

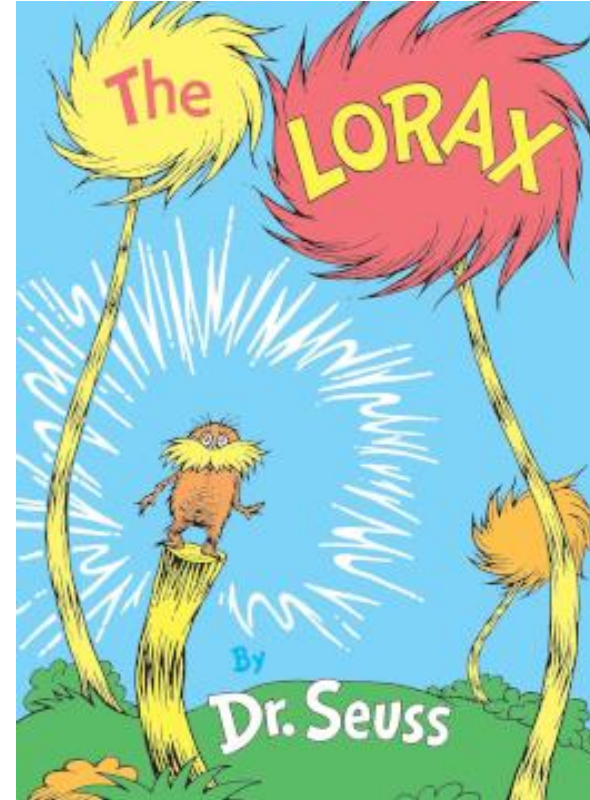
# **Leachate Control & Management: Continuous Learning Constant Improvement**



**SWANA Northern Lights Conference 2026**

**Building Barriers That Nature  
Depends On**

**Continuous Learning and  
Constant Improvement  
in Leachate Management**





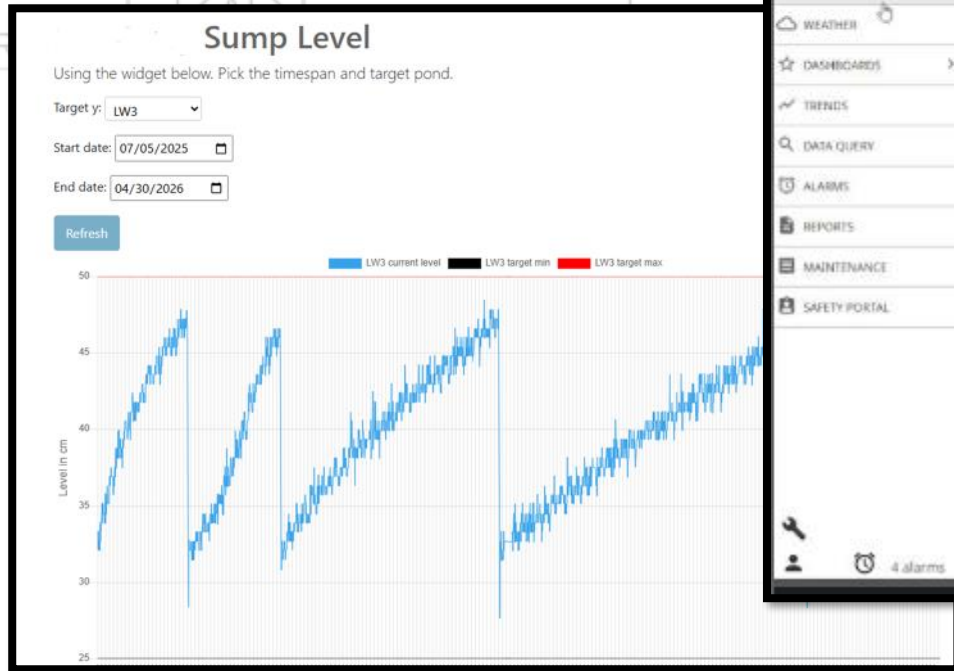
PVC

# Building Barriers That Nature Depends On: Landfill Construction & Risk





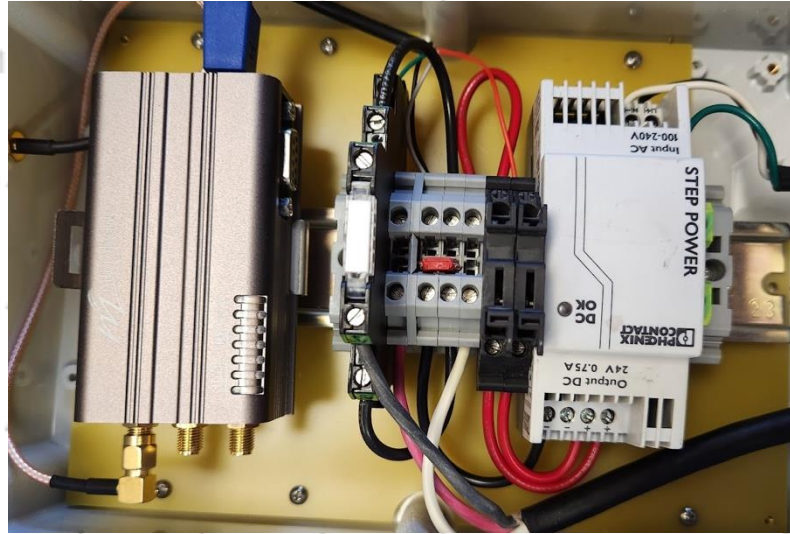
# Building Barriers That Nature Depends On: Landfill Construction & Risk



# Data Tracking and Control Systems

- ▶ Automated reporting
- ▶ Cloud-based SCADA + web dashboards
- ▶ Real-time data, access from anywhere





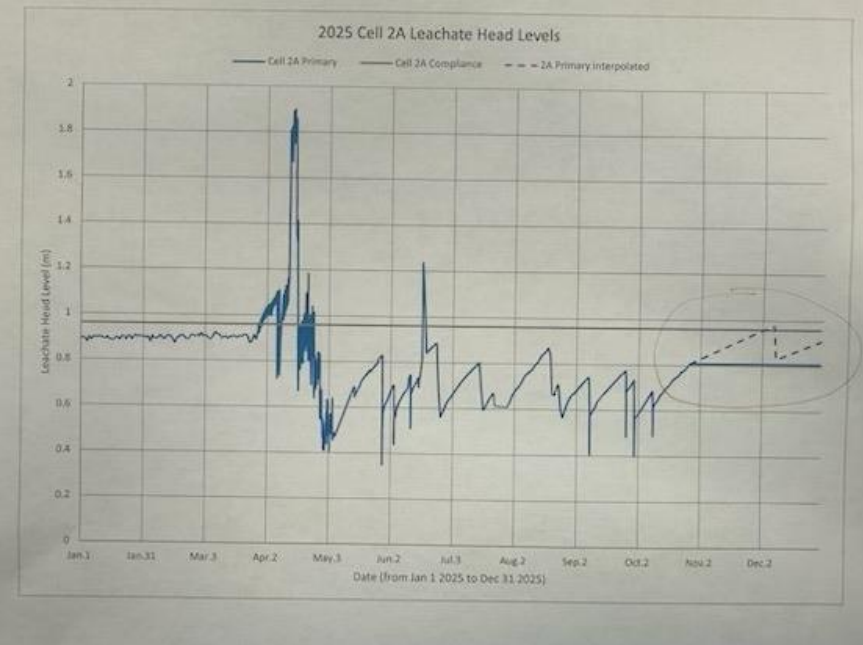
# Remote Site Telemetry

- ▶ Solar + battery for remote sites
- ▶ Cellular or Satellite
- ▶ Store data if comms fail
- ▶ Remote alarms (text/email) Design for cold climates

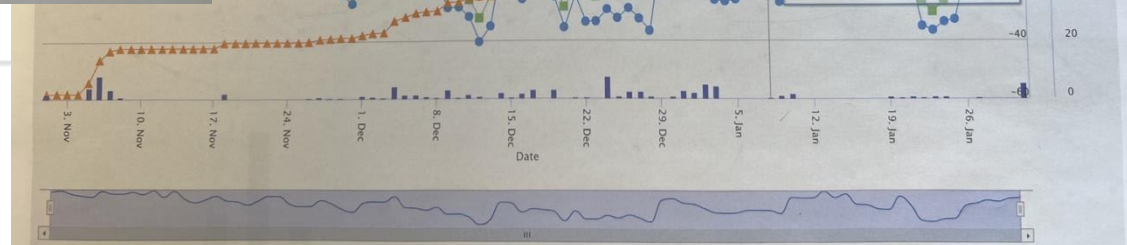
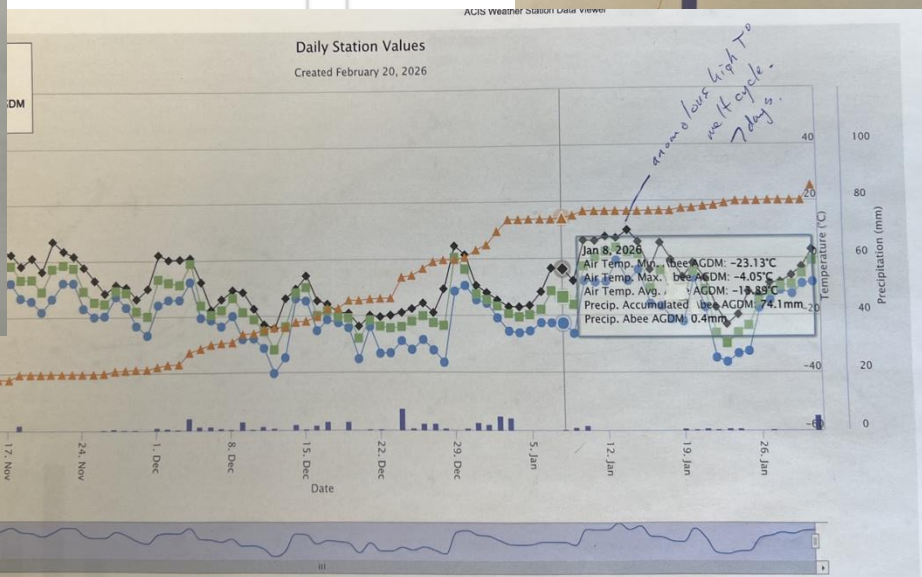
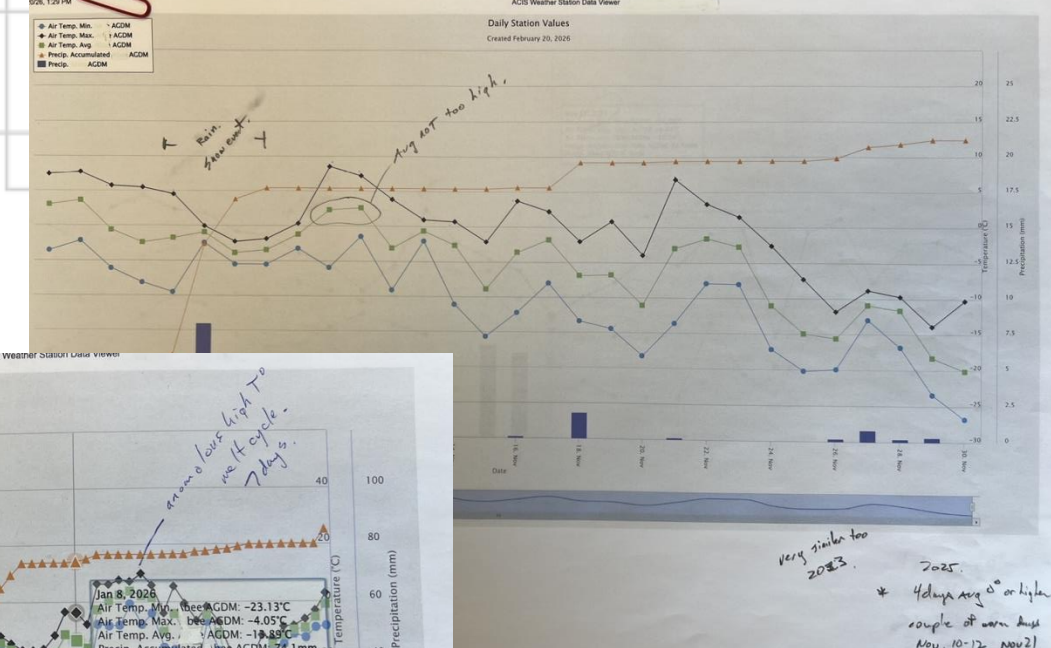


## A.I. for Leachate?

- ▶ Predict pump and equipment failures
- ▶ Detect abnormal trends
- ▶ Automate compliance checks
- ▶ Optimize pumping operations
- ▶ Fill data gaps / flag bad data
- ▶ Needs good historical data



15AMP  
W140.1



145  
146

W145.2  
200VAC  
2.8AMP  
0.5HP  
3450RPM

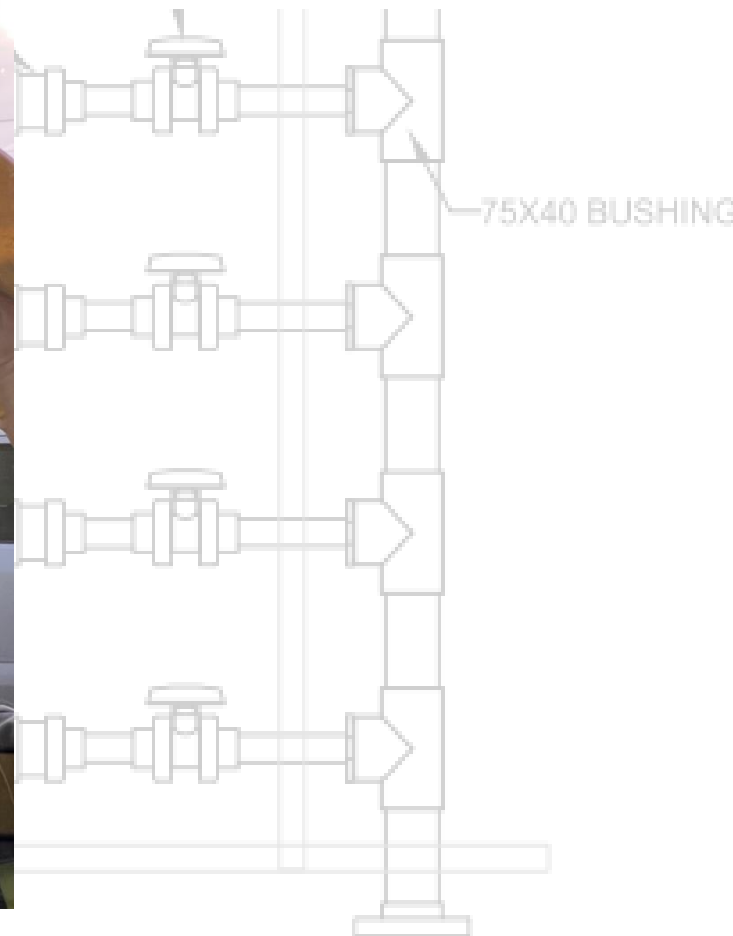
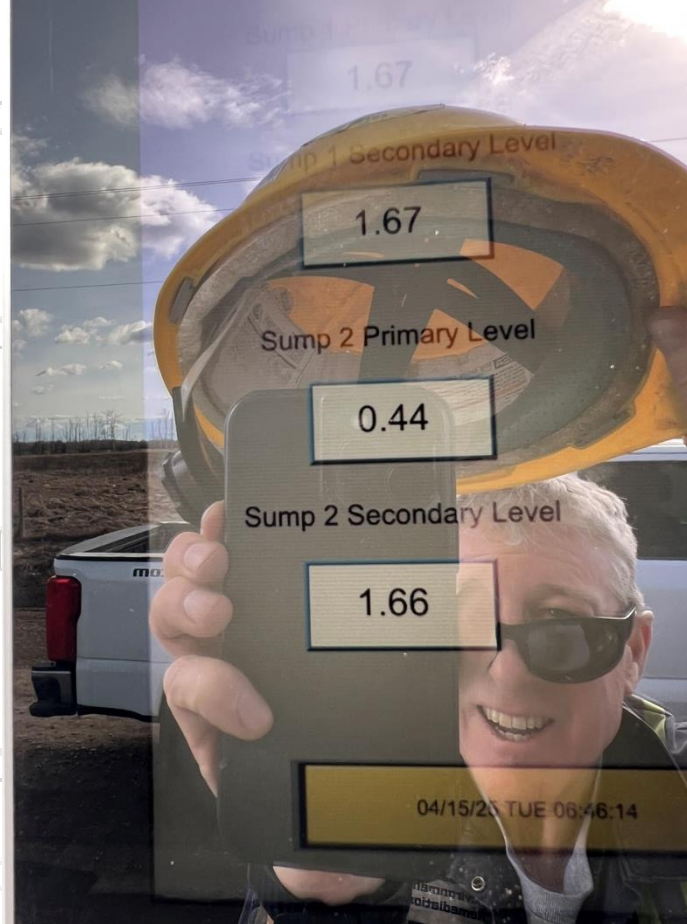
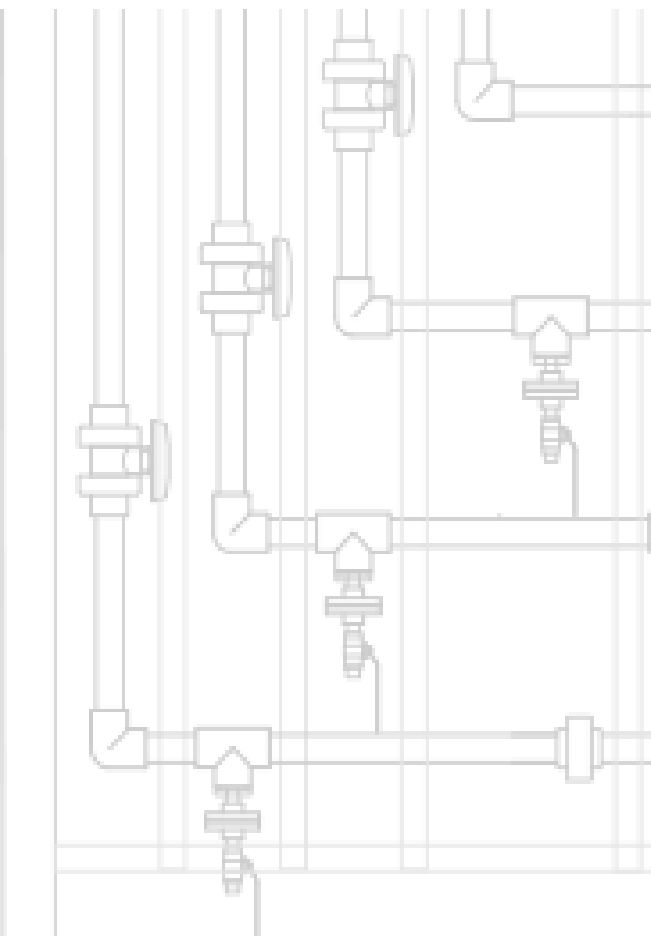
# Data Collection Data Gaps



porting



**SEQUOIA**  
Environmental

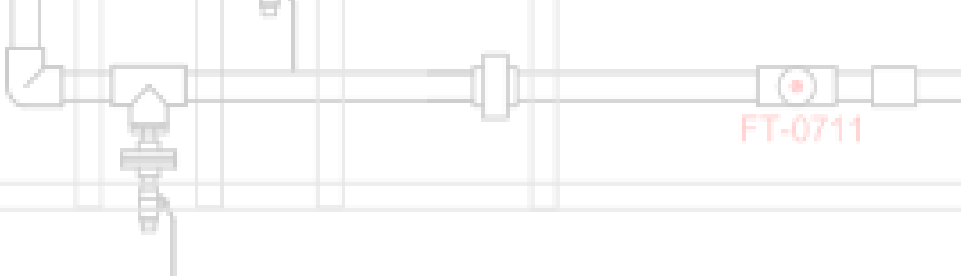
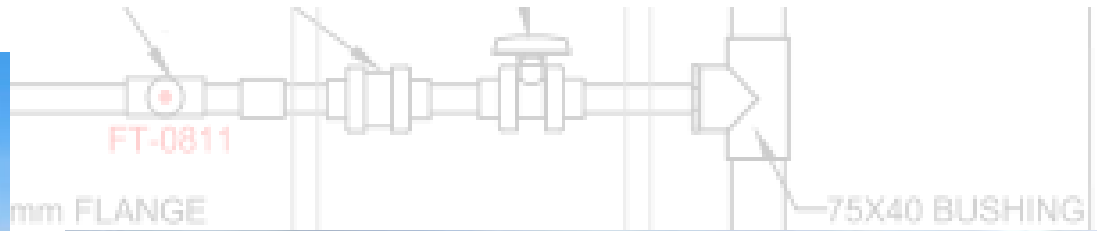


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## Design for the Details

- ▶ Small issues cause big failures
- ▶ Account for real site conditions (weather, debris, access)
- ▶ Proper sensor (and sunshade) placement is critical
- ▶ Plan for maintenance & serviceability
- ▶ Protect wiring, enclosures, connections
- ▶ Include redundancy where it matters
- ▶ Keep designs simple and robust





# Solar Powered Pumps and Controls

- ▶ Ideal for remote locations
- ▶ Lower install & operating cost
- ▶ Daytime / intermittent operation
- ▶ Winter performance limits
- ▶ Hybrid (solar + generator) options

# Questions?



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