6	2.8J	4.7J	3.3J	4.2J	5U	1.7J	2.2J	2.3J	1.5	1.8	1.5	2.3	2.2	1.9
Tetrachloroethene	5	0.5	0.42J	0.57J	0.5J	5U	5U	5U	0.56J	5U	0.38J	0.47J	0.49J	0.53	0.39J	0.47J
Toluene	1000	0.5U	0.5U	5U	5U	5U	5U	5.4	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.28J	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.13J	0.35J	0.23J	0.22J
Trichloroethene	5	2.6	1.7	2.7J	2.6J	2.9J	5U	1.3J	1.4J	5U	0.74	0.77	0.78	0.93	0.63	1.2

	EPA Sample ID	E3WQ0	E5Z87	E5Z87	E5ZG0	E5ZJ2	E5ZQ5	E5ZR1	E3XA4	E3XE5	E3XJ4	E3XL5	E3XN2	E3XR7	E3X16	E3XY4
	Station Location	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D	A4-MLW01D
	Date	2/10/2010	6/15/2010	10/7/2010	1/12/2011	4/19/2011	10/11/2011	1/11/2012	7/26/2012	1/15/2013	7/23/2013	12/17/2013	5/21/2014	12/16/2014	5/21/2015	4/5/2016
Analyte Name	RG															
1,1,1-Trichloroethane	200	7.9	5.6	8.1	7.5	9	2.8J	2.8J	4.3J	5.9	3.1	3.9	5	5.6	4.8	5.4
1,1-Dichloroethane	1400	7.5	4.4	7.3	6	5.3	2.9J	3.1J	4.6J	5.8	4.3	4.9	6.9J	9.2	10	7.6
1,1-Dichloroethene	7	0.5U	1.2J	5U	5U	5U	5U	5U	5U	5U	0.88	4.9	1.1J	1.3	1.4	0.5U
1,4-Dioxane	7.7	NA	NA	6.6J	100R	100R	100U	100R	100R	100U	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	70	3.4	2.8J	5J	4.1J	4.1J	5U	2.2J	2.2J	2.1J	1.7	1.6	1.7J	2.3	2.2	1.7
Dichlorodifluoromethane (Freon 12)	1400	0.87	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.39J	0.39J	0.55J	0.45J	5U	5U	5U	0.51J	5U	0.26J	0.6J	0.54J	0.59	0.47J	0.45J
Toluene	1000	0.5U	0.5U	5U	5U	5U	5U	5.5	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.26J	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.14J	0.31J	0.23J	0.23J
Trichloroethene	5	2.1	1.8	2.7J	2.7J	2.8J	5U	1.3J	1.5J	5U	0.82	0.81	0.81	0.94	0.65	1
Trichlorofluoromethane (Freon 11)	2100	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.19J	0.21J	0.15J	0.5U

Notes:

- All results in micrograms per liter
- Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410
- Shaded results exceed remediation goal
- * Remediation goal from TACO (35 IAC 742)
- -D = Duplicate sample

D = Diluted sample result
U = Not detected at value shown
J = Estimated result
R = Rejected

CDM Smith

Table 2
Source Area 4 GMZ Summary of Detections (2010 - 2017)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID Station Location Date	E3WQ1 A4-MLW01E 2/10/2010	E5Z84 A4-MLW01E 6/15/2010	E5Z84 A4-MLW01E 10/7/2010	E5Z61 A4-MLW01E 1/12/2011	E5Z63 A4-MLW01E 4/19/2011	E5Z66 A4-MLW01E 10/11/2011	E5Z82 A4-MLW01E 1/13/2012	E3XA3 A4-MLW01E 7/26/2012	E3XC6 A4-MLW01E 1/15/2013	E3XL4 A4-MLW01E 12/17/2013
Analyte Name	RG										
1,1,1-Trichloroethane	200	21000	19000	8.6J	12000	300	180	200	9200	6200	6700
1,1-Dichloroethane	1400	57	81J	18	36	33	16	25	16	170	250U
1,1-Dichloroethene	7	91J	92J	25	6.8J	5.3J	5U	5U	7.4J	25U	250U
1,2-Dichlorobenzene	600	2.5U	0.49J	0.92J	10U	25U	5U	5U	5U	25U	250U
1,4-Dioxane	7.7	NA	NA	5.3J	200R	500R	100U	200R	100R	500U	5000R
2-Butanone	4200	25U	33J	4J	20U	7.8J	10U	10U	10U	50U	500U
Acetone	6300	25U	800U	20U	20U	50U	31	10U	10U	50U	500U
cis-1,2-Dichloroethene	70	20J	23J	15	10	16J	11	28	14	14J	250U
Dichlorodifluoromethane (Freon 12)	1400	5.2	80U	5U	10U	25U	5U	5U	5U	25U	250U
Ethyl Benzene	700	10	9.4	15	11	10J	4.6J	14	8.4	14J	250U
Isopropyl Benzene	700	4.7	5.1	7.7	8.9J	7.7J	3.8J	8.4	8.9	25U	250U
Methyl Acetate	–	2.5U	20J	5U	10U	25U	71	18U	8.2	50U	250U
Methylcyclohexane	–	0.64J	0.5UJ	1.2J	0.89J	25U	5U	5U	0.77J	25U	250U
Tetrachloroethene	5	4.1	3.1	2.7	2.5	3.4J	2.7	3.7J	4	25U	250U
Toluene	1000	2.5U	0.92	0.73J	1.7J	25U	3.9J	5.5	3.5J	25U	250U
Trichloroethene	5	2.3	1.5	2.5J	4.5J	25U	5U	5U	3J	32J	250U
Xylene (Total)	10,000	49	53J	51	48	46J	22.4	60	49	74	250U

	EPA Sample ID Station Location Date	E3WN4 A4-MW022A 11/11/2009	E3WQ2 A4-MW022A 2/11/2010	E5Z89 A4-MW022A 6/14/2010	E5Z89 A4-MW022A 10/7/2010	E5Z0U A4-MW022A-D 10/7/2010	E5Z0Z A4-MW022A 1/13/2011	E5Z0Z A4-MW022A-D 1/13/2011	E5Z6J6 A4-MW022A 4/18/2011	E5Z6J7 A4-MW022A-D 4/18/2011	E5Z6M3 A4-MW022A 7/19/2011	E5Z6Q7 A4-MW022A 10/11/2011	E5Z6Q1 A4-MW022A 1/10/2012	E3XA8 A4-MW022A 7/25/2012	E3XJ0 A4-MW22A 1/15/2013	E3XJ6 A4-MW022A 7/22/2013	E3XL8 A4-MW022A 12/18/2013	E3XN9 A4-MW022A 5/23/2014	E3X54 A4-MW022A 12/16/2014	E3XW3 A4-MW022A 5/20/2015	E3XY9 A4-MW022A 4/6/2016	E3Y16 A4-MW022A 10/3/2016	E3T59 A4-MW022A 5/30/2017
Analyte Name	RG(ug/L)																						
1,1,1-Trichloroethane	200	930	47	48	49	48	35	33	33	26	15	30	15	13	9.3	4.9	6.1	4.1	3.8	2.1	4.6	0.49	6.7
1,1-Dichloroethane	1400	4.6	2.8	1.3	1.4J	1.5J	2.4J	2.1J	1J	0.95J	5U	5U	5U	5U	5U	0.52	0.64	0.12J	0.5U	0.45	0.58	0.5U	0.5U
1,1-Dichloroethene	7	3.3J	0.5U	1	5U	5U	1.5J	1.4J	5U	1.3J	5U	5U	5U	5U	5U	0.77	0.5U	0.5U	0.17J	0.5U	0.5U	0.5U	0.5U
Acetone	6300	10U	5U	5U	10U	10U	10U	20U	20U	20U	20U	24	10U	10U	10U	5U	5U	5U	5U	5U	5U	5U	5U
Chloroethane	–	0.04J	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	2.3J	1.5	0.77	0.49J	0.85J	1.8J	1.6J	0.7J	0.8J	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.13J	0.5U	0.5U
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
m,p-Xylene	10,000*	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	10U	10U	5U	10U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Methylene Chloride	5**	0.5U	1.0U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.4J	0.25J	0.5U	0.54J	0.5U	0.5U	0.5U	0.5U
o-Xylene	10,000*	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.17J
Tetrachloroethene	5	0.25J	0.23J	0.5U	5U	5U	0.19J	5U	5U	0.62J	5U	5U	5U	5U	5U	0.5U	0.22J	0.057J	0.5U	0.5U	0.5U	0.5U	0.13J
Toluene	1000	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	3.3J	5U	0.5U	0.25J	1.5U	0.5U	0.5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.5U	0.057J	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Trichloroethene	5	3.6	1.3J	0.73	0.46J	0.66J	5U	5U	0.83J	0.82J	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.13J	0.5U

	EPA Sample ID Station Location Date	E3Y82 A4-MW022A 11/15/2017
Analyte Name	RG(ug/L)	
1,1,1-Trichloroethane	200	32
1,1-Dichloroethane	1400	0.5U
1,1-Dichloroethene	7	0.5U
Acetone	6300	5U
Chloroethane	–	0.5U
cis-1,2-Dichloroethene	70	0.5U
Dichlorodifluoromethane (Freon 12)	1400	0.5U
m,p-Xylene	10,000*	0.5U
Methylene Chloride	5**	0.5U
o-Xylene	10,000*	0.5U
Tetrachloroethene	5	0.5U
Toluene	1000	0.5U
trans-1,2-Dichloroethene	100	0.5U
Trichloroethene	5	0.5U

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D= Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

CDM Smith

Table 2
Source Area 4 GMZ Summary of Detections (2010 - 2017)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3WN5	E3Z90	E52C1	E52G4	E52J6	E52M4	E52Q8	E52Q9	E52Q0	E3XA9	E3X89	E3XF2	E3XJ7	E3XL9	E3XO1	E3XS5	E3XW4	E3XZ0	E3Y17	E3Y60	E3Y40
	Station Location	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B	A4-MW022B
	Date	11/11/2009	6/14/2010	10/6/2010	3/13/2011	4/18/2011	7/19/2011	10/11/2011	10/11/2011	1/10/2012	7/25/2012	7/25/2012	1/15/2013	7/22/2013	12/18/2013	5/21/2014	12/16/2014	5/20/2015	4/6/2016	10/5/2016	5/30/2017	11/15/2017
Analyte Name	RG																					
1,1,1-Trichloroethane	200	12J	5	7.7	6.4	6.7	4.4J	2.7J	2.9J	5.3	6	5.6	5.4	4	4.4	6.6	7	7.5	8.5	7.6	7.2	8
1,1-Dichloroethane	1400	9.8	4	7.6	6.4	5.9	5.4	3.7J	3.8J	6.6	6.9	7	8	6.9	6.1	8.6	9.4	11	9.6	9.5	12J	10
1,1-Dichloroethene	7	0.5U	1	5U	3.3J	1.2J	5U	5U	5U	5U	5U	5U	5U	0.98	0.72	0.95	2.5	1.4	0.5U	1.6	1.2	1.2
1,4-Dioxane	7.2	NA	NA	0.8J	100R	100R	100R	100U	100U	100R	100R	100R	100UJ	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	6300	5U	5U	20U	20U	20U	20U	24J	7U	10U	10U	10U	10U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Benzene	5	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.9
cis-1,2-Dichloroethene	70	12	3.1	5.4	3.7J	5.5J	2.4J	5U	5U	3.3J	2.6J	2.8J	2.2J	1.8	1.6	1.8	2.1	2.4	1.9	1.8	1.8	1.9
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	5.9	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.13J	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.49J	0.3J	5U	0.33J	0.6J	0.32J	5U	5U	5U	5U	0.51J	5U	0.3J	0.55	0.47	0.44J	0.58J	0.43J	0.37J	0.4J	0.46J
Toluene	1000	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	0.92J	0.91J	5U	0.5U	0.58	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.56
trans-1,2-Dichloroethene	100	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.21J	0.39J	0.3J	0.3J	0.29J	0.25J	0.37
Trichloroethene	5	3.7	1.4	2.2J	5U	1.7J	3.3J	5U	5U	1.2J	1.2J	1.3J	5U	0.85	0.74	1	1.3	0.95	1.5	1.2	1.4	1.6
Trichlorofluoromethane (Freon 11)	2100	0.5UJ	0.5U	5U	0.25J	5U	5U	5U	5U	5U	0.71J	0.77J	5U	0.5U	0.5U	0.54	0.5J	0.35U	0.32J	0.4J	0.3J	0.43J
Xylene (Total)	10,000	0.5U	0.5U	5U	5U	5U	0.15J	5U	5U	5U	0.23J	5U	5U	0.22J	1.34	0.5U	0.5U	0.5U	0.66	0.5U	0.22J	0.5U

	EPA Sample ID	E3WN5	E3WQ3	E5Z91	E52C4	E52G5	E52J9	E52M5	E52R9	E52P7	E3XB1	E3XF2	E3XF3	E3XK1	E3XX2	E3XM0	E3XM1	E3XO6	E3XR1	E3XR2	E3XT0	E3XT1	E3XZ1
	Station Location	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW32	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032	A4-MW032
	Date	11/10/2009	2/10/2010	6/14/2010	10/5/2010	3/12/2011	4/18/2011	7/19/2011	10/11/2011	1/10/2012	7/25/2012	1/15/2013	1/15/2013	7/22/2013	7/22/2013	11/17/2013	12/17/2013	5/21/2014	12/16/2014	12/16/2014	5/19/2015	5/19/2015	4/5/2016
Analyte Name	RG																						
1,1,1-Trichloroethane	200	22D	17	21	16	14	15	8.3	7.2	8.4	9.5	9.1	9.1	4.5	4.7	5.5	5.4J	5.1	5.3	6.2	5.6	5.3	4.8
1,1-Dichloroethane	1400	18	17	9.3	16	17	12	7.5	6.7	7.8	8.8	12	12	6.7	6.6	5.5	5.5	5.6	7.5	8	8.4	8.4	5.8
1,1-Dichloroethene	7	5.5J	1.6	2.6	5U	3.7J	3.7J	5U	5U	5U	5U	5U	5U	0.6	0.55	0.68	0.72	0.79	1.3	1.1	1.2	0.99	0.5U
1,4-Dioxane	7.2*	5U	5U	5U	20U	20U	20U	20U	22	10U	10U	10U	10U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U
Acetone	6300	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.4J	0.7J	0.8J	0.59J	0.9J	1.3
Carbon Disulfide	700	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	0.1U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Chloroform	70	0.5U	0.21J	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.22J	0.5U	0.44	1.4	1.5	2.1	2.1	2.2
Chloromethane	--	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	360	6.9	5.9	11	8.7	10	7.3	4.3J	7.1	3.8J	3.8J	3.8J	2.2	1.9	1.6	1.6	1.4	2	2.3	2.5	2.3	1.9
Dibromochloromethane	140*	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	0.39J	5U	5U	0.5U	0.5U	0.5U	0.5U	0.38J	0.48J	0.55	0.64	0.63	1.4
Methylene Chloride	5**	0.5U	5U	0.5U	5U	5U	5U	5U	10U	5U	5U	10U	10U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	5	0.7	0.67	0.47J	0.7J	0.75J	5J	0.54J	5U	5U	5U	5U	5U	0.47J	0.5U	0.6	0.66	0.57	0.66	0.75	0.58	0.56	0.53
trans-1,2-Dichloroethene	100	0.6J	0.79	0.22J	0.56J	0.42J	0.83J	0.63J	5U	5U	5U	5U	5U	0.32J	0.27J	0.5U	0.5U	0.15J	0.27J	0.34J	0.25J	0.24J	0.5U
Trichloroethene	5	9.3	7.9	5.4	8.7	8.7	8.8	6.3	2.8J	5	4.3J	3.8J	3.8J	2	2	2.1	2.1	1.4	1.6	1.8	1.4	1.2	1.4

	EPA Sample ID	E3XZ2	E3T08	E3T61	E3T61	E3Y79	E3Y7L
	Station Location	A4-MW032-D	A4-MW032	A4-MW032	A4-MW032-D	A4-MW032	A4-MW032-D
	Date	4/5/2016	10/3/2016	5/30/2017	5/30/2017	11/14/2017	11/14/2017
Analyte Name	RG						
1,1,1-Trichloroethane	200	5.8	4.5	5.2	5.4	8	9.5
1,1-Dichloroethane	1400	5.7	5.7	5.8J	9.3J	13	21
1,1-Dichloroethene	7	0.5U	1.1	0.93	1	1.1	1.8
Acetone	6300	5U	5U	5U	5U	5U	5U
Bromodichloromethane	0.2*	0.4J	0.8J	0.35J	0.39J	0.4J	0.5U
Carbon Disulfide	700	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Chloroform	70	2.1	1.4	1.2	1.2	0.62	0.63
Chloromethane	--	0.5U	0.5U	0.5U	0.5U	0.5U	0.18J
cis-1,2-Dichloroethene	70	1.7	1.6	2	2	2.5	2.5
Dibromochloromethane	140*	1.3	0.63	0.72	0.75	0.22J	0.33J
Methylene Chloride	5**	0.5U	0.5U	0.5U	0.22J	0.5U	0.5U
Tetrachloroethene	5	0.63	0.6	0.58	0.61	0.62	0.65
trans-1,2-Dichloroethene	100	0.21J	0.5U	0.22J	0.24J	0.12J	0.3J
Trichloroethene	5	1.7	1.3	1.5	1.6	2.3	2.5

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D = Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

CDM Smith

Table 2
Source Area 4 GMZ Summary of Detections (2010 - 2017)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3WN6	E3WQ4	E5Z91	E5Z0Z	E5Z0G	E5Z1K	E5ZM6	E5ZR1	E5ZQ4	E3XR2	E3XR7	E3XR8	E3XL5	E3XO2	E3XS6	E3XW5	E3XT6	E3YZ8	E3YS7	E3YR1
	Station Location	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A	A4-MW130A
	Date	11/11/2009	2/11/2010	6/15/2010	10/7/2010	1/13/2011	4/18/2011	7/19/2011	10/11/2011	1/11/2012	7/26/2012	1/16/2013	7/23/2013	12/18/2013	5/22/2014	12/18/2014	5/21/2015	4/6/2016	10/3/2016	5/30/2017	11/15/2017
Analyte Name	RG																				
1,1,1-Trichloroethane	200	570D	590D	520D	890	510	390	140	120	130	53	64	20	11J	11	7.8	12	7.5	8	4.5	11
1,1,2-Trichloroethane	5	0.52	0.94	1.6	2.8J	1.1J	20U	0.5J	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
1,1-Dichloroethane	1400	35	39J	31	46	33	24	31	9.8	12	7.2	8.9	6.6	6.4J	8	10	11	9.3	9.6	14J	17
1,1-Dichloroethene	7	7.4J	11J	12J	13	6.5	4.2J	5	5UJ	5U	5U	5U	3.4	1.2	2.2	2.7	1.2	0.5U	1.8	1.8	2.3
Bromodichloromethane	0.2*	0.5U	0.5U	0.5UJ	5U	5U	20U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.19J	0.19J	0.12J	0.5U	0.5U	0.5U
Carbon Tetrachloride	5	0.5UJ	0.4J	0.5U	5U	5U	20U	5U	5U	5U	5U	5U	0.5U	0.5UJ	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	14J	10J	15J	13	7.8	6.9J	4.5J	3.4J	4.7J	2.5J	2.3J	1.9	2.2	1.8	2.3	2.2	2.1	2	2	2.5
Dichlorodifluoromethane (Freon 12)	1400	6.3	0.5U	20U	0.58J	5U	20U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
m,p-Xylene	10,000+	0.5U	0.5U	0.5U	5U	5U	20U	5U	5U	5U	5U	5U	0.5U	1.2J	0.5U	0.5U	0.5U	0.7	0.5U	0.5U	0.5U
o-Xylene	10,000+	0.5U	0.5U	0.5U	5U	5U	20U	5U	5U	5U	5U	5U	0.5U	0.91	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.26J
Tetrachloroethene	5	0.89	0.99	0.78	5U	0.72J	20U	0.62J	5U	5U	0.7J	5U	0.26J	0.97	0.45J	0.57	0.45J	0.48J	0.41J	0.45J	0.46J
Toluene	1000	0.5U	0.5U	0.5U	5U	5U	20U	5U	5U	8.2	0.54J	5U	0.5U	0.51	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.69
trans-1,2-Dichloroethene	100	0.38J	0.38J	20U	5U	0.35J	20U	5U	5U	5U	5U	5U	0.5U	0.32J	0.17J	0.39J	0.25J	0.26J	0.13J	0.36J	0.35J
Trichloroethene	5	3.6	3.7	3.6	4.9J	4.3J	3.4J	2.8J	5U	2.5J	2.1J	2J	1.3	1.8	1.3	1.5	0.96	1.4	1.4	1.5	1.7
Trichlorofluoromethane (Freon 11)	2100	0.5UJ	0.5UJ	20U	5U	5U	20U	5U	5U	5U	0.75J	5U	0.5U	0.47J	0.31J	0.19J	0.23J	0.25J	0.5U	0.5U	0.37J

	EPA Sample ID	E3WN7	E3WN8	E3WQ5	E5Z93	E5Z94	E5ZC3	E5ZG7	E5ZK2	E5ZM7	E5ZR2	E5ZQ2	E3XR3	E3XE8	E3XE9	E3XI9	E3XX0	E3XL6	E3XL7	E3XO3	E3XO4	E3XS7	E3XS8
	Station Location	A4-MW130B	A4-MW130B-D	A4-MW130B	A4-MW130B	A4-MW130B-D	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B
	Date	11/11/2009	11/11/2009	2/10/2010	6/15/2010	6/15/2010	10/7/2010	1/13/2011	4/18/2011	7/19/2011	10/11/2011	1/11/2012	7/26/2012	1/16/2013	1/16/2013	7/22/2013	7/23/2013	12/18/2013	12/18/2013	5/22/2014	5/22/2014	12/16/2014	12/16/2014
Analyte Name	RG																						
1,1,1-Trichloroethane	200	210D	81D	290D	110	100	110	50	49	20	5U	17	12	8.1	13	4.6	4.4	6.1	6.4	6.5	6.4	7.4	7.5
1,1,2-Trichloroethane	5	0.38J	0.16J	0.55	0.27J	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
1,1-Dichloroethane	1400	16	17	19	10	10	14	11	9.9	6.2	5U	6.3	6.7	7	11	6.8	6.6	8.3	8.2	8.2	8.3	11	11
1,1-Dichloroethene	7	3.8	4.4J	6.1J	3J	3.7J	5U	2.5J	2.7J	2.1J	5U	5U	5U	5U	5U	3.1	2.2	1.4J	1.3J	1.7	1.3	1.7	1.8
1,4-Dioxane	7.7	NA	NA	NA	NA	NA	12J	100R	11J	100R	100U	100R	100R	100U	100UJ	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	0.2*	0.5U	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.12J	0.1J
cis-1,2-Dichloroethene	70	8.2	8.7J	7.6J	4.7J	4.7J	7.1	4.7J	5.4	3.3J	5U	4J	3J	2.2J	2.8J	2.9	2.9	2.1J	2.1J	3.7	3.8	2.3	2.5
Dichlorodifluoromethane (Freon 12)	1400	9.1	0.5U	0.5U	0.5U	0.5U	2.6J	5U	5U	5U	5U	5U	5U	1J	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
m,p-Xylene	10,000+	0.5U	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.4J	0.4J	0.3J	0.2J	0.5U	0.5U	0.5U	0.5U
Methylene Chloride	5**	0.5U	0.5UJ	1U	0.5U	0.5U	5U	5U	5U	5U	10U	5U	5U	10U	10U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
o-Xylene	10,000+	0.5U	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.2J	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.57	0.63	0.52	0.36J	0.33J	0.53J	0.4J	0.28J	0.41J	5U	5U	5U	5U	5U	0.28J	0.29J	0.49J	0.52	0.38J	0.38J	0.57	0.53
Toluene	1000	0.5U	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	6.9	0.26J	5U	5U	0.5U	0.5U	0.28J	0.5U	1.1U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.5U	0.4J	0.21J	0.5U	0.5U	5U	0.3J	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.28J	0.2J	0.2J	0.39J	0.44J
Trichloroethene	5	3.6	4.1	3.1	1.9	1.8	3.2J	3.1J	3J	2.7J	5U	2.7J	1.5J	5U	5U	1.1	0.97	1.2	1.1	1	1	1.5	1.6
Trichlorofluoromethane (Freon 11)	2100	0.5U	0.5UJ	0.52J	0.5U	0.5U	5U	5U	5U	5U	5U	5U	0.54J	5U	5U	0.5U	0.5U	0.5U	0.64	0.42J	0.49J	0.39J	0.43J

	EPA Sample ID	E3XW6	E3XW7	E3XY7	E3XT4	E3XT5	E3YZ0	E3YZ8	E3YZ2
	Station Location	A4-MW130B	A4-MW130B-D	A4-MW130B	A4-MW130B-D	A4-MW130B	A4-MW130B	A4-MW130B	A4-MW130B
	Date	5/21/2015	5/21/2015	4/6/2016	4/6/2016	10/3/2016	5/30/2017	5/30/2017	11/15/2017
Analyte Name	RG								
1,1,1-Trichloroethane	200	7.4	7.6	7.6	7.3	8.6	7.9	9.7	
1,1,2-Trichloroethane	5	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	
1,1-Dichloroethane	1400	12	12	10	9.8	11	33J	13	
1,1-Dichloroethene	7	1.5	1.6	0.5U	0.5U	1.9	2.5	1.8	
1,4-Dioxane	7.7	NA	NA	NA	NA	NA	NA	NA	
Bromodichloromethane	0.2*	0.5U	0.5U	0.13J	0.1J	0.5U	0.5U	0.5U	
cis-1,2-Dichloroethene	70	2.4	2.3	2.2	2.1	2.2	2	2.1	
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	
m,p-Xylene	10,000+	0.5U	0.5U	0.5U	0.5U	0.5U	0.23J	0.57	
Methylene Chloride	5**	0.5U	0.5U	0.5U	0.5U	0.5U	0.24J	0.5U	
o-Xylene	10,000+	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.24J	
Tetrachloroethene	5	0.34J	0.34J	0.43J	0.37J	0.38J	0.43J	0.34J	
Toluene	1000	0	0.5U	0.5U	0.5U	0.5U	0.23J	0.57	
trans-1,2-Dichloroethene	100	0.5U	12	0.31J	0.23J	0.28J	0.28J	0.2J	
Trichloroethene	5	0.95	0.97	1.4	1.4	1.4	1.5	1.6	
Trichlorofluoromethane (Freon 11)	2100	0.34J	0.35J	0.29J	0.27J	0.34J	0.35J	0.39J	

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D = Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

CDM Smith

Table 2
Source Area 4 GMZ Summary of Detections (2010 - 2017)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3WN9	E3WQ6	E3WQ7	E52S9	E52C5	E52C6	E52G8	E52K3	E52M8	E52M9	E52R3	E52P9	E3XB4	E3XF4	E52S6	E3XX3	E3XM2	E3XN4	E3XR9	E3XT4	E3XZ3	E3Y11
	Station Location	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A-D	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A	A4-MW401A
	Date	11/11/2009	2/11/2010	2/11/2010	6/14/2010	10/6/2010	10/6/2010	3/13/2011	6/18/2011	7/19/2011	7/19/2011	10/11/2011	3/10/2012	7/25/2012	1/15/2013	6/14/2010	7/22/2013	11/17/2013	5/21/2014	11/16/2014	5/20/2015	4/5/2016	10/3/2016
Analyte Name	RG																						
1,1,1-Trichloroethane	200	9200	8.7	8.9	5.9	5.5	9.9	9.6	30	4.7J	4.7J	3.3J	5.8	8.5	13	5.9	8.6	6.4	16	5.8	9.4	12	4.2
1,1-Dichloroethane	1400	16	7.2	7.5	4.8	8.6	8.4	5U	8.5	5.3	5.4	3.9J	6.3	4.8J	3.9J	5	0.36J	4.9J	0.75J	0.5J	5.5	6.8	4.4
1,1-Dichloroethene	7	11J	1.5	0.5U	1.3	5U	5U	5U	1.1J	5U	1.7J	5U	5U	5U	5U	1.3J	0.84	0.7	0.5U	0.5U	0.94	0.5U	0.88
1,4-Dioxane	7.7	NA	NA	NA	NA	13J	100R	100R	100R	100R	100R	100U	100R	100R	100U	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	6300*	5U	5U	5U	5U	20U	20U	20U	20U	20U	20U	20U	10U	20U	30U	5U	5U	5U	5U	5U	5U	2.5J+	5U
Benzene	5	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Bromodichloromethane	0.2*	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.15J	0.5U
Chloromethane	-	1.2	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	1.8J	4.8	4.9	3.3	5.9	5.8	5U	5.4	3.4J	3.4J	5U	3.5J	3.9J	5U	3.6J	0.5U	1.4	0.5U	0.5U	0.5U	1.6	1
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	0.5U	0.67J	0.67J	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Methylene Chloride	5**	0.5UJ	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	10U	5U	5U	10U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Tetrachloroethene	5	0.8J	0.23J	0.23J	0.27J	5U	5U	5U	0.54J	0.26J	0.28J	5U	5U	5U	5U	0.25J	0.5U	0.37J	0.09J	0.15J	0.33J	0.22J	0.14J
Toluene	1000	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	0.63J	5U	0.5U	0.5U	0.28J	0.5U	0.5U	0.5U	0.5U	0.5U
trans-1,2-Dichloroethene	100	0.5U	0.18J	0.19J	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.18J	0.5U
Trichloroethene	5	2.3	2.3	2.3	2	3.3J	3.3J	5U	3.3J	2.7J	2.7J	5U	2.5J	2.3J	5U	1.8	0.5U	1.1	0.26J	0.7J	0.75	0.86	0.48J
Trichlorofluoromethane (Freon 11)	2100	0.5UJ	0.13J	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	0.29J	5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U
Xylene (Total)	10,000	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	0.37J	0.27J	5U	5U	0.22J	5U	0.5U	0.5U	0.34J	0.1U	0.5U	0.5U	0.77	0.5U

	EPA Sample ID	E3Y63	E3Y73
	Station Location	A4-MW401A	A4-MW401A
	Date	5/30/2017	11/14/2017
Analyte Name	RG		
1,1,1-Trichloroethane	200	8.5	8.4
1,1-Dichloroethane	1400	8.7J	10
1,1-Dichloroethene	7	3.5	3.4
1,4-Dioxane	7.7	NA	NA
Acetone	6300*	5U	5U
Benzene	5	0.5U	4.4
Bromodichloromethane	0.2*	0.5U	0.5U
Chloromethane	-	0.5U	0.5U
cis-1,2-Dichloroethene	70	1.8	2
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U
Methylene Chloride	5**	0.5U	0.5U
Tetrachloroethene	5	0.35J	0.43J
Toluene	1000	0.5U	0.5J
trans-1,2-Dichloroethene	100	0.16J	0.3J
Trichloroethene	5	1.3	1.5
Trichlorofluoromethane (Freon 11)	2100	0.5U	0.33J
Xylene (Total)	10,000	0.5U	0.79J

	EPA Sample ID	E3WP0	E3WQ8	E3WQ9	E53J7	E52C7	E52G9	E52H0	E52K4	E52N0	E52R4	E51R5	E52P4	E52Q6	E52Q7	E3XB5	E3XB6	E3XF5	E3XX4	E3XM3	E3XN5	E3XS0	E3XT9
	Station Location	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B
	Date	11/11/2009	2/10/2010	2/10/2010	6/14/2010	10/6/2010	3/13/2011	3/13/2011	6/18/2011	7/19/2011	10/11/2011	10/11/2011	1/10/2012	1/10/2012	1/10/2012	7/25/2012	7/25/2012	1/15/2013	7/22/2013	11/17/2013	5/21/2014	12/16/2014	5/20/2015
Analyte Name	RG																						
1,1,1-Trichloroethane	200	15	13J	10	6.1	10	9.1	8.8	10	6.3	4.6J	4J	6.6	8.1	8.9	6.7	6.2	7.2	4.3	5.3	6.2	2	7.1
1,1-Dichloroethane	1400	16	10	9.5	5.2	10	8.8	8.4	8.2	6.6	5.3	4.6J	6.6	8.2	7.9	7	6.4	8.5	7	6.8	8.6	12	11
1,1-Dichloroethene	7	0.5U	2	0.5U	1	5U	1.7J	1.9J	1.4J	1.9J	5U	5U	5U	5U	5U	5U	5U	5U	1.2	0.76J	1.3J	2	1.6
1,2,3-Trichlorobenzene	–	0.5U	0.5U	0.5U	0.5U	5UJ	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.92J
1,2,4-Trichlorobenzene	70*	0.5U	0.5U	0.5U	0.5U	5UJ	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.23J
Bromodichloromethane	0.2*	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.13J
cis-1,2-Dichloroethene	70	340	7.1	6.7	3.8	6.8	5.2	5J	5.3	4J	3.2J	2.7J	4.3J	5J	3.6J	3J	2.9J	2.8J	2.2	1.9	1.9	2.7	2.5
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	0.5U	0.74J	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.5U	0.5U	0.5U
Methylene Chloride	5**	1U	0.5UJ	0.5U	0.5U	5U	5U	5U	5U	5U	12U	12U	5U	5U	5U	5U	5U	10U	0.5U	0.5U	0.5U	0.5U	2U
Tetrachloroethene	5	0.45J	0.38J	0.33J	0.5U	5U	0.35J	0.35J	5U	0.34J	5U	5U	5U	5U	5U	0.57J	5U	5U	0.29J	0.72	0.4J	0.53	0.4J
Toluene	1000	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5.7	5.8	0.72J	0.69J	5U	0.52J	0.29J	0.5U	2.3U	0.5U
trans-1,2-Dichloroethene	100	0.46J	0.37J	0.27J	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.18J	0.47J	0.28J
Trichloroethene	5	4.8	3.7	3.3	2.8	3.4J	3.7J	3.3J	3J	2.5J	5U	5U	2.5J	2.9J	1.4J	2.2J	2.1J	2J	1.3J	1.1	1.2	1.7	2.2
Trichlorofluoromethane (Freon 11)	2100	0.5U	0.5UJ	0.5U	0.5U	5U	0.14J	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.5U	0.5U	0.36J	0.43J	0.21J
Xylene (Total)	10,000	0.5U	0.5U	0.5U	0.5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	5U	0.37J	0.27J	0.5U	5	0.5U

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D= Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

R = Rejected

CDM Smith

Table 2
Source Area 4 GMZ Summary of Detections (2010 - 2017)
Southeast Rockford Groundwater Contamination Superfund Site

	EPA Sample ID	E3XZ6	E3Y12	E3Y64	E3Y74
	Station Location	A4-MW401B	A4-MW401B	A4-MW401B	A4-MW401B
	Date	4/5/2016	10/3/2016	5/30/2017	11/14/2017
Analyte Name	RG				
1,1,1-Trichloroethane	200	6.3	8	7	6.8
1,1-Dichloroethane	1400	11	11	13J	12
1,1-Dichloroethene	7	0.5U	0.5U	1.4	1.6
1,2,3-Trichlorobenzene	--	0.5U	0.5U	0.5U	0.5U
1,2,4-Trichlorobenzene	70*	0.5U	0.5U	0.5U	0.5U
Bromodichloromethane	0.2*	0.14J	0.5U	0.5U	0.5U
cis-1,2-Dichloroethene	70	2.4	2.4	2.1	2.4
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	0.5U
Methylene Chloride	5**	0.5U	0.5U	0.25J	0.5U
Tetrachloroethene	5	0.13J	0.4J	0.45J	0.41J
Toluene	1000	0.5U	0.5U	0.5U	0.64
trans-1,2-Dichloroethene	100	0.33J	0.32J	0.27J	0.36J
Trichloroethene	5	1.8	1.4	1.4	1.6
Trichlorofluoromethane (Freon 11)	2100	0.23J	0.5U	0.23J	0.35J
Xylene (total)	10,000	0.5U	0.5U	0.5U	0.93J

	EPA Sample ID	E3XH7	E3XM5	E3XM7	E3XM6	E3XR3	E3XT2	E3XZ5	E3Y10	E3Y65	E3Y72
	Station Location	A4-MW403	A4-MW403	A4-MW403	A4-MW403	A4-MW403	A4-MW403	A4-MW403	A4-MW403	A4-MW403	A4-MW403
	Date	7/23/2013	12/17/2013	5/21/2014	5/21/2014	12/15/2014	5/19/2015	4/5/2016	10/3/2016	5/30/2017	11/14/2017
Analyte Name											
1,1,1-Trichloroethane	200	24D	11	12	14	41D	3.9	700	13	2	2.3
1,1-Dichloroethane	1400	7.7	3.3J	4.7	5.8J	14	6.7	70	2.7	3.3J	2.1
1,1-Dichloroethene	7	2.6	0.19J	0.55	0.67J	1.3	0.78	4.1	0.59J	1.1	0.4J
Acetone	6300*	5U	5U	10U	5U	5U	5U	5U	3.3J	5U	5U
Benzene	5	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	3
Chloromethane	-	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.27J	0.5U	0.5U
cis-1,2-Dichloroethene	70	0.98	0.91	1	1.3J	1.6	1.6	1	0.59J	0.48	0.46J
Dichlorodifluoromethane (Freon 12)	1400	0.5U	0.5U	0.5U	0.5U	0.5U	0.38J	0.5U	0.5U	0.5U	0.5U
Methylene Chloride	5**	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.5U	0.22J	0.5U
Tetrachloroethene	5	0.5U	0.25J	0.32J	0.39J	0.45J	0.37J	0.72J	0.19J	0.25J	0.5U
Toluene	1000	0.5U	0.38J	0.5U	0.5U	2.3U	0.5U	0.5U	0.5U	0.25J	0.55
trans-1,2-Dichloroethene	100	0.5U	0.5U	0.077J	0.094J	0.3J	0.5U	0.5U	0.5U	0.5U	0.5U
Trichloroethene	5	0.58	0.79	0.67	0.8	0.89	0.53	0.55	0.33J	0.5U	0.72J
Xylene (total)	10,000	0.32J	0.39J	0.5U	0.5U	2.3	0.5U	0.5U	0.3J	0.17J	0.97J

	EPA Sample ID	E3Y66	E3Y68	E3Y83	E3Y84
	Station Location	A4-MW403A	A4-MW403A-D	A4-MW403A	A4-MW403A-D
	Date	5/30/2017	5/30/2017	11/15/2017	11/15/2017
Analyte Name					
1,1,1-Trichloroethane	200	4.4J	4.6J	5U	5U
1,1-Dichloroethane	1400	8.9	9.6	9	8.5
Benzene	5	5U	5U	3.6J	3.3J
cis-1,2-Dichloroethene	70	2J	2.1J	2.9J	3.8J
Toluene	1000	5U	5U	5U	0.58J
Trichloroethene	5	5U	5U	0.71J	0.88J

Notes:

All results in micrograms per liter

Remediation goals from Record of Decision or Class I Groundwater Standard from 35 IAC 620.410

Shaded results exceed remediation goal

* Remediation goal from TACO (35 IAC 742)

-D= Duplicate sample

D = Diluted sample result

U = Not detected at value shown

J = Estimated result

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CDM Smith

APPENDIX

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: June 13, 2018

FROM: Timothy Prendiville, Supervisor (SR-6J)
Superfund Contract Management Section

TO: Data User: CDM Smith
Email Address: grabsjc@cdm.com

Electronic and Manual Validation for Region 5

We have reviewed the data for the following case:

SITE Name: Southeast Rockford Groundwater (IL)

Case No: 47660 MA No: N/A SDG No: E3YA0

Number and Type of Samples: 16 waters (Trace Volatiles)

Sample Numbers: E3Y85 – E3Y99, E3YA0

Laboratory: Shealy Environmental Services (EQI) Hrs. for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SA-5J

Case No: 47660
Site Name: Southeast Rockford Groundwater (IL)

SDG No: E3YA0
Laboratory: EQI

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Sixteen (16) preserved water samples, E3Y85 through E3Y99 and E3YA0, were shipped to Shealy Environmental Services (EQI) located in West Columbia, SC. The samples were collected May 22-23, 2018 and received on May 24, 2018, intact and properly cooled.

All samples were analyzed for the trace volatile analyte list according to CLP SOW SOM02.4 (October 2016). The data package was reviewed according to the January 2017 NFG for SOM02.4 (EPA-540-R-2017-002) and the ESAT Region 5 Organic CLP Validation SOP.

Trace volatile sample E3Y90 was designated as the parent sample for the MS/MSD analyses.

Trace volatile sample, E3Y85, was identified as a trip blank. Trace volatile sample, E3Y94, was identified as a field blank. Trace volatile sample E3Y87 was identified as a field duplicate of trace volatile sample E3Y86. Trace volatile sample E3YA0 was identified as a field duplicate of trace volatile sample E3Y99.

Reviewed by: Allison C. Harvey /Techlaw-ESAT
Date: July 19, 2018

Case No: 47660
Site Name: Southeast Rockford Groundwater (IL)

SDG No: E3YA0
Laboratory: EQI

1. PRESERVATION AND HOLDING TIMES

No problems found.

2. GAS CHROMATOGRAPH/MASS SPECTROMETER INSTRUMENT PERFORMANCE CHECK

No problems found.

3. INITIAL CALIBRATION

No problems found.

4. INITIAL CALIBRATION VERIFICATION

No problems found.

5. CONTINUING CALIBRATION

No problems found.

6. BLANKS

The following trace volatile samples have analyte results reported less than CRQL. The associated trip blank, E3Y85, results are less than CRQLs. Detects are qualified U. Sample results have been reported at CRQLs.

E3Y86
Bromodichloromethane

E3Y88, E3Y90, E3Y96, E3Y97, E3Y98, E3Y99, E3YA0
Toluene

E3Y93
Acetone

The following trace volatile samples have analyte results reported greater than CRQL and less than 2x CRQL. The associated trip blank, E3Y85, results are less than CRQLs. Detects are qualified U. Sample results have been reported at 2x CRQLs.

E3Y94
Acetone

The following trace volatile samples have analyte results reported less than CRQLs. The associated trip blank results are greater than or equal to CRQLs. Detects are qualified U. Blank results have been reported at the CRQLs.

E3Y86, E3Y87
Chloroform

The following trace volatile samples have analyte results reported greater than or equal to CRQLs and less than the trip blank, E3Y85, result. The associated trip blank results are greater than or equal to CRQLs. Detects are qualified U unless otherwise qualified for another criterion. Blank results have been reported as the sample analyte results.

E3Y92, E3Y94
Chloroform

The following trace volatile samples have the same tentatively identified compounds (TIC) detected as in the associated trip blank, E3Y85. TIC results reported in the associated trip blank exceed concentration criteria (> 0.5 µg/L). Detects are not qualified.

E3Y94
Unknown-01 @ RT 1.75

7. DEUTERATED MONITORING COMPOUNDS / SURROGATES

The following trace volatile samples have DMC/surrogate percent recoveries less than the primary minimum criteria but greater than or equal to the expanded minimum criteria. Detects are qualified as estimated J-. Nondetects are qualified as estimated UJ.

E3Y90MSD, E3Y92, E3Y96
Chlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

8. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Trace volatile sample E3Y90 was designated as the parent sample for the MS/MSD analyses.

The following trace volatile matrix/matrix spike duplicate samples have percent recoveries greater than or equal to the expanded minimum criteria but less than the primary minimum criteria. Detects in the unspiked sample, E3Y90, are qualified as estimated J. Nondetects in the unspiked sample, E3Y90, are qualified as estimated UJ.

E3Y90MSD
Trichloroethene, Toluene, Chlorobenzene

9. FLORISIL CARTRIDGE PERFORMANCE CHECK

Not required for these analyses.

10. CLEANUP PROCEDURES

Not required for these analyses.

11. LABORATORY CONTROL SAMPLE

Not required for these analyses.

12. INTERNAL STANDARD

No problems found.

13. TARGET ANALYTE IDENTIFICATION

No problems found.

14. REPORTED CONTRACT QUANTITATION LIMIT

The following trace volatile samples have analyte results greater than or equal to method detection limit (MDL) and below contract required quantitation limit (CRQL). Detects are qualified as estimated J.

E3Y85
Acetone, Bromodichloromethane, Toluene

E3Y86, E3Y87
trans-1,2-Dichloroethene

E3Y88
Trichloroethene, Tetrachloroethene, m.p-Xylene

E3Y89, E3Y96
Trichlorofluoromethane, trans-1,2-Dicloroethene, Tetrachloroethene

E3Y90, E3Y90MS, E3Y90MSD, E3Y99, E3YA0
trans-1,2-Dichloroethene, Tetrachloroethene, m,p-Xylene

E3Y91, E3Y93, E3Y97
trans-1,2-Dichloroethene, Tetrachloroethene

E3Y92
trans-1,2-Dichloroethene, Tetrachloroethene, Ethylbenzene, Isopropylbenzene

E3Y94
2-Butanone

E3Y98
Trichlorofluoromethane, trans-1,2-Dichloroethene, Tetrachloroethene, m,p-Xylene

15. TENTATIVELY IDENTIFIED COMPOUNDS

Sample results are identified in the separate Data Validation Report titled 'Tentatively Identified Compounds'. The manually reviewed report is titled '47660.EPW14035.E3YA0.TIC.rtf'.

16. SYSTEM PERFORMANCE

No problems found.

17. FIELD QC SAMPLES

Trace volatile sample, E3Y94, was identified as a field blank. Sample E3Y94 contained 2-Butanone with a concentration of 2.2 µg/L and one TIC.

Trace volatile sample, E3Y85, was identified as a trip blank. Sample results are summarized in the following table:

QC Type:	Trip Blank
Sample #:	A4-TB01-180522
Location:	TB01
CLP Sample #:	**E3Y85**
Collected:	5/22/2018
Sample Time:	18:25
Analytes/ Units	µg/L
Acetone	4.0 J
Chloroform	1.5
Bromodichloromethane	0.42 J
Toluene	0.12 J
No of TICs	2
Associated samples:	E3Y86, E3Y87, E3Y88 E3Y89, E3Y90, E3Y91 E3Y92, E3Y93, E3Y94 E3Y95, E3Y96, E3Y97 E3Y98, E3Y99, E3YA0

Trace volatile sample E3Y87 was identified as a field duplicate of trace volatile sample E3Y86. Trace volatile sample E3YA0 was identified as a field duplicate of trace volatile sample E3Y99. Sample results and RPDs are summarized in the following table:

Sample Type:	Field Sample	Field Duplicate	
CLP Sample #:	**E3Y86**	**E3Y87**	
User Sample #:	A4-MW32-180522	A4-MW32-180522-D	
Location:	MW32	MW32	
Collection Date/Time:	5/22/2018 11:40	5/22/2018 11:40	RPDs
Units:	µg/L	µg/L	%
1,1-Dichloroethene	2.1	2.2	4.7
trans-1,2-Dichloroethene	0.31 J	0.34 J	9.2
1,1-Dichloroethane	11	12	8.7
cis-1,2-Dichloroethene	2.3	2.5	8.3
1,1,1-Trichloroethane	9.3	9.9	6.3
Trichloroethene	3.0	3.3	9.5
Tetrachloroethene	0.58	0.61	5.0
# of TICs	0	0	

Sample Type:	Field Sample	Field Duplicate	
CLP Sample #:	**E3Y99**	**E3YA0**	
User Sample #:	A4-MW408A-180523	A4-MW408A-180523-D	
Location:	MW0408A	MW0408A	
Collection Date/Time:	5/23/2018 14:15	5/23/2018 14:15	RPDs
Units:	µg/L	µg/L	%
1,1-Dichloroethene	1.6	1.7	6.1
trans-1,2-Dichloroethene	0.26 J	0.25 J	3.9
1,1-Dichloroethane	9.9	9.9	0.0
cis-1,2-Dichloroethene	1.9	1.9	0.0
1,1,1-Trichloroethane	3.5	3.5	0.0
Trichloroethene	0.72	0.72	0.0
Tetrachloroethene	0.24	0.25	4.1
m,p-Xylene	0.15	0.16	6.5
# of TICs	4	3	

18. OVERALL ASSESSMENT

Manual integrations were performed for the following samples due to a "peak integrated by software incorrectly" according to the laboratory narrative. These manual integrations were reviewed by the reviewer and appear to be acceptable without additional qualifications.

Case No: 47660
Site Name: Southeast Rockford Groundwater (IL)

SDG No: E3YA0
Laboratory: EQI

QC Type	EPA samples	Date/Time analyzed	File ID	Analytes
TVOA ICAL	VSTD00.5II	29-May-2018 17:07	80529D02.D	Dichlorofluoromethane
	VSTD00.5II	29-May-2018 17:07	80529D02.D	Vinyl Chloride
	VSTD00.5II	29-May-2018 17:07	80529D02.D	Cyclohexane
	VSTD00.5II	29-May-2018 17:07	80529D02.D	1,2-Dichloroethane-d_4
	VSTD00.5II	29-May-2018 17:07	80529D02.D	1,2-Dichloropropane
	VSTD00.5II	29-May-2018 17:07	80529D02.D	1,2-Dibromoethane
	VSTD00.5II	29-May-2018 17:07	80529D02.D	Bromoform
TVOA ICAL	VSTD001II	29-May-2018 17:33	80529D03.D	Dichlorofluoromethane
	VSTD001II	29-May-2018 17:33	80529D03.D	Cyclohexane
	VSTD001II	29-May-2018 17:33	80529D03.D	1,2-Dibromoethane
TVOA ICAL	VSTD001KA	01-Jun-2018 14:29	80601B05.D	Cyclohexane
	VSTD001KA	01-Jun-2018 14:29	80601B05.D	1,2-Dibromoethane
	VSTD001KA	01-Jun-2018 14:29	80601B05.D	Bromoform
TVOA ICAL	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	Cyclohexane
	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	1,2-Dichloropropane
	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	1,2-Dibromoethane
	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	Chlorobenzene
	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	Bromoform
	VSTD0.5KA	01-Jun-2018 14:54	80601B06.D	1,2-Dibromo-3-chloropropane
TVOA ICV	VICVKA	01-Jun-2018 16:13	80601B07.D	Trichlorofluoromethane
	VICVKA	01-Jun-2018 16:13	80601B07.D	Cyclohexane
TVOA CCV	VSTD005KG	01-Jun-2018 16:52	80601B08.D	Trichlorofluoromethane

Reviewed by: Allison C. Harvey /Techlaw-ESAT
Date: July 19, 2018

Case No: 47660
Site Name: Southeast Rockford Groundwater (IL)

SDG No: E3YA0
Laboratory: EQI

Validation Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the results may be biased high.
J-	The result is an estimated quantity, but the results may be biased low.
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the sample.
UJ	The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the sample.
C	The target Pesticide or Aroclor analyte identification has been confirmed by Gas Chromatograph/Mass Spectrometer (GC/MS).
X	The target Pesticide or Aroclor analyte identification was not confirmed when GC/MS analysis was performed.

Reviewed by: Allison C. Harvey /Techlaw-ESAT
Date: July 19, 2018

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y85	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: TB01	pH: 2	Sample Date: 05/22/2018	Sample Time: 18:25:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	4.0	J	ug/L	4.0	J	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	1.5		ug/L	1.5		1.0	YES	S3VE
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.42	J	ug/L	0.42	J	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.12	J	ug/L	0.12	J	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Unknown-02	TIC	0.63	J	ug/L	0.63	J	1.0	YES	NV
Unknown-01	TIC	2.5	J	ug/L	2.5	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y86	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW32	pH: 2	Sample Date: 05/22/2018	Sample Time: 11:40:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	2.1		ug/L	2.1		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.31	J	ug/L	0.31	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	11		ug/L	11		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	2.3		ug/L	2.3		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.39	J	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	9.3		ug/L	9.3		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	3.0		ug/L	3.0		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.23	J	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.58		ug/L	0.58		1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | **GroupID: 47660/EPW14035/E3YA0** | **Lab Name: Shealy Environmental Services, Inc.**

Sample Number: E3Y87	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW32	pH: 2	Sample Date: 05/22/2018	Sample Time: 11:40:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	2.2		ug/L	2.2		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.34	J	ug/L	0.34	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	12		ug/L	12		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	2.5		ug/L	2.5		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.41	J	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	9.9		ug/L	9.9		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	3.3		ug/L	3.3		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.61		ug/L	0.61		1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | **GroupID: 47660/EPW14035/E3YA0** | **Lab Name: Shealy Environmental Services, Inc.**

Sample Number: E3Y88	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW403	pH: 2	Sample Date: 05/23/2018	Sample Time: 14:25:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	0.56		ug/L	0.56		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	3.5		ug/L	3.5		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	0.69		ug/L	0.69		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	2.1		ug/L	2.1		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	0.35	J	ug/L	0.35	J	1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.18	J	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.19	J	ug/L	0.19	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.19	J	ug/L	0.19	J	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Unknown-01	TIC	0.95	J	ug/L	0.95	J	1.0	YES	NV
Cyclohexene, 1-methyl-4-(1-	TIC	0.52	NJ	ug/L	0.52	NJ	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
methylethenyl									

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y89	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW401A	pH: 2	Sample Date: 05/22/2018	Sample Time: 14:56:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.12	J	ug/L	0.12	J	1.0	YES	S3VE
1,1-Dichloroethene	Target	1.3		ug/L	1.3		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.22	J	ug/L	0.22	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	8.2		ug/L	8.2		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	1.7		ug/L	1.7		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	6.0		ug/L	6.0		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	1.4		ug/L	1.4		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.39	J	ug/L	0.39	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Unknown-02	TIC	1.8	J	ug/L	1.8	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Unknown-01	TIC	0.81	J	ug/L	0.81	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y90	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW401B	pH: 2	Sample Date: 05/22/2018	Sample Time: 14:55:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	1.4		ug/L	1.4		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane.	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.24	J	ug/L	0.24	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	8.3		ug/L	8.3		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	1.7		ug/L	1.7		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	6.0		ug/L	6.0		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	1.4	J	ug/L	1.4		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	UJ	ug/L	0.16	J	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.34	J	ug/L	0.34	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.14	J	ug/L	0.14	J	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Unknown-02	TIC	1.5	J	ug/L	1.5	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Unknown-01	TIC	0.70	J	ug/L	0.70	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y90MS	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location:	pH: 2	Sample Date: 05/22/2018	Sample Time: 14:55:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Spike	5.4		ug/L	5.4		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.22	J	ug/L	0.22	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	8.3		ug/L	8.3		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	1.7		ug/L	1.7		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	5.9		ug/L	5.9		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Spike	4.0		ug/L	4.0		1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Spike	5.3		ug/L	5.3		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Spike	4.1		ug/L	4.1		1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.34	J	ug/L	0.34	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Spike	3.9		ug/L	3.9		1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.15	J	ug/L	0.15	J	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Unknown-02	TIC	1.5	J	ug/L	1.5	J	1.0	YES	NV.

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Unknown-01	TIC	0.64	J	ug/L	0.64	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y90MSD	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location:	pH: 2	Sample Date: 05/22/2018	Sample Time: 14:55:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Spike	5.3		ug/L	5.3		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.20	J	ug/L	0.20	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	8.0		ug/L	8.0		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	1.6		ug/L	1.6		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	5.6		ug/L	5.6		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Spike	3.8		ug/L	3.8		1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Spike	4.9		ug/L	4.9		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Spike	3.9		ug/L	3.9		1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.34	J	ug/L	0.34	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Spike	3.7	J-	ug/L	3.7		1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.16	J	ug/L	0.16	J	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
Unknown-02	TIC	1.3	J	ug/L	1.3	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Unknown-01	TIC	0.58	J	ug/L	0.58	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | **GroupID: 47660/EPW14035/E3YA0** | **Lab Name: Shealy Environmental Services, Inc.**

Sample Number: E3Y91	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: EW002	pH: 2	Sample Date: 05/22/2018	Sample Time: 17:48:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	1.1		ug/L	1.1		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.23	J	ug/L	0.23	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	8.1		ug/L	8.1		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	1.6		ug/L	1.6		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	6.1		ug/L	6.1		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	1.4		ug/L	1.4		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.45	J	ug/L	0.45	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Unknown-02	TIC	0.72	J	ug/L	0.72	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Unknown-01	TIC	0.62	J	ug/L	0.62	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | **GroupID: 47660/EPW14035/E3YA0** | **Lab Name: Shealy Environmental Services, Inc.**

Sample Number: E3Y92	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: EW003	pH: 2	Sample Date: 05/22/2018	Sample Time: 18:00:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	1.3		ug/L	1.3		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.16	J	ug/L	0.16	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	5.6		ug/L	5.6		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	1.2		ug/L	1.2		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.63	U	ug/L	0.63		1.0	YES	S3VE
1,1,1-Trichloroethane	Target	4.0		ug/L	4.0		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	0.92		ug/L	0.92		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.46	J	ug/L	0.46	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.24	J	ug/L	0.24	J	1.0	YES	S3VE
o-Xylene	Target	0.60		ug/L	0.60		1.0	YES	S3VE
m, p-Xylene	Target	0.81		ug/L	0.81		1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.22	J	ug/L	0.22	J	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
Benzene, 1,2,4,5-tetramethyl-	TIC	1.2	NJ	ug/L	1.2	NJ	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Benzene, 1-methyl-2-propyl-	TIC	0.85	NJ	ug/L	0.85	NJ	1.0	YES	NV
Unknown-04	TIC	0.81	J	ug/L	0.81	J	1.0	YES	NV
Benzene, (2-methyl-1-propenyl)-	TIC	1.5	NJ	ug/L	1.5	NJ	1.0	YES	NV
Benzene, 1-ethyl-2,3-dimethyl-	TIC	1.8	NJ	ug/L	1.8	NJ	1.0	YES	NV
Benzene, 1-methyl-3-propyl-	TIC	0.86	NJ	ug/L	0.86	NJ	1.0	YES	NV
Benzene, 2-ethyl-1,4-dimethyl-	TIC	0.90	NJ	ug/L	0.90	NJ	1.0	YES	NV
Benzene, 4-ethyl-1,2-dimethyl-	TIC	1.6	NJ	ug/L	1.6	NJ	1.0	YES	NV
o-Cymene	TIC	0.98	NJ	ug/L	0.98	NJ	1.0	YES	NV
Benzene, 1,2,3,4-tetramethyl-	TIC	1.5	NJ	ug/L	1.5	NJ	1.0	YES	NV
Benzene, 1-ethyl-3-methyl-	TIC	3.8	NJ	ug/L	3.8	NJ	1.0	YES	NV
Benzene, propyl-	TIC	0.84	NJ	ug/L	0.84	NJ	1.0	YES	NV
Benzene, 1-ethyl-2,4-dimethyl-	TIC	0.79	NJ	ug/L	0.79	NJ	1.0	YES	NV
Benzene, 1,2,4-trimethyl-	TIC	4.2	NJ	ug/L	4.2	NJ	1.0	YES	NV
Unknown-05	TIC	0.52	J	ug/L	0.52	J	1.0	YES	NV
Benzene, 1,4-diethyl-	TIC	1.7	NJ	ug/L	1.7	NJ	1.0	YES	NV
Unknown-06	TIC	2.1	J	ug/L	2.1	J	1.0	YES	NV
Unknown-03	TIC	0.69	J	ug/L	0.69	J	1.0	YES	NV
Unknown-02	TIC	0.75	J	ug/L	0.75	J	1.0	YES	NV
Benzene, 1-ethyl-2-methyl-	TIC	2.3	NJ	ug/L	2.3	NJ	1.0	YES	NV
Mesitylene	TIC	2.9	NJ	ug/L	2.9	NJ	1.0	YES	NV
Unknown-01	TIC	0.55	J	ug/L	0.55	J	1.0	YES	NV
Benzene, 1,2,3-trimethyl-	TIC	6.8	NJ	ug/L	6.8	NJ	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y93	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: EW001	pH: 2	Sample Date: 05/22/2018	Sample Time: 17:48:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	0.56		ug/L	0.56		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	3.6	J	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.18	J	ug/L	0.18	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	6.7		ug/L	6.7		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	1.3		ug/L	1.3		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	5.3		ug/L	5.3		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	1.2		ug/L	1.2		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.31	J	ug/L	0.31	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Unknown-01	TIC	0.67	J	ug/L	0.67	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y94	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: FB01	pH: 2	Sample Date: 05/22/2018	Sample Time: 18:20:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1;2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	10	U	ug/L	6.4		1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1;1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Butanone	Target	2.2	J	ug/L	2.2	J	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	1.1	U	ug/L	1.1		1.0	YES	S3VE
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Unknown-01	TIC	1.9	J	ug/L	1.9	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y95	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW22A	pH: 2	Sample Date: 05/23/2018	Sample Time: 09:20:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	2.9		ug/L	2.9		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y96	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW22B	pH: 2	Sample Date: 05/23/2018	Sample Time: 09:40:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.17	J	ug/L	0.17	J	1.0	YES	S3VE
1,1-Dichloroethene	Target	0.94		ug/L	0.94		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.19	J	ug/L	0.19	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	6.9		ug/L	6.9		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	1.4		ug/L	1.4		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	5.1		ug/L	5.1		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	1.0		ug/L	1.0		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.12	J	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.29	J	ug/L	0.29	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	UJ	ug/L	0.50	U	1.0	YES	S3VE
Unknown-01	TIC	2.3	J	ug/L	2.3	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Ethane, 1,1-difluoro-	TIC	0.90	NJ	ug/L	0.90	NJ	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y97	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW130A	pH: 2	Sample Date: 05/23/2018	Sample Time: 11:30:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	2.0		ug/L	2.0		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.19	J	ug/L	0.19	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	8.2		ug/L	8.2		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	1.4		ug/L	1.4		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	5.9		ug/L	5.9		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	1.3		ug/L	1.3		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.13	J	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.31	J	ug/L	0.31	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Unknown-01	TIC	0.68	J	ug/L	0.68	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Ethane, 1-chloro-1,1-difluoro-	TIC	1.5	NJ	ug/L	1.5	NJ	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y98	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW130B	pH: 2	Sample Date: 05/23/2018	Sample Time: 11:30:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.20	J	ug/L	0.20	J	1.0	YES	S3VE
1,1-Dichloroethene	Target	1.5		ug/L	1.5		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.24	J	ug/L	0.24	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	10		ug/L	10		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	2.1		ug/L	2.1		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	7.3		ug/L	7.3		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	1.5		ug/L	1.5		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.28	J	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.38	J	ug/L	0.38	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.21	J	ug/L	0.21	J	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethane, 1-chloro-1,1-difluoro-	TIC	2.8	NJ	ug/L	2.8	NJ	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Ethane, 1,1-difluoro-	TIC	1.2	NJ	ug/L	1.2	NJ	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3Y99	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW0408A	pH: 2	Sample Date: 05/23/2018	Sample Time: 14:15:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	1.6		ug/L	1.6		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.26	J	ug/L	0.26	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	9.9		ug/L	9.9		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	1.9		ug/L	1.9		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	3.5		ug/L	3.5		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	0.72		ug/L	0.72		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.15	J	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.24	J	ug/L	0.24	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.15	J	ug/L	0.15	J	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene, 1,2,3,5-tetramethyl-	TIC	0.52	NJ	ug/L	0.52	NJ	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Benzene, 1,2,4,5-tetramethyl-	TIC	1.2	NJ	ug/L	1.2	NJ	1.0	YES	NV
Unknown-01	TIC	0.60	J	ug/L	0.60	J	1.0	YES	NV
Benzene, 4-ethyl-1,2-dimethyl-	TIC	0.53	NJ	ug/L	0.53	NJ	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: E3YA0	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location: MW0408A	pH: 2	Sample Date: 05/23/2018	Sample Time: 14:15:00
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	1.7		ug/L	1.7		1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.25	J	ug/L	0.25	J	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	9.9		ug/L	9.9		1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	1.9		ug/L	1.9		1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	3.5		ug/L	3.5		1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	0.72		ug/L	0.72		1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.15	J	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.25	J	ug/L	0.25	J	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.16	J	ug/L	0.16	J	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene, 1,2,4,5-tetramethyl-	TIC	1.1	NJ	ug/L	1.1	NJ	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project

GroupID: 47660/EPW14035/E3YA0

Lab Name: Shealy Environmental Services, Inc.

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Unknown-02	TIC	0.54	J	ug/L	0.54	J	1.0	YES	NV
Unknown-01	TIC	0.67	J	ug/L	0.67	J	1.0	YES	NV

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: VBLKIE	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: VBLKJS	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: VBLKKG	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location:	pH:	Sample Date:	Sample Time:
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE

Sample Summary Report

Project Name: SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION Project | GroupID: 47660/EPW14035/E3YA0 | Lab Name: Shealy Environmental Services, Inc.

Sample Number: VHBLK01	Method: Trace Volatiles	Matrix: Water	MA Number:
Sample Location:	pH: 2	Sample Date:	Sample Time:
% Moisture:		% Solids: 0.0	

Analyte Name	Analyte Type	Validation Result	Validation Flag	Units	Lab Result	Lab Flag	Dilution Factor	Reportable	Validation Level
Dichlorodifluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Vinyl chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromomethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichlorofluoromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloro-1,2,2-Trifluoroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Acetone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Carbon disulfide	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl acetate	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylene chloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methyl tert-butyl ether	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,2-Dichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Butanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Bromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chloroform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,1-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Cyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Carbon tetrachloride	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Benzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Trichloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Methylcyclohexane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromodichloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
cis-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
4-Methyl-2-pentanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Toluene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
trans-1,3-Dichloropropene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2-Trichloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Tetrachloroethene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
2-Hexanone	Target	5.0	U	ug/L	5.0	U	1.0	YES	S3VE
Dibromochloromethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromoethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Chlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Ethylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
o-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
m, p-Xylene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Styrene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Bromoform	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
Isopropylbenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,1,2,2-Tetrachloroethane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,3-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,4-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2-Dibromo-3-chloropropane	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,4-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE
1,2,3-Trichlorobenzene	Target	0.50	U	ug/L	0.50	U	1.0	YES	S3VE

Sample Summary Report

Appendix D
Photographic Log

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Photographic Log

Project: **IEPA Rockford Area 4**

Project Number: **80527**

Photo No.	Date:	Time:
1	12/21/2018	1545

Direction:

West

Description:

Treated effluent discharge pipe was removed and the area was regraded.

Photo No.	Date:	Time:
2	12/21/2019	1600

Direction:

West

Description:

The work trailer was removed and the area was regraded.

Photo No.	Date:	Time:
3	12/4/2019	0925

Direction:

West

Description:

Bloyer used a truck and a hydraulic winch to remove the three extraction wells located in the middle of Marshall Street.

CDM Smith

Photo No. 4	Date: 12/4/2019	Time: 0929

Direction:

Southeast

Description:

Once the pump and PVC shroud were removed from the well, the pump, associated electrical wiring, and PVC riser were cut into smaller pieces and placed in trash bags.

Photo No. 5	Date: 12/4/2019	Time: 0942

Direction:

North

Description:

Bentonite chips were slowly poured into the well casing by hand until the entire casing was full.

Photo No. 6	Date: 12/4/2019	Time: 1015

Direction:

North

Description:

The treatment trailer was removed, and the fill located in the area was placed into a pile.

CDM Smith

Photo No. 7	Date: 5/30/2019	Time: 1348
Direction: North		
Description: The area of the former treatment trailer was regraded. Topsoil and seed were subsequently placed to return the area to its previous condition.		

Photo No. 8	Date: 5/30/2019	Time: 1350
Direction: North		
Description: Stiles removed the manhole vaults from Marshall Street and placed asphalt to existing grade.		

Photo No. 9	Date: 5/30/2019	Time: 1351
Direction: Down		
Description: The area of the former extraction well vault was filled with CA-6. The area then had topsoil placed and mulch/seed blanket placed on top.		

CDM Smith

Photo No. 10	Date: 7/19/2019	Time: 1012

Direction:

North

Description:

The area of the former treatment trailer during the pre-final inspection. Seed placement identified as an action item.

Photo No. 11	Date: 7/19/2019	Time: 1019

Direction:

North

Description:

Former valve vault area during the pre-final inspection. Although mulch had been placed, seed placement identified as an action item.

Photo No. 12	Date: 8/01/2019	Time: 0909

Direction:

Northwest

Description:

The area of the former treatment trailer with grass coming in, but spotty. (Photo is rotated to fit panel.)

CDM Smith

Appendix E

Pre-Final Inspection and Punch List

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Pre-Final Inspection Checklist
Source Area 4 Remedial Action Completion
Southeast Rockford Groundwater Contamination Superfund Site

Date: July 9, 2019

Present: Brian Conrath, Illinois EPA
Troy McFate, Bodine
John Grabs, CDM Smith

Conditions: Sunny, 80° F

Item	Complete?	Comments
Site Work		
Pavement/asphalt condition; settling	Yes	• Former Swebco lot is marginal, but it was not in good condition to begin with. • Asphalt patches over former extraction well vaults in good condition.
Silt fencing/sediment baskets removed	Yes	None
Vegetation established	No	Grass seeding needed at former valve vault and treatment unit areas.
Construction debris removed	Yes	None
Construction trailer removed and area restored	Yes	None

Action Items:

Item	Status	Comment
Bodine to seed former treatment unit and valve vault areas	Partial	Grass seed and erosion mat put down in both areas on July 17, 2019. As of August 1, 2019, grass is growing in, but spotty in places. Will require further monitoring.