FIFTH FIVE-YEAR REVIEW REPORT FOR
SOUTHEAST ROCKFORD GROUND WATER CONTAMINATION SUPERFUND SITE
Winnebago County, Illinois

Prepared by

U.S. Environmental Protection Agency
Region 5
Chicago, Illinois

5/10/2018

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LIST OF ABBREVIATIONS & ACRONYMS

ARARs	Applicable or Relevant and Appropriate Requirements
AS/SVE	Air Sparge/Soil Vapor Extraction
bgs	Below ground surface
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Contaminant of concern
DCA	Dichloroethane
DCE	Dichloroethene
DCM	Dichloromethane
EPA	United States Environmental Protection Agency
ERH	Electrical Resistance Heating
ESD	Explanation of Significant Differences
ETX	Ethylbenzene, Toluene, Xylene
FYR	Five-Year Review
GAC	Granulated Activated Carbon
GMZ	Groundwater Management Zone
HS	Hamilton Sundstrand
ICs	Institutional Controls
ICIAP	Institutional Control Implementation and Assurance Plan
IDPH	Illinois Department of Public Health
IEPA	Illinois Environmental Protection Agency
LTRA	Long-term remedial action
LTS	Long-Term Stewardship
Mg/kg	Milligrams per kilogram
Mg/L	Milligrams per liter
MCL	Maximum contaminant level
MNA	Monitored natural attenuation
NAPL	Non-Aqueous Phase Liquid
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OSA	Outside Container Storage Area
OU	Operable unit
PCE	Tetrachloroethene
PRG	Preliminary remediation goal
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RG	Remediation goal
ROD	Record of Decision
RI/FS	Remedial Investigation/Feasibility Study
RPM	Remedial Project Manager
SERGWC	Southeast Rockford Ground Water Contamination

Site	Southeast Rockford Ground Water Contamination Superfund Site
TCA	Trichloroethane
TACO	Tiered Approach to Corrective Action Objectives
TBC	To be considereds
TCE	Trichloroethene
UECA	Uniform Environmental Covenants Act
ug/kg	microgram per kilogram
UTC	UTC (formerly known as Hamilton Sundstrand)
UU/UE	Unlimited Use/Unrestricted Exposure
VI	Vapor intrusion
VOC	Volatile Organic Compound

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The United States Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the fifth FYR for the Southeast Rockford Ground Water Contamination (SERGWC) Superfund Site (Site). The triggering action for this **statutory** review is the completion date of the previous FYR, May 13, 2013. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of three operable units (OUs), and all OUs will be addressed in this FYR. OU1 addresses the connection of residential and commercial properties to municipal water. OU2 addresses the groundwater contaminant plume area. OU3 addresses source control at four primary areas within the overall Site, Source Areas 4, 7, 9/10, and 11.

The SERGWC Superfund Site Fifth FYR was led by Karen Kirchner, EPA. Participants included, Cheryl Allen, EPA Community Involvement Coordinator, and Brian Conrath, Illinois Environmental Protection Agency (IEPA). Kyle Saunders, City of Rockford and Scott Moyer, UTC (formerly known as Hamilton Sundstrand (HS)) were notified of the initiation of the FYR. The review began on 12/11/2017.

Site Background

The SERGWC Site is an approximately 10-square mile mixed residential and commercial area in the southeastern portion of the city of Rockford where groundwater is contaminated with volatile organic compounds (VOCs) that are derived from poor past waste-handling practices by local industry. Because the Site is fairly large and complex, EPA broke it up into three portions termed OUs for ease of addressing Site contaminants. In 1991, EPA made an initial cleanup decision in a Record of Decision (ROD) to provide municipal water to affected residential and commercial properties in OU1. A second ROD was issued in 1995 that outlined the groundwater contaminant plume area (OU2) and the overall plume cleanup approach including the use of monitored natural attenuation (MNA). The 1995 ROD also identified four primary sources of groundwater contamination, called "Source Areas 4, 7, 9/10, and 11." EPA issued a 2002 ROD to address these primary sources of groundwater contamination as OU3.

Additional background information is found in Appendix B. Site maps can be found in Appendix C. A map of the overall Site is included as Figure 1. Site maps of Source Areas 4, 7, 9/10 and 11 are included as Figures 2 through 5, respectively.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Southeast Rockford Ground Water Contamination Site		
EPA ID: ILD981000417		
Region: 5	**State:** IL	**City/County:** Rockford/Winnebago

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

REVIEW STATUS
Lead agency: EPA
Author name (Federal or State Project Manager): Karen Kirchner
Author affiliation: Remedial Project Manager, EPA, Region 5
Review period: 12/11/2017 - 4/16/2018
Date of site inspection: 5/8/2017 and 1/29/2018
Type of review: Statutory
Review number: 5
Triggering action date: 5/13/2013
Due date *(five years after triggering action date)*: 5/11/2018

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

In June 1990, IEPA sampled approximately 117 wells as a part of the Remedial Investigation (RI) of the SERGWC area groundwater (OU2) to determine whether additional protections were needed beyond the completed removal actions. The human health risk assessment concluded that due to the identified presence of chlorinated VOCs, the ingestion of groundwater within the SERGWC plume area presented a significant risk to people using private wells for drinking water. A ROD for OU1 was signed June 14, 1991, which resulted in an additional 264 homes, for a total of 547 homes, connecting to municipal water and their private wells being plugged and abandoned. A removal action initiated in 1989 connected 283 homes to municipal water. In addition, a Granulated Activated Carbon (GAC) unit was installed on Municipal Water Well 35.

An investigation of potential groundwater contamination sources at the SERGWC Site was completed in January 1994, which included soil gas sampling, monitoring well installation and sampling, soil sampling, and residential air sampling.

At Source Area 4, a subsurface investigation on the south, east, and north side of the former Swebco Manufacturing property indicated that the source of soil VOC contamination is the area beneath the parking lot. Elevated concentrations of soil vapor migrated eastward from the Source Area. An 8-foot thick Light Non-Aqueous Phase Liquid zone was also present at the water table in the Source Area. The estimated volume of contaminated soil was 30,000 cubic feet in Source Area 4, and the maximum observed soil concentration was 510,000 micrograms per kilogram (ug/kg) of 1,1,1-trichloroethane (1,1,1-TCA), the primary VOC contaminant in Source Area 4 soils.

The extent of VOC soil contamination in the northern part of Source Area 7 extends northward from the north end of Ekberg Park for a distance of approximately 150 feet. The vertical extent of contamination extends to a depth of 29 feet in the northern part of the park, based on the maximum depth of drilling. Non-Aqueous Phase Liquid (NAPL) was found at a depth of about 26 feet in one boring, corresponding to 11 feet below the water table. The estimated volume of VOC-contaminated soil is 265,000 cubic yards in Source Area 7 and the maximum observed soil concentration was 875,450 ug/kg total VOCs. Surface water in the creek along the north boundary of Source Area 7 contained low levels of the same VOCs found in Source Area 7 soils, indicating that shallow groundwater from Source Area 7 was locally discharging to the creek; however, surface water samples collected upstream of Source Area 7 also showed impacts. Creek sediments did not indicate impacts from VOCs.

Significant sources of chlorinated VOC contamination were present at Sundstrand Plant #1 in Source Area 9/10, based on soil and groundwater data that show little or no contamination on the upgradient side of the plant and elevated concentrations on the downgradient side. Elevated 1,1,1-TCA concentrations in groundwater downgradient of Sundstrand indicated the possible presence of NAPL because the aqueous solubility limit of 1,1,1-TCA exceeded one percent. Sundstrand Plant #1 is owned and operated by UTC HS.

Sampling determined that soil contamination in Source Area 11 is dominated by the aromatic VOCs, ethylbenzene, toluene, and xylene (ETX), which are primarily located in the uppermost part of the saturated zone. This zone of ETX contamination extends from the east edge of the above-ground storage tank area, located on the western portion of the Site, west to 11th Street, based on soil samples collected during the RI investigation. In addition, significant ETX contamination was found at the northwest portion of the Rohr Manufacturing building, extending the area of known contamination 150 feet northward. It is likely that elevated ETX concentrations exist beneath the west end of the Rohr building. Chlorinated VOCs were present in Source Area 11 soils, however elevated detection limits (> 10,000 ug/kg) caused by high ETX concentrations prevent an accurate determination of chlorinated VOCs concentrations.

In 2000, a human health risk assessment was conducted for all four Source Areas of the SERGWC Site utilizing the IEPA Tiered Approach to Corrective Action Objectives (TACO) rules. The risk assessment

evaluated the following exposure pathways at each Source Area: 1) direct contact with soil, 2) chemicals transferring from soil to groundwater, and 3) ingestion of vegetables grown in soil, for Source Area 7 only, because portions of this area were used for agricultural purposes. The major Contaminants of Concern (COCs) for soil and groundwater and their Preliminary Remediation Goals (PRGs) from the 2002 OU3 ROD are identified in Table 1. The PRGs that were finalized within the 2002 ROD were then known as Remediation Goals (RGs). The risk assessment identified conditions at all four Source Areas that constituted potential or actual threats to human health or the environment. Concentrations of contaminants present in the soil at Source Areas 4, 7, and 11 existed at levels that were not protective of human health for groundwater consumption. The risk assessment also identified soils at Source Area 7 that exceeded direct contact PRGs for trichloroethene (TCE) and tetrachloroethene (PCE). Although no soil samples were obtained at Source Area 9/10 that had concentrations above PRGs, groundwater concentrations beneath Source Area 9/10 were as high as 12 milligrams per liter (mg/L) for 1,1,1-TCA, indicating a possible NAPL, a principal threat. The risk assessment also concluded that concentrations of contaminants in soil at Source Area 4 existed at levels that were not protective of human health via the direct contact exposure pathway. In cases where the site concentration exceeds levels protective of human health and the environment, risks to human health are considered unacceptable.

Groundwater investigations performed in 1993 and 1994, which were used in the OU2 risk assessment, indicated that Site-related groundwater contaminants were not adversely impacting the Rock River. Groundwater modeling performed at that time indicated that even without remediation, VOC concentrations in groundwater would not exceed surface water criteria. Endangered species were not identified at any of the Source Areas.

Indoor and outdoor air quality monitoring was initially performed in 1993 to assess the potential for vapor intrusion (VI) in the homes in Source Areas 4 and 7. The assessment concluded that indoor air was a potential pathway of concern at Source Area 4 but not at Source Area 7. Residential air sampling was conducted in indoor air of homes within Source Area 4 and 7 during the OU2 RI. The 1995 OU2 RI Report concluded that all chemicals detected in residential homes were below health-based air guidelines available at the time and that indoor air concentrations could not be directly correlated with groundwater contamination. Because the majority of the indoor air samples with significant detections were those taken from sump pits in basements of homes in Source Area 4, the Illinois Department of Public Health (IDPH) recommended that the pits be filled to limit potential exposure. Subsequent contact with the owners of homes with sump pits indicated that many had taken the advice of IDPH and filled the pits. Indoor air sampling was not conducted in Source Areas 9/10 and 11 because these areas are primarily industrial/ commercial and because soil gas concentrations near homes were low.

Table 1: COCs and PRGs as identified in the SERGWC Site June 2002 ROD

Media	COC*	PRG (Soil: mg/kg) (GW: mg/L)	Reference*	Source Area
Soil	1,1-DCE	0.06	TACO Tier 1 Protect GW	7, 9/10
Soil	1,1-DCE	700	TACO Tier 1 Contact	7
Soil	1,2-DCA	0.02	TACO Tier 1 Protect GW	9/10
Soil	1,2-DCE (total)	0.4	TACO Tier 1 Protect GW	9/10

Media	COC*	PRG (Soil: mg/kg) (GW: mg/L)	Reference*	Source Area
Soil	1,2-DCE (total)	1200	TACO Tier 1 Contact	7
Soil	1,2-DCE (total)	0.941	TACO EqR-15	7
Soil	Benzene	0.189	TACO EqR-15	11
Soil	Ethylbenzene	13	TACO Tier 1 Protect GW	9/10
Soil	Ethylbenzene	7.983	TACO EqR-15	11
Soil	Xylenes (total)	410	TACO Tier 1 Contact	7
Soil	Xylenes (total)	119	TACO EqR-15	7
Soil	Xylenes (total)	312	TACO EqR-15 Sat. Limit	11
Soil	Toluene	638	TACO EqR-15 Sat. Limit	11
Soil	DCM	0.02	TACO Tier 1 Protect GW	9/10
Soil	PCE	0.06	TACO Tier 1 Protect GW	9/10
Soil	PCE	11	TACO Tier 1 Contact	7
Soil	PCE	1.465	TACO Eq R-15	7
Soil	1,1,1-TCA	2.0	TACO Tier 1 Protect GW	9/10
Soil	1,1,1-TCA	1200	TACO Tier 1 Contact	7
Soil	1,1,1-TCA	108.033	TACO EqR-15	7
Soil	1,1,1-TCA	9.118	TACO Eq R-15	4
Soil	1,1,2-TCA	0.02	TACO Tier 1 Protect GW	9/10
Soil	TCE	0.06	TACO Tier 1 Protect GW	9/10
Soil	TCE	5	TACO Tier 1 Contact	7
Soil	TCE	0.31	TACO EqR-15	7
Soil	TCE	0.051	TACO Eq R-15	11
Soil	Vinyl chloride	0.01	TACO Tier 1 Protect GW	9/10
Soil	Beryllium	1.51	UTL on background	9/10
Soil	Benzo(a)anthracene	0.9	TACO Tier 1 Contact	9/10
Soil	Benzo(b)Fluoranthene	0.9	TACO Tier 1 Contact	9/10
Soil	Benzo(a)pyrene	0.3	Site specific background	9/10
Soil	Indeno(l,2,3-cd)pyrene	0.9	TACO Tier 1 Contact	9/10
Groundwater	1,1-DCE	0.007	MCL	7, 9/10
Groundwater	1,2-DCA	0.005	MCL	9/10
Groundwater	1,2-DCE (total)	0.17	Using cis-1,2 DCE MCL	7
Groundwater	Benzene	0.005	MCL	11
Groundwater	Ethylbenzene	0.7	MCL	9/10, 11
Groundwater	Toluene	1.0	MCL	9/10, 11
Groundwater	Xylenes (total)	10.0	MCL	7,11
Groundwater	PCE	0.005	MCL	7, 9/10
Groundwater	1,1,1-TCA	0.2	MCL	4, 7, 9/10
Groundwater	1,1,2-TCA	0.005	MCL	9/10
Groundwater	TCE	0.005	MCL	7, 9/10, 11
Groundwater	Vinyl chloride	0.002	MCL	9/10, 11

Media	COC*	PRG (Soil: mg/kg) (GW: mg/L)	Reference*	Source Area
Groundwater	DCM	0.005	MCL	9/10
Groundwater	Beryllium	0.004	MCL	9/10

*1,1-Dichloroethene (DCE)
1,2-Dichloroethane (DCA)
Dichloromethane (DCM)
Maximum Contaminant Level (MCL)

Response Actions

The goal for OU1 was to provide bottled water to residents that were using private wells to address immediate health risks. Next was the provision of a permanent clean, alternative source of drinking water by connecting affected homes/businesses to city water. OU2 identified additional homes/businesses with impacted private wells and investigated cleanup options for Site-contaminated groundwater. The goal of OU3 was to clean up the four primary groundwater contaminant Source Areas; restore contaminated groundwater to drinking water standards within a reasonable period of time; and, control further migration of groundwater contamination beyond its current extent. Cleanup remedies selected in the OU1, OU2, and OU3 RODs and their corresponding cleanup objectives are discussed below.

Operable Unit 1

Based upon the results of the OU1 RI/Feasibility Study (RI/FS), EPA signed the first ROD on June 14, 1991. The remedial action objective (RAO) in the OU1 ROD was to eliminate risks associated with exposure of the contaminated groundwater to residents of the Southeast Rockford area that use private wells for drinking water. The remedy for OU1 was an interim action remedy that addressed immediate health threats by providing clean, alternative drinking water supplies to affected residents. The remediation of the contaminated plume and Source Areas responsible for the contamination would be addressed in the later RODs.

The major components of the OU1 remedy selected in the 1991 ROD included:

- Construction of new water mains within targeted areas where no water mains existed and connection of these water mains to the city of Rockford water distribution system;
- Installation of service connections between the new water mains and affected residences which do not currently have access to municipal water;
- Installation of service connections between the new water mains and affected residences that already have water mains but are not connected to municipal water;
- Treating water pumped from Rockford Municipal Well 35 with GAC to achieve drinking water standards (this well only to be utilized during peak demand hours); and,
- Abandonment of existing private wells at residences that received hook-ups to city water.

Operable Unit 2

Based upon the results of the OU2 RI/FS, IEPA and EPA signed the OU2 ROD on September 20, 1995. The RAOs of the OU2 ROD were to eliminate the risks to human health and the environment by preventing exposure to groundwater contaminants; restore contaminated groundwater to drinking water standards within a reasonable period of time; and control further migration of groundwater contamination beyond its current extent. Cleanup goals for groundwater were the federal MCLs. The major components of the OU2 ROD that address exposures to groundwater contamination included:

- City water main extensions;
- Groundwater monitoring for 205 years;
- Water service connections to selected homes and businesses projected to have combined concentrations of 1,1,1,-TCA and 1,1-DCA at levels of 5 ppb or greater;
- Future water service connections to selected homes and businesses (if necessary);
- Future source control measures at the primary Source Areas responsible for the contamination;
- Continued use of GAC treatment at Rockford Municipal Well 35; and,
- Institutional controls (ICs) (restrict public usage of, and therefore exposure to, Site-related contaminated groundwater).

Although source control measures were a component of the OU2 ROD, the ROD stated that source control measures would be evaluated in the OU3 ROD.

Major components of the ROD that deal with management of groundwater migration included:

- Usage of natural processes (natural attenuation) to restore the groundwater to MCLs throughout the aquifer;
- Presumption that source control measures would be undertaken to reduce loadings to groundwater system, and reduce time required from 300 (without source control) to 205 years for achievement of goals;
- ICs to curtail land use and opportunity for drinking water well installation downgradient of the Site. Supplementing such controls is a local ordinance which requires issuance of a groundwater well permit before installation of any new drinking water well in an area of environmental degradation;
- Implementation of a long-term groundwater monitoring program designed to track horizontal and vertical extent of contaminated groundwater plume boundaries, monitor changes in chemical constituents and concentrations, and collect data to confirm that intrinsic biodegradation is occurring. The monitoring program consists of existing and new monitoring wells that monitors any expansion of the plume toward new or existing water supply wells; and
- GAC treatment at Municipal Well 35.

Operable Unit 3

Based upon the results of the OU3 RI/FS, EPA signed an OU3 ROD on June 11, 2002. The RAOs of the OU3 ROD were to:

- prevent dermal contact and ingestion of soil;
- prevent inhalation of airborne contaminants in soil that exceed state or federal health-based levels or pose a threat to human health; and
- prevent further migration of contamination from the Source Areas to the underlying aquifer.

Source Area 7, because it contained a park, a creek, and agricultural area, had the following additional RAO:

- prevent the public from direct contact with and ingestion of surface water or homegrown vegetables near the park containing contamination in excess of state or federal standards or that poses a threat to human health or the environment.

The OU3 ROD addressed the cleanup of soil and leachate (dissolved or suspended COCs within groundwater that originate in contaminated soils) at Source Areas 4, 9/10, and 11, thought to be responsible for the groundwater contamination. Soil remedies in the ROD consisted of either low-temperature thermal desorption or soil vapor extraction measures. Cleanup goals for soils and groundwater were established using the State of Illinois TACO regulations. Cleanup goals for ingestion of vegetables were established outside of TACO but using an approach approved by IEPA and EPA. The leachate remedy consisted of:

- the establishment of Groundwater Management Zones (GMZs) in the identified Source Areas,
- monitoring, and
- either limited extraction pumping to achieve on-Site containment of the plume plus treatment of collected water, air sparging, or other related enhancement that would supplement soil vapor extraction measures.

In the case of Source Area 9/10, the need to invoke the contingent remedy in the OU3 ROD was dependent upon the presence of free product, the presence of NAPLs, and relative success of soil remedy. Cleanup goals for leachate are federal MCLs that must be met at the GMZ boundary.

ICs to restrict public usage of (and therefore exposure to) Site-related contaminated groundwater are required by the OU3 ROD. The ICs objectives include curtailing certain land uses like residential, in some Source Areas as appropriate, and preventing drinking water well installation downgradient of the Site. Environmental Restrictive Covenants are in place in Source Areas 7 and 9/10. The major components of the selected remedial actions (RAs) for the OU3 Source Areas are shown in Table 2.

Table 2: Selected Remedial Actions for Source Areas 4, 7, 9/10, and 11

Source	Selected Remedy
Source Area 4	• Soil excavation followed by on-Site low-temperature thermal desorption with afterburner for gaseous emission control; • Hydraulic containment of leachate; and, • ICs

Source	Selected Remedy
	• Explanation of Significant Differences (ESD) for in-situ electrical resistance heating
Source Area 7	• A combination of soil vapor extraction (SVE) and air sparging system; with vapors thus collected and treated via catalytic oxidation; • Air sparging, to supplement SVE, would be conducted in shallower portions of the saturated zone. Air sparging wells may be about 50' in depth; • Multiphase extraction system with air stripper usage to manage collected VOCs. Subsequent surface water discharge to a nearby creek is then expected; • Hydraulic containment of leachate; and, • ICs • ESD for soil excavation
Source Area 9/10	• Soil vapor extraction and enhanced air sparging with activated carbon treatment to treat leachate; • Contingent remedy if Dense Non-Aqueous Phase Liquid are discovered in groundwater or if concentrations in groundwater are not decreasing after implementation of SVE; and, • ICs • ESD for soil excavation
Source Area 11	• Soil vapor extraction wells with vapor emissions treatment using catalytic oxidation; • No action for leachate (with monitoring); and, • ICs

Status of Implementation

Table 3: Site Chronology

Event	Date
Initial discovery of problem or contamination	1981
Pre-NPL response: Municipal well shut down/well sampling	1982-89
Final NPL listing	March 1989
Removal actions: Municipal water to 283 residences	August 1989-91
RI/FS complete (OU1)	March 1991
ROD signature (OU1)	June 14,1991
RD Complete (OU1)	June 1991
RA Complete (OU1): Additional 264 residents to city water	December 1992
RI/FS complete for Source Area identification (OU2)	1994
ROD signature (OU2) Additional 400 residents to city water, natural attenuation to restore contaminated aquifer	September 29, 1995

Event	Date
Additional Source Area investigation	1996-2000
Consent Decree (CD) for OU2: Rockford establishes groundwater monitoring network	1998
RA complete (OU2)	1999
CD with multiple potentially responsible parties (PRPs) for cost recovery/Area 7 Spec. Acct	1999, 2001
ROD signature (OU3) for source control remedies	June 11, 2002
Cooperative Agreement signed with IEPA for state-lead at Source Areas 4,7, and 11	2002, 2006
Administrative Order on Consent with HS for Remedial Design (RD) at Source Area 9/10	2003
Source Area 4 soil interim excavation complete	2005
RD completed by HS for Source Area 9/10	2007
RD completed by IEPA for Source Area 4	2007
CD with HS for RA, Source Area 9/10	September 2, 2008
ESD: Soil excavation for Source Area 9/10	2009
RA Construction completion: Source Area 4 leachate	2010
ESD: Soil excavation for Source Area 7	2010
RA Completion: Source Area 7 soil hot spot excavation	June 11, 2012
ESD for Electrical Resistance Heating (ERH) for Source Area 4 soil	July 27, 2012
RD Completion: Source Area 7	January 28, 2013
RA Construction completion: Source Area 9/10	February, 2013
Long-term remedial action (LTRA) Start: Area 11 MNA	October 1, 2013
RD Completion: Area 11 Phase II	October 21, 2013
RD completed for ERH for Source Area 4 soil	June 30, 2016
RA completed by IEPA for Source Area 4 soil	December 13, 2017
Previous FYRs	January 1998, May 2003, May 2008, and May 2013

Institutional Controls

ICs are non-engineered instruments, such as administrative and legal controls that help to minimize the potential for exposure to contamination and that protect the integrity of the remedy. ICs are required to assure protectiveness for any areas which do not allow for UU/UE. A summary of the implemented and planned ICs for the Site is listed in Table 4 and are further discussed below.

Table 4: Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Groundwater	Yes	Yes	OU2	Restrict groundwater use until cleanup standards are achieved.	Ordinance - Section 86-111 of Winnebago County Code Article III, November 1999 requires all properties within 200 feet of a public water supply to connect to the water supply instead of drilling a well. Section 86-114 of the Winnebago County Code also requires property owners to obtain a well permit for a new well or for well repairs. Property owners who have wells which are impacted and who refused to hook up to municipal water were notified that the well is contaminated.
Groundwater	Yes	Yes	Source Area 11	Restrict groundwater use until cleanup standards are achieved.	Ordinance - Section 86-111 of Winnebago County Code Article III, November 1999 requires all properties within 200 feet of a public water supply to connect to the water

					supply instead of drilling a well. Section 86-114 of the Winnebago County Code also requires property owners to obtain a well permit for a new well or for well repairs. Declaration of Restrictive Covenant pursuant to Illinois Uniform Environmental Covenants Act (UECA), planned
Groundwater	Yes	Yes	Source Areas 7, 9/10	Restrict groundwater use until cleanup standards are achieved.	Ordinance - Section 86-111 of Winnebago County Code Article III, November 1999 requires all properties within 200 feet of a public water supply to connect to the water supply instead of drilling a well. Section 86-114 of the Winnebago County Code also requires property owners to obtain a well permit for a new well or for well repairs. Declaration of Restrictive Covenant pursuant to Illinois UECA; HS portion of Source Area 9/10, recorded with Winnebago

					County Recorder's Office, August 3, 2011 (under review; updated covenant planned) Environmental Easement and Declaration of Restrictive Covenants, Source Area 7, recorded with Winnebago County Recorder's Office, March 27, 2008 (under review)
Land and Remedy Components	Yes	Yes	Source Areas 9/10	Restricted land use to industrial land use. No interference with the engineered barrier or hazardous waste. The following activities are prohibited: a) any other digging, excavation, construction or other activity that could or would interfere with, or adversely affect, the integrity of any engineering control implemented as part of the Remedial Action at the Property; b) any uses of the Property areas affected by the Remedial Action that are incompatible with soil cleanup standards; c) failure to implement any other ICs or restrictions set forth in the approved Institutional Control	Declaration of Restrictive Covenant pursuant to Illinois UECA; HS portion of Source Area 9/10, recorded with Winnebago County Recorder's Office, August 3, 2011; (under review; updated covenant planned)

				Implementation and Assurance Plan and/or O&M Work Plan for the Property; and, d) interfering with the existing monitoring wells in use.	
Land and Remedy Components	Yes	Yes	Source Area 7	a) No interference with remedy: There shall be no interference of any sort, with the construction, operation, maintenance, monitoring, efficacy, or physical integrity of any component, structure, or improvement resulting from or relating to the remedial action on the Alpine Farm Property. Land uses in the Soil Area of Concern: No action shall be taken that would cause covered waste materials to become exposed in the portion of the Alpine Farm Property designated as the Soil Area of Concern. b) Ground water uses: No activities shall be conducted on the Alpine Farm Property that extract, consume, or otherwise use any groundwater from the Alpine Farm Property, unless approved by EPA with IEPA concurrence nor shall any wells be constructed on the Alpine Farm Property for purposes other than groundwater monitoring, unless	Environmental Easement and Declaration of Restrictive Covenants, Source Area 7, recorded with Winnebago County Recorder's Office, March 27, 2008 (under review)

				approved by EPA with IEPA concurrence.	

A map which depicts the current conditions of the Site and areas which do not allow for UU/UE will be developed in the IC follow-up actions discussed below.

Status of Access Restrictions and ICs: Access controls currently in place for Source Areas 4 and 9/10 include signage and fencing. Currently, no access controls are needed for Source Areas 7 and 11. ICs include ordinances, easement access, and environmental covenants. A Winnebago County ordinance regulates groundwater use in the County by restricting new wells from being installed in areas where the groundwater is not safe to use. In addition, Winnebago County Code requires all properties located within 200 feet of a public water supply to connect to the water supply. Winnebago County Code also requires property owners to obtain a well permit for a new well or for well repairs. If contaminants are detected during private well sampling, the county can recommend that a home treatment unit be installed or that the new or redrilled wells be completed below the zone of contamination.

At Source Area 7, an Environmental Protection Easement and Declaration of Restrictive Covenants was filed in Winnebago County restricting soil and groundwater use on all current and future property owners and users. The covenant also ensures no interference with the remedy and allows right of access at all reasonable times to the property for activities related to implementing the ROD.

HS recorded an Environmental Covenant pursuant to Illinois UECA on their portion of Source Area 9/10. The EC places activity and use limitations on all current and future property owners and users. Restrictions include: industrial land use, a prohibition on groundwater use outside of RAs, and a prohibition on interference with the remedy.

Current Compliance: Access controls currently in place are adequate in the Source Areas. Frequent inspections have shown that fencing and signage at Source Areas 4 and 9/10 remain protective. Based on inspections and discussions, IEPA and EPA are not aware of Site or media uses which are inconsistent with the stated objectives to be achieved by the ICs. No Site uses which are inconsistent with the implemented ICs or remedy IC objectives have been noted during the Site inspection.

IC Follow-up Actions Needed: EPA and IEPA will develop an IC Plan, now referred to as an Institutional Control Implementation and Assurance Plan (ICIAP). The purpose of the ICIAP is to conduct additional IC evaluation activities to ensure that the implemented ICs are effective, to explore whether additional ICs are needed, and to ensure that long-term stewardship (LTS) procedures are put in place so that ICs are properly maintained, monitored, and enforced.

IC evaluation activities will include, as needed, updated maps depicting current conditions in areas that do not allow for UU/UE, and review of recording and title work to ensure the restrictions are still recorded, and that no prior-in-time encumbrances exist on the Site that are inconsistent with the ICs.

A LTS Plan will be developed and implemented for monitoring and tracking compliance with existing ICs, communicating with EPA, and providing an annual certification to EPA that the ICs remain in place and are effective.

Long-Term Stewardship: Since compliance with ICs is necessary to assure the protectiveness of the remedy, planning for LTS is required to ensure that the ICs are maintained, monitored and enforced so that the remedy continues to function as intended. LTS involves assuring that effective procedures are in place to properly maintain and monitor the Site. IEPA will develop and implement a LTS Plan for the Site that ensures periodic review of ICs, specifies actions to be taken, and includes annual reporting to EPA. LTS procedures include regular inspection of the engineering controls and access controls at the Site, review of the ICs, and providing annual ICs reports with review of and certification by IEPA to EPA that ICs are in place and effective, and to document that any necessary contingency actions have been executed.

Systems Operations/Operation & Maintenance

Operation and Maintenance (O&M) is currently limited to the long-term monitoring and maintenance activities performed by the city of Rockford and the O&M performed by HS for their portion of the Source Area 9/10 groundwater/soil remedy. The Source Area 4 groundwater remedy began LTRA on 10/6/2010. Long-term O&M for the Source Area 4 remedy will begin in 2020. A ten-year period of LTRA commenced for the Source Area 11 groundwater on 10/1/2013. O&M is anticipated for Source Area 7 once the RA is complete.

The city of Rockford is conducting the long-term monitoring and O&M activities in accordance with the OU1 O&M plan written by IEPA and approved by EPA in December 1992. The primary activities associated with O&M at OU1 include:

- Maintenance and repair of all water main extensions provided to residents;
- Inspection, maintenance and repair of all associated fixtures on the City right-of-way property (e.g., fire hydrants, valves, etc.);
- Inspection, maintenance and repair of the GAC treatment unit at Municipal Well 35;
- Water quality sampling of plant influent and effluent; and,
- Analysis of the carbon absorber train influent and effluent.

The city of Rockford also conducts the long-term monitoring and O&M activities related to the groundwater monitoring well network portion of the OU2 remedy in accordance with the O&M plan approved by IEPA and EPA in December 1992. The primary activities associated with O&M at OU2 include:

- Inspection, maintenance and repair or replacement of 34 monitoring wells that comprise the monitoring well network;
- Semi-annual sampling of groundwater monitoring well network;
- Inspection, maintenance and repair or replacement of the GAC treatment unit at Municipal Well 35; and,
- Characterization and off-Site disposal of spent GAC media.

HS conducts the long-term O&M requirements for their portion of the Source Area 9/10 groundwater/soil remedy according to O&M plans approved by EPA and IEPA. O&M for this portion of Source Area 9/10 includes:

- Inspection, maintenance, and repair of soil vapor extraction and air sparge wells;
- Inspection, maintenance, and repair of electrical and system controls;
- Inspection, maintenance, and repair of piping, fittings, compressor, and blower;
- GMZ monitoring;
- Engineered barrier inspection; and,
- Safety and security considerations for O&M.

III. PROGRESS SINCE THE LAST REVIEW

This section includes the protectiveness determinations and statements from the last FYR as well as the recommendations from the last FYR and the current status of those recommendations.

Table 5: Protectiveness Determinations/Statements from the 2013 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1	Protective	The remedy at OU 1 is protective of human health and the environment because all immediate exposure pathways that could result in unacceptable health risks are being controlled. A total of 547 residences with contaminated private wells were connected to Rockford's municipal water supply and the private wells were properly abandoned to ensure that the wells could not be used in the future. Additionally, an activated carbon treatment unit that was installed at Rockford Municipal Well 35 is effective in removing VOCs from pumped groundwater so that this well can now be used to supply clean drinking water during periods of peak demand. (Placement of ICs that prohibit the use of contaminated groundwater underneath the residences will be addressed under OU2.)
2	Protectiveness Deferred	A protectiveness determination at OU2 will be deferred until EPA obtains further information. EPA and IEPA will conduct a deep soil investigation to determine whether VI is impacting residential and commercial properties above the plume area. In addition, long-term ecological impacts to the Rock River will be studied to determine if ecological receptors are adversely impacted by the discharge of site-related contaminated groundwater into the river. Also, long-term protectiveness of the remedy for OU2 will require that residences over the plume area be connected to the city water supply or that institutional controls (ICs) be put into place to ensure that any residences within the plume area with owners that are refusing to hook up to city water will be connected in the future.
3	Will be Protective	Remedial actions at Source Areas 4, 7, and 11 have not yet been fully implemented. However, the Source Area remedies at OU3 are projected to be protective of human health and the environment upon their completion, along with the full implementation of site-wide ICs. Contaminants are present in

		subsurface soil, but under current conditions there is no potential for human exposure. Some ICs are in place to restrict groundwater usage within the source areas; in Source Area 7, an Environmental Restrictive Covenant covering soil and groundwater is in place. In a portion of Source Area 9/10, an Environmental Restrictive Covenant covering groundwater and land use is in place, but additional ICs are needed. Additional land-use restrictions may be needed at Source Areas 4, 7, and 11. When fully implemented, the site-wide ICs will effectively limit the potential for exposure to contaminated groundwater at the OU3 source areas. Compliance with site-wide ICs will be ensured by implementing, monitoring, and maintaining effective ICs as well as maintaining the site remedy components. Long-term stewardship of ICs must be provided for.

Table 6: **Status of Recommendations from the 2013 FYR**

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
2	Several residents within the plume area have declined to hook up their homes to the municipal water supply and are potentially being exposed to unacceptable health risks if drinking contaminated water.	Continue to work towards connecting remaining targeted residences to the Rockford municipal water supply	Ongoing	EPA and IEPA continue to work with the city of Rockford to connect the remaining targeted residences to the Rockford municipal water supply. A total of 13 properties have been identified using private wells. Of those, 8 properties have been connected to municipal water and their wells abandoned and sealed, 4 have committed to connection and are scheduled to be connected Spring 2018, and 1 is being pursued for connection.	NA
2	Potential indoor VI risks exist for residents living above the groundwater contaminant plume.	Conduct deep soil gas testing at residences in the plume area, evaluate results, and mitigate, if necessary	Completed	EPA conducted a deep soil gas investigation in 2014 that resulted in an additional focused investigation. The focused investigation was conducted in 2016 and 2017 and evaluated 3 residential and 1 commercial property for the VI pathway. The investigation found that the VI pathway was either not complete or above indoor air screening levels at the evaluated properties.	11/29/2017

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
2	Contaminated groundwater discharging to the Rock River may be causing adverse effects to ecological receptors.	Perform a pore water study at the Rock River to determine the nature of any adverse effects on ecological receptors.	Completed	A pore water study was conducted in 2014 that included identifying the potential discharge of groundwater to the groundwater-to-surface water interface, measured groundwater COCs in the sediment pore water and assessed potential impacts to aquatic ecological receptors. The study concluded that the aquatic community in the Rock River is not impacted by the SERGWC groundwater plume.	5/22/2015
2, 3	Certain institutional controls (ICs) need to be fully implemented to ensure long-term protectiveness of the remedy.	EPA and IEPA should prepare an Institutional Control Implementation and Assurance Plan (ICIAP) or similar IC plan for the site. The ICIAP should include the results of site ICs evaluation activity that has already been conducted and a plan for 1) future IC evaluation activity; 2) taking corrective measures to existing ICs, if needed; 3) placing additional ICs, if needed, and; 4) ensuring the long-term stewardship of the site, which includes ongoing monitoring, maintenance, and enforcement of ICs.	Ongoing	This recommendation has been carried forward in this FYR.	NA

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
2	EPA and IEPA should determine whether monitored natural attenuation of the contaminant plume is protective over the long term.	EPA and IEPA should update the groundwater model once construction of all Source Area cleanup remedies is completed.	Ongoing	Source Area 7 remedy construction is currently ongoing and is expected to be completed in 2019. Source Area 11 soil investigation is currently ongoing and is expected to be completed in 2018. The groundwater model will be updated once construction of all Source Area cleanup remedies is completed.	NA

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available by publishing a notice in the local newspaper, the *Rockford Register Star*, on May 1, 2018, stating that there was a FYR and inviting the public to submit any comments to EPA. The results of the review and the report will be made available at the Site information repository located at Rockford Public Library, Main Branch, 215 N. Wyman Street, Rockford, Illinois.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. Interviewees included those parties involved with the Site, including current landowners of the Source Areas, IEPA and area regulatory agencies. The purpose of the interviews was to document any perceived problems or successes with the remedies that have been implemented to-date. Interviews were conducted in April 2018. Generally, those interviewed had no major issues with the remedy as implemented to-date. As for future actions, it was suggested that the groundwater model for the Site be updated once the RAs are implemented at Source Areas 7 and 11. No problems were noted with implementation of ICs.

Data Review

Sample results generated as a part of the semi-annual overall groundwater plume monitoring program conducted by the city of Rockford, in accordance with the September 1995 ROD and 1998 CD, were reviewed to evaluate trends in groundwater COC concentrations and any changes to the plume outline. The most recent data, collected in November/December 2017 by the city, was contained in a February 2018 report. Source Area 4 GMZ network data was also reviewed from reports generated for IEPA in accordance with the 2002 ROD. Additionally, sampling data was reviewed from the GMZ Monitoring Well Network associated with the HS portion of Source Area 9/10, collected as a part of the 2002 ROD and 2008 CD. Sampling data, collected as a part of the soil vapor investigations, pore water evaluation and data from the Source Area 4 soil remedy evaluation were likewise evaluated to provide information on the effectiveness of the RAs. Soil data collected as a part of predesign work and RA in Source Area 11 were also reviewed.

Table 7: **Groundwater Contaminant Level Trends**

Source Area	**COC**	**High Value** (mg/L) (* = Exceeds PRG)	**12-month Trend** (Date-Direction)
4 GMZ	1,1,1-TCA	0.012	2017 Down
4 GMZ	1,1-DCE	0.0071*	2017 Down
4 GMZ	PCE	0.00065	2017 Down
9/10 GMZ	PCE	0.0832*	2017 Decreasing/Stable
9/10 GMZ	TCE	0.017*	2017 Decreasing
9/10 GMZ	Vinyl chloride	0.0176*	2017 Increasing

The Site-wide monitoring well network (Appendix C, Figure 1) is sampled semi-annually by the city, which allows EPA to continue to collect information on the natural attenuation of Site-related contaminants within the groundwater contaminant plume. The results show that overall total VOC concentrations in groundwater have generally decreased across the Site since inception of the long-term monitoring program in March 1999. The ratios of parent VOC compound concentrations to associated breakdown product concentrations indicate that biodegradation, comprising a component of natural attenuation, may be occurring at the Site. The reported detections of vinyl chloride and chloroethane in groundwater samples are further indicators that natural attenuation of parent compounds may be occurring at the Site. The results show a decrease in contaminant concentrations in many wells, with some exceptions. The majority of total VOC concentrations reported for groundwater monitoring locations near the Source Area 7 have generally decreased or remained relatively stable from the previous sampling event, except as noted. Relative increases were noted for total VOC concentrations in samples collected from monitoring wells MW-101A, MW-101B, MW-102A, MW-102B, and MW-133B. Several VOCs were reported above the maximum contaminant level (MCL) at the monitoring locations MW-101B, MW-101C, MW-102A, MW-102B, MW-133B, and MW-133C. This is not unexpected; the groundwater remedy is not yet in place. Once the treatment/containment system is operating at Source Area 7, it is expected that groundwater concentrations downgradient from this Source Area will begin to drop.

Overall monitoring well data near the Rock River shows a decreasing trend of VOC concentrations. However, an increasing trend is shown in contaminant concentrations in wells MW-206B and MW-206C. MW-206B has *cis-1,2* DCE concentrations at 0.109 mg/L and TCE concentrations at 0.0329 mg/L (the TCE MCL is 0.005 mg/L). MW-206C had decreasing levels of TCE (0.003 mg/L) but an increase in vinyl chloride (0.064 mg/L) concentrations for an overall increase of total VOC concentrations. This trend shows that the plume flows to the Rock River, which was anticipated in the original groundwater computer model generated for the 2002 ROD. EPA will revise the Site-wide groundwater model, so it can estimate how long it will take for the plume to naturally attenuate and reach cleanup goals once all of the containment/treatment systems are in operation. At that time, a determination will be made on whether the calculated cleanup timeframe for Site-wide natural attenuation is considered to be reasonable.

The Source Area 4 GMZ reports for 2015 and 2016, as well as the analytical summary table for 2017 groundwater sampling indicate that the ERH system was successful at meeting the soil RGs, which are the PRGs finalized in the 2002 OU3 ROD and listed in Table 1, and concentrations of VOCs have dropped significantly in the Source Area 4 GMZ wells (Appendix C, Figure 2). Sampling in 2017 indicate that only two wells, EW03 and MW32, had concentrations of VOCs above RGs. EW03 is one of three extraction wells for the groundwater treatment system running at Source Area 4. In May 2017,

EW03 had one exceedance of 1,1-DCE with a value of 0.0071 mg/L. The May sample at EW03 was collected shortly after the ERH system had shut down in February 2017 and the soil temperature was still returning to ambient. The November 2017 sample collected at EW03 was nondetect for 1,1-DCE. MW32 had an exceedance of bromodichloromethane with a high value of 0.00099 mg/L. It should be noted that MW32 is upgradient of the Source Area 4 soil remediation area. All other well samples collected in 2017 were below RGs.

Source Area 9/10 annual GMZ reports have been generated by UTC for 2013, 2014, 2015, 2016 and 2017. The 2017 Annual GMZ Report showed that six of the ten compliance monitoring wells had exceedances of groundwater RGs for one or more COCs during the year. Three wells had exceedances for TCE, with a high value of 0.017 mg/L, and six wells had exceedances for PCE with a high value of 0.0832 mg/L. The highest reading for TCE occurred in an upgradient well (SMW19), located on the HS property. The trends of COC concentrations in downgradient wells during 2016-2017 were generally downward; however, increases in vinyl chloride levels were recorded in two wells (high value of 0.0176 mg/L) that will need to be monitored over time. The monitoring well network is shown on Figure 4 in Appendix C.

Source Area 11 has had scattered detections of chlorinated VOCs over time and recently detected just above their RGs in MW004A, however, currently the primary COCs are the ETX compounds. The contamination is primarily located east of 11th street and in the upper portion of the aquifer as would be expected with these lighter ETX contaminants. It is anticipated that once the soil RA is conducted in the area of 11th street, this area of high ETX concentrations will begin to show significant decreases in concentration. One additional monitoring well west of 11th Street will also be needed to complete the monitoring well network. The monitoring well network is shown on Figure 5 in Appendix C.

In 2014, a pore water study was conducted to determine if the groundwater was adversely impacting the Rock River ecosystem. The results of the study are documented in the following report: Pore Water Investigation, Southeast Rockford Groundwater Contamination Superfund Site dated May 22, 2015. The results of the investigation suggest that the aquatic community in the Rock River is not impacted by the SERGWC groundwater plume. Concentrations of VOCs in the groundwater monitoring well network are greater than those seen in the pore water but are still below the ecological screening benchmarks. Although sufficient data are not available to derive attenuation factors for the contaminant concentrations between groundwater and pore water, it was determined that the concentrations of VOCs in groundwater and pore water relative to the ecological screening benchmarks suggest that further investigation of the Rock River pore water concentrations should be performed if a 10-fold increase in groundwater concentrations over time are observed. A 10-fold increase in groundwater concentrations would signify an increase that is inconsistent with historical Site trends and would be an indicator that contaminant concentrations in pore water would likely be increasing. Additionally, a 10-fold increase in groundwater concentrations is a conservative benchmark for further investigation, as a 10-fold increase in pore water concentrations would still be less than ecological screening criteria at most sample locations.

A VI study was conducted to determine if potential indoor VI risks exist for residents living above the groundwater contaminant plume. The results of the study are documented in the following reports: Deep Soil Gas Investigation, Southeast Rockford Groundwater Contamination Superfund Site dated July 15, 2015, and Final Soil Gas and Vapor Intrusion Investigations Technical Memorandum for the Southeast Rockford Groundwater Contamination Superfund Site dated November 29, 2017. Exterior soil gas sampling performed at the Site from 2014 to 2016 indicated that there was a potential for VI impacts to

six properties. Access for the VI investigation was granted for four of the six properties: one commercial and three residential. The commercial property was located near the Rock River, downgradient of all source areas. One residential property was located downgradient of Source Area 4 and the other four residential properties, two of which denied access for indoor sampling, were downgradient of Source Area 7. Interior VI air sampling was performed at the four properties that granted access in 2016 and 2017. The interior air sampling results indicate that the VI pathway is not currently complete or significant at these four properties. The VI pathway is expected to be incomplete in the future at the three residential properties, because Site conditions such as land use or contaminant concentrations are expected to remain the same. Soil gas concentrations are expected to decrease once the remedy is implemented at Source Areas 7 and 11. There is a potential for the VI pathway to become complete and significant at the one commercial property because sub slab soil gas concentrations of TCE exceeded the EPA commercial soil gas risk management levels during the August 2016 sampling event. However, indoor air samples collected in August were below all screening levels. The subsequent sampling event in November 2016 did not have detectable concentrations of VOCs above screening or risk management levels in any of the three sub slab samples. It is recommended that if the building use changes and allows the pathway to be completed, the property should be sampled and mitigated if necessary.

Site Inspection

The FYR inspection of the Site was conducted on 5/8/2017 and 1/29/2018. An inspection of Source Area 9/10 was conducted on 5/8/2017. In attendance were Karen Kirchner, EPA; Brian Conrath, IEPA; Scott Moyer, UTC; and members of UTC's consultant AECOM. On 1/29/2018, inspection of Source Areas 4, 7 and 11 was conducted by Karen Kirchner, EPA; Brian Conrath, IEPA; and IEPA's contractors. The purpose of the inspections was to assess the protectiveness of the remedy. The Site inspection checklist is included in Appendix D.

The inspection of Source Area 9/10 included a review and physical inspection of the Air Sparge/Soil Vapor Extraction (AS/SVE) system operations and monitoring wells, and the former Outside Container Storage Area (OSA). No issues were observed with any of the operations. The engineered barrier over the OSA was properly maintained, wells were intact and secured, and the AS/SVE system was being operated as designed.

The inspection of Source Areas 4, 7, and 11 included a physical inspection of the remedy components at the various locations. The Source Area 4 treatment system trailer and vault were secured and operating in good condition. The Source Area 7 treatment building was undergoing construction as designed. At the time of inspection, forms were being removed from the architectural wall that had been poured during the previous week. No major issues were identified with the construction of the building. Source Area 11 still had road construction materials on-site; however, a majority of the materials had been removed since the last Site visit.

V. TECHNICAL ASSESSMENT

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

Question A Summary:

Yes. As discussed in Data Review, the trend in contaminant concentrations is downward in many wells within the overall SERGWC Site groundwater contaminant plume. As previously mentioned, some

residents within the SERGWC plume area have, to-date, refused connection to municipal water and are potentially being exposed to unacceptable health risks by drinking contaminated water. However, the city of Rockford is taking measures to compel the residents to connect to municipal water. The city provided notification to affected residents that their well was located within the contaminated groundwater plume and offered free connection to the public water supply. The city also provided notice that they would take the necessary actions to condemn a property whose potable water source was contaminated. Currently, all but one property have committed to connecting to municipal water.

Once the groundwater remedy in Source Area 7 is operating, EPA anticipates that contaminant concentrations in groundwater downgradient of Source Area 7 will decrease. The data from the VI study indicates that although the potential exists for human health risks from soil vapor exposure, no one is currently being exposed. Additionally, the pore water investigation in the Rock River has determined that the discharge of the groundwater plume into the river does not pose an unacceptable risk to ecological receptors.

Once all of the Source Area remedies are complete and operating, EPA will revise the Site-wide groundwater model so that it can estimate how long it will take for the plume to naturally attenuate and reach cleanup goals. At that time, a determination will be made regarding whether the calculated cleanup timeframe for Site-wide natural attenuation is considered to be reasonable.

Remedial Action Performance: Source Area 4 Groundwater and Soil

The Source Area 4 leachate extraction and treatment system is functioning as intended per the decision documents. Based on the periodic groundwater sampling results from the GMZ well network, the leachate collection and extraction system is effectively containing the groundwater contaminant plume. GMZ monitoring since completion of the in situ ERH, has shown RGs being met in the majority of the monitoring wells. Evaluation of the monitoring system will be conducted to determine if the leachate collection and extraction system should be discontinued. The revised remedy of in situ ERH for contaminated soil at Source Area 4 has been effective in reducing soil contamination to below RGs.

Remedial Action Performance: Source Area 7 Groundwater and Soil

The Source Area 7 soil vapor and leachate containment and extraction/treatment system is expected to operate effectively, as designed, once construction is complete in Spring 2019. Once it is operational, the Source Area 7 remedy is expected to function as intended per the decision documents. Excavation and off-site disposal of the more highly-contaminated and less permeable soil effectively removed much of the contaminant source from Source Area 7, which would otherwise have been difficult to remediate using multi-phase extraction wells. Periodic groundwater sampling of the GMZ well network should show that the leachate containment and extraction/treatment system effectively contains the contaminated groundwater plume. An updated groundwater model should assist in estimating how long active cleanup operations will be needed at Source Area 7. At that time a determination will be made regarding whether the calculated cleanup timeframe for Source Area 7 is considered reasonable.

Remedial Action Performance: Source Area 9/10 Groundwater and Soil

The Source Area 9/10 AS/SVE system is functioning as intended by the decision documents and the remedy has reached consistently asymptotic VOC mass recovery rates. Based on the periodic groundwater sampling results from the GMZ well network, the leachate extraction and treatment system is containing most of the contaminated groundwater plume.

The OSA soil contamination area was effectively addressed by: 1) the injection of glycerol polylactate to enhance natural attenuation, 2) the excavation and off-site disposal of contaminated soil, and 3) the emplacement of a three-foot clay cap over the remaining residually contaminated soil. The subsequent combination of in situ injection of sodium permanganate, a chemical oxidizer, and soil mixing using sodium permanganate, was effective in reducing the residual concentrations of COCs in the soil.

Remedial Action Performance: Source Area 11 Groundwater and Soil

The Source Area 11 RA for groundwater is projected to function as intended by the decision documents once the design plans are complete and construction begins. The RA is anticipated to be MNA. Based on groundwater monitoring results to date, COCs from Source Area 11 attenuate rapidly downgradient of the source. A revised groundwater model will estimate how long it will take for the groundwater contaminant levels at Source Area 11 to achieve MCLs. At that time a determination will be made regarding whether the calculated natural attenuation timeframe is considered to be reasonable.

System Operations/O&M: Source Area 4

Source Area 4 groundwater operations are currently in a 10-year LTRA status. Operating procedures, as implemented, will maintain the effectiveness of the groundwater remedy. LTRA costs have been stable, so far, indicating a smooth transition into long-term O&M with no anticipated remedy problems. The final soil remedy for Source Area 4 has been effective at reducing soil contaminant concentrations to RGs. O&M of a soil remedy is not needed as cleanup goals were achieved.

System Operations/O&M: Source Area 9/10

Source Area 9/10 AS/SVE operations are currently in the O&M phase. The system has consistently become asymptotic with VOC mass recovery rates. Operating procedures, as implemented, will maintain the effectiveness of the remedy. O&M costs are borne by the PRPs. No remedy problems are anticipated.

Opportunities for Optimization

The Source Area 9/10 AS/SVE system has been operating in pulse mode since 2012, increasing the efficiency of that system; however, the VOC mass recovery rates have become consistently asymptotic. The majority of mass has been removed from the treatment zone and alternative, more efficient, operating strategies should be considered. These strategies can be developed in parallel with development of alternative cleanup levels (ACLs) to ensure the remedy remains protective and promotes efficient use of electrical energy. Once remedies are in place and operating in Source Areas 4, 7, and 11, it is projected that there will be opportunities for optimization, such as combining operations to reduce personnel and combining sampling events to reduce mobilization costs. Other opportunities for optimization will also be explored as work progresses.

Early Indicators of Potential Issues

There are currently no indications of potential issues related to system operations.

Implementation of Institutional Controls and Other Measures

Access controls currently in place are adequate in the Source Areas. Frequent inspections have shown that fencing and signage at Source Areas 4 and 9/10 remain protective. Currently, no access controls are needed for Source Areas 7 and 11. A Restrictive Covenant pursuant to Illinois UECA for the HS portion of Source Area 9/10 was recorded with Winnebago County Recorder's Office on August 3, 2011. An Environmental Easement and Declaration of Restrictive Covenants for Source Area 7 was recorded with Winnebago County Recorder's Office on March 27, 2008. Two county ordinances provide groundwater restrictions; one section requires all properties within 200 feet of a public water supply to connect to the water supply instead of drilling a well, and another section requires property owners to obtain a well permit for a new well or for well repairs.

An ICIAP should be developed. The purpose of an ICIAP is to conduct additional IC evaluation activities to ensure that the implemented ICs are effective, to explore whether additional ICs are needed, and to ensure that LTS procedures are put in place so that ICs are properly maintained, monitored, and enforced. A LTS Plan should also be developed and implemented to ensure ICs are maintained, monitored and enforced so that the remedy continues to function as intended.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Question B Summary:

Yes. The exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy selection are still valid. The contaminant-specific standards and relevant "to-be-considered" (TBC) levels found in the cleanup decision documents for the SERGWC Site were reviewed against current standards and found to still be valid. EPA recommends no changes be made.

There have been no significant changes in either land use or expected land use. Land use in the area encompassing the SERGWC Site remains a mix of residential and commercial.

The VI pathway investigations conducted since the last FYR did not identify a complete pathway. The study did conclude that components of the pathway exist, and soil gas and sub slab samples with elevated concentrations should be monitored if Site conditions change such as, a change in land use or an increase in contaminant concentrations. Contaminant concentrations are expected to decrease once the remedies at Source Areas 7 and 11 are implemented.

The ecological routes of exposure, particularly the effects of groundwater discharge to the Rock River were evaluated during this review period. The pore water study concluded that the concentration of VOCs being discharged to the Rock River via the groundwater were well below ecological screening benchmarks, indicating that no adverse impacts to the benthic community were expected.

The progress of the SERGWC remedy towards meeting RAOs will be determined through the planned update to the groundwater model. Updating the groundwater model to evaluate the overall contaminant plume and Source Areas will confirm whether the remedies, as outlined in the 1995 and 2002 RODs, are meeting RAOs in a reasonable timeframe.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No. No other information, beyond what has been previously discussed in this FYR report, has come to light that could call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review:
OU1

Issues and Recommendations Identified in the Five-Year Review:

OU(s): 2	Issue Category: Remedy Performance			
	Issue: Several residents within the plume area have declined to hook up their homes to the municipal water supply and are potentially being exposed to unacceptable health risks if drinking contaminated water. A total of 13 properties have been identified using private wells. Of those, 8 properties have been connected to municipal water and their wells abandoned and sealed, 4 have committed to connection and are scheduled to be connected Spring 2018, and 1 is being pursued for connection.			
	Recommendation: EPA and IEPA should continue to work with the city of Rockford to connect the remaining targeted residences to the Rockford municipal water supply. City of Rockford should continue with implementation of the plan to reach out to the property owners and take the necessary steps to sample the water supply and if necessary, initiate condemnation activities if warranted.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	EPA/State/PRP	EPA/State	9/30/2018

OU(s): 2, 3	Issue Category: Institutional Controls			
	Issue: ICs need to be reviewed and additional ICs implemented to ensure long-term protectiveness of the remedy.			
	Recommendation: EPA and IEPA should prepare an ICIAP for the Site. The ICIAP should include the results of Site ICs evaluation activity that has already been conducted and include a plan for: 1) future IC evaluation activity; 2) taking corrective measures to existing ICs, if needed; 3) placing additional ICs, if needed; and, 4) ensuring the long-term stewardship of the Site, which includes ongoing monitoring, maintenance, and enforcement of ICs.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**

No	Yes	EPA/State	EPA/State	9/30/2020

OU(s): 2, 3	Issue Category: Institutional Controls			
	Issue: Procedures are not in place to ensure long-term stewardship of ICs at the Site.			
	Recommendation: Develop and implement a LTS Plan for monitoring and tracking compliance with existing ICs, communicating with EPA, and providing an annual certification to EPA that the ICs remain in place and are effective.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	EPA/State	EPA/State	9/30/2020

OU(s): 2	Issue Category: Remedy Performance			
	Issue: EPA and IEPA should determine whether MNA of the contaminant plume is protective over the long term.			
	Recommendation: EPA and IEPA should update the groundwater model once construction of all Source Area cleanup remedies is completed.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	EPA/State	EPA/State	9/30/2021

OTHER FINDINGS

In addition, the following are recommendations that were identified during the FYR and may improve communication with the community and performance of the remedy, but do not affect current nor future protectiveness:

- Update Community Involvement Plan and associated Site websites to provide current Site information for residents and the community.
- Complete update of Declaration of Restrictive Covenant pursuant to Illinois UECA for HS portion of Source Area 9/10. Update will include issuing a new covenant updated to the current Illinois UECA language, revisions of Site maps and revocation of existing covenant.
- Install one additional monitoring well west of 11th Street to complete the monitoring well network.
- Consider alternative, more efficient, operating strategies for the Source Area 9/10 leachate remedy and review approach for developing site-specific ACLs for the GMZ for Source Area 9/10.
- If concentrations of contaminants increase, or there is a change in building usage of the commercial property investigated during the 2016 VI study, additional sampling may be warranted to determine if a VI pathway has been completed.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)	
Operable Unit:	*Protectiveness Determination:*
OU1	Protective

Protectiveness Statement:
The remedy at OU1 is protective of human health and the environment because all immediate exposure pathways that could result in unacceptable health risks are being controlled. A total of 547 residences with contaminated private wells were connected to Rockford's municipal water supply and the private wells were properly abandoned to ensure that the wells could not be used in the future. Additionally, an activated carbon treatment unit that was installed at Rockford Municipal Well 35 is effective in removing VOCs from pumped groundwater so that this well can now be used to supply clean drinking water during periods of peak demand.

Protectiveness Statement(s)	
Operable Unit:	*Protectiveness Determination:*
OU2	Will be Protective

Protectiveness Statement:
The remedy at OU2 is expected to be protective of human health and the environment upon completion. In the interim, remedial activities completed to date have adequately addressed all exposure pathways that could result in unacceptable risks in these areas. Remedial actions at OU2 are currently on-going with the city of Rockford in the process of connecting the remaining properties over the groundwater plume to the municipal water supply. These property owners had previously declined offers for connecting to the municipal water supply. The remedy will be protective in the long-term once it is fully implemented. Additional actions that should be taken to ensure long-term protectiveness of the remedy for OU2 include: conducting an evaluation of ICs, implementation of any additional ICs needed, development of an ICIAP, and development and implementation of a LTS Plan.

Protectiveness Statement(s)	
Operable Unit:	*Protectiveness Determination:*
OU3	Will be Protective

Protectiveness Statement:
The Source Area remedies for OU3 are expected to be protective of human health and the environment upon their completion. In the interim, remedial activities completed to date have adequately addressed all exposure pathways that could result in unacceptable risks in these areas. Contaminants are present in subsurface soil in Source Areas 7 and 11, but under current conditions there is no potential for human exposure. Some ICs are in place to restrict land and groundwater uses within the Source Areas, including groundwater governmental controls via a local ordinance; in Source Area 7, an Environmental Restrictive Covenant covering soil and groundwater is in place; and in a portion of Source Area 9/10, an Environmental Restrictive Covenant covering groundwater and land use is in place. Additional actions that should be taken to ensure long-term protectiveness of the remedies for OU3 include: conducting an evaluation of ICs, implementation of any additional ICs needed, development of an ICIAP, and development and implementation of a LTS Plan.

VIII. NEXT REVIEW

The next FYR report for the SERGWC Superfund Site is required no less than five years from EPA's signature date of this review.

APPENDIX A – REFERENCE LIST

AECOM, 2017 GMZ Monitoring and System Performance Report, Area 9/10 Southeast Rockford Groundwater Contamination Superfund Site, Rockford, Illinois, March 2018.

CDM Smith 2012. Explanation of Significant Differences – Southeast Rockford Groundwater Contamination, Source Area 4 Soil Remediation. May 2012.

CDM Smith Inc., Soil Component Remedial Action Completion Report Source Area 4, Southeast Rockford Groundwater Contamination Superfund Site, December 6, 2017.

CDM Smith Inc., Source Area 4 Groundwater Management Zone 2015 and 2016 Report Southeast Rockford Groundwater Contamination Superfund Site, April 2017.

CDM Smith Inc., Compounds Exceeding Remediation Goals Source Area 4 Groundwater Management Zone 2017 analytical table, April 2018.

CH2MHill, 2015 (a). Pore Water Investigation, Southeast Rockford Groundwater Contamination Superfund Site, May 22, 2015.

CH2MHill, 2015(b). Deep Soil Gas Investigation, Southeast Rockford Groundwater Contamination Superfund Site, July 15, 2015.

CH2MHill, 2017. Final Soil Gas and Vapor Intrusion Investigations Technical Memorandum for the Southeast Rockford Groundwater Contamination Superfund Site. November 29, 2017

U.S. Environmental Protection Agency (EPA). 1991. Superfund Record of Decision: Southeast Rockford Ground Water Contamination. OU1, June 14, 1991.

EPA 1995. Superfund Record of Decision: Southeast Rockford Ground Water Contamination OU 02. Rockford, Illinois. September 29, 1995.

EPA, 2002. Superfund Record of Decision: Southeast Rockford Ground Water Contamination. OU2, June 2002

EPA, 2013. Fourth Five-Year Review Report for Southeast Rockford Groundwater Contamination Superfund Site, Winnebago County, Illinois, May 13, 2013.

Illinois Environmental Protection Agency 2004. Letter regarding remediation goals based on previously determined criteria. From Thomas Williams, National Priorities List Unit. To Russ Hart, Remedial Project Manager, U.S. EPA. July 22, 2012.

Nationwide Environmental Services, Inc. Southeast Rockford Groundwater Contamination Site Groundwater Monitoring Report Semi-Annual Monitoring Event – November/December 2017, February 2018.

Consent Decree, United States of America and People of the State Of Illinois v. City of Rockford, Illinois (No. 98-C-50026, N.D. IL., April 8, 1998)

Amended Consent Decree, United States of America and People of the State Of Illinois v. City of Rockford, Illinois (No. 98-C-50026, N.D. IL., September 26, 2001)

Consent Decree, United States of America and People of the State Of Illinois v. Glen Ekberg, Illinois (No. 01 C 50457, N.D. IL., August 23, 2006)

Consent Decree, United States of America and People of the State Of Illinois v. Hamilton Sundstrand Corp (No. 08-C-50129, N.D. IL., September 2, 2008)

APPENDIX B – ADDITIONAL SITE BACKGROUND

BACKGROUND

Physical Characteristics

The SERGWC site is contained within an approximately 10 square mile area in the southeast portion of Rockford, Winnebago County, Illinois (see Figure 1). The topography is essentially flat-lying with gradual sloping toward the Rock River. There are approximately 600 homes/businesses in the immediate vicinity of the site. This approximately 10 square mile area is bounded by Harrison Avenue to the north, Sandy Hollow Road to the south, Mulford Road to the east and the Rock River to the west. Within this area are several groundwater contaminant plumes and the original boundary of the site was defined by the extent of groundwater contamination with concentrations of total volatile organic compounds (VOCs) above 10 micrograms per liter (ug/L or parts per billion (ppb))

Hydrology

The Source Area 4 subsurface is largely comprised of medium sand overlain by approximately five feet of silty topsoil. Groundwater is encountered at approximately 29 feet below ground surface (bgs). Groundwater in the unconsolidated sediments below Source Area 4 flows in a west-northwest direction. The stratigraphy of Source Area 7 is characterized as a heterogeneous assemblage of unconsolidated and discontinuous sands, silts, and clays that overlie dolomite bedrock. This geology is consistent with reports of quarrying. An east-west trending buried bedrock valley roughly parallels the present-day creek valley. Groundwater flow in both the unconsolidated and bedrock aquifers is to the northwest, with localized discharge of shallow groundwater to the creek. Depth to groundwater ranges from about 75 feet at the south end of Source Area 7, to 36 feet south of the park, to 13 feet within the park to less than 2 feet near the creek. Depth to groundwater varies seasonally and is highly dependent on precipitation. The geology of Source Area 9/10 and 11 is predominantly unconsolidated sand and gravel to a depth of at least 101 feet bgs. There is a 10-foot-thick silt/clay layer at Source Area 11 at a depth of approximately 74 feet bgs. The water table is encountered at a depth of 20-25 feet in Source Area 11 and 30-35 feet in Source Area 9/10. Groundwater flow in Source Areas 9/10 is west to southwest and flow in Source Area 11 is to the southwest.

Land and Resource Use

The land that comprises the SERGWC site is predominantly suburban residential, with scattered agricultural, industrial, retail and commercial operations. The residential areas are mixed with parks and other recreational facilities. Industrial property use ranges from light manufacturing facilities up to large manufacturing operations. Commercial facilities include shopping facilities such as grocery stores and fast food restaurants. Churches and a community center are also located in the site area. Future uses of the entire area will likely remain the same as they are today.

Groundwater is the primary source of drinking water for the city of Rockford and Winnebago County. Because of the relative abundance of groundwater resources, the Rock River, to the west of the site, is not used as a drinking water source. IEPA estimates that about 600 residential homes within and adjacent to the site were, at one time, using private wells for drinking water. A smaller number of businesses with potable use wells were also present within the central portion of the site. Currently, with few exceptions, all residents and commercial properties within the SERGWC contaminated plume area are connected to the municipal water supply system. A Winnebago County ordinance regulates groundwater use in the County by restricting new wells from being installed in areas where the groundwater is not safe to use. In addition, Winnebago County Code requires all properties located

within 200 feet of a public water supply to connect to the water supply. Winnebago County Code also requires property owners to obtain a well permit for a new well or for well repairs. If contaminants are detected during private well sampling, the county can recommend that a home treatment unit be installed or that the new or redrilled wells be completed below the zone of contamination.

History of Contamination

The remedial investigation at the SERGWC site that was conducted during 1993-94 identified four significant contaminant source areas: Source Area 4, Source Area 7, Source Area 9/10, and Source Area 11. At Source Area 7, hazardous wastes including chlorinated solvents, waste oils and fuels, paint sludges, tank bottoms, hospital wastes, and general refuse, were mostly disposed during the late 1950s to early 1960s. At Source Area 4, spills and discharges of recent, but unknown, age associated with the Swebco Manufacturing facility contributed to soil and groundwater contamination. Source Area 9/10 is primarily an industrial area, largely covered with concrete and asphalt. Hamilton Sundstrand Plant 1 occupies much of the northern half of this area and was the source of historical solvent spills. Releases of chlorinated VOCs have also occurred at the former Mid-States Industrial facility, the Nylint property, and the Rockford Products facility. Several spills and discharges of unknown age were identified at Source Area 11, the site of the former Rockford Varnish facility.

Initial Response

Groundwater contaminated with volatile organic compounds (VOCs) was initially discovered by the city in 1981. As a result, four municipal wells in the plume area were taken out of service. In 1982, the city discovered that private residential wells were contaminated and closed additional city wells. Contamination of Municipal Well 35, located at Ken Rock Playground, was discovered during a routine sampling of the well in 1984; the well was tested for three priority pollutants and several VOCs were detected. Because contaminants were present at levels above the Safe Drinking Water Act Maximum Contaminant Levels (MCLs), Municipal Well 35 was taken out of service in 1985.

IEPA confirmed that VOCs were present in city water in 1984, after receiving reports that plating wastes had been illegally disposed of in a private well. In October 1984, the Illinois Department of Public Health (IDPH) initiated a study that involved the sampling of 49 residential wells near the allegedly contaminated private well. Contaminants associated with plating wastes were not found in the study, but high levels of chlorinated solvents including 1,1,1 trichloroethane, trichloroethene, and tetrachloroethene, were found in many of the residential wells. Chlorinated solvents are commonly used in industries for degreasing machinery. IDPH took an additional 337 water samples from residential wells between 1985 and 1989 to determine how many residential wells were affected by the groundwater contamination. The Illinois State Water Survey also performed a regional groundwater investigation between 1986 and 1988. This investigation also verified widespread residential and municipal well contamination. Several municipal wells owned by Rockford were closed as a result of groundwater contamination.

The SERGWC site was proposed for inclusion on the National Priorities List (NPL) on June 24, 1988 and was formally added to the NPL on March 31, 1989 as a state-lead, federally-funded Superfund site.

In August 1989, EPA sampled 112 residential wells around the SERGWC site to determine if an immediate removal action was warranted. Based on the sampling results, EPA initiated a Superfund time critical removal action to place residents whose water wells had VOC levels equal to or greater than 25% of removal action levels under CERCLA, on bottled water as a temporary measure. In December

1989, the same residents received point-of-use carbon filters from EPA. Ultimately, EPA extended water mains and provided service connections for 283 residences as part of the removal action. This action was completed in 1991.

Because of the size and complexity of the groundwater contamination at the SERGWC site, IEPA and EPA divided the site into operable units (OU). The SERGWC site consists of three operable units: OU1 (Drinking Water OU) which addresses drinking water contamination in residential wells; OU2 (Groundwater OU) which addresses the area-wide groundwater contamination beneath the site; and OU3 (Source Control OU) which addresses the four primary Source Areas (Source Areas 4, 7, 9/10, and 11) of the groundwater
contamination.

EPA provided funding to IEPA to implement and oversee the cleanup at OU1 and OU2. In September 2002, EPA signed a Cooperative Agreement with IEPA which designated the IEPA the lead agency and in which EPA agreed to fund IEPA to conduct the RI/FS and the RD at the OU3 Source Areas 4, 7, 11. Under this agreement, EPA also funded IEPA to oversee the Potentially Responsible Party design effort at Source Area 9/10.

APPENDIX C – FIGURES

Southeast Rockford Groundwater Contamination Site
FIGURE 1

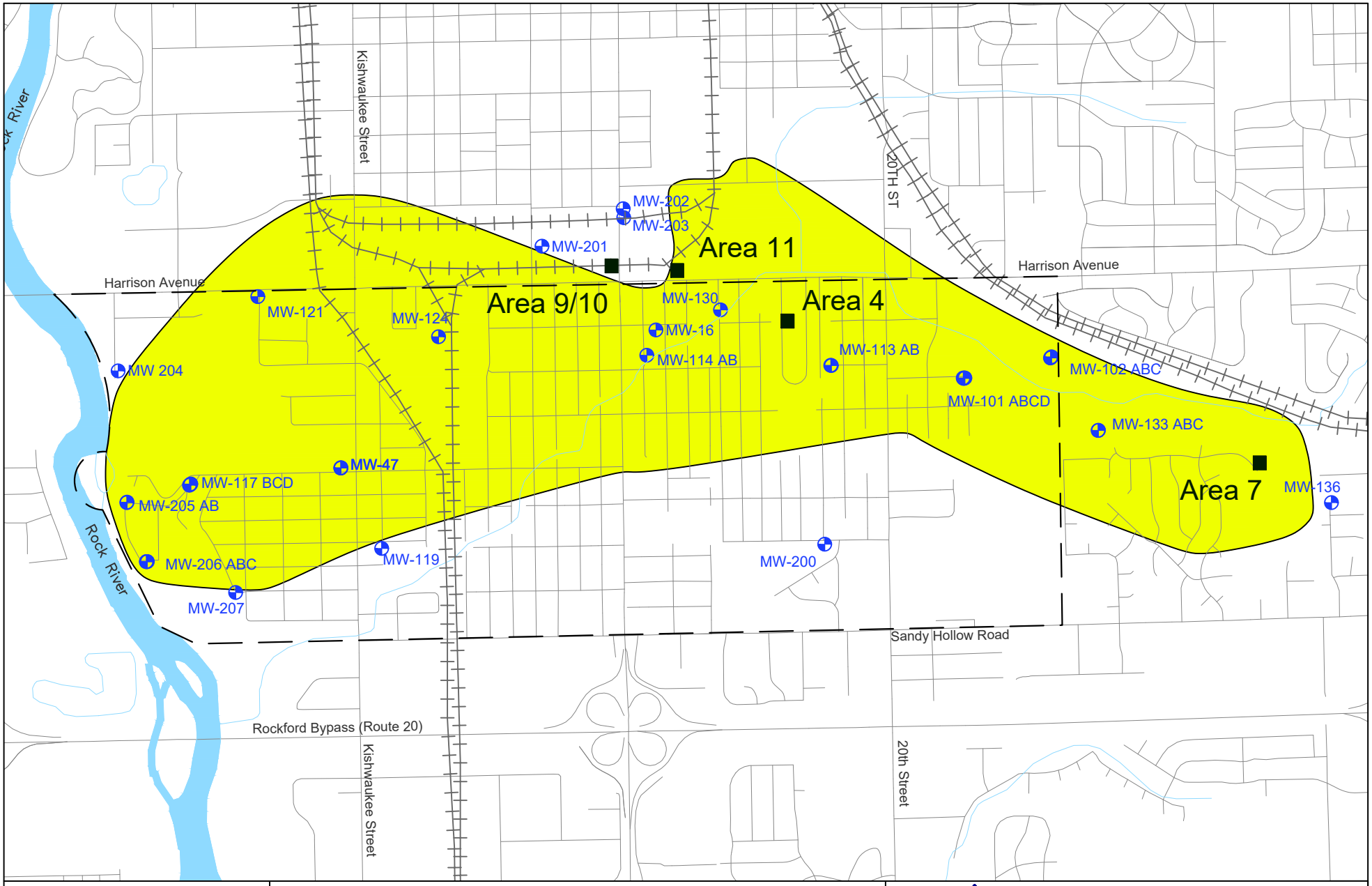
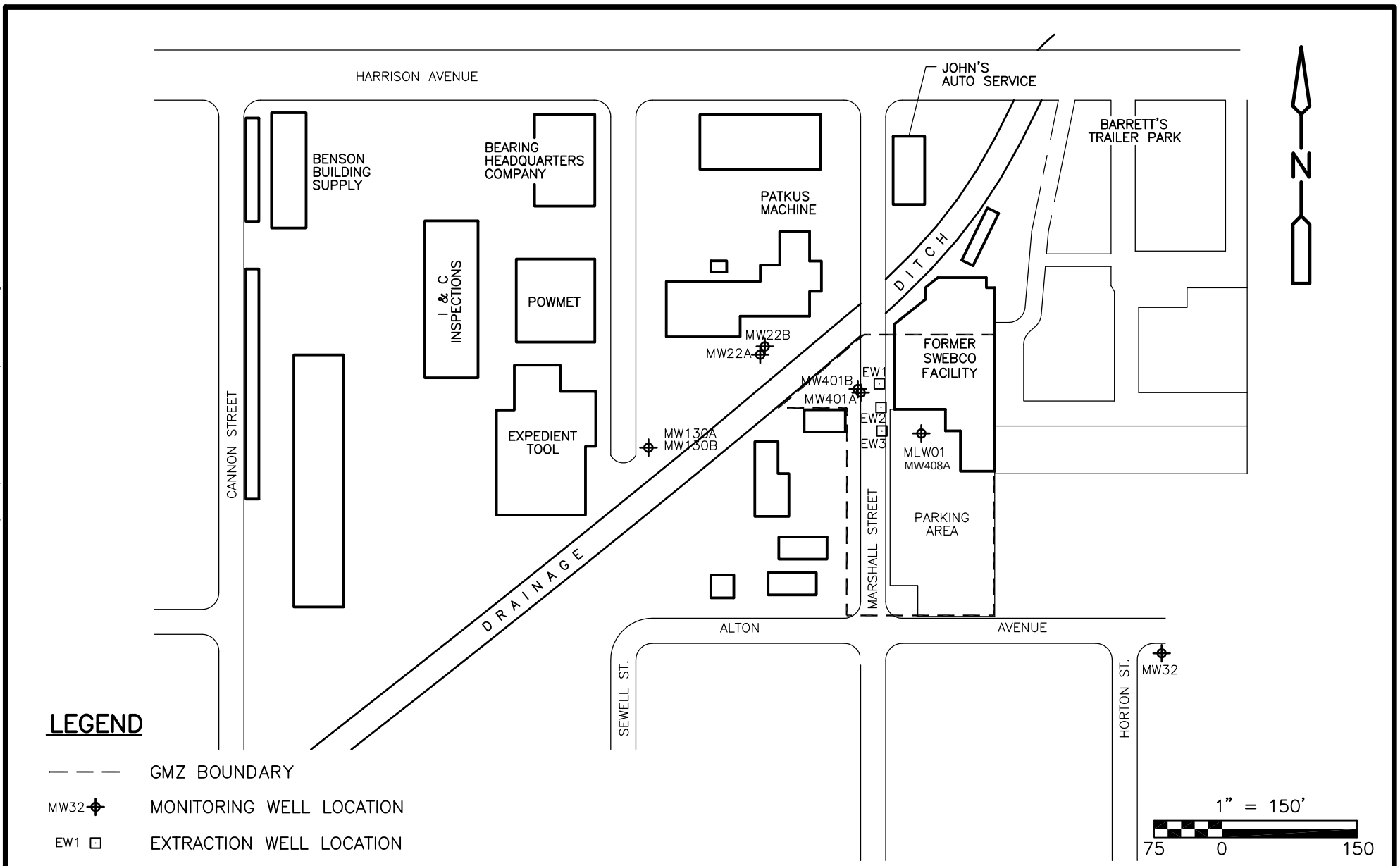


Figure 1
Southeast Rockford Groundwater Contamination Site
Groundwater Monitoring Network and Source Areas
Winnebago County, Illinois

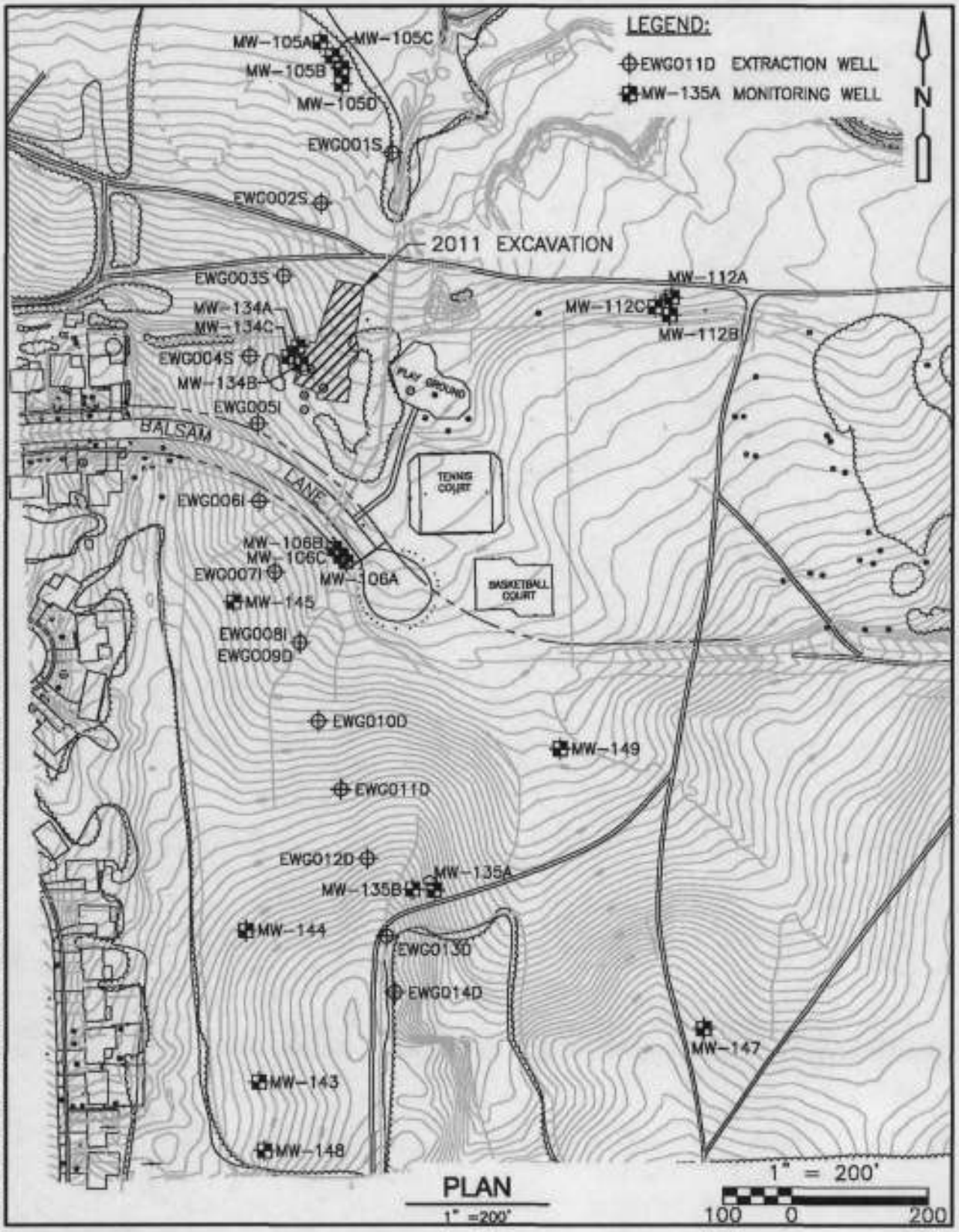


SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION SUPERFUND SITE
SOURCE CONTROL OPERABLE UNIT
ROCKFORD, ILLINOIS

CDM

AREA 4 VICINITY MAP

PLOT DATE: 6/3/2011 11:39 AM PLOTTED BY: ROMAN, OSCAR DWG LOCATION: S:\1681\77224_Area4-GMZ\FIGURE-2.dwg

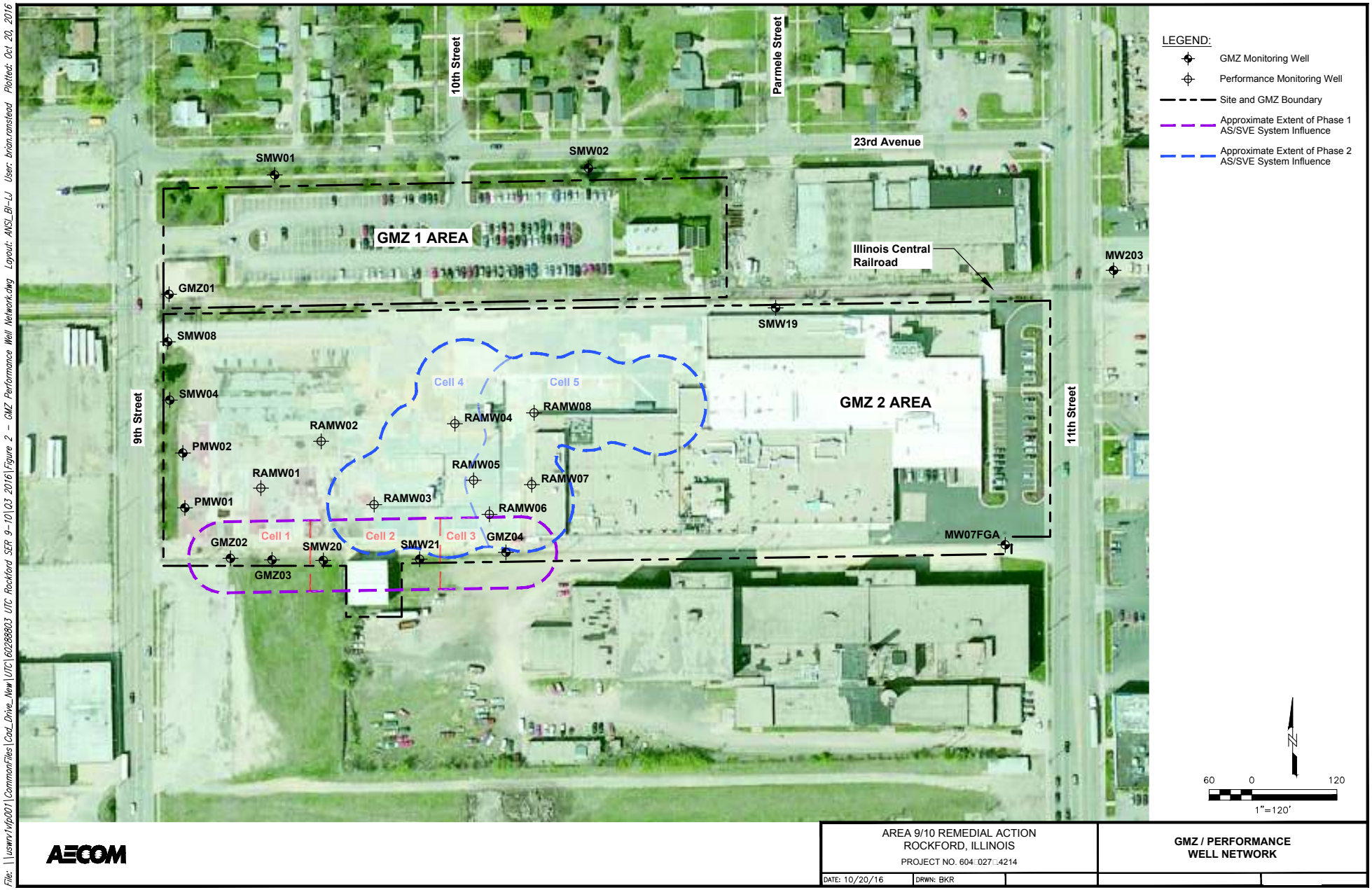


CDM Smith

Southeast Rockford Groundwater Contamination Site

FIGURE 3

SOURCE AREA 7



File: \\usrv1vfp001\CommonFiles\Cad_Drive_New\UTC\60288803 UTC Rockford SCR 9-10\03 2016\Figure 2 - GMZ Performance Well Network.dwg Layout: ANSI_B-LJ User: brian.ranstead Plotted: Oct 20, 2016

Southeast Rockford Groundwater Contamination Site
FIGURE 4

Legend

- Groundwater Sampling Location
- Water Level Measurement Location

CDM Smith

N W E S

0 150 300 600 Feet

Southeast Rockford Groundwater Contamination Site

FIGURE 5

MONITORING WELLS LOCATIONS
AREA 11 SE ROCKFORD

APPENDIX D – SITE INSPECTION FORM

Site Inspection Checklist

I. SITE INFORMATION	
Site name: **Southeast Rockford Groundwater Contamination**	**Date of inspection:** **Multiple dates**
Location and Region: **Rockford, IL; Region 5**	**EPA ID:** ILD981000417
Agency, office, or company leading the FYR: EPA	**Weather/temperature:** Ranged from 26 °F; partly cloudy to 62°F; sunny skies

Remedy Includes: (Check all that apply)

☐ Landfill cover/containment	☒ Monitored natural attenuation
☒ Access controls	☒ Groundwater containment
☒ Institutional controls	☐ Vertical barrier walls
☒ Groundwater pump and treatment	☒ Other: monitoring wells
☐ Surface water collection and treatment	

Attachments:

☐ Inspection team roster attached	☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M Site Manager** Name , Title , Click or tap to enter a date.

   Interviewed: ☐ at site ☐ at office ☐ by phone Phone Number: Click here to enter text.

   Problems, suggestions: ☐ Report attached

   Click or tap here to enter text.

2. **O&M Staff** Name , Title , Click or tap to enter a date.

   Interviewed: ☐ at site ☐ at office ☐ by phone Phone Number: Click here to enter text.

   Problems, suggestions: ☐ Report attached

   Click or tap here to enter text.

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

   Agency: Illinois EPA

   Contact: Brian Conrath, PM, 1/29/2018, P: 217-557-8155

   Problems, suggestions: ☐ Report attached

   Agreed that community information websites need to be updated. Area 7 remedy implementation continutes and is expected to be functional in Spring 2019. The treatment building is currently being constructed. Also, that free product found in extraction well in Area 7 is being monitored and potential minor design modification may be necessary. However, monitoring as of April 2018 does not indicate modifications will be necessary as free product is not recharging at high enough rates. Area 4 remedial action complete and successful on soil, significant drops in contaminants in groundwater. IEPA will be reviewing shutting down the leachate treatment system at Area 4 based on reaching remediation goals. Area 11 investigation for RD will occur once the City of Rockford has vacated the site, which is anticipated in early summer 2018.

   Agency: City of Rockford Public Works Department Water Divsion

   Contact: Kyle Saunders, Water Superintendent, 4/27/2018, P: 779-348-7371

   Problems, suggestions: ☐ Report attached

   The City continues to work toward connecting the remaining private wells to City water. As of 4/27/2018, 12 of the 13 wells have committed to connecting to City water. The City is in contact with the remaining property owner and is in discussions with them regarding connections and sampling protocols required by the City to comply with the Consent Decree.

   Agency: City of Rockford Public Works Department Water Divsion

   Contact: Nadine Miller, Water Quality Supervisor, 4/27/2018, P: 517-335-1807

   Problems, suggestions: ☐ Report attached

The City has seen a drop in contaminants in the raw water samples collected at municipal well 35 over the past year. There have been no exceedences of MCLs in any of the finished water samples from well 35 in the past 5 years. Due to the drop in contaminant levels, the carbon filter usage has been longer between change outs based on monitoring results.

Agency: Click or tap here to enter text.

Contact: Name , Title , Click or tap to enter a date., P: Phone Number

Problems, suggestions:

Click or tap here to enter text.

4. **Other Interviews (optional):** ☐ Report attached

Click or tap here to enter text.

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

1. O&M Documents

☒ O&M manual	☒ Readily available	☐ Up to date	☐ N/A
☒ As-built drawings	☒ Readily available	☐ Up to date	☐ N/A
☒ Maintenance logs	☒ Readily available	☐ Up to date	☐ N/A

Remarks: Click or tap here to enter text.

2. Site-Specific Health and Safety Plan ☒ Readily available

☐ Contingency Plan/Emergency Response Plan ☐ Readily available

Remarks: Click or tap here to enter text.

3. O&M and OSHA Training Records

☐ Readily available ☐ Up to date ☐ N/A

Remarks: not reviewed

4. Permits and Service Agreements

☐ Air discharge permit	☐ Readily available	☐ Up to date	☐ N/A
☐ Effluent discharge	☐ Readily available	☐ Up to date	☐ N/A
☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☐ N/A

☐ Other permits: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

5. Gas Generation Records

☐ Readily available ☐ Up to date ☒ N/A

Remarks: Click or tap here to enter text.

6. Settlement Monument Records

☐ Readily available ☐ Up to date ☒ N/A

Remarks: Click or tap here to enter text.

7. Groundwater Monitoring Records

☒ Readily available ☒ Up to date ☐ N/A

Remarks: Records provided as part of reporting requirements

8. Leachate Extraction Records

☒ Readily available ☒ Up to date ☐ N/A

Remarks: Records provided as part of reporting requirements

9. Discharge Compliance Records

☒ Air	☒ Readily available	☒ Up to date	☐ N/A
☒Water (effluent)	☒ Readily available	☒ Up to date	☐ N/A

Remarks: Records part of reporting requirements

10. Daily Access/Security Logs

☐ Readily available ☐ Up to date ☒ N/A

Remarks: Click or tap here to enter text.

IV. O&M COSTS

1. O&M Organization

☐ State in-house	☐ Contractor for State
☐ PRP in-house	☐ Contractor for PRP
☐ Federal Facility in-house	☐ Contractor for Federal Facility

Remarks: Click or tap here to enter text.

2. O&M Cost Records

☐Readily available ☐ Up to date ☐ Funding mechanism/agreement in place

Original O&M cost estimate Click or tap here to enter text. ☐ Breakdown attached

Total annual cost by year for review period if available

From	To	Total cost	
Click or tap to enter a date.	Click or tap to enter a date.	Click or tap here to enter text.	☐ Breakdown attached
From	To	Total cost	
Click or tap to enter a date.	Click or tap to enter a date.	Click or tap here to enter text.	☐ Breakdown attached
From	To	Total cost	
Click or tap to enter a date.	Click or tap to enter a date.	Click or tap here to enter text.	☐ Breakdown attached
From	To	Total cost	
Click or tap to enter a date.	Click or tap to enter a date.	Click or tap here to enter text.	☐ Breakdown attached
From	To	Total cost	
Click or tap to enter a date.	Click or tap to enter a date.	Click or tap here to enter text.	☐ Breakdown attached

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

Describe costs and reasons:

None.

V. ACCESS AND INSTITUTIONAL CONTROLS

☒ Applicable ☐ N/A

1. Fencing Damaged ☐ Location shown on site map ☒ Gates secured ☒ N/A

Remarks: no damage to fencing around Areas 9/10 or 4 treatment area.

2. Other Access Restrictions ☐ Location shown on site map ☐ Gates secured

Remarks: Click or tap here to enter text.

3. Institutional Controls (ICs)

A. Implementation and Enforcement

Site conditions imply ICs not properly implemented	☐ Yes	☒ No	☐ N/A
Site conditions imply ICs not being fully enforced	☐ Yes	☒ No	☐ N/A
Type of monitoring (*e.g.*, self-reporting, drive by)	Self-reporting and drive by/site visit		
Frequency	Not specified		
Responsible party/agency	PRP/State		

Contact: Name , Title , Click or tap to enter a date., P: Phone Number

Reporting is up-to-date	☐ Yes	☐ No	☒ N/A
Reports are verified by the lead agency	☐ Yes	☐ No	☒ N/A
Specific requirements in deed or decision documents have been met	☒ Yes	☐ No	☐ N/A
Violations have been reported	☐ Yes	☒ No	☐ N/A

Other problems or suggestions:

No problems found on exitsting ICs

B. Adequacy ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks: **ICs implemented to date are adequate; further ICs will need to be developed once the remedy is implemented at Areas 7 and 11.**

4. General

A. Vandalism/Trespassing ☐ Location shown on site map ☐ No vandalism evident

Remarks: Because Area 7 is open land, there have been sightings of ATV traffic around the site; however, there has been no contact with contaminated groundwater or soil or impacts to treatment systems.

B. Land use changes on site ☐ N/A

Remarks: none

C. Land use changes off site ☐ N/A

Remarks: none

VI. GENERAL SITE CONDITIONS

1. Roads ☒ Applicable ☐ N/A

A. Roads damaged ☐ Location shown on site map ☒ Roads adequate ☐ N/A

Remarks: Click or tap here to enter text.

B. Other Site Conditions

Remarks: Click or tap here to enter text.

VII. LANDFILL COVERS

1. Landfill Surface ☐ Applicable ☒ N/A

A. Settlement (Low Spots) ☐ Location Shown on Site Map ☐ Settlement Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

B. Cracks ☐ Location Shown on Site Map ☐ Cracking Not Evident

Lengths: Click or tap here to enter text. Widths: Click or tap here to enter text. Depths: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

C. Erosion ☐ Location Shown on Site Map ☐ Erosion Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

D. Holes ☐ Location Shown on Site Map ☐ Holes Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

E. Vegetative Cover ☐ Grass ☐ Cover Properly Established

☐ Tress/Shrubs (indicate size and locations on a diagram ☐ No Signs of Stress

Remarks: Click or tap here to enter text.

F. Alternative Cover (armored rock, concrete, etc.) ☐ N/A

Remarks: Click or tap here to enter text.

G. Bulges ☐ Location Shown on Site Map ☐ Bulges Not Evident

Areal Extent: Click or tap here to enter text. Height: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

H. Wet Areas/Water Damage ☐ Wet Areas/Water Damage Not Evident

☐ Wet Areas	☐ Location Shown on Site Map	Areal Extent: Click or tap here to enter text.
☐ Ponding	☐ Location Shown on Site Map	Areal Extent: Click or tap here to enter text.
☐ Seeps	☐ Location Shown on Site Map	Areal Extent: Click or tap here to enter text.
☐ Soft Subgrade	☐ Location Shown on Site Map	Areal Extent: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

I. Slope Instability ☐ Location Shown on Site Map ☐ Slope Instability Not Evident

☐ Slides Areal Extent: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

2. Benches ☐ Applicable ☐ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in

order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

A. Flows Bypass Bench ☐ Location Shown on Site Map ☐ N/A or Okay

Remarks: Click or tap here to enter text.

B. Bench Breached ☐ Location Shown on Site Map ☐ N/A or Okay

Remarks: Click or tap here to enter text.

C. Bench Overtopped ☐ Location Shown on Site Map ☐ N/A or Okay

Remarks: Click or tap here to enter text.

3. Letdown Channels ☐ Applicable ☐ N/A

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

A. Settlement ☐ Location Shown on Site Map ☐ Settlement Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

B. Material Degradation ☐ Location Shown on Site Map ☐ Degradation Not Evident

Material Type: Click or tap here to enter text. Areal Extent: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

C. Erosion ☐ Location Shown on Site Map ☐ Erosion Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

D. Undercutting ☐ Location Shown on Site Map ☐ Undercutting Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

E. Obstructions ☐ Location Shown on Site Map ☐ Undercutting Not Evident

Type: Click or tap here to enter text.

Areal Extent: Click or tap here to enter text. Size: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

F. Excessive Vegetative Growth ☐ Location Shown on Site Map ☐ Excessive Growth Not Evident

Areal Extent: Click or tap here to enter text. ☐ Vegetation in channels does not obstruct flow

Remarks: Click or tap here to enter text.

4. Cover Penetrations ☐ Applicable ☐ N/A

A. Gas Vents ☐ Active ☐ Passive

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled

☐ Good condition ☐ Evidence of leakage at penetration

☐ Needs Maintenance ☐ N/A

Remarks: Click or tap here to enter text.

B. Gas Monitoring Probes

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled

☐ Good condition ☐ Evidence of leakage at penetration

☐ Needs Maintenance ☐ N/A

Remarks: Click or tap here to enter text.

C. Monitoring Wells

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled

☐ Good condition ☐ Evidence of leakage at penetration

☐ Needs Maintenance ☐ N/A

Remarks: Click or tap here to enter text.

D. Leachate Extraction Wells

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled

☐ Good condition ☐ Evidence of leakage at penetration

☐ Needs Maintenance ☐ N/A

Remarks: Click or tap here to enter text.

E. Settlement Monuments ☐ Located ☐ Routinely Surveyed ☐ N/A

Remarks: Click or tap here to enter text.

5. Gas Collection and Treatment ☐ Applicable ☐ N/A

A. Gas Treatment Facilities

☐ Flaring ☐ Thermal Destruction ☐ Collection for Reuse

☐ Good condition ☐ Needs Maintenance

Remarks: Click or tap here to enter text.

B. Gas Collection Wells, Manifolds, and Piping

☐ Good condition	☐ Needs Maintenance	☐ N/A
Remarks: Click or tap here to enter text.		
C. Gas Monitoring Facilities (e.g. gas monitoring of adjacent homes or buildings)		
☐ Good condition	☐ Needs Maintenance	☐ N/A
Remarks: Click or tap here to enter text.		
6. Cover Drainage Layer	☐ Applicable	☐ N/A
A. Outlet Pipes Inspected	☐ Functioning	☐ N/A
Remarks: Click or tap here to enter text.		
B. Outlet Rock Inspected	☐ Functioning	☐ N/A
Remarks: Click or tap here to enter text.		
7. Detention/Sediment Ponds	☐ Applicable	☐ N/A
A. Siltation	☐ Siltation Not Evident	☐ N/A
Areal Extent: Click or tap here to enter text.	Depth: Click or tap here to enter text.	
Remarks: Click or tap here to enter text.		
B. Erosion	☐ Erosion Not Evident	
Areal Extent: Click or tap here to enter text.	Depth: Click or tap here to enter text.	
Remarks: Click or tap here to enter text.		
C. Outlet Works	☐ Functioning	☐ N/A
Remarks: Click or tap here to enter text.		
D. Dam	☐ Functioning	☐ N/A
Remarks: Click or tap here to enter text.		
8. Retaining Walls	☐ Applicable	☐ N/A
A. Deformations	☐ Location Shown on Site Map	☐ Deformation Not Evident
Horizontal Displacement: Click or tap here to enter text.		
Vertical Displacement: Click or tap here to enter text.		
Rotational Displacement: Click or tap here to enter text.		
Remarks: Click or tap here to enter text.		
B. Degradation	☐ Location Shown on Site Map	☐ Deformation Not Evident
Remarks: Click or tap here to enter text.		
9. Perimeter Ditches/Off-Site Discharge	☐ Applicable	☐ N/A

A. Siltation ☐ Location Shown on Site Map ☐ Siltation Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

B. Vegetative Growth ☐ Location Shown on Site Map ☐ N/A

☐ Vegetation Does Not Impede Flow

Areal Extent: Click or tap here to enter text. Type: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

C. Erosion ☐ Location Shown on Site Map ☐ Erosion Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

D. Discharge Structure ☐ Functioning ☐ N/A

Remarks: Click or tap here to enter text.

VIII. VERTICAL BARRIER WALLS

☐ Applicable	☒ N/A

1. Settlement ☐ Location Shown on Site Map ☐ Settlement Not Evident

Areal Extent: Click or tap here to enter text. Depth: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

2. Performance Monitoring Type of Monitoring: Click or tap here to enter text.

☐ Performance Not Monitored ☐ Evidence of Breaching

Frequency: Click or tap here to enter text. Head Differential: Click or tap here to enter text.

Remarks: Click or tap here to enter text.

IX. GROUNDWATER/SURFACE WATER REMEDIES

☒ Applicable	☐ N/A

1. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A

A. Pumps, Wellhead Plumbing, and Electrical ☐ N/A

☒ Good Condition ☒ All Required Wells Properly Operating ☐ Needs Maintenance

Remarks: Click or tap here to enter text.

B. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances

☒ Good Condition ☐ Needs Maintenance

Remarks: Click or tap here to enter text.

C. Spare Parts and Equipment ☐ Needs to be Provided

☒ Readily Available ☐ Good Condition ☐ Requires Upgrade

Remarks: Click or tap here to enter text.

2. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☒ N/A

A. Collection Structures, Pumps, and Electrical

☐ Good Condition ☐ Needs Maintenance

Remarks: Click or tap here to enter text.

B. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances

☐ Good Condition ☐ Needs Maintenance

Remarks: Click or tap here to enter text.

C. Spare Parts and Equipment ☐ Needs to be Provided

☐ Readily Available ☐ Good Condition ☐ Requires Upgrade

Remarks: Click or tap here to enter text.

3. Treatment System ☒ Applicable ☐ N/A

A. Treatment Train (Check components that apply)

☐ Metals removal ☐ Oil/Water Separation ☐ Bioremediation

☐ Air Stripping ☐ Carbon Absorbers

☒ Filters GAC

☐ Additive (e.g. chelation agent, flocculent) Click or tap here to enter text.

☐ Others Click or tap here to enter text.

☒ Good Condition ☐ Needs Maintenance

☒ Sampling ports properly marked and functional

☒ Sampling/maintenance log displayed and up to date

☒ Equipment properly identified

☒ Quantity of groundwater treated annually varies dependent on source area and municipal well 35

☐ Quantity of surface water treated annually Click or tap here to enter text.

Remarks: Click or tap here to enter text.

B. Electrical Enclosures and Panels (properly rated and functional)

☐ N/A ☒ Good Condition ☐ Needs Maintenance

Remarks: Click or tap here to enter text.

C. Tanks, Vaults, Storage Vessels ☐ N/A

☐ Proper Secondary Containment ☒ Good Condition ☐ Needs Maintenance

Remarks: Click or tap here to enter text.

D. Discharge Structure and Appurtenances

☐ N/A ☒ Good Condition ☐ Needs Maintenance

Remarks: Click or tap here to enter text.

E. Treatment Building(s)

☐ N/A ☒ Good condition (esp. roof and doorways)

☐ Needs repair ☒ Chemicals and equipment properly stored

Remarks Click or tap here to enter text.

F. Monitoring Wells (Pump and Treatment Remedy) ☐ N/A

☒ Properly secured/locked ☒ Functioning

☒ Routinely sampled ☒ All required wells located

☒ Good condition ☐ Needs Maintenance

Remarks Click or tap here to enter text.

4. Monitoring Data

A. Monitoring Data:

☒ Is Routinely Submitted on Time ☒ Is of Acceptable Quality

B. Monitoring Data Suggests:

☐ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining

5. Monitored Natural Attenuation

A. Monitoring Wells (natural attenuation remedy) ☐ N/A

☒ Properly secured/locked ☒ Functioning ☐ Routinely sampled

☐ All required wells located ☐ Needs Maintenance ☐ Good condition

Remarks: Some wells were located underneath the road construction materials at Area 11 and were not routinely sampled when access was not available. See Area 11 GW report for 2014-2016.

X. OTHER REMEDIES

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

XI. OVERALL OBSERVATIONS

Site Inspection Checklist

1. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).
There are several remedies being implemented at the site. OU1 remedy includes treating water pumped from the Rockford Municipal Well 35 with GAC and connecting private wells to municipal water. This remedy is effective and functioning as designed.

OU2 remedy includes monitoring the groundwater and continue use of GAC at municipal well 35. This remedy is effective and functioning as designed.

OU3 Remedy is source area specific. The goal of the overall remedy is to address the four major source loadings to the overall plume so the groundwater can naturally attenuate. To date, two of the four remedies have been implemented and are effective and functioning as designed.

2. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.
O&M has been proceeding as expected for all of the operable units. Repairs have been conducted in a timely manner and as expected when they have been identified.

3. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.
During the review, there were no issues that were identified that suggest that the protectiveness of the remedy may be compromised.

4. Early Indicators of Potential Remedy Problems

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.
Area 9/10 remedy will review alternate cleanup levels that would provide for meeting remediation goals at the groundwater monitoring zone boundaries for the source area and possible optimization in monitoring over the long term to ensure the remedy is operating as intended. Once the remedies are in place in Areas 7 and 11, longterm effectiveness will be monitored and opportunities for optimization explored.