



Smiths Creek Landfill Kimball Township Town Hall Meeting

November 20, 2023



Overview

- Smiths Creek Landfill Layout
- Landfill 101
- Gas Collection System Overview
- Response Actions to Date
- Current Status
- Future Actions

Cross Section of a Solid Waste Landfill Cell 1

7 Gas Monitoring System

8 Groundwater Monitoring System

Landfills are constructed above the water table to protect the groundwater

9 Interim Cover

3 Daily Cover

11 Lift

15 Working Face

13 Waste

6 Gas Collection System

Leachate Pump Station
Pumped to Waste Water Treatment Plant

Electric Generating Station

14 Stormwater Drainage System

10 Leachate Collection System

Waste

12-24" Sand

6-8" Collection Pipe

Gravel

10 oz Geotextile

2 60 mil Flexible Membrane Liner

Geosynthetic Clay Liner

4 Geocomposite Drainage Layer

60 mil Flexible Membrane Liner

Geosynthetic Clay Liner

Subgrade Soils

Double Composite Liner System

Used in landfills where an existing minimum 10' clay layer is not present

Grass

6" Top Soil

Gas Pipe

24" Erosion Layer (Soil)

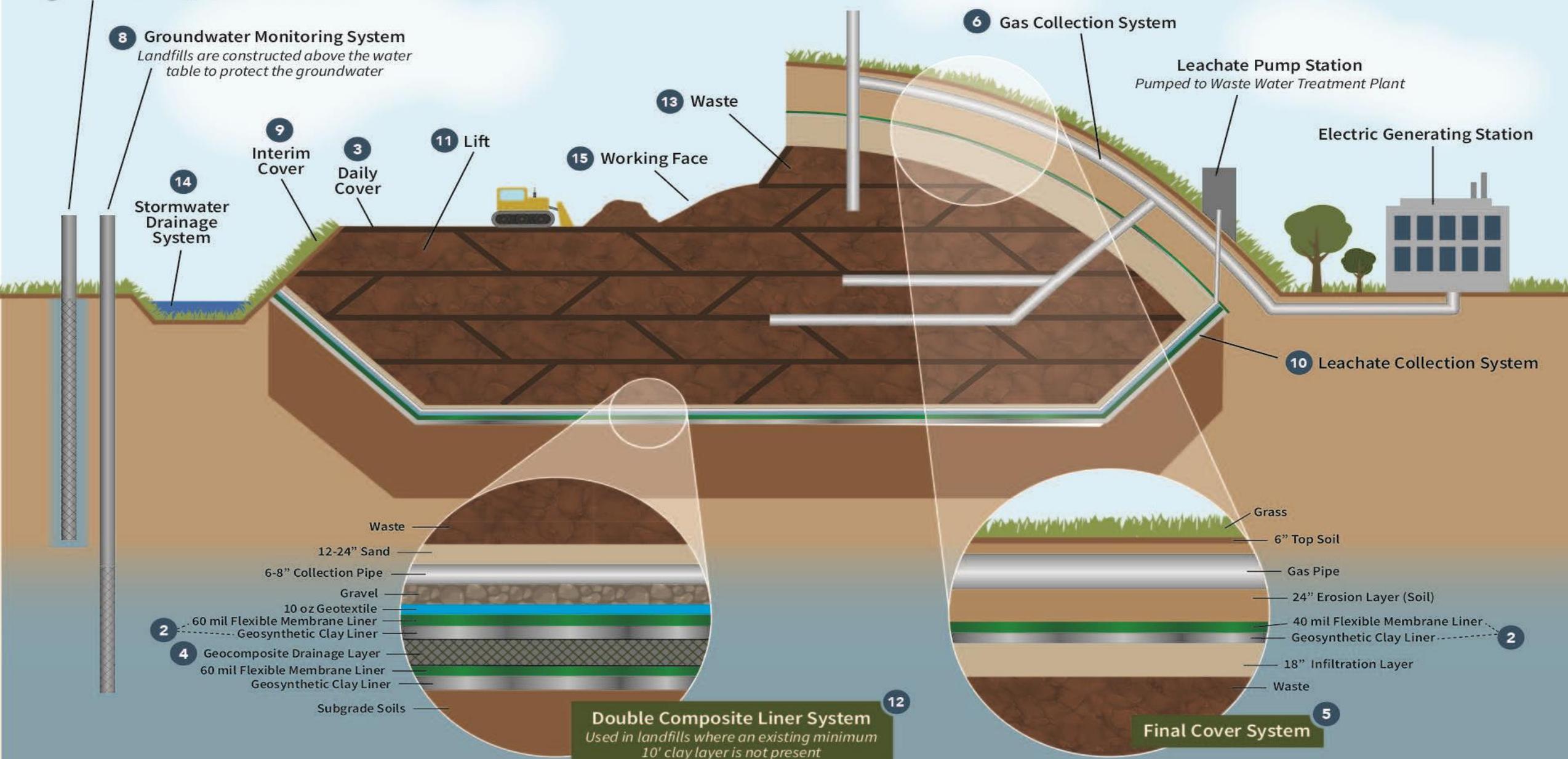
40 mil Flexible Membrane Liner

Geosynthetic Clay Liner

18" Infiltration Layer

Waste

Final Cover System



Smiths Creek Landfill

Cell 8 Active Filling Area



Leachate Pretreatment Facility



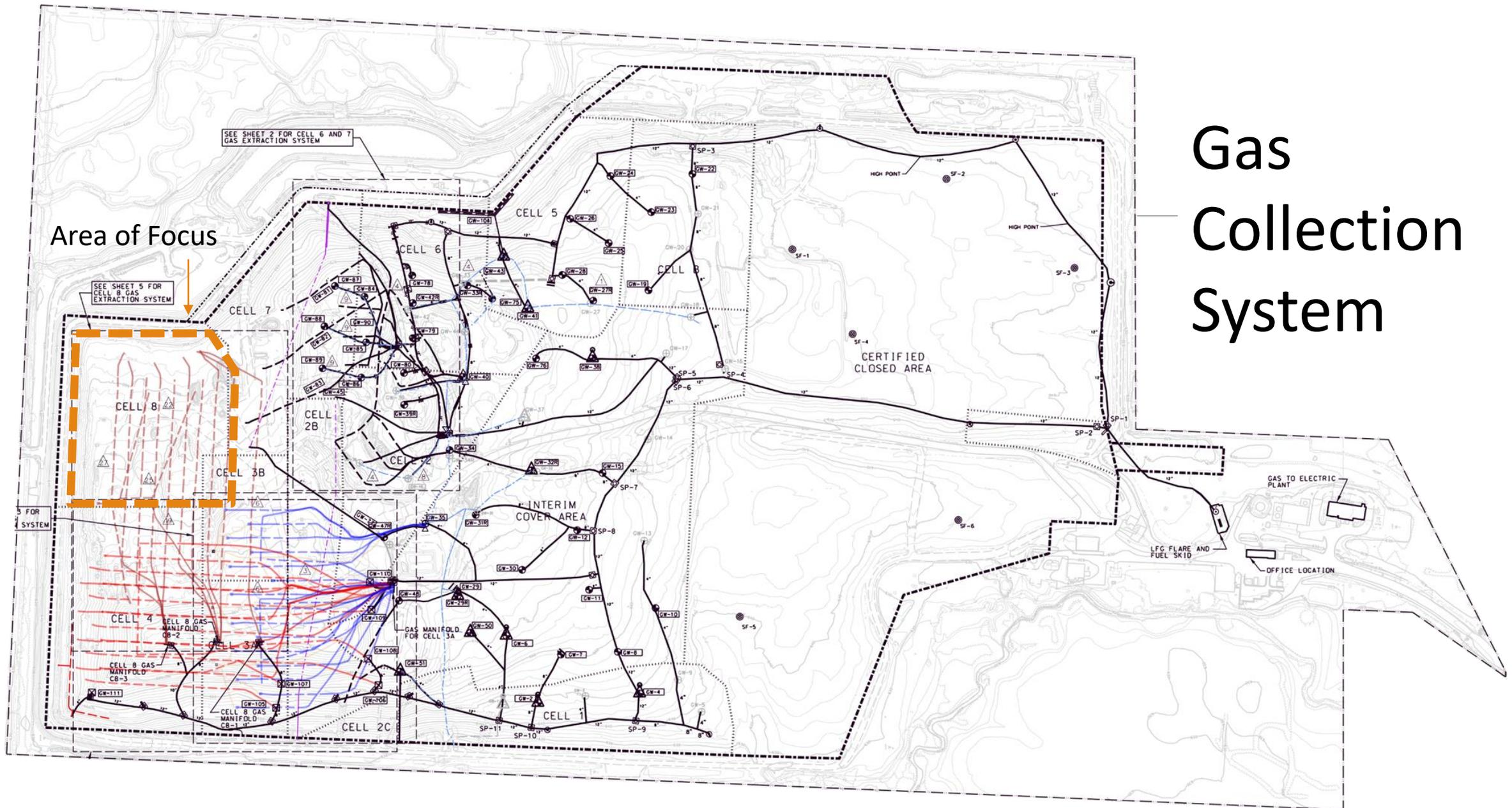
Main Flare and Vacuum Blower Station



Gas-to-Energy Facility



Gas Collection System



Tier 1: Identify Source and Initial Responses

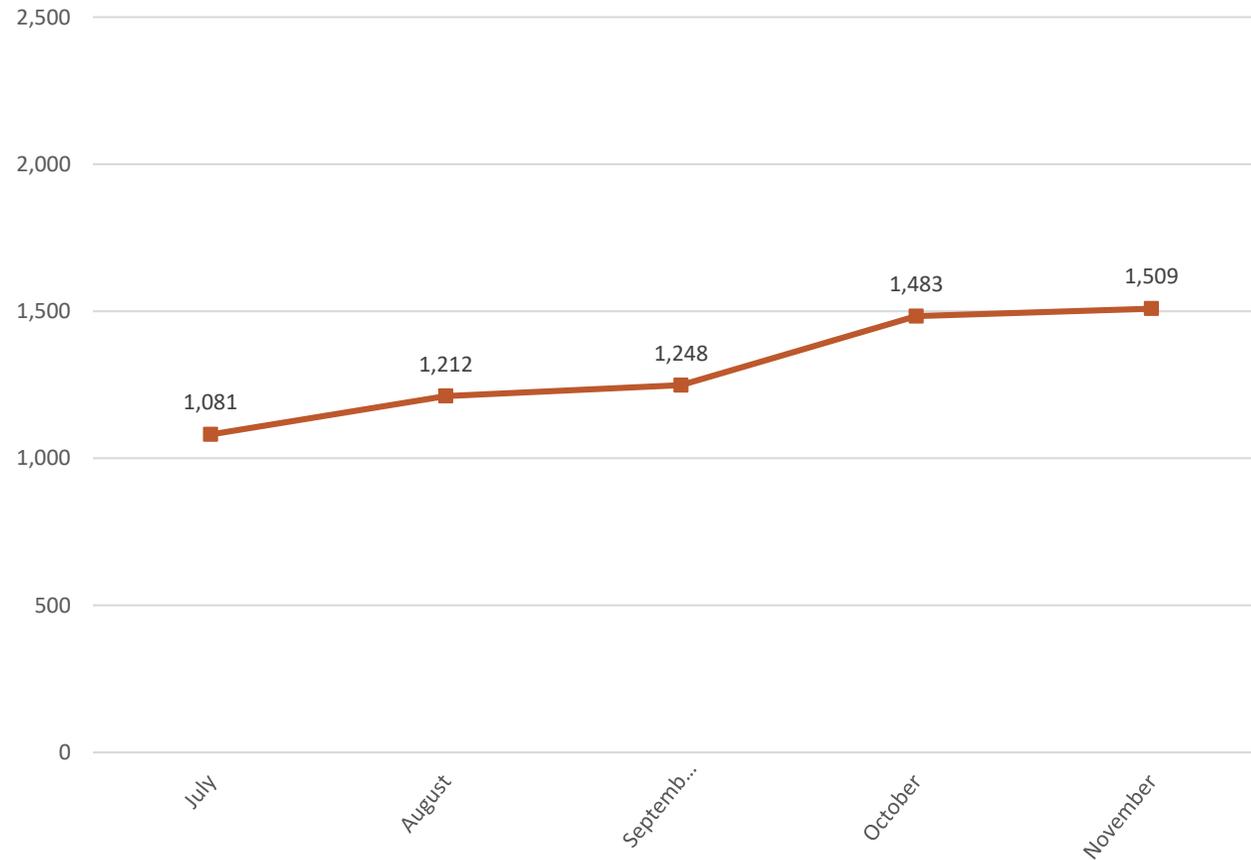
- Connect (3) additional horizontal gas wells in Cell 8 to collect more gas
- Replaced laterals to (6) vertical gas wells in Cell 7 to collect more gas
- Review vacuum and flare operations – identified programming issue
- Review of wellfield data – identified diminished vacuum
- Performed comprehensive field evaluation – more pressure loss than anticipated
- Increased wellfield monitoring frequency

Primary Issue Identified for Correction: Reduction in Vacuum to Portion of Gas System

Tier 2: Repair and Rehabilitation

- Reprogram main system programming to reestablish design operating conditions
- Changed condensate sump pump settings to reduce likelihood of flow obstructions
- Increased gas collection system vacuum from 50" wc to 59" wc
- Add additional clay cover soils in Cell 8 area
- Optimized existing wellheads to increase flow from Cell 8 wells
- Excavated and re-graded about 2,100 feet of main system header to reduce condensate obstructions

Monthly Average Flow Gas Plant & Main Flare

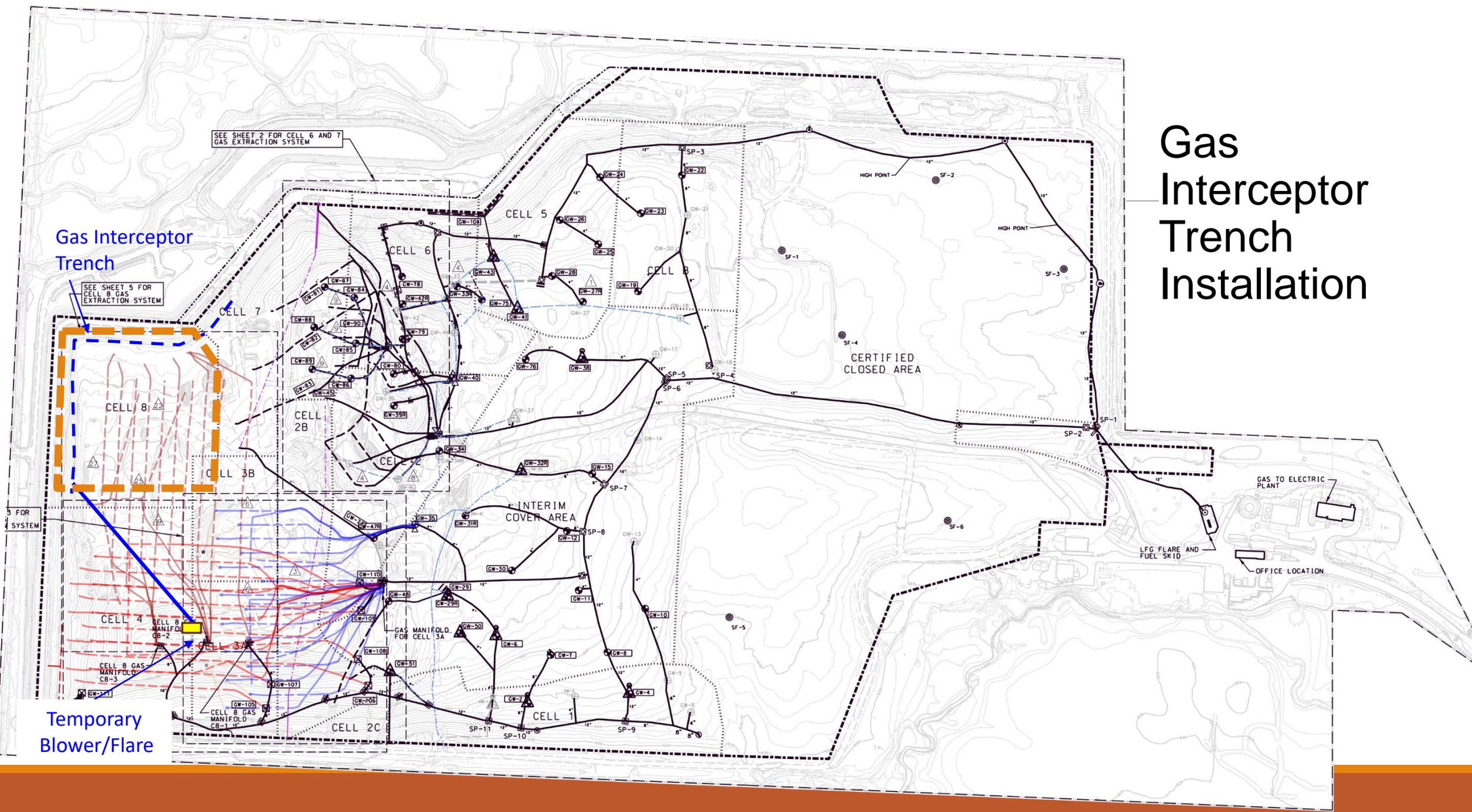


Tier 3: Improvements and Enhancements

- Installed new, larger wellheads to maximize flow from Cell 8 wells
- Installed second flare in Cell 8 to apply additional vacuum to select Cell 8 wells (October 31)
- Repaired second flare to ensure proper function expeditiously (November 1 - 9)
- Started up second flare on November 9, gradually maximizing flow
- Began installation of Cell 8 perimeter collection trench on November 20



Gas Interceptor Trench Installation



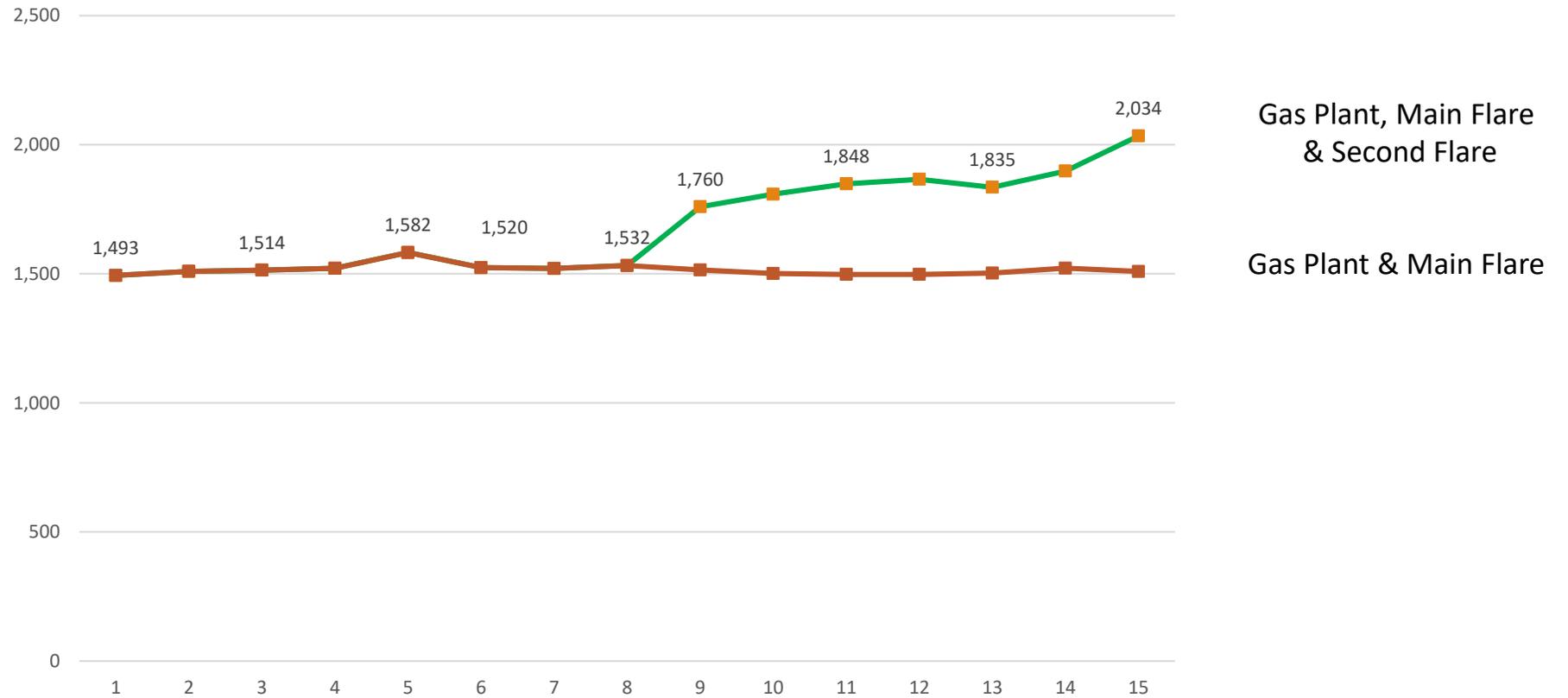
Gas Interceptor Trench

SEE SHEET 2 FOR CELL 6 AND 7 GAS EXTRACTION SYSTEM

SEE SHEET 5 FOR CELL 8 GAS EXTRACTION SYSTEM

Temporary Blower/Flare

Daily Average Gas Flow (November)



Tier 4: Future Improvements

- Completion and tie-in of perimeter gas collection trench
- Install additional cover soil where needed
- Continue increased monitoring of gas collection system

In any event, continue improvements until odor issue is resolved

- Install additional cover soil where needed
- Begin work on designing long-term improvements for system
- 2024: construction of long-term improvements (as needed)

Information Links about Landfills and Gas Systems

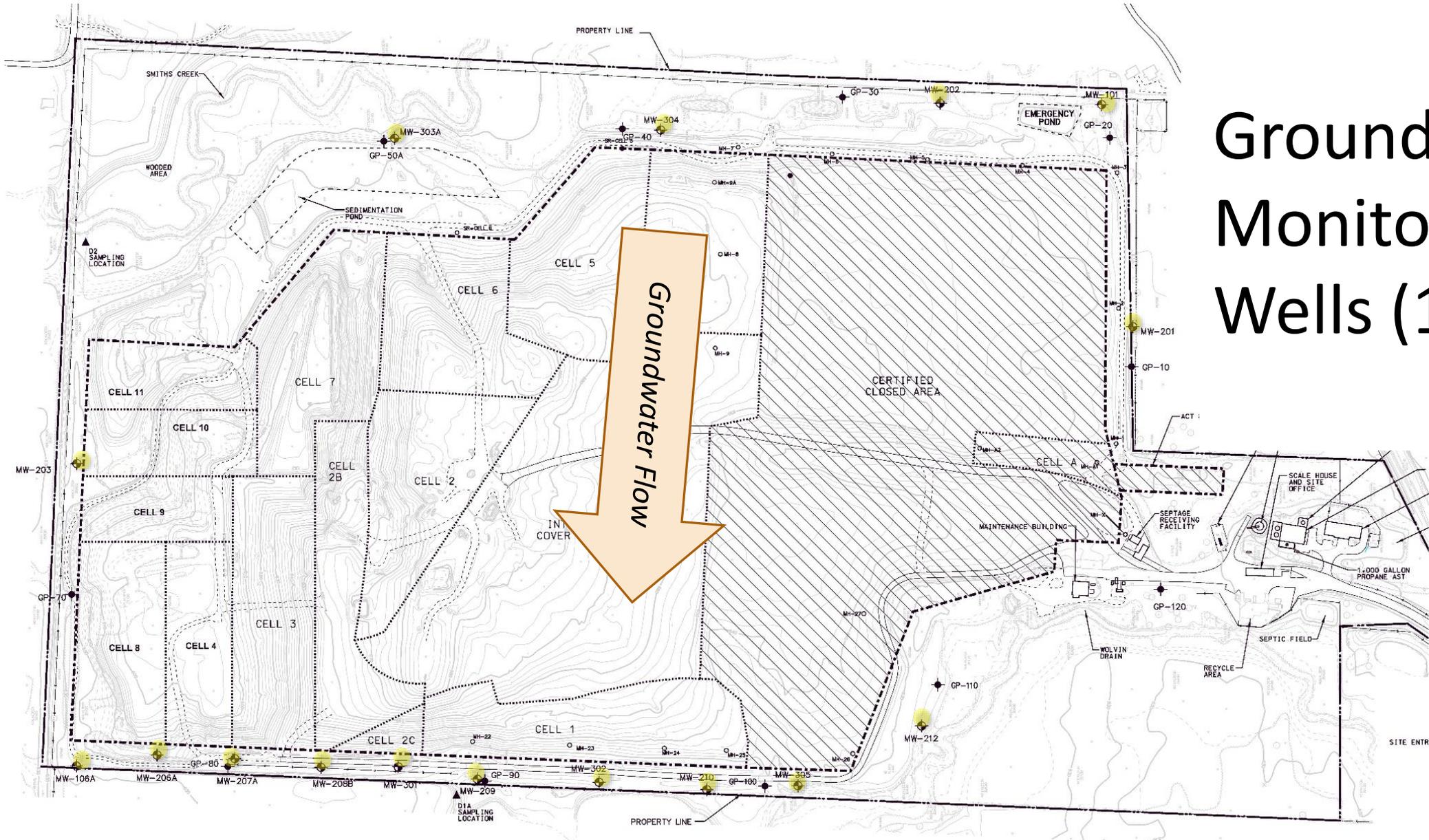
- How does a landfill work?
 - <https://youtu.be/821RZegnHdM>
 - <https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Programs/MMD/Landfills/How-Landfills-Work.pdf>
 - [How Landfills Work \(arcgis.com\)](#)
- How does a landfill gas system work?
 - [How a Landfill Gas Collection System Works - YouTube](#)



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Questions?





Groundwater Monitoring Wells (16)

Landfill Gas Probes(11)

