



3.TS/C3SM1_MK01001/figure1_Site_Location_20230131.mxd REVISED: 06/06/2023 DRAWN BY: PHILIP G

Ameren CIPS Taylorville: Updates and Five-Year Review March 26, 2024

Lincoln Land Community College, Taylorville IL



Agenda



SITE STATUS
PRESENTATION



RECENT
SAMPLING EVENTS



FIVE-YEAR REVIEW



QUESTION AND
ANSWER PERIOD

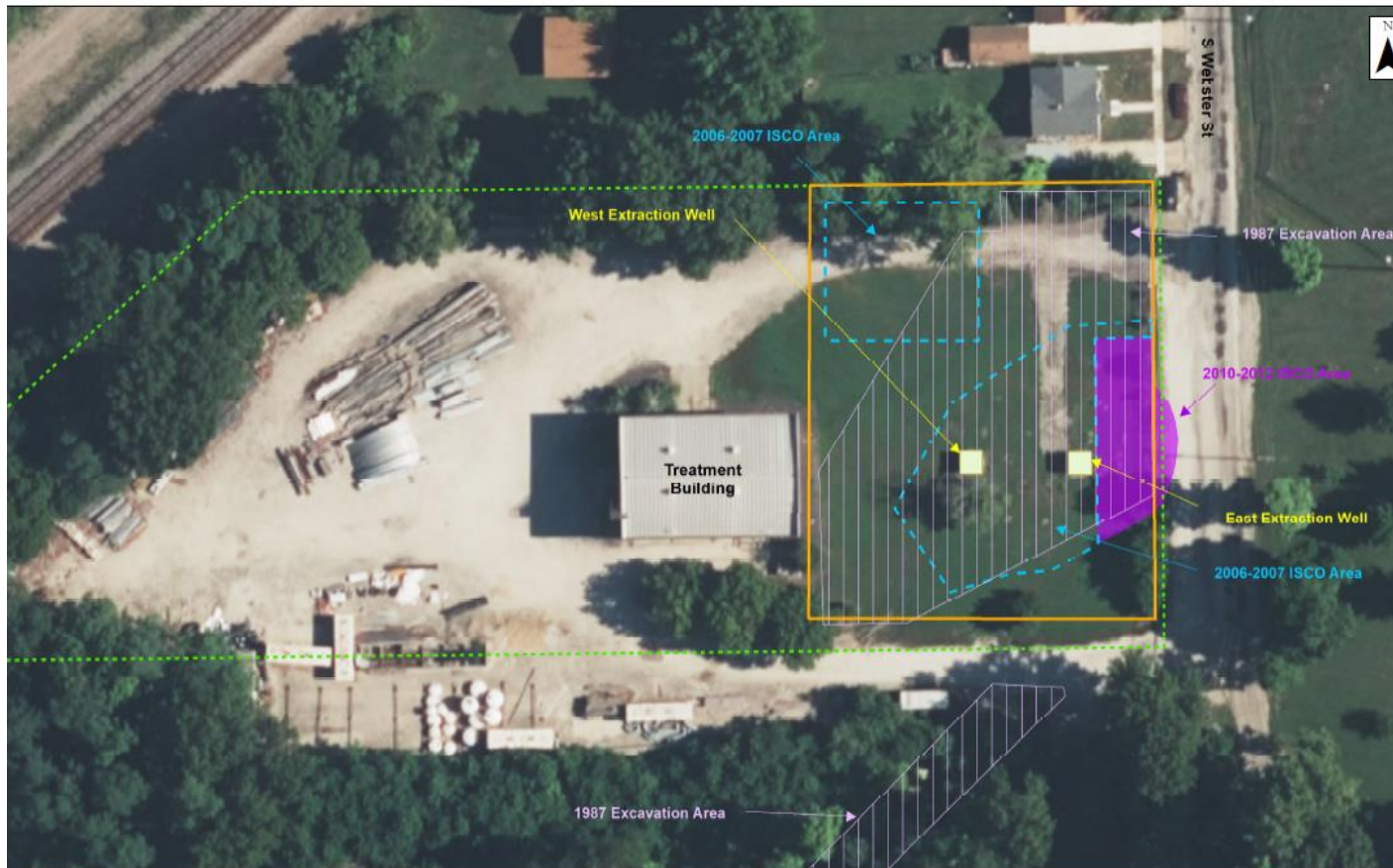
Site Information: 917 South Webster Street, Taylorville, IL

Former Manufactured Gas Plant (MGP)
Residual chemicals remained in the soil and groundwater after MGP operation ceased in 1932

On-site contaminated soils were excavated down to the water table and disposed of off-site in 1987. Surficial sediments to the south were also removed at this time.

A groundwater pump and treatment system has extracted and treated contaminated groundwater for over 30 years.

Additional chemical oxidant injections to reduce source area concentrations were used in 2006 and 2010-2012.



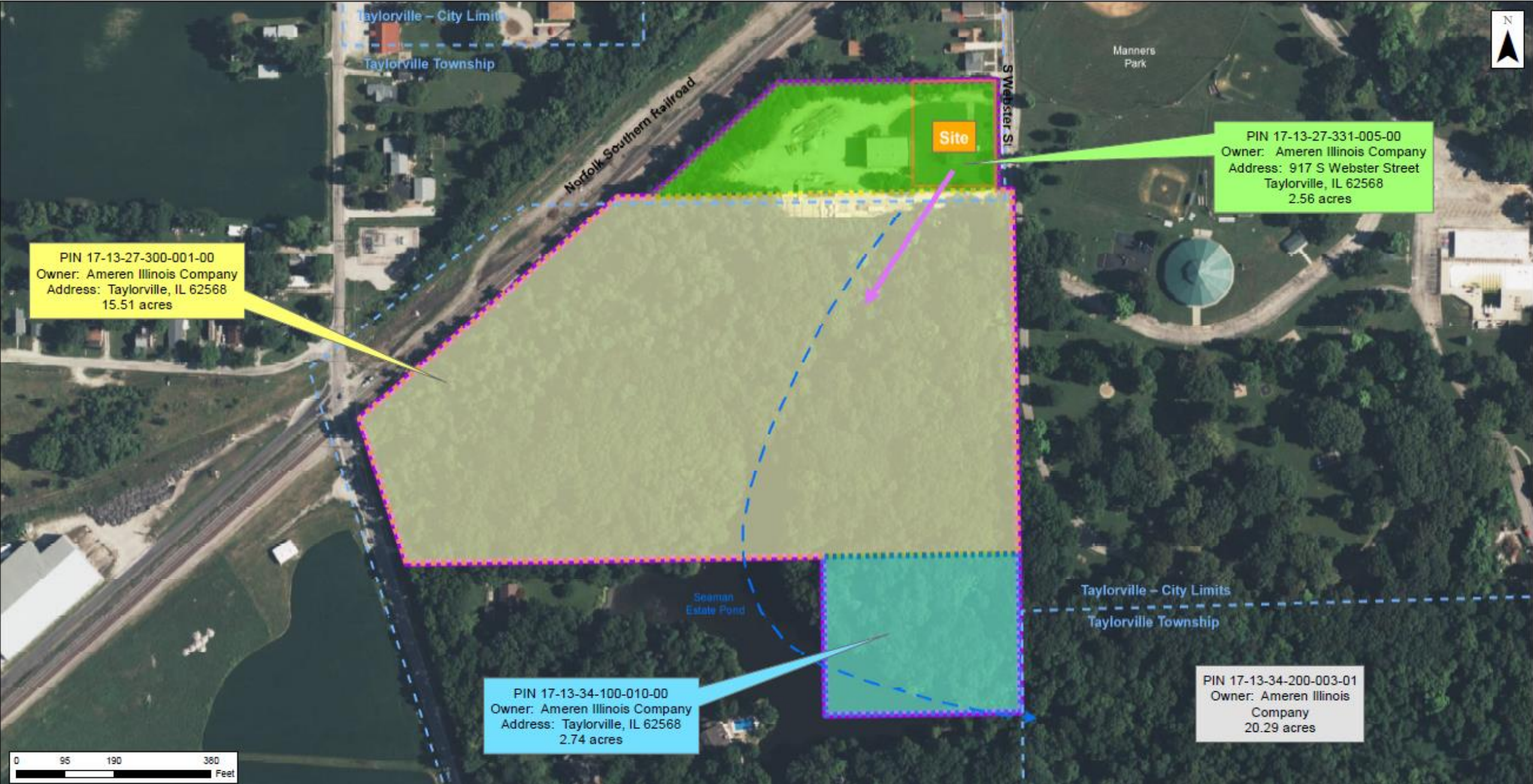
- Legend**
- - - Parent Parcel Boundary
 - Site Boundary
 - 1987 Excavation Area
 - 2006-2007 ISCO Treatment Area
 - 2010-2012 ISCO Treatment Area
 - Pump & Treat Extraction Wells (1995-Present)

Note:
ISCO – In Situ Chemical Oxidation Treatment

Figure 2
Historical Remediation Areas
Ameren Taylorville MGP Site
Taylorville Township
Christian County, IL

Environmental Resources Management
www.erm.com
ERM

DRAWN BY: Philly Office - S. Long



PIN 17-13-27-300-001-00
Owner: Ameren Illinois Company
Address: Taylorville, IL 62568
15.51 acres

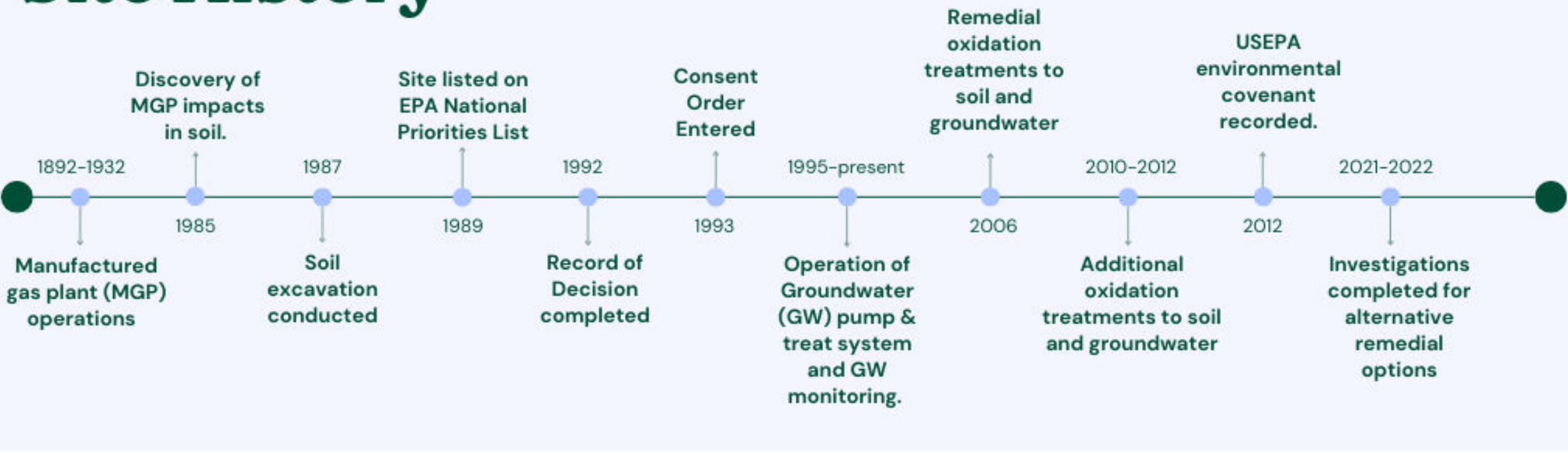
PIN 17-13-27-331-005-00
Owner: Ameren Illinois Company
Address: 917 S Webster Street
Taylorville, IL 62568
2.56 acres

PIN 17-13-34-100-010-00
Owner: Ameren Illinois Company
Address: Taylorville, IL 62568
2.74 acres

PIN 17-13-34-200-003-01
Owner: Ameren Illinois Company
20.29 acres

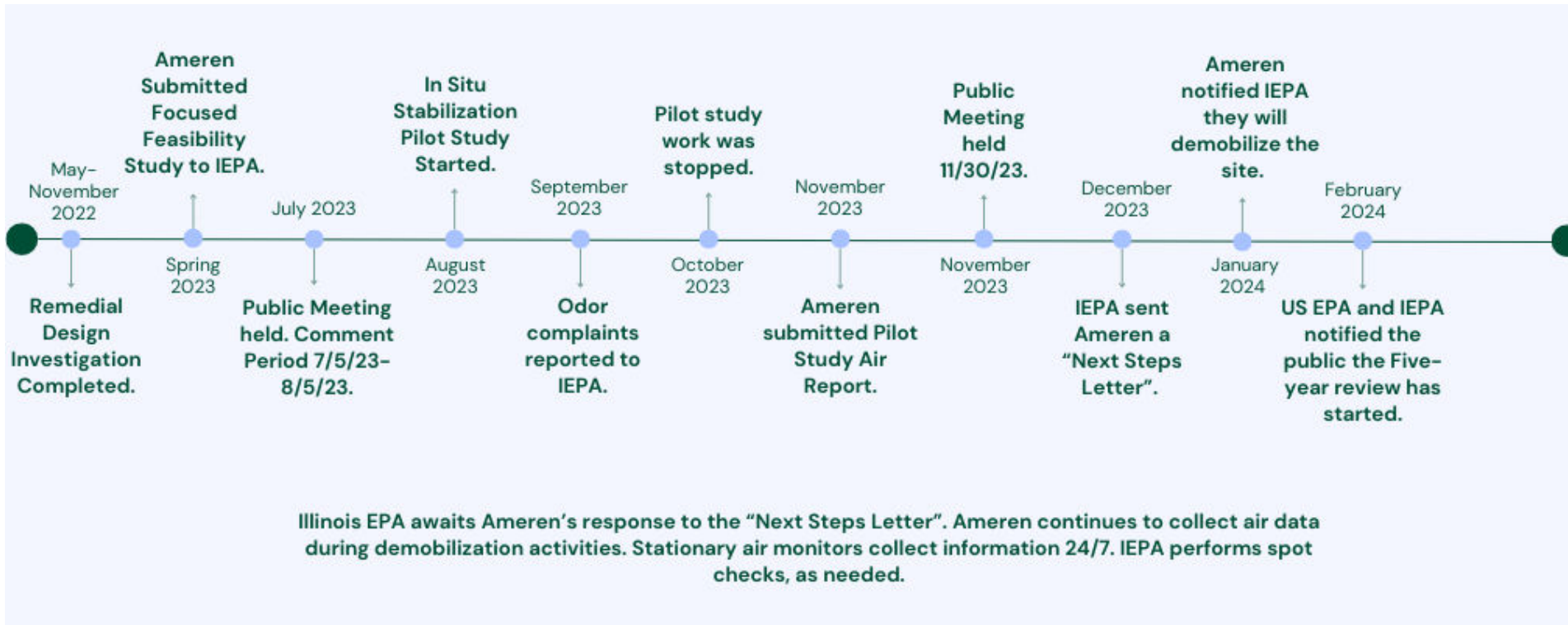
Existing Parcels at the Ameren Site

Site History



Timeline of Events

1892-2022



Recent Events

2022-PRESENT

2024 Update

- January 7, 2024: Demobilization officially declared by Ameren.
- Week of January 15, 2024: Ameren began preparation for backfilling excavation, site restoration, and demobilizing activities.
- Week of January 22, 2024: Ameren began dewatering and backfilling excavation.
- Week of January 29, 2024: Ameren continued backfilling excavation. Imported gravel and geotextile for excavation backfill. Hauled off concrete debris and overburden soil from grading to Five Oaks Landfill.
- Week of February 5, 2024: Ameren continued backfilling excavation. Imported gravel for excavation backfill. Demobilized equipment. Ameren Containerized ponded water from excavation for disposal off-site. Began installation of water line to building.
- Week of February 12, 2024: Ameren conducted quarterly groundwater samples. Began post-ISS coring for strength testing (confirming the PSI of the samples collected). Continued backfilling excavation. Imported gravel for excavation backfill. Installed geotextile and geomembrane liner in excavation. Continued demobilizing equipment. Continued to dispose ponded water from excavation off-site. Continued installation of water line to building and disposed overburden soil to Five Oaks Landfill.
- February 21, 2024: Illinois EPA inspected the area in response to citizen complaints. No odors or detections were observed.



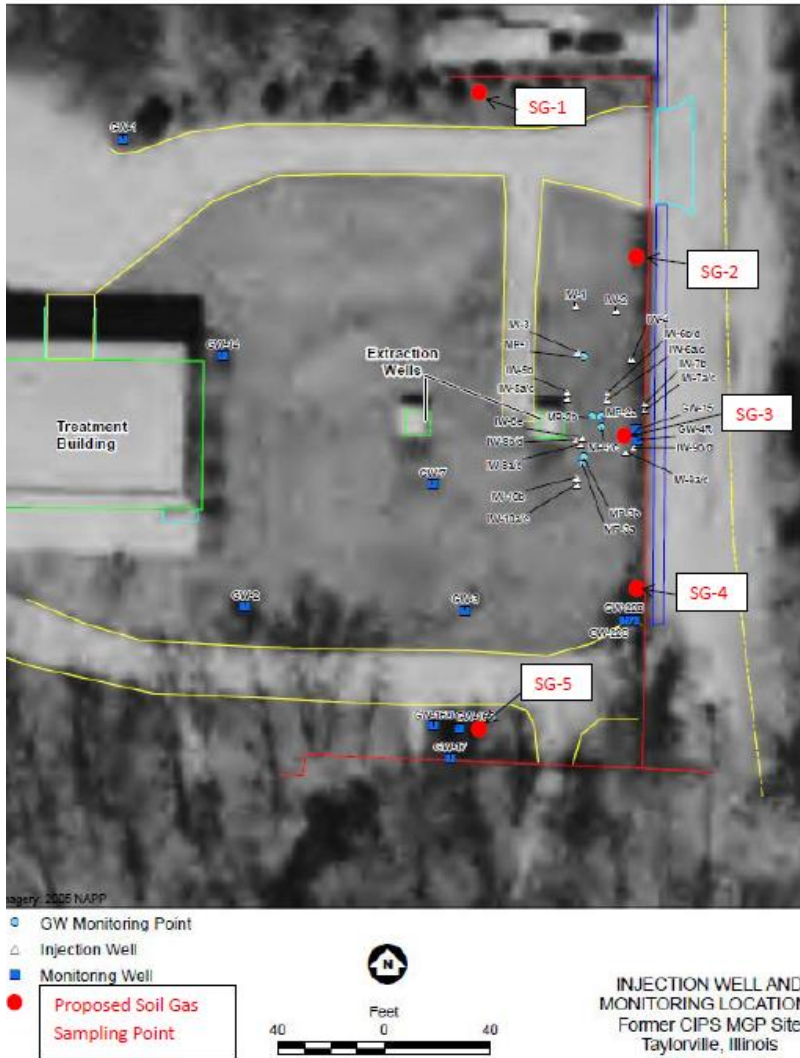
Recent Sampling

WATER, AIR, AND SOIL

Vapor Intrusion

In 2014, Soil gas monitoring wells were placed to study if volatile gases are present in unsaturated soils on the site.

No COCs related to the site exceeded Illinois Pollution Control Board cleanup standards.



Groundwater Update:

The system has treated 1,360,005,065 gallons of groundwater from startup until the end of December 2023.

Groundwater Exceedances onsite include:

- GW-3: benzene, naphthalene, benzo(a)anthracene, and benzo(b)fluoranthene
- GW-4R: benzene and naphthalene

Pump and Treat is still ongoing and is containing contaminants on-site. GW-20, at the southern extent of Ameren's property, shows PAHs at standards. No wells beyond Ameren's property have shown contamination.



Groundwater Flow

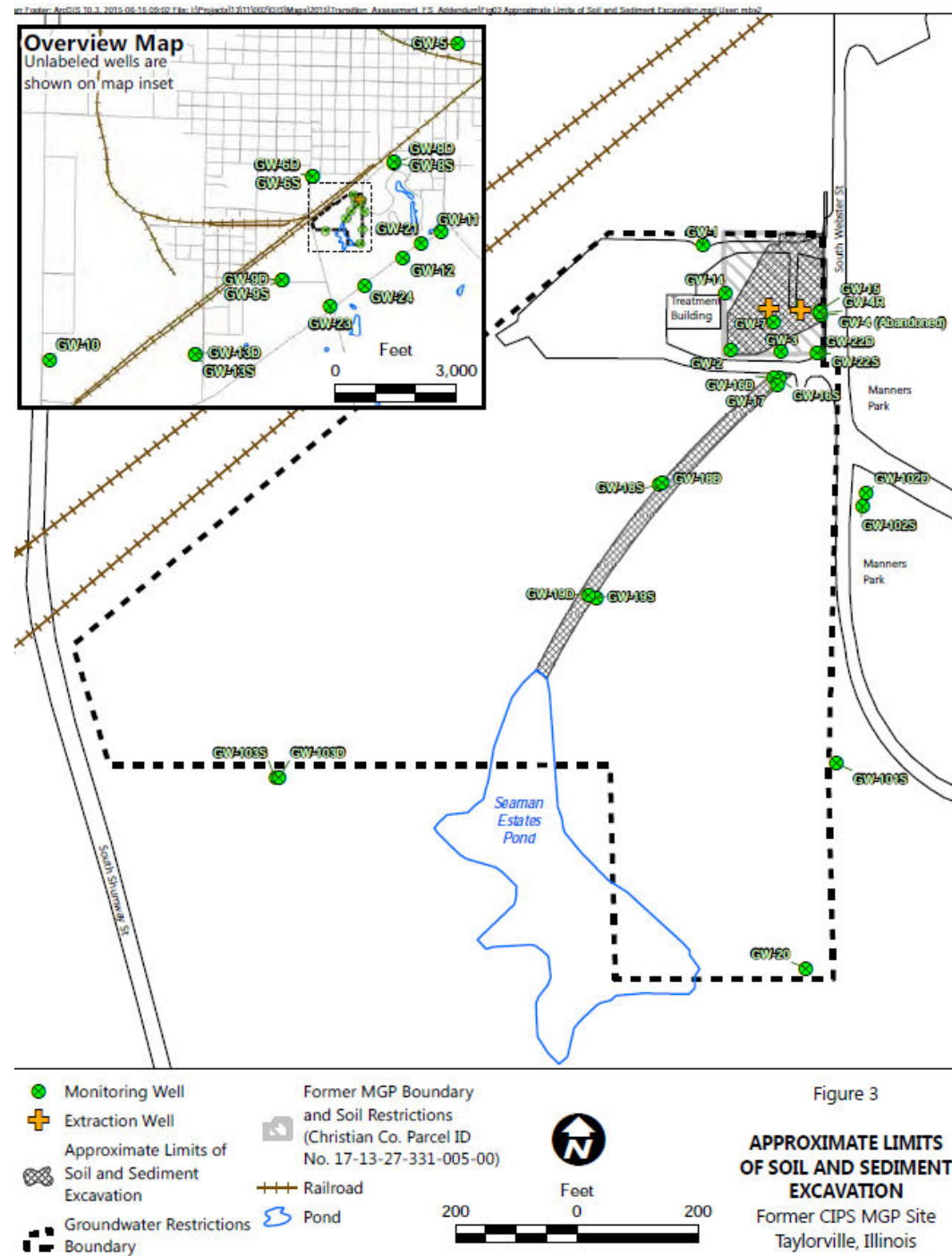
Groundwater Flow rate and direction has been established since the 1992 ROD.

Groundwater gradient is flat when the P&T system is not operating. The regional groundwater flows south-southwest, towards Seaman Estates Pond and the Sangamon River. Average groundwater velocity is 0.3 feet per day (ft/d)

Residual COCs in groundwater include Polycyclic aromatic hydrocarbons (PAHs) and volatile organic compounds (VOCs).

The groundwater under the Site is prohibited from potable use by a 2012 Environmental Covenant

Contaminated soil above the groundwater table was removed in 1987. The P&T system has been containing and treating groundwater since 1995



Air Monitoring on Site

Ameren collects air data around the site for constituents of concern hourly.

Five stationary air monitoring stations collect information around the site 24/7 and are compiled weekly.

Illinois EPA performs spot inspections with a Photoionization Detector (PID) as needed.

Action levels are the detection levels at which additional action is taken by those on site.

Parameter (Averaging Time)	Action Level	Additional Response Action To Be Taken
PM ₁₀ (15 minutes) per SAM	100-150 µg/m ³	Additional emission control measures are implemented. These are up to the Site staff to determine, dependent on the source, duration, and wind speeds. These can include more frequent monitoring, the application of additional foam, the application of foam in other locations or in extended areas of the work zone, the placement of additional mats, the slowing of the rate of the mixing of the soil, the stoppage of activities, et. al.
	>150 µg/m ³	Work stopped or reduced until readings are reduced below 100 µg/m ³ .
Total VOCs (1 minute) per PID	>0.5 ppm	If greater than 0.5 ppm for a single 1-minute interval, continue monitoring. If the reading is sustained (does not fall below 0.5 ppm in next reading), use a benzene-specific instrument to determine benzene concentration.
Benzene (5 minutes) per benzene-specific equipment	<0.5 ppm	Continue monitoring VOCs with PID.
	0.5-5.0 ppm	Additional emission control measures are implemented and benzene-specific measurements are continued. Control measures to be taken are dependent on source, duration, and magnitude. These can include the application of additional foam, the application of foam in other locations or in extended areas of the work zone, the placement of additional mats, the slowing of the rate of the mixing of the soil, and stoppage of activities, et. al.
	>5 ppm	Temporarily stop work until measurements drop below 0.5 ppm. Continue benzene-specific measurements.

Air Monitoring

Action level to control emissions of particulate matter (PM10) is 150 $\mu\text{g}/\text{m}^3$.

If the site exceeds the action level, additional testing is performed.

Full details are included in the 2024 Pilot Study Air Report Addendum

Date	Timestamps	Highest Detection	Presumed Cause
11/15/2023	17:45-18:30	183 $\mu\text{g}/\text{m}^3$	Offsite Emissions
12/11/2023	2:15-4:45	195 $\mu\text{g}/\text{m}^3$	Early morning fog
12/22/2023	9:00-9:30	382 $\mu\text{g}/\text{m}^3$	Rainfall
1/26/2024, 1/29/2024, 1/30/2024, 1/31/2024	Various	738 $\mu\text{g}/\text{m}^3$	Carbon/Grout Mixing
2/20/20224	12:00	160 $\mu\text{g}/\text{m}^3$	Concrete Cutting

VOC Sampling in Air Exceeding early warning

The early warning level was set to 0.5 ppm for VOCs.

Three total VOC measurements exceeded these warning levels, all on October 6, 2023. After their detection, a specific test for benzene was used. None exceeded the action levels for 0.5 ppm.

Time	Location	VOC (ppm)	Benzene (ppm)
8:41	SAM-2	0.7	0.01
8:48	SAM-2.5	0.6	0.10
8:49	IPML-C	0.5	0.05





Planned Soil Sampling: Surface Soil Survey



Five-Year Review Current Remedy Status

PUMP AND TREAT SYSTEM

The Sixth Five-Year Review

A five-year review is required when contamination remains in place.

The purpose of the five-year review is to evaluate the implementation and performance of the remedy to determine whether the remedy is or will be protective of human health and the environment.

This review requires a site inspection conducted at 10am today (3/26/2024)

1. Is the remedy functioning as intended?

2. Are the initial assumptions made still valid?

3. Is there any new information which could call the protectiveness of the remedy into question?

4. Is the current remedy protective?

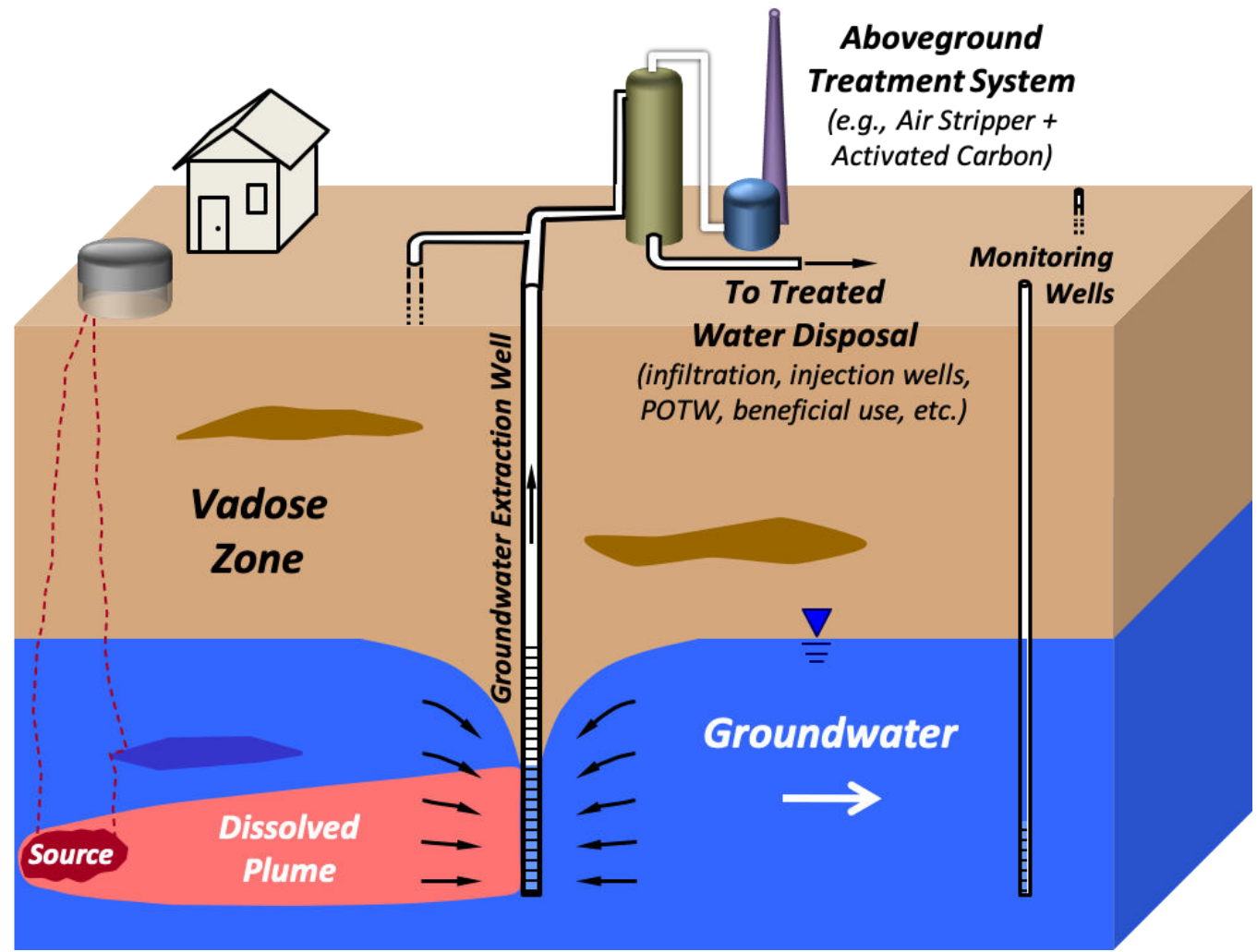
How does Pump and Treat Work?

Groundwater is pumped (i.e., extracted) from wells to an above-ground treatment system that removes chemicals:

The system uses two extraction wells to remove groundwater,

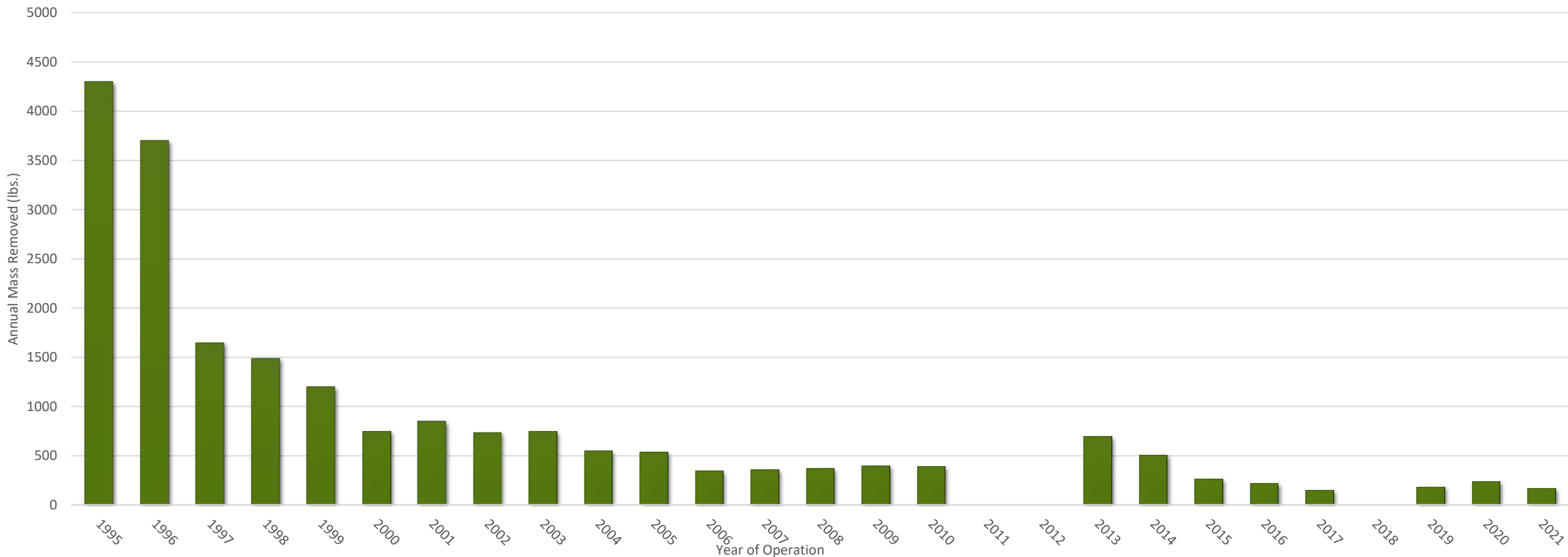
Groundwater is treated to meet Illinois Water Quality Criteria on-site

Treated water is discharged into the drainage leading to Seaman Estates pond.



Not a scale model

Amount of Mass Removed by Year*



Mass removed per Year by Pump and Treat

* - Highest mass removal was observed during the first 20 years of groundwater treatment system operation (~1,054 lbs. / year).

Since 2015, annual mass removal volumes average ~173 lbs. / year, which is over 6x less than the previous 20-year annual average.

Blanks in 2011 and 2012 are to facilitate ISCO injection. Blanks in 2018 are when the system was shutdown for repairs.

Pump and Treat

Pros:

Known Technology	Maintenance/repair needed over time
Already in place	Projected to take 100 years to reach cleanup objectives.

Cons:

Temporary Shutdowns:

The Pump and Treat system can be shutdown for routine maintenance, and this does not impact protectiveness of the remedy. Recent examples are:

Replacement of valves for the system on 2/15/2024

Power Line Installation on 3/11/2024



For more information on the site and previous five-year reviews:

Taylorville Public Library:

Where: 121 West Vine Street, Taylorville IL, 62568

Hours:

- 10am-7pm Monday to Thursday
- 10am-5pm Friday
- 10am-3pm Saturday

Five Year Reviews can be found here:
<https://cumulis.epa.gov/supercpad/SiteProfile/index.cfm?fuseaction=second.scs&id=0501082&doc=Y&colid=70235®ion=05&type=SC>

Questions and Comments

TO PROVIDE COMMENTS ON THE FIVE-YEAR
REVIEW:

Ruth Muhtsun, USEPA

E-mail: muhtsun.ruth@epa.gov

FOR OTHER SITE QUESTIONS, PLEASE
CONTACT:

Sarah Brubaker, Illinois EPA

E-mail: sarah.brubaker@illinois.gov

**Please submit all formal comments on the
five-year review by June 1, 2024**