

**SIXTH FIVE-YEAR REVIEW REPORT FOR
SEYMOUR RECYCLING CORP. SUPERFUND SITE
JACKSON COUNTY, INDIANA**



Prepared by

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

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LIST OF ABBREVIATIONS & ACRONYMS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	Contaminants of Concern
CFM	Cubic Feet per Minute
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FYR	Five-Year Review
GPM	Gallons per Minute
ICs	Institutional Controls
IDEM	Indiana Department of Environmental Management
MCL	Maximum Contaminant Level
MG/KG	Milligram Per Kilogram
MI	Miscellaneous Instrument
MW	Monitoring Well
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
OM&M	Operation, Maintenance, and Monitoring
OU	Operable Unit
PPB	Part Per Billion
PPM	Part Per Million
PRPs	Potentially Responsible Parties
RAO	Remedial Action Objective
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
Site	Seymour Recycling Corp. Superfund Site
SRC	Seymour Recycling Corporation
SVE	Soil Vapor Extraction
UU/UE	Unlimited Use and Unrestricted Exposure
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 Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the sixth FYR for the Seymour Recycling Corp. Superfund Site (Site). The triggering action for this statutory review is the completion date of the previous FYR. 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 one operable unit (OU1) which will be addressed in this FYR. OU1 addresses all remedy components for the Site including both the Site landfill area and groundwater treatment.

The Site FYR was led by EPA Remedial Project Manager (RPM) Jeff Gore. Participants included EPA Community Involvement Coordinator Janet Pope and Indiana Department of Environmental Management (IDEM) Project Manager Stephanie Andrews. The Site FYR began on February 8, 2021 when a notification letter was sent to IDEM regarding initiation of the FYR.

Site Background

The Site is located two miles southwest of Seymour, Indiana, near the northwest corner of Freeman Municipal Airport and Industrial Park. (See Figure 1, attached). The Site is defined as the closed landfill cap area, the groundwater treatment plant, and the associated groundwater plume emanating from the landfill area. The Site is surrounded predominantly by agricultural land. Approximately 100 residential homes in the Snyder Acres subdivision are also located to the north within a one-mile radius of the Site and a number of commercial/industrial buildings are located to the southwest as part of the industrial park. The topography around the Site is located on a nearly level plain with surface drainage toward the East Fork of the White River, which is approximately 1 ½ miles to the northwest of the Site. As just described, the area immediately surrounding the Site is currently used mostly for agricultural purposes with some outlying commercial/industrial and residential buildings, and is reasonably anticipated to be so used in the future.

From 1970 to early 1980, the Seymour Recycling Corporation (SRC) processed, stored, and incinerated chemical wastes at the Site. Hazardous and toxic wastes including solvents and other wastes accumulated on their site property over the years, and 55-gallon drums, bulk tanks, and other containers were stored at the site property. These wastes leaked and spilled from their containers creating fire and odor problems. The SRC property was closed when they failed to follow a 1978 agreement with the State of Indiana to cease receiving wastes and institute better waste management practices. In February 1980, a State of Indiana court placed the SRC property under receivership. In late 1980 and 1981, EPA fenced the SRC property area to restrict access, constructed dikes to control surface runoff, and sampled

the contents of drums, tanks, and soil. The Site was proposed for inclusion onto the National Priorities List (NPL) on December 30, 1982. The Site was given a final NPL listing on September 8, 1983.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Seymour Recycling Corp.		
EPA ID: IND040313037		
Region: 5	State: IN	City/County: Seymour/Jackson
SITE STATUS		
NPL Status: Final		
Multiple OUs? No	Has the site achieved construction completion? Yes	
REVIEW STATUS		
Lead agency: EPA <i>[If "Other Federal Agency", enter Agency name]:</i>		
Author name (Federal or State Project Manager): Jeff Gore		
Author affiliation: EPA Region 5		
Review period: 2/8/2021 – 11/4/2021		
Date of site inspection: 10/13/2021		
Type of review: Statutory		
Review number: 6		
Triggering action date: 2/10/2017		
Due date (five years after triggering action date): 2/10/2022		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

The EPA remedial investigation (RI) for the Site, which was carried out from August 1983 to May 1986, included groundwater contaminant plume sampling and soil sampling for the SRC property area. Results of the RI are detailed in the RI report (CH2M Hill, May 1986).

The contaminants of concern (COC) for all the media types (groundwater and soil) identified in the RI report, the interim Record of Decision (ROD) (EPA, September 1986), and the final ROD (EPA September 1987) were volatile organic compound (VOC) contaminants including trichloroethene, vinyl chloride, cis 1,2 dichloroethene, benzene, and 1-4 dioxane. The RI found that total VOC contamination in groundwater during three sampling events at the Site for 14 monitoring wells (MWs) ranged from

below detection to up to 364,570 part per billion (ppb). The highest levels of groundwater contamination were located below the SRC property area. RI soil sampling results completed on the SRC property area found total VOC contamination ranging from 0.3 milligrams per kilogram (mg/kg) to 46,150 mg/kg. Of the 205 soil samples taken, 71 percent of the locations were above the background level of 5.7 mg/kg for total VOCs thus presenting potential human health risks that need to be addressed.

The primary human health concerns at the Site regarding resources or receptors that could be impacted are from potential direct contact exposure to any contaminated material at the SRC property area and any contaminated groundwater migrating from the SRC property area to population areas. Residents or businesses at or near the groundwater plume who do not use public water supply and instead use private wells for drinking water could be at risk from the potential ingestion or dermal contact exposure pathways, and therefore warranted taking remedial actions at the Site.

Response Actions

In 1982, EPA entered into an agreement with a group of potentially responsible parties (PRPs) to undertake the "surface cleanup", or the removal of hazardous substances or contaminants considered to be of greatest risk to the public. The "surface cleanup" was conducted from December 1982 to January 1984. The cleanup involved removing all stored surface wastes--roughly 50,000 drums and 100 storage tanks--and taking them to off-site hazardous disposal facilities. In addition, the top foot of contaminated soil was removed from about 75 percent of the Site area and transported to disposal sites. Clean fill and clay were brought in to replace the removed soil, creating a protective cover. Under agreement with Site PRPs, an extension of Seymour's municipal water system was completed in 1985 to connect the residential homes in the Snyder Acres subdivision and a nearby farm to municipal water. This municipal water supply extension also included the sealing and abandonment of the private residential groundwater wells for the subdivision and the farm. The connection of the Snyder Acres and farm properties to municipal water was done proactively as a preventive measure; groundwater contamination has not impacted these areas to date.

EPA signed an interim ROD on September 30, 1986 that selected and outlined the following remediation components for the Site:

- Extraction and treatment of contaminated groundwater for discharge to the Seymour Wastewater Treatment Plant; and
- This OU groundwater remedy can be integrated as part of the final remedial action selected for the Site.

EPA signed a final ROD on September 30, 1987 that selected and outlined the following remediation components for the Site:

- Deed and access restrictions/institutional controls (ICs) to prevent future development of the Site and adjacent property and to assure the integrity of the remedial action;
- Implementation of a soil vapor extraction (SVE) system;
- Extraction and treatment of contaminated groundwater at the Site;
- Installation of a multi-media landfill cap;
- Excavation of on-site contaminated soil and debris for consolidation beneath the cap; and
- A Site monitoring program to determine the effectiveness of the remedial action.

EPA signed an Explanation of Significant Differences (ESD) on December 24, 2002 (EPA, December 2002) that included the following modification of the Site remedy components in the final 1987 ROD:

- Shut-down of the groundwater extraction and treatment system with a contingency to re-start the extraction and treatment system if the groundwater plume expands in the future.

Remedial action objectives (RAOs) for the Site remedy based on the 1986 interim ROD, the 1987 final ROD and 2002 ESD are: (1) The protection of human health and the environment by preventing contaminant migration and the associated risk of ingestion of groundwater contaminated in concentrations above excess lifetime cancer risk levels and EPA groundwater maximum contaminant levels (MCLs); (2) Containment and maintenance of waste material beneath the multi-media cap to prevent direct contact with contaminants in concentrations above excess lifetime cancer risk levels; (3) ICs to restrict property and groundwater use; (4) Groundwater monitoring with the goal of reducing groundwater contaminant concentrations below excess lifetime cancer risk levels and MCLs. Table 1 includes COC for the Site.

Table 1: COC and Cleanup Standard MCLs

COC	Residential Drinking Water Criterion (ppb)
Benzene	5
Trichloroethene	5
Vinyl chloride	2
Cis-1,2 dichloroethene	70
1-4 dioxane	N/A*

* No MCL is established for 1-4 dioxane, but a 3 ppb excess lifetime cancer risk groundwater compliance standard has been historically utilized for Site O&M monitoring.

Status of Implementation

On December 1, 1988, EPA, IDEM, the City of Seymour and approximately 150 PRPs entered into a Consent Decree for the PRPs to perform remedial design/remedial action (RD/RA) cleanup activities for the Site (EPA, December 1988). The remedy components for the Site have been implemented, with construction completed in September 1993 (EPA, September 1993).

RA activities consisting of the excavation and consolidation of contaminated material from the Site area and construction of the SVE system, multi-media landfill cap, and access perimeter security fence were initiated in September of 1989 and were completed in May of 1991. The multi-media landfill cap was built in order to cover the consolidated contaminated excavated material as well as building debris and drummed drill cuttings. The SVE system constructed with laterals running horizontally under the landfill cap operated continuously, except for maintenance, until the beginning of 1998. The flow rate through the system had ranged from less than 10 cubic feet per minute (cfm) to up to 100 cfm, depending on factors such as groundwater level. In 1998, the SVE system began being cycled to operate intermittently as contaminant removal levels dropped off substantially with the system being turned off for up to a year. The SVE system began operating passively in 2009 and continues with turbine vents located at the perimeter of the multi-media cap as the active system was not removing significant additional VOC contaminants. As a result of low VOC emission levels at the vent turbine ports, SVE system soil gas sampling was discontinued at the Site beginning in 2011.

The interim groundwater extraction and treatment system for the Site began operating in 1989, and the final treatment system began operating in 1991. The full pump and treatment system included extraction wells about 300 and 1,000 feet from the northern Site cap boundary, a treatment plant with air stripper, and discharge to the City of Seymour Wastewater Treatment Plant. A third extraction well was added in 1995 about 400 feet from the cap boundary to improve removal efficiency in the Site groundwater treatment system. In 2001, the three groundwater extraction wells typically produced a combined flow rate of approximately 100 gallons per minute (gpm) through the Site groundwater treatment plant. The groundwater treatment system was shut-down at the beginning of 2002 and then re-started in 2011 per the 2002 ESD contingency. The treatment plant was re-started and the extraction wells replaced in 2011 as the groundwater plume had stopped receding and was no longer stable. The re-started groundwater extraction and treatment system operates at a flow rate capacity of approximately 50 gpm containing three extraction wells downgradient of the Site landfill cap in both the upper and lower sand units in the groundwater aquifer (See figures 3, 4 and 5, attached).

Institutional Controls

ICs for the Site were required by the 1987 final ROD to restrict property use, maintain the integrity of the remedy, and ensure the long-term protectiveness for Site areas which do not allow for UU/UE. Table 2 below identifies the ICs that have been implemented for the Site to achieve these requirements.

Table 2: 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)
Site fenced area (~14 acres): Including on-site soil multi-media landfill cap and groundwater treatment building remedy property – soil/groundwater. Property owned by City of Seymour, IN.	Yes	Yes	Landfill cap and treatment building parcels located within Jackson County.	Prohibits residential or commercial/industrial use of land, groundwater underlying Site area, and assures integrity of landfill and other remedy components.	Owner's Declaration of Restrictions on Current & Future Uses (attached to RD/RA CD), miscellaneous instrument (MI) Record 28 page 445-449 (Instrument #5938) at Jackson County Recorder's Office on December 15, 1988, (implemented).
Adjacent to the Site fenced area: Property that is included in the remedial action surrounding the Site fenced area – soil/groundwater. Property owned by the City of Seymour, IN.	Yes	Yes	Site remedy parcels adjacent to fenced area located within Jackson County.	Prohibits use of groundwater until remedy completion and required cleanup levels are achieved, and prohibits residential or commercial/industrial land use, and restricts land use to assure remedy integrity.	Owner's Declaration of Restrictions on Current & Future Uses (attached to RD/RA CD), MI Record 28 page 450-453 (Instrument #5939) at Jackson County Recorder's Office on December 15, 1988, (implemented).

The Site area in which the ICs apply is shown in Figure 2, attached.

Status of Physical Controls/Access Restrictions and ICs: Site physical controls/access restrictions include a secure perimeter fence around the landfill cap and groundwater treatment plant with locked gate and warning signs identifying the Site.

An Owner's Declaration of Restrictions on Current and Future Uses that runs with the land was recorded as MI Record 28 page 445-449 (Instrument #5938) at Jackson County Recorder's Office on December 15, 1988, on the approximately 14-acre Site fenced property area owned by the City of Seymour, IN; and prohibits residential or commercial/industrial use of the land, prohibits use of groundwater underlying the Site area, and assures the integrity of the Site remedy. An Owner's Declaration of Restrictions on Current and Future Uses that runs with the land was recorded as MI Record 28 page 450-453 (Instrument #5939) at Jackson County Recorder's Office on December 15, 1988, on surrounding property adjacent to the 14-acre Site fenced property area, which is owned by the City of Seymour, IN; and prohibits use of the groundwater until remedy completion and required cleanup levels are achieved, prohibits residential or commercial/industrial land use, and assures the integrity of the Site remedy.

The Site achieved the Sitewide Ready for Anticipated Use designation on April 8, 2008 (EPA, April 2008).

Current Compliance: Based on inspections and discussions with IDEM during this FYR period, including the October 13, 2021 Site inspection, EPA is not aware of Site or media uses that are inconsistent with the implemented ICs' stated objectives. Site PRPs and their contractor continue to perform operation and maintenance (O&M) and inspections at the Site.

IC Follow-up Actions Needed: All ICs are in place and are effective. No follow-up actions are needed.

Long-Term Stewardship: Since compliance with ICs is necessary to ensure the remedy's protectiveness, long-term stewardship is necessary to help ensure that the ICs are maintained, monitored, and enforced. Long-term stewardship involves assuring effective procedures to properly maintain and monitor the Site are in place. The updated Site Operation, Maintenance, and Monitoring (OM&M) Plan was approved in May 2014 (Arcadis, May 2014) which includes procedures for ensuring long-term stewardship of ICs. Semi-annual OM&M progress reports are provided by the PRP contractor Arcadis to EPA including a section that outlines and updates the ICs' status.

Systems Operations/Operation & Maintenance

The Site's updated OM&M Plan was approved in 2014. Arcadis provides semi-annual OM&M progress reports for reference to EPA. The September 2021 Arcadis Progress Report (Arcadis, September 2021) along with historical Site data was reviewed for this FYR report. The semi-annual reports report on the sampling, maintenance, monitoring, and IC activities at the Site. O&M activities include the landfill cap area, passive SVE system, and groundwater treatment system inspections and routine maintenance; periodic landfill cap mowing; sampling of the groundwater extraction system and MWs; and monitoring of ICs. The Site multi-media landfill cap and passive SVE system are typically inspected weekly by the PRPs' treatment plant operator to assure proper surface controls and remedy operation. Visual inspection of the cap involves verifying proper cap surface grade, no sign of excessive erosion from surface water runoff, and no sign of excessive surface settlement. The passive SVE system is inspected to assure the proper rotation of ventilation turbines.

The PRPs' contractor Arcadis and a hired groundwater treatment plant operator performed these O&M activities during the current FYR period per the OM&M Plan without any noted problems. The PRPs' O&M of the Site remedy is ongoing.

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 3: Protectiveness Determinations/Statements from the 2017 FYR

OU #	Protectiveness Determination	Protectiveness Statement
1/Sitewide	Short-term Protective	The remedy at the Seymour Recycling Corp. Site is currently protective of human health and the environment because it is functioning as designed to remove groundwater contaminants and limit migration of 1-4 dioxane impacted groundwater in the vicinity of the Site. No one is drinking groundwater impacted by the Site. However, in order for the Site remedy to be protective in the long-term, the following action needs to be taken: Review the Site Owner's Declaration of Restrictions ICs to see if they would benefit from the updated Indiana Environmental Restrictive Covenant Template now available. Continued compliance with Site ICs and the continued maintenance and monitoring of the Site remedy components and groundwater will ensure protectiveness of human health and the environment.

Table 4: Status of Recommendations from the 2017 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
1/Sitewide	Review Site ICs.	Review the Site Owner's Declaration of Restrictions ICs to see if they would benefit from the updated Indiana Environmental Restrictive Covenant Template now available.	Completed	Site ICs reviewed by the Site City of Seymour Attorney in February 2019 confirming existing ICs continue to remain effective and updated Indiana Template not needed. Summarized in Arcadis OM&M Progress Report (Arcadis, November 2019).	November 29, 2019.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was made available by newspaper in the *Seymour Tribune*, on 7/30/2021, stating that there was a FYR and inviting the public to submit any comments to EPA. No comments were received as a result of the public notice. The results of the review and the report will be made available at the Site information repository located at the Jackson County Public Library, Second and Walnut Street, Seymour Indiana, and on the EPA website for the Site at www.epa.gov/superfund/seymour-recycling-corp-site.

During the FYR process, IDEM Project Manager Stephanie Andrews met with the PRP groundwater treatment plant operator Melvin Hunsucker at the Site on May 18, 2021 and asked about the status of the O&M. Mr. Hunsucker was able to confirm that the O&M was operating properly with no significant issues. The IDEM Project Manager and EPA RPM discussed the ongoing FYR process for the Site in May and October of 2021 and have had regular email correspondence confirming Site status.

Data Review

SVE System Sampling

Passive SVE system sampling for the 19 turbine vent locations along the perimeter of the multi-media cap was discontinued in 2011 due to low VOC emission levels. Sample results in 2010 found VOCs in turbine vents at a range of 0.1 part per million (ppm) to 3.5 ppm with 17 of the 19 vents registering below 2.0 ppm. Sample results were also recorded for percent of the lower explosive limit for combustible gas VOCs in atmosphere, with all 19 turbine vent locations reporting at zero percent of the lower explosive limit. However, due to the potential for variability in VOC levels over time beneath the multi-media cap it is recommended that passive SVE system sampling at the turbine vent locations be reinstated in future Site O&M monitoring.

Groundwater Monitoring

The Site groundwater treatment system contains extraction wells in the upper and lower portions of the groundwater plume at three locations extending northwest from the multi-media cap. The extraction wells are located near the northern boundary of the multi-media cap, approximately 400 feet from the cap, and approximately 1000 feet from the cap. The objective of Site groundwater extraction is to hydraulically capture and monitor 1-4 dioxane and primary VOC groundwater contaminants cis-1, 2-dichloroethene and vinyl chloride to restore groundwater to cleanup standards. Groundwater sampling is conducted on a semi-annual basis at 17 MW locations at the cap and along the groundwater plume. (See Figures 3, 4, 5, attached).

The extent of the 1-4 dioxane plume at the Site is defined by the shallow portion of the groundwater plume, although higher concentrations are found near the multi-media cap in both the shallow and lower levels of the plume. During the current FYR reporting period, the highest concentrations of 1-4 dioxane in groundwater continue to be detected in MW-206C near the northern boundary of the multi-media cap. MW-206C 1-4 dioxane levels did remain fairly stable with results of 748 ppb in October 2017, 580 ppb in May 2019, and 757 ppb in May 2021. Further downgradient along the groundwater plume at MW-207C approximately 300 feet from the northern multi-media cap boundary, 1-4 dioxane levels are significantly lower and also stable over time with results of 16 ppb in October 2017, 7 ppb in October 2019, and 4 ppb in May 2021. At MW-305B located approximately 700 feet along the plume, 1-4

dioxane levels have decreased over the current FYR period with results of 183 ppb in October 2017, 77 ppb in October 2019, and 51 ppb in May 2021. At MW-131C located approximately 1100 feet along the plume, 1-4 dioxane levels have been variable during the current FYR period but have shown a substantial reduction in recent reporting with results of 96 ppb in May 2017, 234 ppb in May 2019, 53 ppb in November 2020, and 26 ppb in May 2021. This variability and substantial recent reduction of 1-4 dioxane levels at MW- 131C is likely related to the increase in groundwater extraction rates from the Site extraction wells located at the downgradient portion of the plume beginning in January 2019. EPA has not adopted an MCL for 1-4 dioxane, but a 3 ppb excess lifetime cancer risk groundwater standard has been historically utilized as a compliance standard as part of the Site O&M program based on a 1 in 1,000,000 (1×10^{-6}) excess lifetime cancer risk level.

During the current FYR reporting period, the highest concentrations of contaminants cis-1, 2-dichloroethene and vinyl chloride in groundwater have occurred at MW-203A located underneath the center of the multi-media cap. Concentrations of cis-1, 2-dichloroethene increased substantially at MW-203A during the FYR period likely due to ongoing degradation of contamination underneath the multi-media cap and thus providing support for the recommendation to reinstate passive SVE system sampling at the Site. MW-203A cis-1, 2-dichloroethene and vinyl chloride results were 760 ppb and 480 ppb respectively in May 2017; 1900 ppb and 950 ppb in October 2019; and 4900 ppb and 1100 ppb in May 2021. The historical trend of significant declines in the two contaminants downgradient along the groundwater plume continued this FYR period with cis-1, 2-dichloroethene readings of non-detection at both MW-207C and MW-131B. For vinyl chloride, MW-207C results were fairly stable at 55 ppb in May 2017, 190 ppb in October 2019, and 190 ppb in May 2021. MW-131B vinyl chloride results were 13 ppb in May 2017, 34 ppb in October 2019, and 41 ppb in May 2021. The cleanup standards for cis-1, 2-dichloroethene and vinyl chloride are 70 ppb and 2 ppb respectively.

Groundwater Treatment Plant Monitoring

The groundwater treatment plant continued to operate during this FYR period. Groundwater from the Site extraction wells is collected and runs through plant stabilization tanks with sediment filtering, air stripping, and effluent discharge to the City of Seymour wastewater treatment works plant. Site treatment plant monitoring involves reporting the volume of groundwater recovered and treatment plant effluent 1-4 dioxane concentrations. Groundwater recovered and treated at the Site remained stable during the current FYR period with the exception of down time for routine maintenance of the treatment plant and extraction wells. Groundwater volumes recovered did noticeably increase beginning in 2019 as pumping rates were increased at the extraction wells located at the downgradient portion of the plume. Annual treatment plant groundwater volumes were 22.7 million gallons in 2017, 20.3 million gallons in 2018, 27.0 million gallons in 2019, and 26.4 million gallons in 2020. 1-4 dioxane plant effluent levels have decreased over time during this FYR period with the increase in plant groundwater treatment volumes beginning in 2019. The highest 1-4 dioxane effluent result was 116 ppb in September 2017 and the lowest result was 21 ppb in August 2019. Recent 1-4 dioxane effluent results were 30 ppb and 29 ppb for November 2020 and May 2021 respectively. All 1-4 dioxane effluent sample results for this FYR period remain below the City of Seymour wastewater treatment works Site discharge authorization of 590 ppb.

In conclusion, the Site multi-media cap, groundwater extraction and treatment system, and ICs have effectively protected the public from exposure to contaminated waste material beneath the multi-media cap and ingestion of contaminated groundwater above drinking water standards. The groundwater treatment system is functioning as designed and is preventing plume migration. However as detailed above, it is recommended that monitoring changes be implemented for future Site O&M by reinstating

passive SVE system monitoring, and the potential adjustment of the groundwater well sampling frequency from semi-annual to annual.

Site Inspection

The Site inspection for this FYR report was performed on October 13, 2021 by IDEM Project Manager Stephanie Andrews. The PRPs' groundwater treatment plant operator Melvin Hunsucker was also present at the Site to oversee O&M activities. The FYR Site Inspection Checklist was completed for the Site inspection and photos were taken of the Site multi-media cap, entrance gate, and groundwater treatment plant air stripper. IDEM sent the completed checklist with photos to EPA and the document was entered into the EPA record center. The Site inspection checklist and photos record is included in Appendix F of this FYR report.

The weather was partly cloudy with the mild temperature in the mid-70s. No major issues were observed during the Site inspection. As Site plant operator, Melvin Hunsucker ensures that the groundwater treatment plant, monitoring wells, landfill cap, passive SVE vents, Site fence and ICs are routinely inspected typically on a weekly basis. All aspects of the remedy were operational, landfill cap properly covered, inspected monitoring wells were properly locked, and the perimeter fence was secure with signs in place. In summary, no major issues were found at the Site during the inspection.

V. TECHNICAL ASSESSMENT

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

Yes. Remedial components included in the Site 1986 interim ROD, the 1987 final ROD and 2002 ESD have been implemented, and the Site remains in O&M. Operation of the interim groundwater extraction and treatment system for the Site began in 1989. Construction of the SVE system, multi-media cap, final groundwater pump and treatment system with two extraction well locations, and perimeter security fence were completed in 1991. A third groundwater extraction well location was added in 1995. The groundwater treatment system was shut down at the beginning of 2002 and then re-started in 2011 per the 2002 ESD contingency based on O&M groundwater plume monitoring at the Site showing that the groundwater plume had stopped receding and was no longer stable and that the groundwater system needed to be re-started. The 2011 re-started groundwater treatment system continues to operate containing the groundwater plume and restoring groundwater quality in order to meet Site RAOs.

ICs in the form of Site Owner's Declaration of Restrictions Declaration have been implemented to ensure that the remedy remains protective and for preventing exposure to contaminants. Further, physical controls or access restrictions that are in place for the Site include a secure perimeter fence around the multi-media cap and groundwater treatment plant with locked gate and warning signs to restrict access. ICs are reviewed regularly as part of the Site O&M program, and EPA receives updates on IC status in the O&M semi-annual progress reports. Based on inspections and discussions with IDEM during this FYR period, including the October 13, 2021 Site inspection, EPA is not aware of Site or media uses that are inconsistent with the implemented ICs' stated objectives. Therefore, the ICs and access controls are proving to be effective at preventing exposures to contaminants at the Site.

The PRPs' treatment plant operator typically inspects the Site and treatment plant for operation and routine maintenance needs at least once a week as well as during scheduled semi-annual monitoring

activities, and has found the Site and plant to be in proper condition. The PRPs' O&M of the Site remedy is ongoing. It is recommended that monitoring activities be updated for future Site O&M by reinstating passive SVE system monitoring, and the potential adjustment of the groundwater well sampling frequency from semi-annual to annual, and that the activities are reflected in the O&M plan.

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?

Yes. The assumptions and data are still valid and there have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. The reasonably anticipated future land uses of the Site and the surrounding area for agricultural, commercial/industrial, and residential use are expected to remain the same. There has been no change to the risk assessment methodology utilized at the Site that would affect the protectiveness of the remedy.

Changes in Exposure Pathways, Toxicity and Other Contaminant Characteristics

There have been no changes in exposure pathways, toxicity or other contaminant characteristics that could affect the protectiveness of the remedy.

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

No. There was no information generated during this sixth FYR or any information generated due to impacts from natural disasters or vulnerabilities related to climate change impacts that call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations				
OU(s) without Issues/Recommendations Identified in the Five-Year Review:				
None				
Issues and Recommendations Identified in the Five-Year Review:				
OU: 1 (Sitewide)	Issue Category: Monitoring			
	Issue: Evaluate and identify necessary monitoring changes for the O&M at the Site.			
	Recommendation: Implement monitoring changes for future Site O&M by reinstating passive SVE system monitoring and the potential adjustment of the groundwater well sampling frequency from semi-annual to annual, and include monitoring changes in the O&M reports.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA	3/31/2023

OU: 1 (Sitewide)	Issue Category: Other			
	Issue: Site contaminant 1-4 dioxane.			
	Recommendation: Develop and issue an ESD document to adopt a 1-4 dioxane groundwater compliance standard as part of the Site remedy.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	EPA/PRP	EPA/State	3/31/2024

VII. PROTECTIVENESS STATEMENT

OU1 and Sitewide Protectiveness Statement	
<i>Protectiveness Determination:</i> Short-term Protective	
<i>Protectiveness Statement:</i> The remedy at the Seymour Recycling Corp. Site currently protects human health and the environment. The Site remedy components have been implemented, and the groundwater extraction and treatment system, multi-media cap, passive SVE system, groundwater monitoring, ICs, and O&M program are effectively controlling unacceptable risks at the Site. However, in order for the remedy to be protective in the long term, the following actions need to be taken to ensure protectiveness: Implement monitoring changes for future Site O&M by reinstating passive SVE system monitoring and the potential adjustment of the groundwater well sampling frequency from semi-annual to annual, and include monitoring changes in the O&M reports; and develop and issue an ESD document to adopt a 1-4 dioxane groundwater compliance standard as part of the Site remedy.	

VIII. NEXT REVIEW

The next FYR report for the Seymour Recycling Corp. Superfund Site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

- United States Environmental Protection Agency (EPA), 2017, Fifth Five-Year Review (FYR) Report: Seymour Recycling Corp. Site, February 10
- EPA, 1986, Record of Decision: Seymour Recycling Corp., September 30
- EPA, 1987, Record of Decision: Seymour Recycling Corp., September 30
- EPA, 2002, Explanation of Significant Differences: Seymour Recycling Corp., December 24
- EPA, 1988, Consent Decree: United States of America vs. Seymour Recycling Corp. et al, Entered December 1
- EPA, 1993, Preliminary Close-Out Report, Seymour Recycling Corp., September 8
- EPA, 2008, Recommendation to Sign the Sitewide Ready for Anticipated Use Determination: Seymour Recycling Corp. Superfund Site, April 8
- CH2MHill, 1986, Remedial Investigation Report, May 12
- Arcadis, 2014, Operation, Maintenance, and Monitoring (OM&M) Plan, May 22
- Arcadis, 2019, OM&M Progress Report, November 29
- Arcadis, 2020, OM&M Progress Report, June 29
- Arcadis, 2021, OM&M Progress Report, September 30

Figures

Site Location

Superfund
U.S. Environmental Protection Agency

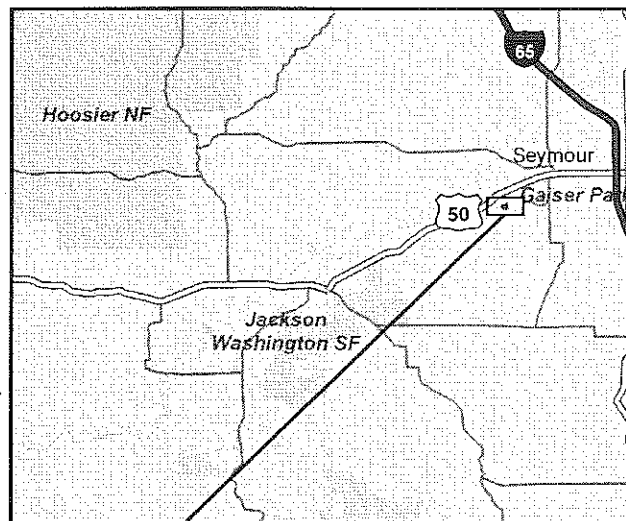


Seymour Recycling Jackson County, IN

IND040313017



State



County



Site

Figure 1

Created by Sarah Backhouse
U.S. EPA Region 5 on 3/5/07
Image Date: 2005



Institutional Control (IC) Review

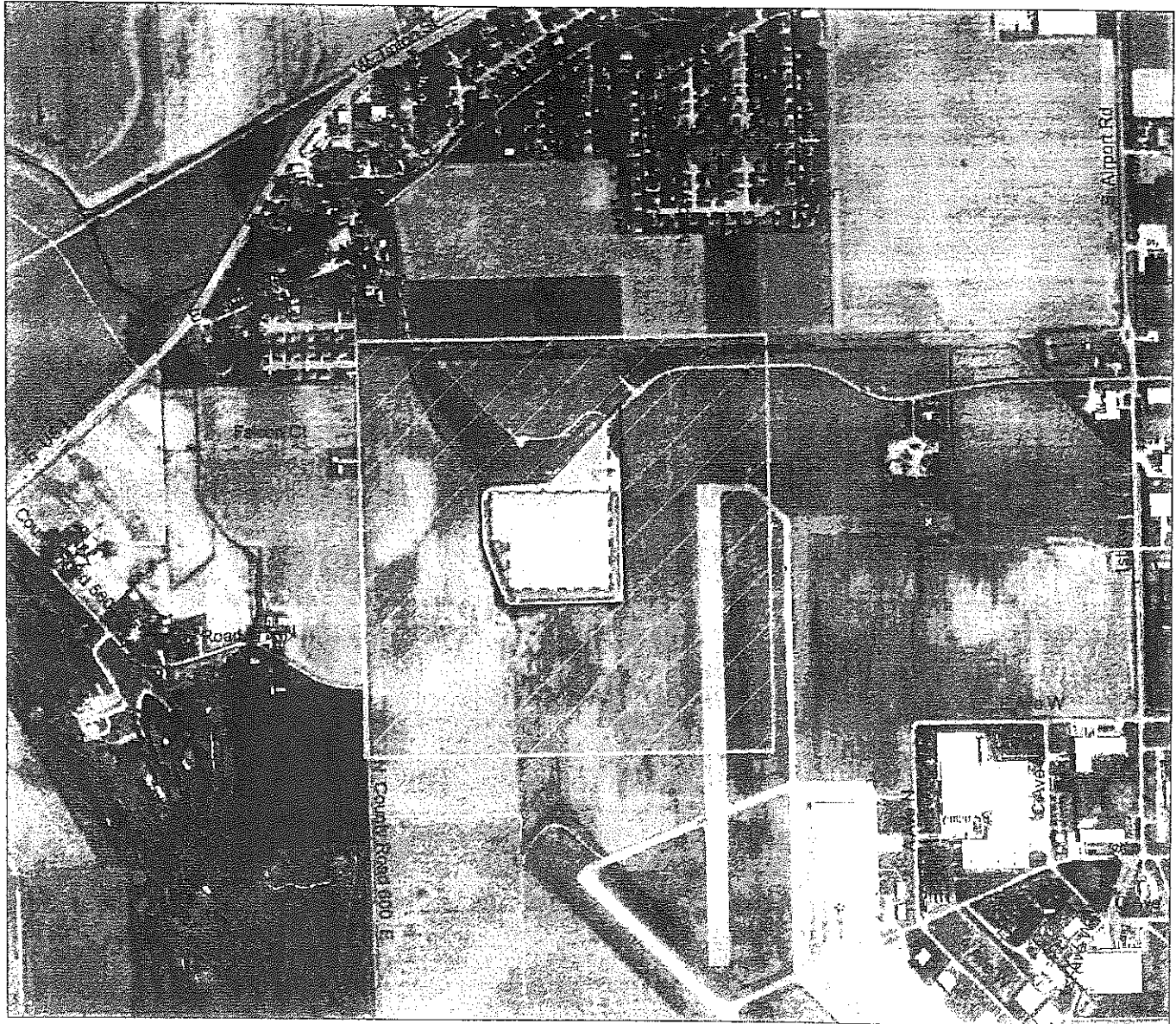
Areas Depicting Required and
Implemented Institutional Controls

Superfund
U.S. Environmental Protection Agency



Seymour Recycling Corporation
Jackson County, IN

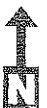
IND040313017



Legend

-  Seymour Recycling Corporation Boundary
-  Land and Groundwater Use Restrictions (1988) - Required and Implemented IC*
-  Real Estate Land Use Restrictions (1988) - Required and Implemented IC*

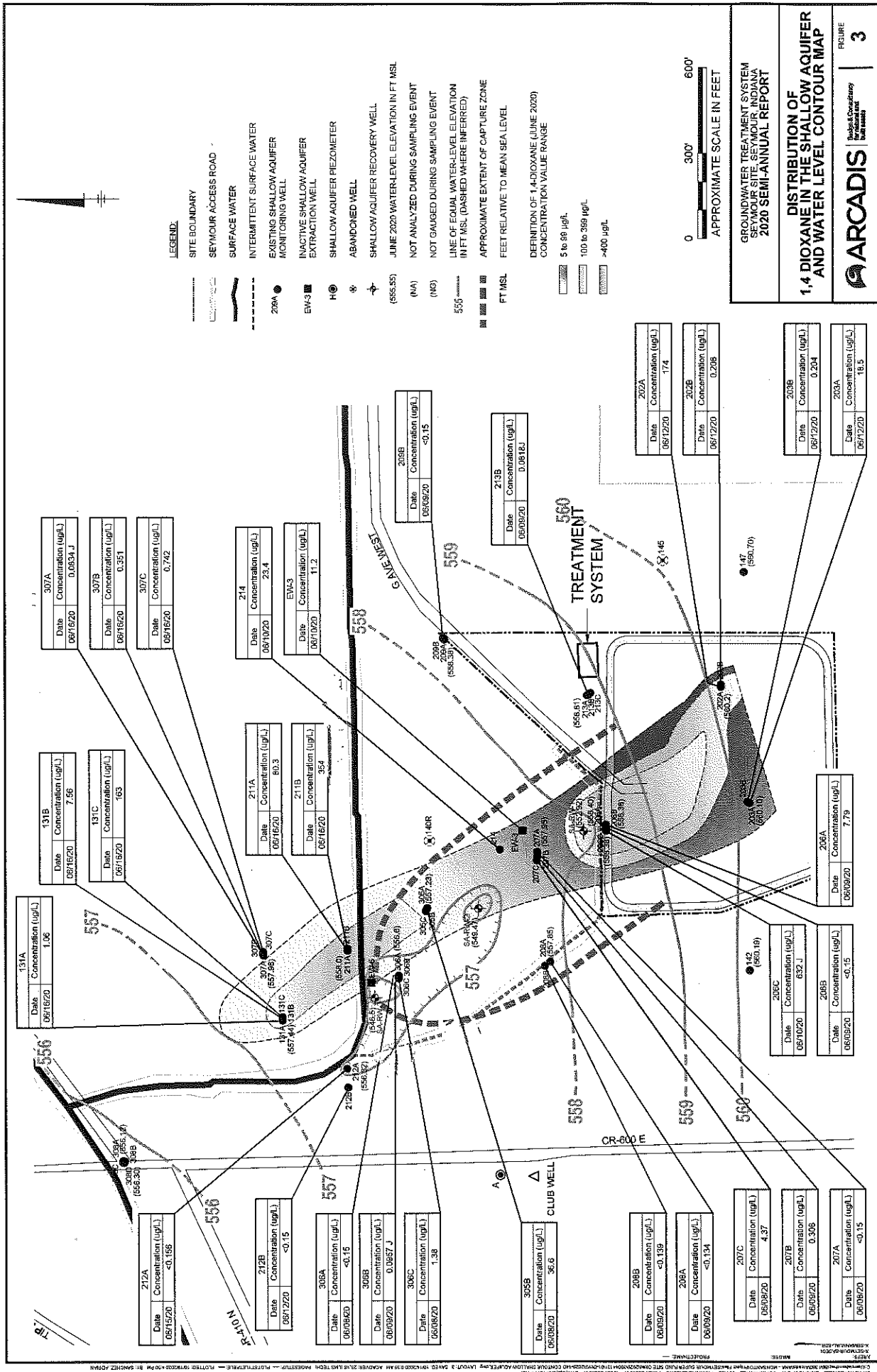
0 600 1,200
Feet

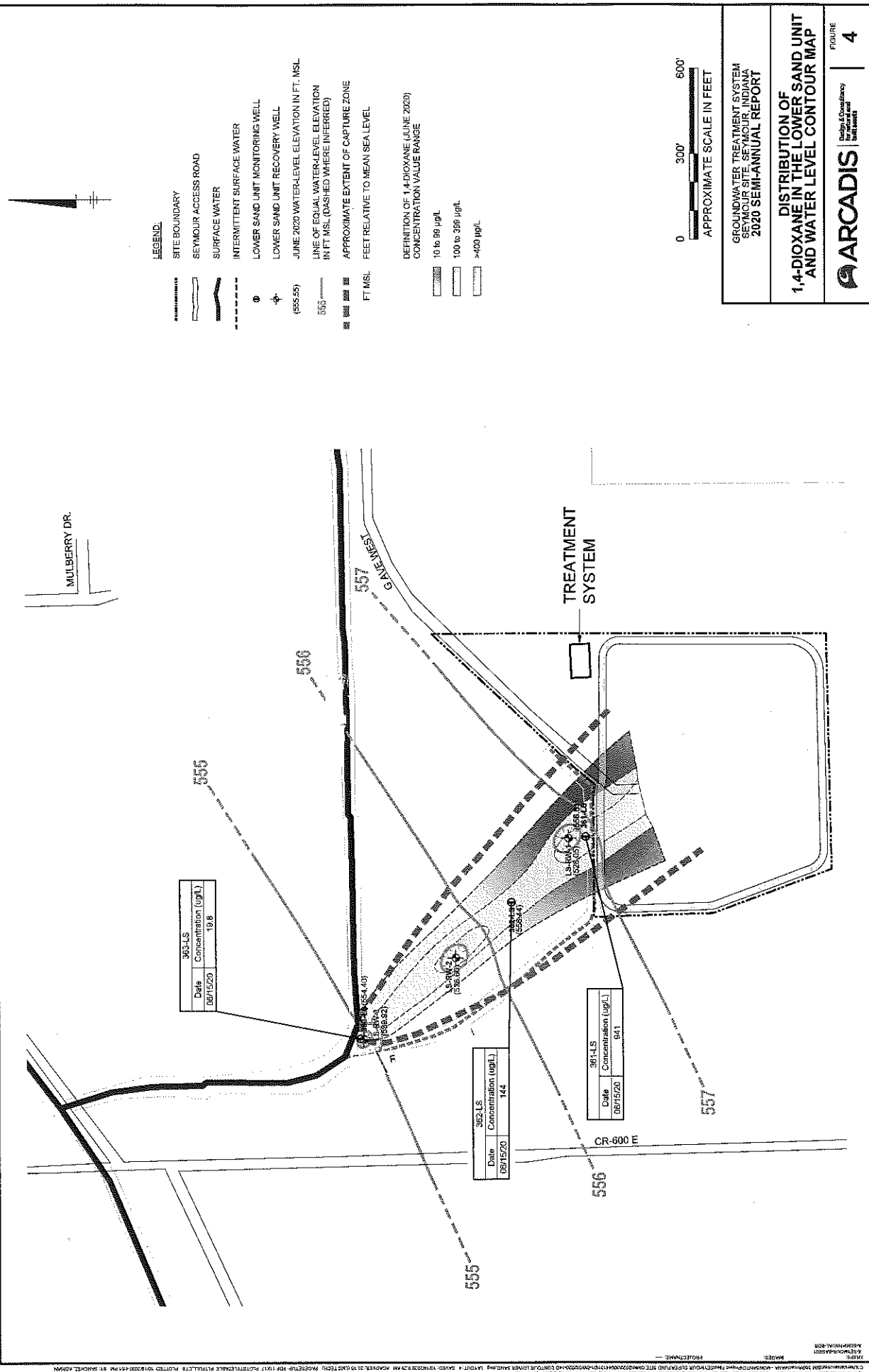


* See the Seymour Recycling Corporation Deed Restrictions (1988), Jackson County, IN for the restriction details

EPA Disclaimer: Please be advised that areas depicted in the map have been estimated. The map does not create any rights enforceable by any party. EPA may refine or change this data and map at any time

Created by Sarah Backhouse
U.S. EPA Region 5 on 2/7/07
Image Date: 2005





Other Appendices

APPENDIX B – SITE CHRONOLOGY

SITE CHRONOLOGY

Chronology of Site Events	
Date	Event
February 1980	Site property placed under receivership by State of Indiana court
September 1983	NPL final listing for the Site
August 1983	RI/FS initiated
January 1984	Surface cleanup removal completed
September 1986	RI/FS completed
September 1986	Interim ROD signed
September 1987	Final ROD signed
December 1988	RD/RA Consent Decree entered
September 1993	Remedy Construction Completion
March 1997	First FYR completed
December 2001	Groundwater treatment plant system shut-down with contingency plan
March 2002	Second FYR completed
December 2002	ESD signed
March 2007	Third FYR completed
April 2008	Sitewide Ready for Anticipated Use completed
December 2011	Groundwater treatment plant system re-started
February 2012	Fourth FYR completed
February 2017	Fifth FYR completed

APPENDIX C – SITE INSTITUTIONAL CONTROLS (ICs)

The following provide the required ICs for the Site. An Owner's Declaration of Restrictions on Current and Future Uses that runs with the land was recorded as MI Record 28 page 445-449 (Instrument #5938) at Jackson County Recorder's Office on December 15, 1988, on the approximately 14 acre Site fenced property area owned by the City of Seymour, IN; and prohibits residential or commercial use of the land, prohibits use of groundwater underlying the Site area, and assures the integrity of the Site remedy. An Owner's Declaration of Restrictions on Current and Future Uses that runs with the land was recorded as MI Record 28 page 450-453 (Instrument #5939) at Jackson County Recorder's Office on December 15, 1988, on surrounding property adjacent to the 14 acre Site fenced property area, which is owned by the City of Seymour, IN; and prohibits use of the groundwater until remedy completion, prohibits residential or commercial land use, and assures the integrity of the Site remedy.

ERC Title	Date Implemented	EPA Region 5 Record Center #
Owner's Declaration of Restrictions on Current and Future Uses, MI Record 28 page 445-449 (Instrument #5938)	12/15/1988	270039
Owner's Declaration of Restrictions on Current and Future Uses, MI Record 28 page 450-453 (Instrument #5939)	12/125/1988	270040

APPENDIX D

FYR NOTIFICATION LETTER & NEWSPAPER AD



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

February 8, 2021

SR-6J

Stephanie Andrews
Indiana Department of Environmental Management
100 N Senate Ave, 11th Floor
Indianapolis IN 46204-2251

Re: Notification of Five Year Review Start for the Seymour Recycling Site

Dear Ms. Andrews:

This letter is to notify you that the United States Environmental Protection Agency (EPA) has begun the process of the Five Year Review for the Seymour Recycling Superfund Site in Seymour, Indiana. A Statutory Five Year Review for the Site will be conducted as required by Section 121 of CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA).

The Five Year Review for the Seymour Site is due February 10, 2022, and we are providing you this notification so that EPA and the Indiana Department of Environmental Management (IDEM) can begin to plan for the necessary activities for the review process. I will contact you regarding the upcoming activities in Five Year Review process, and I am available to discuss any of the matters concerning this process.

Please contact me by email or at 312-886-6552 if you have any questions or concerns regarding this Five Year Review for the Seymour Recycling Site.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Gore", is positioned above the typed name.

Jeff Gore
Remedial Project Manager
EPA

bcc: Terese Van Donsel
Timothy Fischer
Bonnie Eleder
Rex Osborn, IDEM
Janet Pope, OPA
Richard Nagle, ORC



**EPA Begins Review
Of Seymour Recycling Superfund Site**
Seymour, Indiana

U.S. Environmental Protection Agency is conducting a five-year review of the Seymour Recycling Superfund site located in Seymour, IN. The Superfund law requires regular checkups of sites that have been cleaned up – with waste managed on-site – to make sure the cleanup continues to protect people and the environment. This is the sixth review of the site.

This review will evaluate the quality and overall effectiveness of the cleanup actions, including measures taken to clean up contaminated soil and ground water. EPA's cleanup included groundwater extraction and treatment, a landfill cap, property-use restrictions, and operation and maintenance. The site is currently in the operation and maintenance phase.

More information is available at the Jackson County Public Library, 2nd and Walnut Streets, and at www.epa.gov/superfund. The review is scheduled to be completed by February 2022.

The five-year-review is an opportunity for you to tell EPA about site conditions and any concerns you have. Contact:

Janet Pope

Community Involvement
Coordinator
312-353-0628
pope.janet@epa.gov

Jeffrey Gore

Remedial Project Manager
312-886-6552
gore.jeffrey@epa.gov

You may also call EPA toll-free at 800-621-8431, 8:00 a.m. to 4:30 p.m., weekdays.

APPENDIX E – SITE MONITORING DATA

The Arcadis OM&M Progress Reports dated September 30, 2021 and June 29, 2020 provide a summary of the O&M monitoring data for the Site. The documents are available in the EPA Region 5 Record Center.

Document Title	Document Date	EPA Region 5 Record Center #
September 2021 Arcadis OM&M Report Seymour Recycling Corp. Superfund Site	September 30, 2021	969271
June 2020 Arcadis OM&M Report Seymour Recycling Corp. Superfund Site	June 29, 2020	962361

APPENDIX F – SITE INSPECTION CHECKLIST AND PHOTOS

The Site inspection for this FYR report was performed on October 13, 2021 by IDEM Project Manager Stephanie Andrews. The FYR Site Inspection Checklist was completed for the Site inspection and site photos were taken of Site multi-media cap, entrance gate, and groundwater treatment plant air stripper. The document is available in the EPA Region 5 Record Center.

Document Title	Document Date	EPA Region 5 Record Center #
FYR Site Inspection Checklist and Photos Seymour Recycling Corp. Superfund Site	October 13, 2021	969921