

Unraveling the POTW Loophole

Jay Beal, PHUSP Intern, Oberlin College
 Hannah Hohman, Environmental Steward
 Jeanine Buchanich, PhD

Introduction

The Southwest Regional Office (SWRO) of the Department for Environmental Protection (DEP) oversees numerous landfills and publicly owned treatment works (POTWs⁴) that receive industrial waste associated with manufacturing and oil and gas (O&G) development.² If not properly treated for, this waste makes its way into source drinking water.

This project aims to compile information to establish a database outlining the route of industrial waste, regional health impacts, and the loopholes that permit dangerous waste into the local environment.

Human & Environmental Impact

- Unconventional O&G development (fracking) accumulates large quantities of radioactive waste.¹
- Waste is sent to public landfills, wherein carcinogenic materials leach into ground water, creating leachate, which can impact local environments and drinking water if not tightly regulated.¹
- Leachate without O&G waste is still potentially toxic. In human cell models, leachate was found to be cytotoxic, genotoxic, carcinogenic, mutagenic, and estrogenic.³



Figure 1. Speers Run, a tributary of the Monongahela River, to which Westmoreland Sanitary Landfill might be contributing pollution.

Developing a comprehensive understanding of the movement of waste and its human health impacts in Southwestern PA.

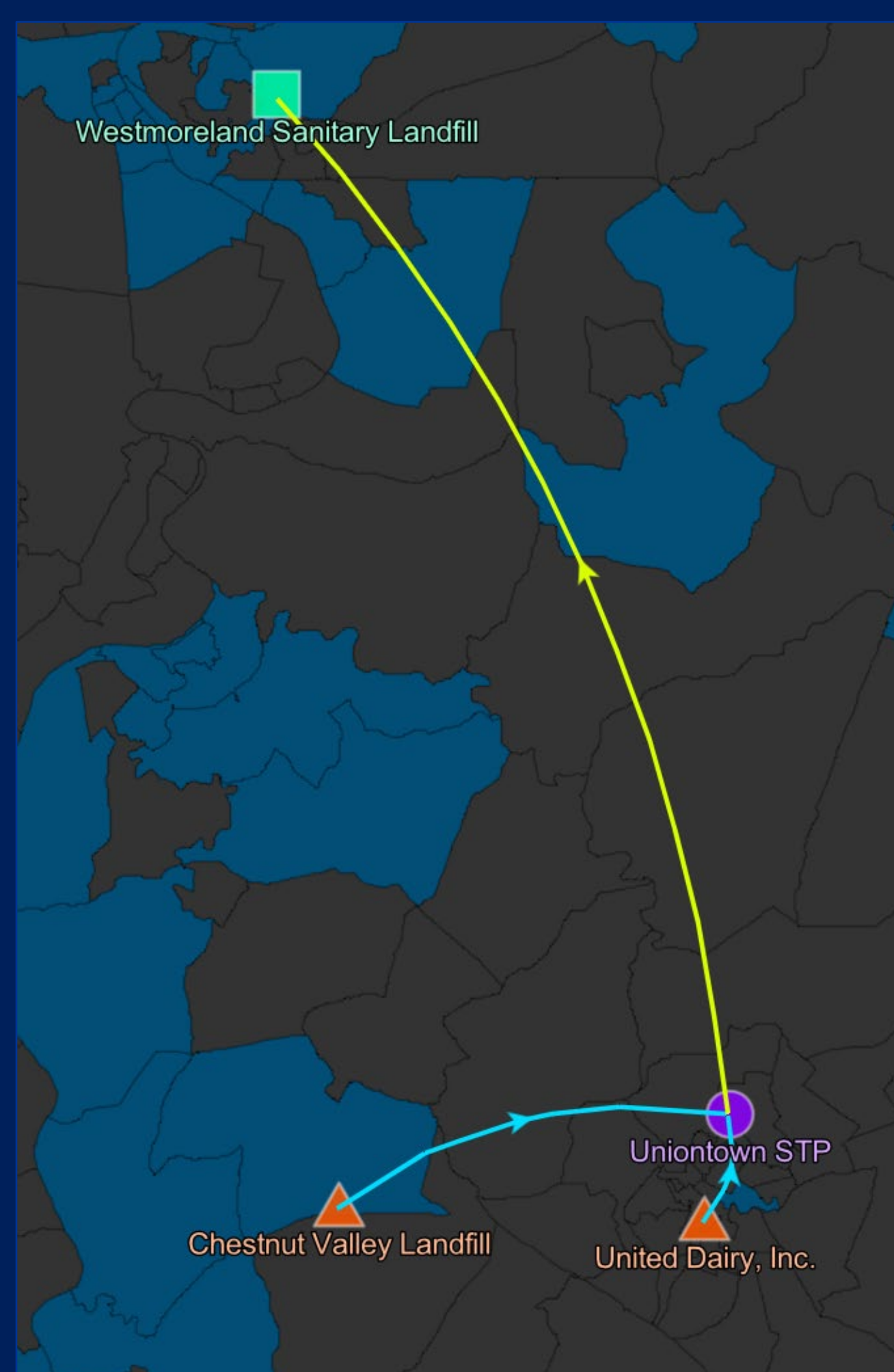


Figure 2. Map tracing the movement of industrial and O&G wastewater from Chestnut Valley Landfill and United Dairy, Inc. to Uniontown STP. From there, solid waste is sent to Westmoreland Sanitary Landfill. Here, dangerous waste percolates into ground water.

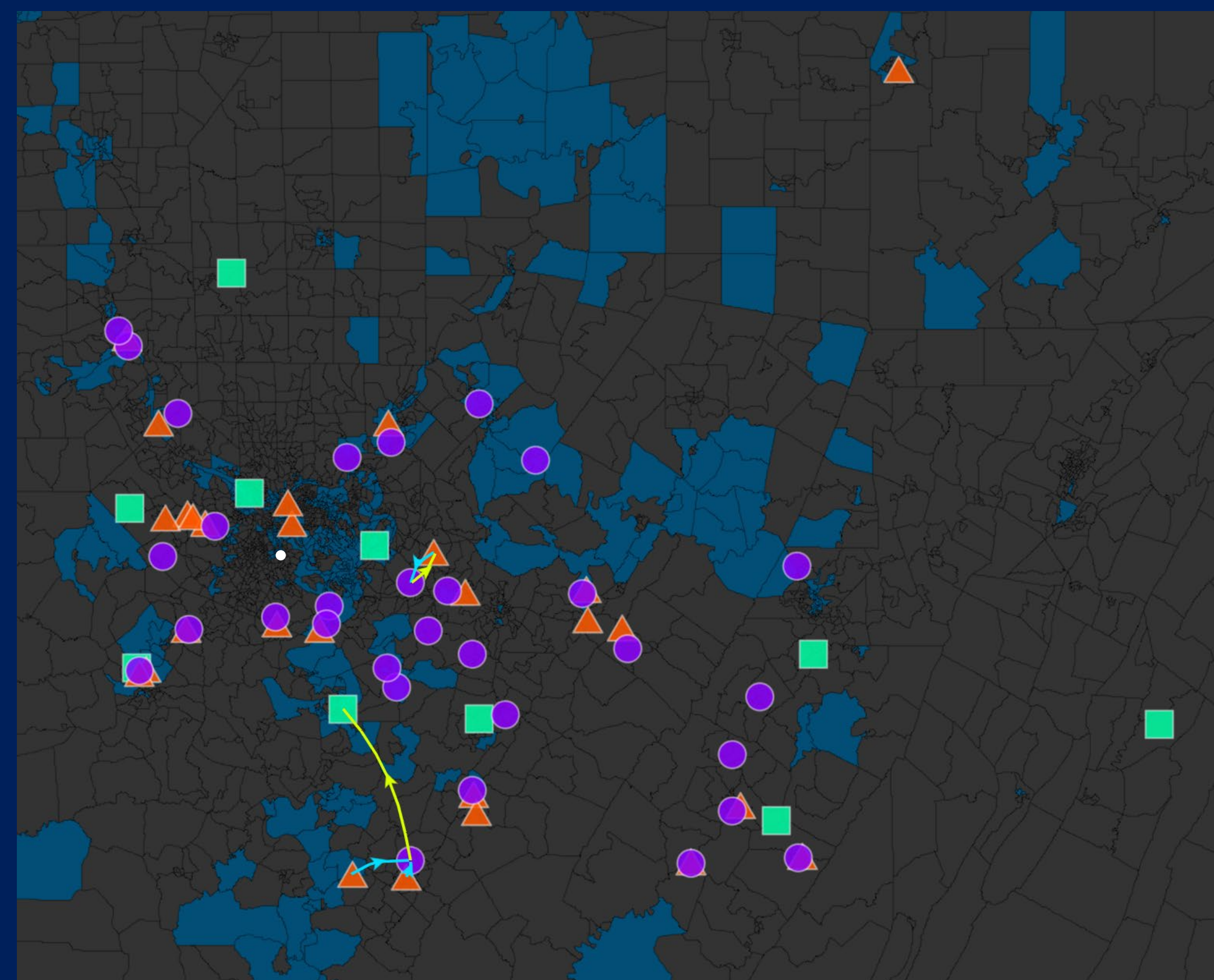
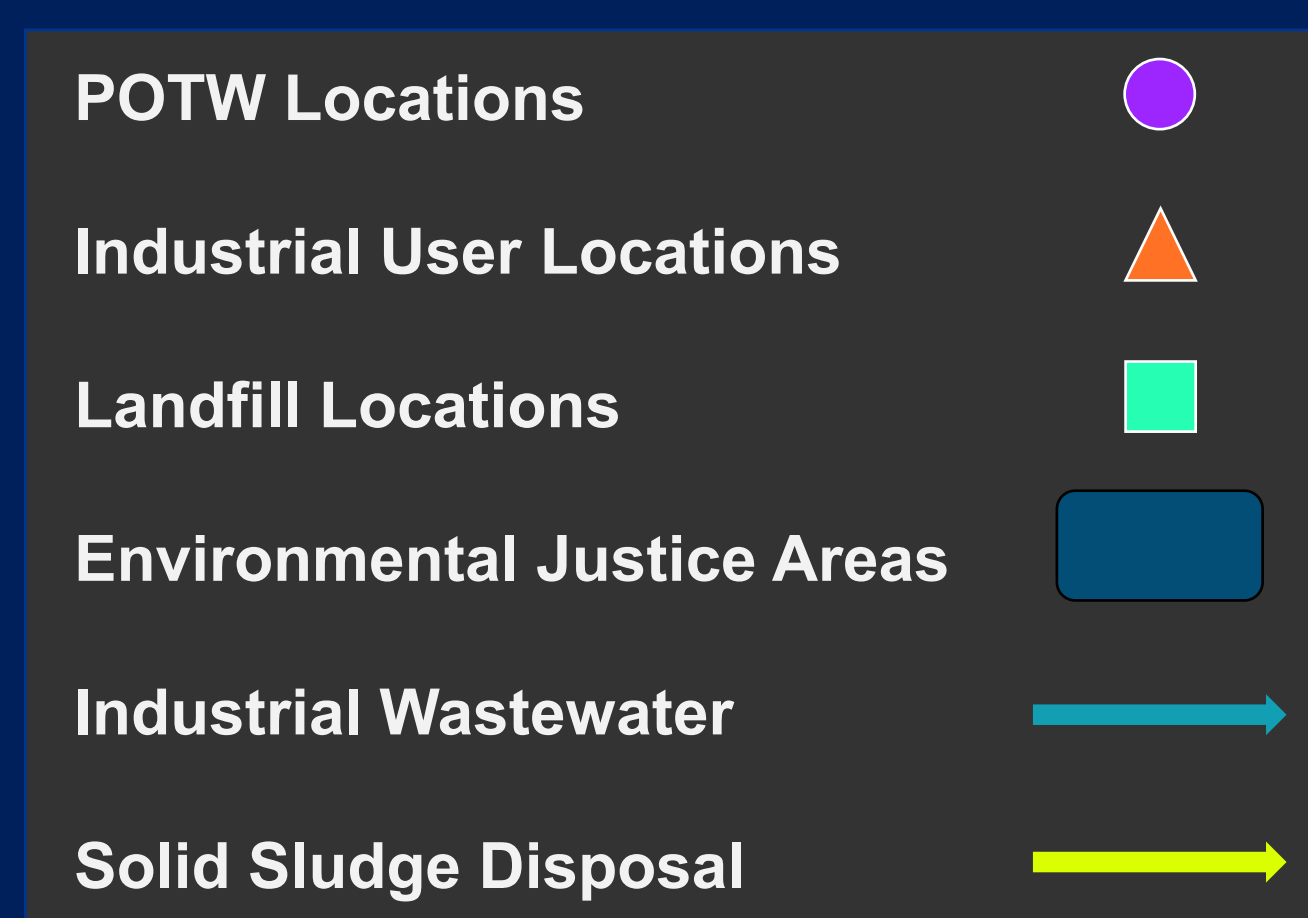


Figure 3. Comprehensive map of the SWRO within Southwestern PA. Industrial user, POTW, and landfill locations are marked. Environmental Justice (EJ) areas are shaded in blue. White dot represents Pittsburgh, PA as reference point.



Figure 4. Movement of O&G wastewater from Valley Landfill to Brush Creek STP. Notably, solid waste is sent back to Valley Landfill, and from there material can leach back into groundwater.

Methods

- This project involved analyzing the publicly available data from the EPA and DEP.
- Then data were compiled to establish the sources of industrial wastewater and the destinations for industrial pollutants.
- Informal File Review (IFR) requests were sent to obtain information about POTWs that do not list their industrial users publicly.
- The industrial and Toxic Release Inventory (TRI) chemicals for which a given POTW is monitoring were included in this assessment.
- **Data revealed the chemicals for which a given POTW is monitoring and the components of landfill leachate that POTWs process.**

Project Deliverables

- The majority of the data is presented in a comprehensive spreadsheet for future use at 3RWK.
- This includes a list of chemical parameters that 3RWK will test for at 31 POTW sites.
- Also includes a list of O&G landfills to actively monitor, as well as non-O&G landfills that take harmful waste.

Potential Impact

- Longterm goals include helping 3RWK hold industrial polluters accountable.
- Compilation of TRI chemicals will aid in sampling efforts at each of the POTW outfalls.

References



Supplementary Information

