South Point Plant Energy Assessment

September 2025

EPA
United States
Environmental Protection
Agency

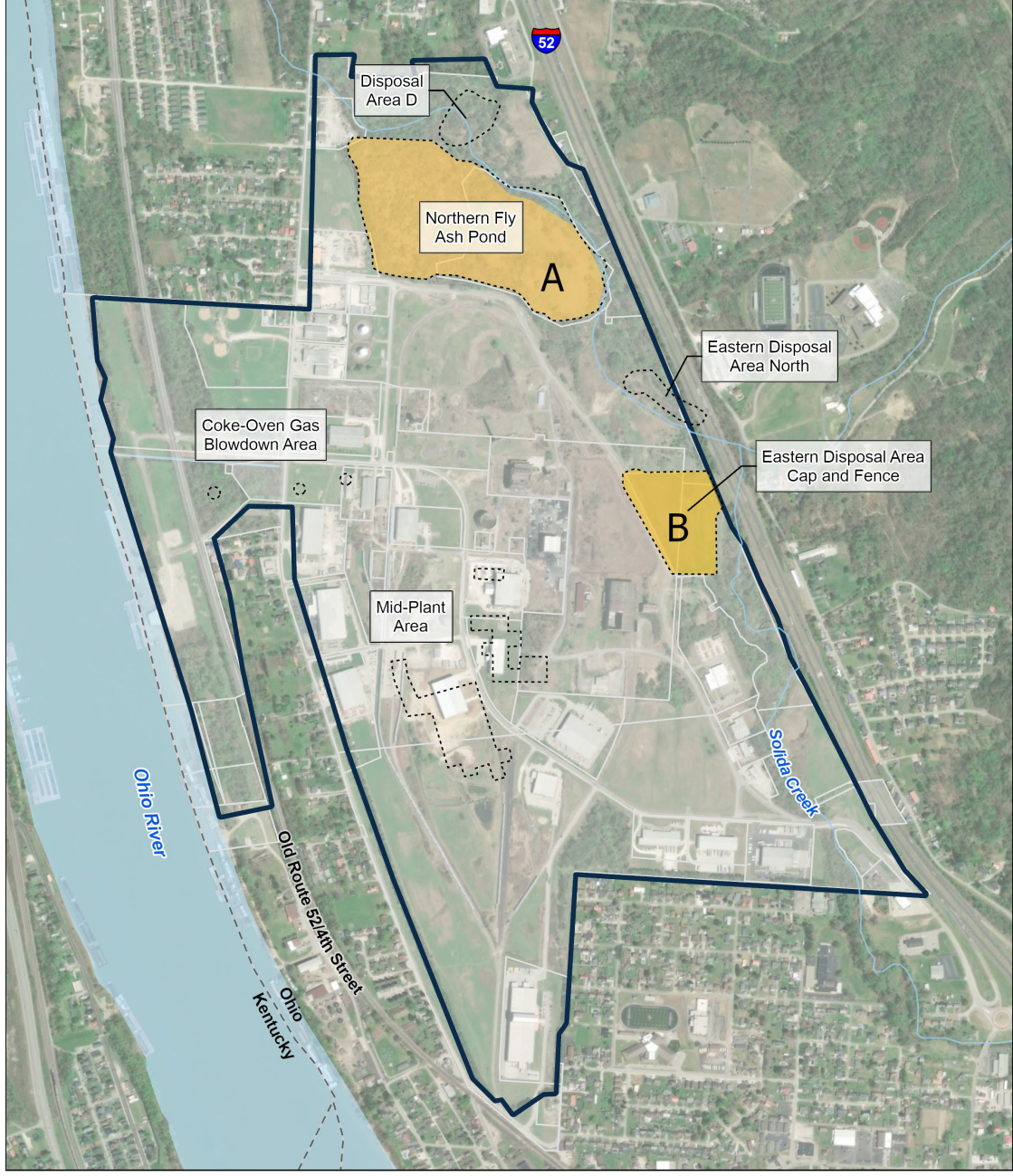
Background

- The U.S. Environmental Protection Agency is supporting a solar reuse assessment for the South Point Plant Superfund site.
- Two potential footprints have been identified to host a solar project.
- Remediation is complete in the potential footprints. EPA anticipates that solar is compatible with the cleanup.
  - Restrictions on groundwater and surface water use, as well as disturbance of the cap, limit the site to commercial and industrial uses.

Potential Solar Generation Capacity

	Size (acres)	Estimated Capacity (kWdc)	
		Low*	High**
Area A	40	14,109	23,981
Area B	10	3,652	6,207
Total	50	**17,761**	**30,188**

*Conservative estimate based on land requirements of 2.8 acres/MW or .35 MW/acre.
**Estimate modeled using estimated footprint sizes and NREL's pvWatts calculator, which estimates land requirements at 1.7 acres/MW or .60 MW/acre.

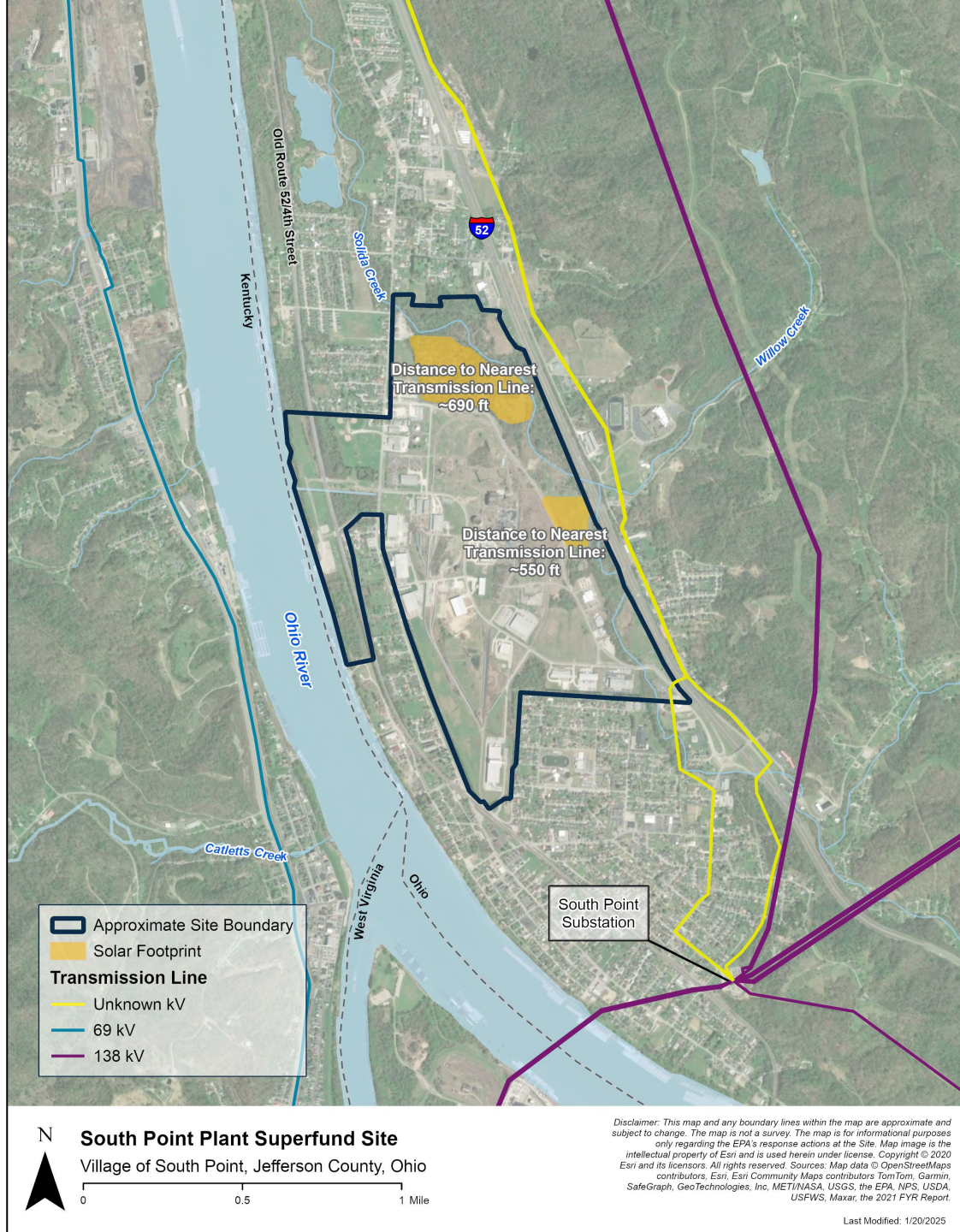


South Point Plant Superfund Site
Village of South Point, Jefferson County, Ohio

Last Modified: 1/20/2025

Transmission

- Area A – **690 ft** to transmission line
- Area B – **550 ft** to transmission line



Electricity & Transmission Considerations

LEDC Utility Bill (Service Period 3/5/25 - 4/7/25)	Cost	% of Total Bill
Generation Service (Supply)	$156.92	53%
Transmission Service	$34.35	12%
Distribution Service	$95.81	32%
Customer Charge	$9.40	3%
Total Electric Charge	$296.48	

LEDC Usage & Costs	
Total usage for the past 12 months	25,200 kWh
Average monthly usage	2,100 kWh
Generation service/kWh	$0.07
Total electric charge/kWh	$0.1373

The total electric charge per kWh (about $0.13 per kWh as of April 2025) includes fees for transmission and distribution services. The generation service rate of $0.07/kWh does not include these additional charges. For the purposes of the following solar cost models, the energy cost estimate of $0.07/kWh is used to represent the raw cost of electricity.

Three Pathways for Solar

- Avoided Cost (Net-Metering)
- Power Purchase Agreement
- Land Lease

Avoided Cost (Net-Metering)

Potential Project Costs

	Size (acres)	Estimated Capacity (kW)	Installed Costs ($1.30/Wdc)*	Installed Costs ($1.80/Wdc)*	Annual O&M Costs* ($19/kW-year)	Tax Credit on Installed Cost (60% Rebate)
Area A	40	9,876	$ 12,838,800	$ 17,776,800	$ 187,644	$ 10,666,080
Area B	10	2,556	$ 3,322,800	$ 4,600,800	$ 48,564	$ 2,760,480
Total	**50**	**12,432**	**$ 16,161,600**	**$ 22,377,600**	**$ 236,208**	**$ 13,426,560**

*Based on the System Advisor Model (SAM) https://sam.nrel.gov/.

This model assumes that the installed costs = $1.30-$1.80/Wdc (includes range for environmental materials management) and annual O&M cost = $19/kW-year. The tax credits assume a 60% rebate and are calculated here under the high installed cost estimate of $1.80/Wdc.

Avoided Cost (Net-Metering)

Potential Project Payback – Year 1

	Size (acres)	Estimated Output (kWh)	Avoided Costs ($0.03/kWh)	REC Value ($3/MWh)	60% Tax Rebate	Total Benefit
Area A	40	12,641,280	$379,238	$37,923	$426,643	$843,805
Area B	10	3,271,680	$98,150	$9,815	$110,419	$218,384
Total	**50**	**15,912,960**	**$477,388**	**$47,738**	**$537,062**	**$1,062,190**

Solar output estimates were modeled using estimated footprint sizes and NREL's pvWatts calculator.

Assumes that the utility will pay $0.03/kWh for the avoided cost of producing the electricity themselves.

The tax credits assume a 60% rebate and are calculated here using the estimated annual interest payment for Year 1 under the high installed cost estimate of $1.80/Wdc.

Also note additional benefit from AEP's Net Energy Metering program that credits excess energy produced by renewables at $0.11/kWh. Potential generation of excess electricity was not calculated here but could provide additional benefit.

Power Purchase Agreement

Potential Project Costs & Benefits - Year 1

Size (acres)	System Size (kW)	Estimated Output (kWh)	Avoided Electricity Price ($0.07/kWh)	PPA Price ($0.15/kWh)	REC Compensation ($3/MWh)
50	12,500	16,000,000	$1,120,000	$2,400,000	$48,000

Potential Project Payback Over 20-year Timeframe

Total Cost	Total Benefit	Total REC Compensation	Net Total Benefit	NPV of Net Total Benefit
($55,442,188)	$27,641,608	$915,739	($27,800,580)	($15,470,939)

NPV assumes a 7% discount rate.
Assumes an annual price escalator of 2% for the PPA price.

Land Lease Agreement

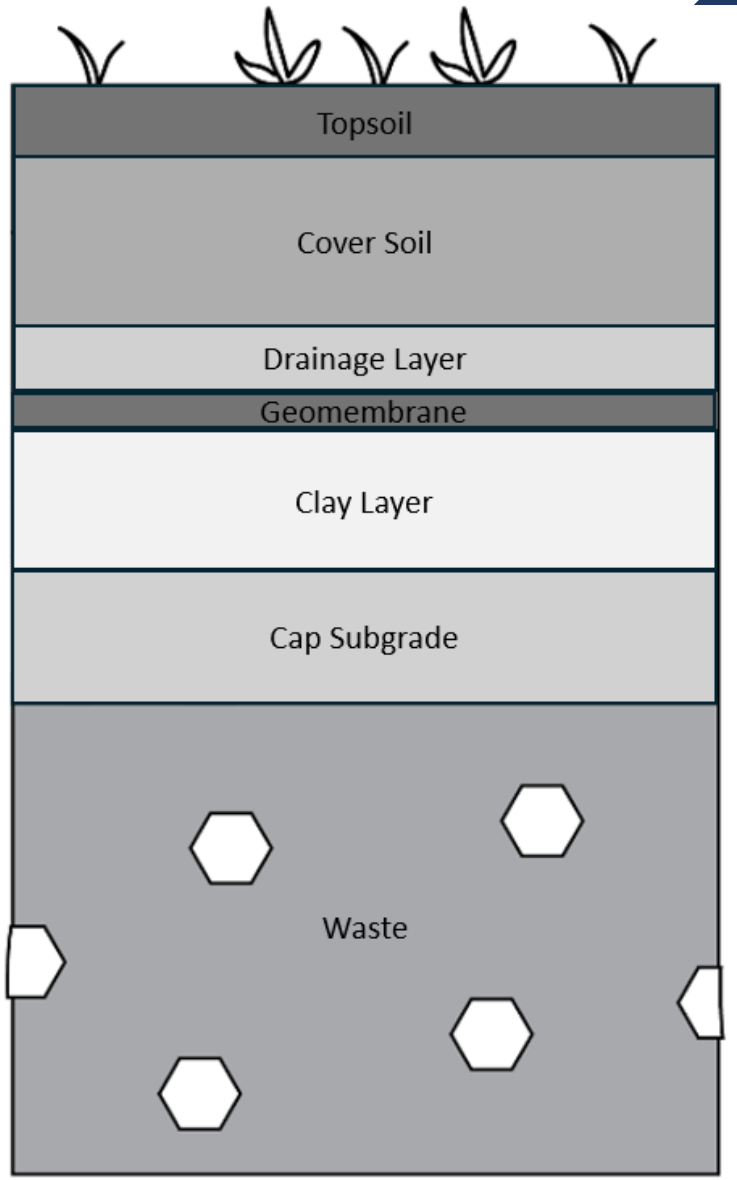
Potential Project Payback

Acres	System Size (kW)	Annual Base Rent (per acre)	Annual Lease Revenue	Total Lease Revenue (Over 20-Year Timeframe)	NPV of Total Lease Revenue
50	12,500	$2,000	$100,000	$2,000,000	$1,133,560

NPV assumes a 7% discount rate.
Assumes that annual base rent stays at $2,000 over 20-year timeframe.

Remedial Considerations

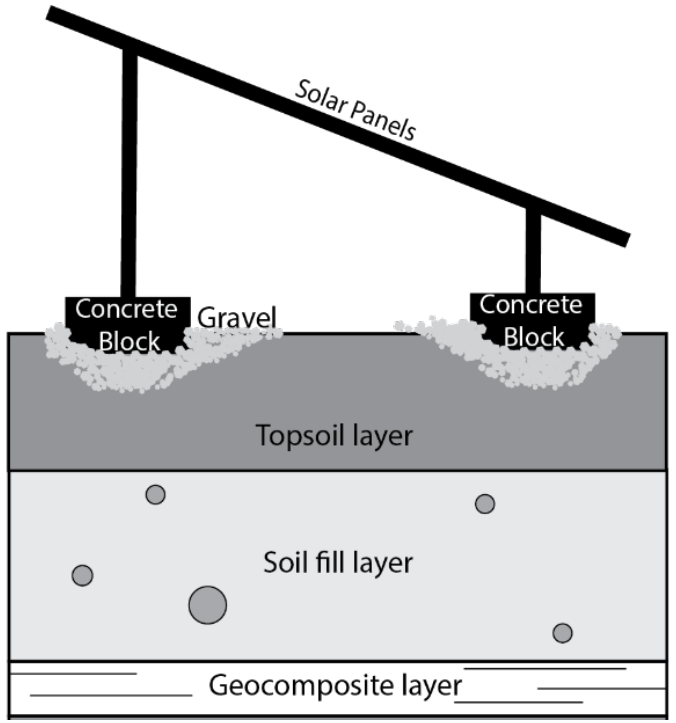
- Special considerations for siting on capped areas:
  - Prevent disturbance of the cap.
- Planned institutional controls to:
  - Limit groundwater and surface water use.
  - Limit disturbance of the cap.
  - Limit site to commercial/industrial uses.
  - Prevent use or public access allowed on the fenced and capped southern part of the site's eastern disposal area, where on-site wastes were consolidated.



Ballasted Solar Systems

- Common method for anchoring PV on landfills.
- No penetration of landfill cap.
- Additional space between panels may be required to allow vegetative cover to remain in place.

Ballasted solar system. Source: NREL.



Behind- vs. Front-of-Meter Systems

Behind the Meter

- Energy produced or stored is used for site consumption.
- Reduces the need for electricity from the grid.
- Excess energy can be sold back to the utility.

Front of the Meter

- Energy is used to supply the grid and distributed to various customers.

Funding Options

Utility-Based Incentives

- Utility providers may offer credits that can offset the cost of production (e.g., net metering).

Grants

- Funding is available through entities including the Department of Environmental Protection and U.S. Department of Energy.

The Greenhouse Gas Reduction Fund – funding and financing options for solar projects.

The Inflation Reduction Act of 2022 - tax credits for solar development (available through 2033).

- Energy Community tax credit bonus (up to 10%).

Community Solar

- A solar project or purchasing program that provides power and financial benefits to multiple customers.
- Typically involves subscriptions to or ownership of a portion of the energy generated by a solar array.
- Projects generate electricity to the grid → Subscribers pay for a share → The local utility pays the solar provider for the energy generated → Subscribers receive credits that are applied to monthly electric bills.
- **Ohio Community Solar Legislation** (House Bill 197, Senate Bill 247)
  - Bills introduced to allow and encourage development of community solar, create a pilot program, and establish program evaluations and customer protections.

Greater household savings

Low-to moderate-income household access

Increased resilience and grid benefits

Community ownership

Equitable workforce development and entrepreneurship

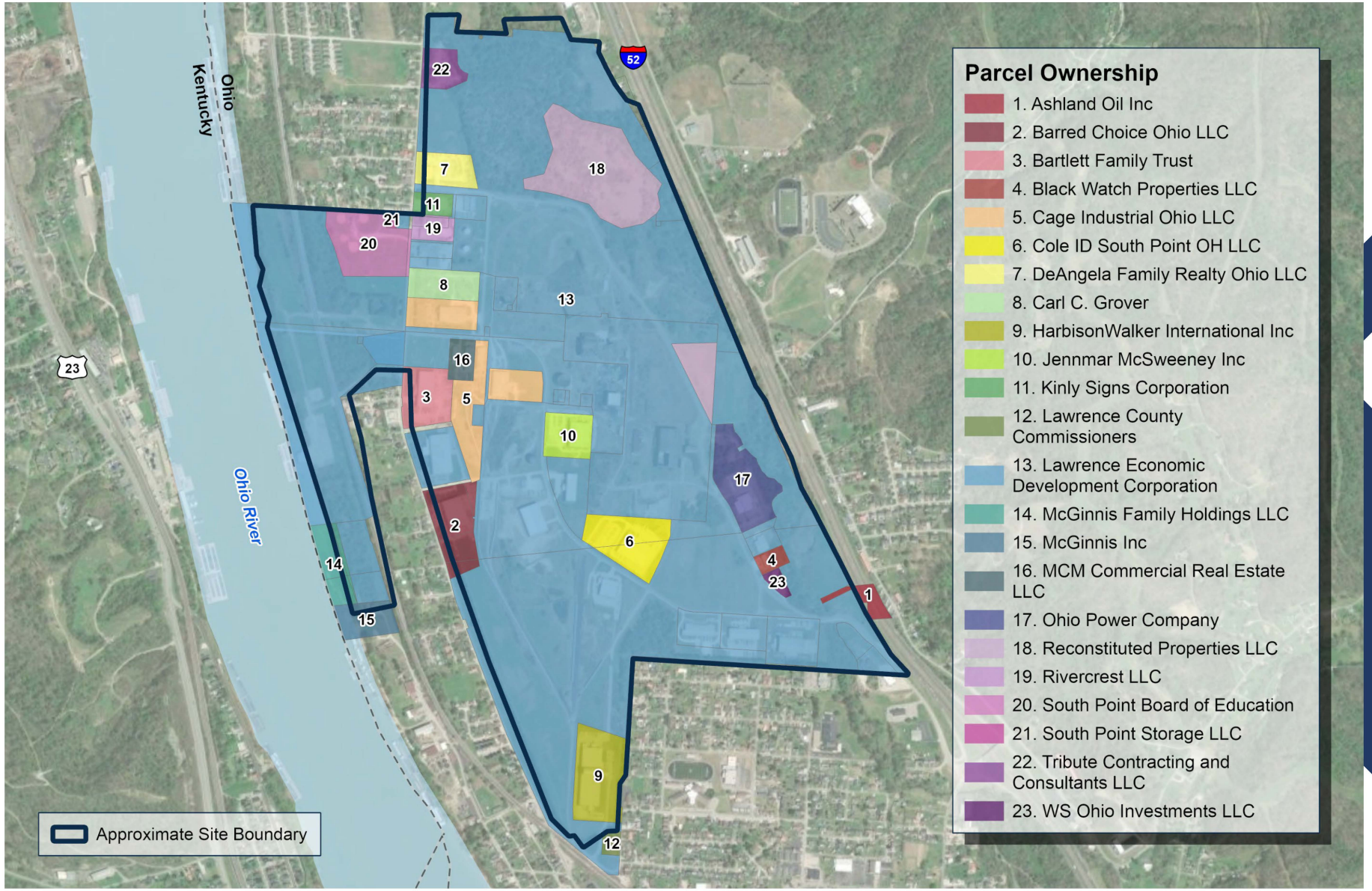
Community engagement

Contact Information

EPA

Nabil Fayoumi
EPA Region 5
Remedial Project Manager
(312) 886-6840
fayoumi.nabil@epa.gov

Jamie Stoik
EPA Region 5
Superfund Redevelopment Program
(312) 886-6069
stoik.jamie@epa.gov



N

South Point Plant Superfund Site

Village of South Point, Jefferson County, Ohio

0 1,600 3,200 Feet

Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site. Map image is the intellectual property of Esri and is used herein under license. Copyright © 2020 Esri and its licensors. All rights reserved. Sources: Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri, Esri Community Maps Contributors, VGIN, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, Maxar, the 2021 FYR Report.

Last Modified: 8/19/2024