



**City of Kalamazoo – EHAC February 2023**

# **Odor Mitigation and Response**

# Odor Mitigation Strategies to Date

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- Odor Task Force
- Completed Mitigation Strategies
- Proposed Mitigation Strategies
- Continued Odor Identification and Tracking
- Recent (2022) Odor Studies & Investigations
- Proposed Additional Community Air Monitoring

# Odor Task Force

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Work collaboratively on community odor issues that arise from wastewater treatment and industrial activity, established 2018

Identify odor sources and develop engineered solutions to mitigate issues

## **Membership includes:**

- City of Kalamazoo Public Services
- Graphics Packaging International
- Environmental Concerns Committee

# Completed Odor Mitigation Strategies

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Carbon Scrubber Unit at KWRP



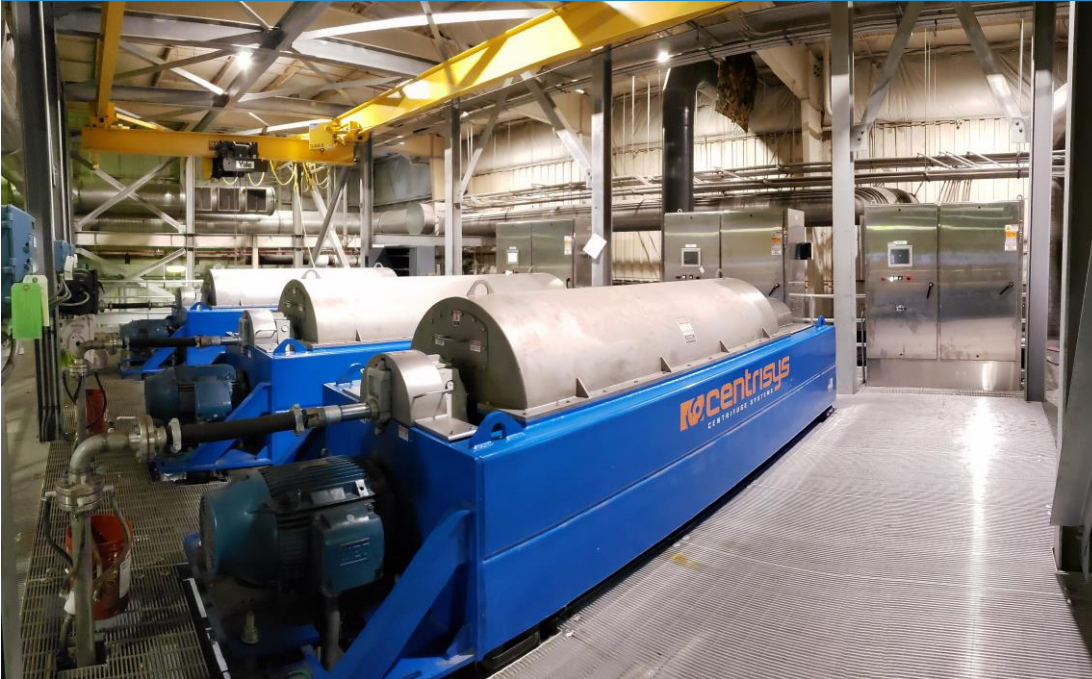
## **Unit process area carbon scrubber units**

- \$4.29 million
- Four (4) units
- Installed at WWR Plant
- All units operational June 2021

# Completed Odor Mitigation Strategies

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## Solids Handling Improvements



## Solids Handling Improvements

- \$15 million
- 5% average increase in cake dryness
- Closed process
- Daily reduction in truck hauling trips
- Process areas and trucks chemically treated for odor
- Completed April 2022

# Completed Odor Mitigation Strategies

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Passive Carbon Scrubber Unit



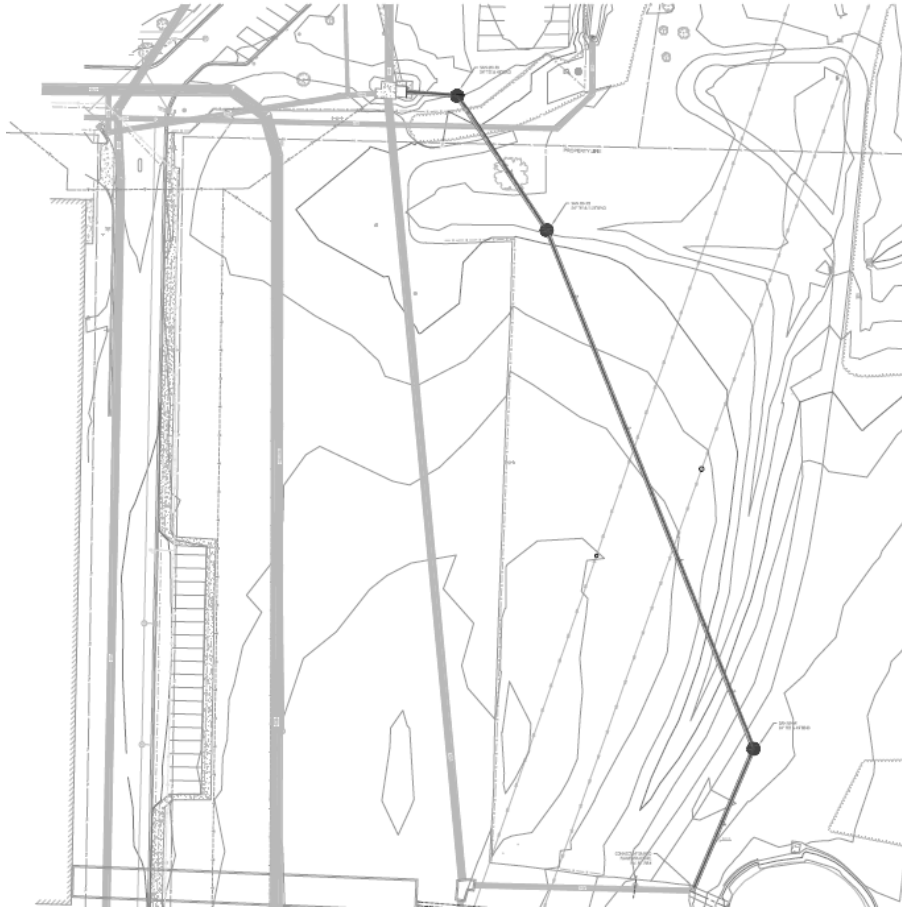
## **Passive Interceptor carbon scrubber units**

- \$50,000 to \$100,000 per location
- Additional units planned
- To be installed at remote locations along Interceptors
- Unit No.1 Installed January 2023

# Proposed Odor Mitigation Strategies

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## GPI Effluent Service Realignment



### **GPI Effluent Service Realignment**

- \$1.72 million
- Improved hydraulics, reduced turbulence and drops
- Eliminates GPI Industrial Chamber
- Abandonment of the Industrial Line
- Pipe purchase contract approved December 2022
- Construction planned to begin Q3 2023

# GPI – Proposed Odor Mitigation Strategies

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## GPI Proposed Process Improvements



## GPI Improvements

- Oxygen addition into WWR process
- Peroxide, temporary oxygen, permanent oxygen system
- Dissolved Oxygen (DO) prevents the formation of H<sub>2</sub>S
- Oxygen generation and storage vessels to be constructed in 2023
- Additional Rule 901 improvements to be implemented
- Process area specification air scrubber installations

# Continued Odor Identification and Tracking

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## Envirosuite

### Monitor Envirosuite data

- Evaluate impact of odor mitigation projects and provide objective data
- Baseline levels from 2019-2020

### Sensor Locations

- In plant sensors at 6 process locations
- Community sensors at 11 locations

### Citizen Portal

- Residents can submit observations
- Track and resolve complaints
- View sensor location data & trends
- Enhanced functionality added in 2022



# Continued Odor Identification and Tracking

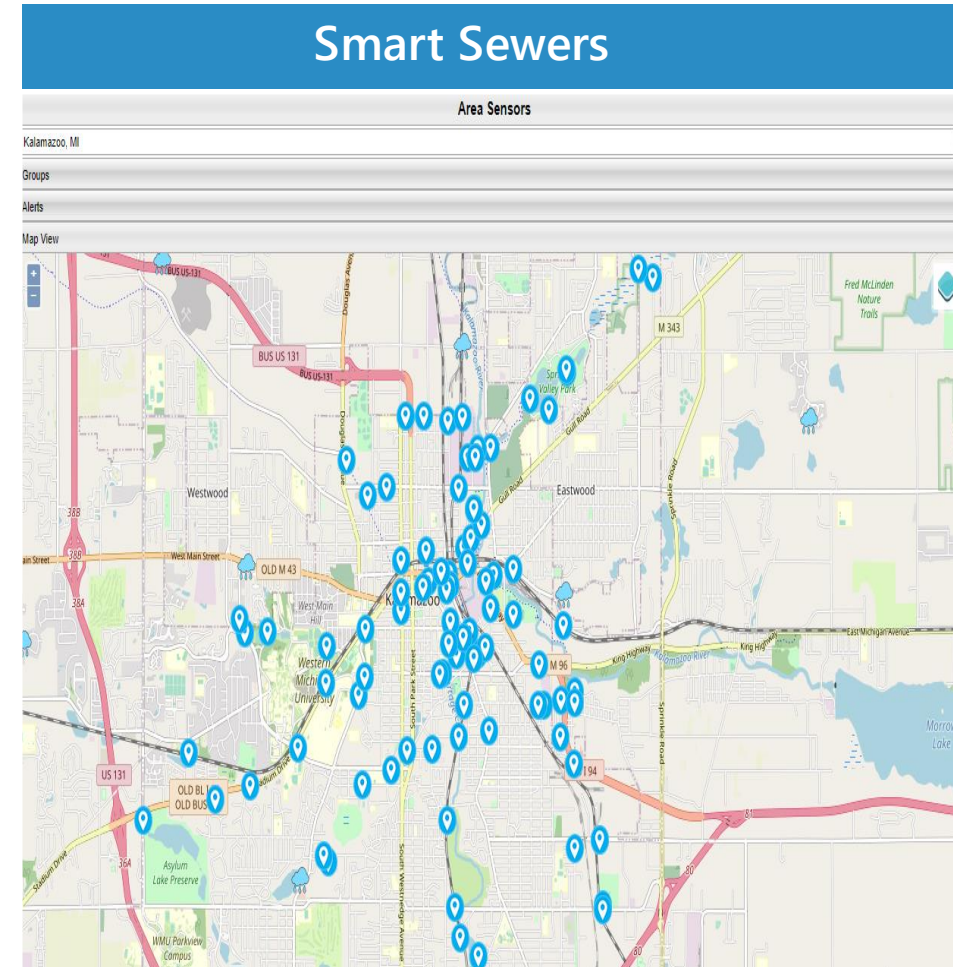
## Smart Sewers

### Monitor sewer data

- Monitor flow and depth in critical sewers
- Identify locations with operational or structural needs
- Monitor and track H2S

### Sensor Locations

- 80 level transmitters
- 20 flow transmitters
- 20 rain gages
- 8 H2S sensors



# Odor Studies & Investigations - 2022 EGLE Drone Study

## May 2022 EGLE Drone Study

- Air monitoring flight
- Flight paths over City WWR Plant
- Sampling H<sub>2</sub>S, VOCs and other parameters

## Identify likely sources of odor

- Biosolids and grit areas identified for further investigation

## Investigate issues

- Formaldehyde industrial hygienist study
- No MIOSHA violations of formaldehyde
- Further study by EGLE to quantify community levels conducted November 2022



# Proposed Additional Community Air Monitoring



## The Need For Neighborhood-Level Air Quality Monitoring

**"Air pollution can be as much  
as eight times higher at one of  
end of a city block than another."**

- Environmental Defense Fund

Contact Us



# Odor Mitigation – Additional Resources

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**EGL – Graphic Packaging International, LLC – Information, Sampling, Updates**

<https://www.michigan.gov/egle/about/organization/air-quality/facility-specific-info/graphic-packaging>

**City of Kalamazoo – Report Odor Issues**

<https://www.kalamazoocity.org/Residents/Solve-a-Problem-with-311/Report-Odor-Issues>

**City of Kalamazoo – View Odor Data**

<https://www.kalamazoocity.org/Residents/Water-Sewer-Service/More-About-Kalamazoos-Utility-Systems/Odor-Task-Force/View-Odor-Data#:~:text=A%20leading%20cause%20of%20odors,to%20monitor%20levels%20of%20H2S.>

**Just Air – Proposed Air Quality Monitoring**

<https://www.justair.co/>