

# Anchorage Regional Landfill Leachate Upgrade Project

Presentation to Assembly Enterprise and Utility Oversight  
Committee

June 16, 2022



# ARL Leachate Project

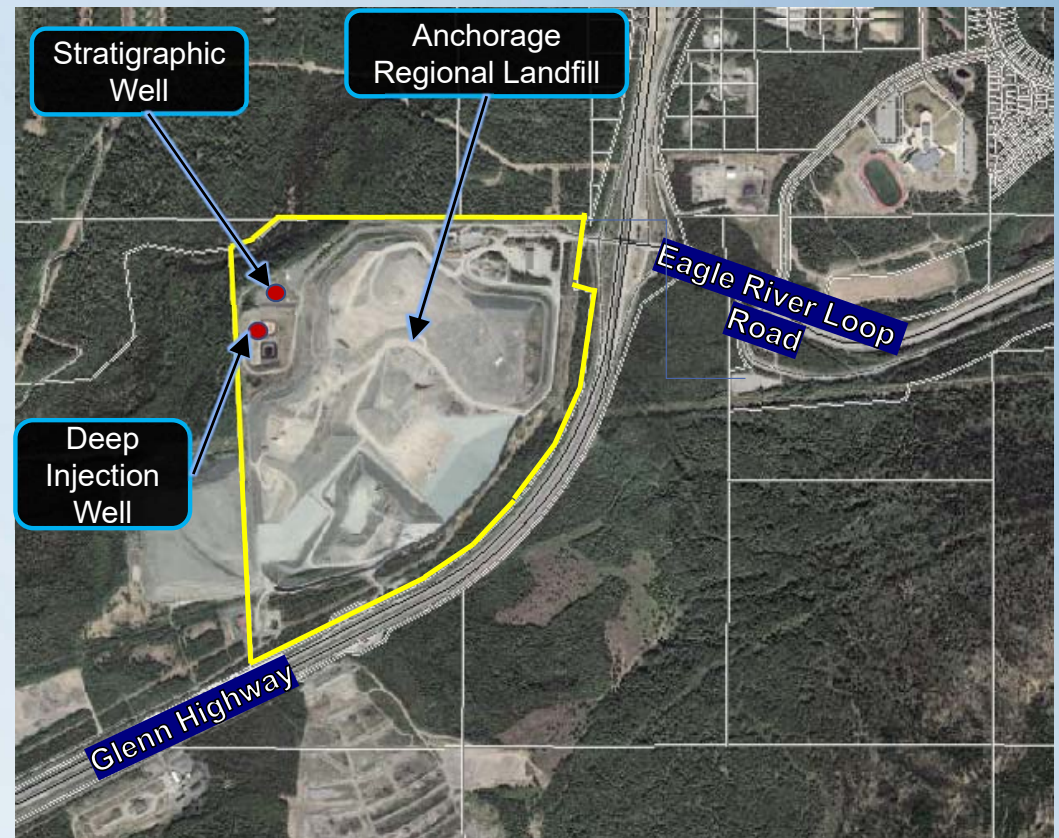
Two Components to Project:

## Upgrade Leachate Lagoons

- Lagoons are at the End of Their Useful Life
- Construction Summer 2023

## Improve Leachate Management

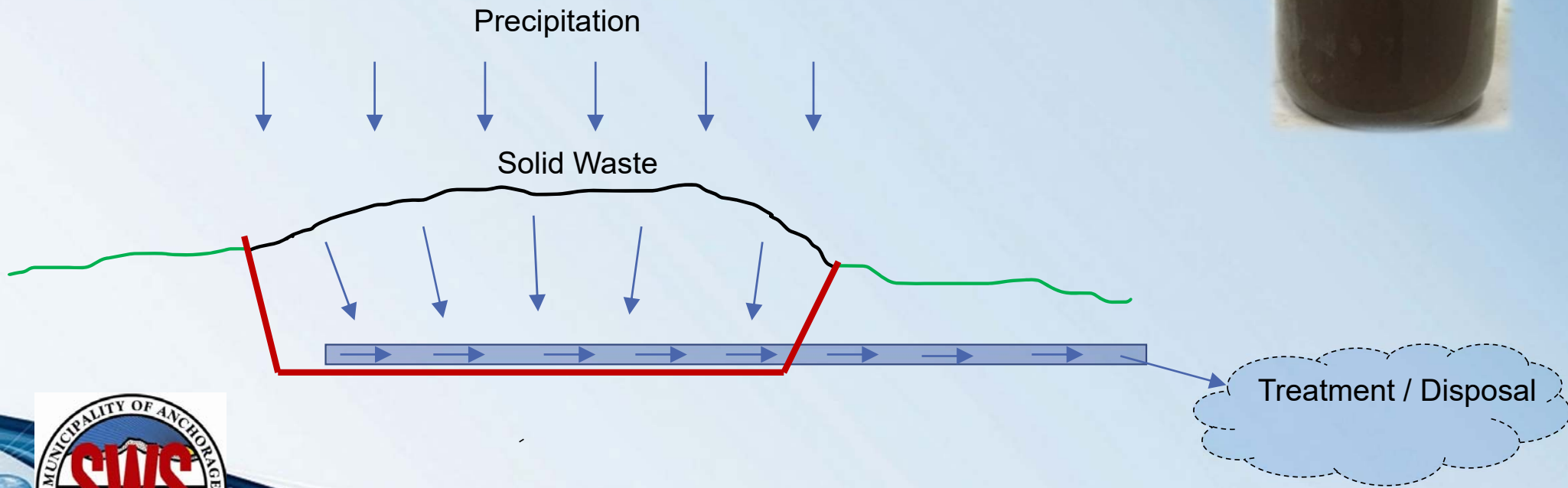
- Current Practice is to Haul Leachate to AWWU Sewer Collection System



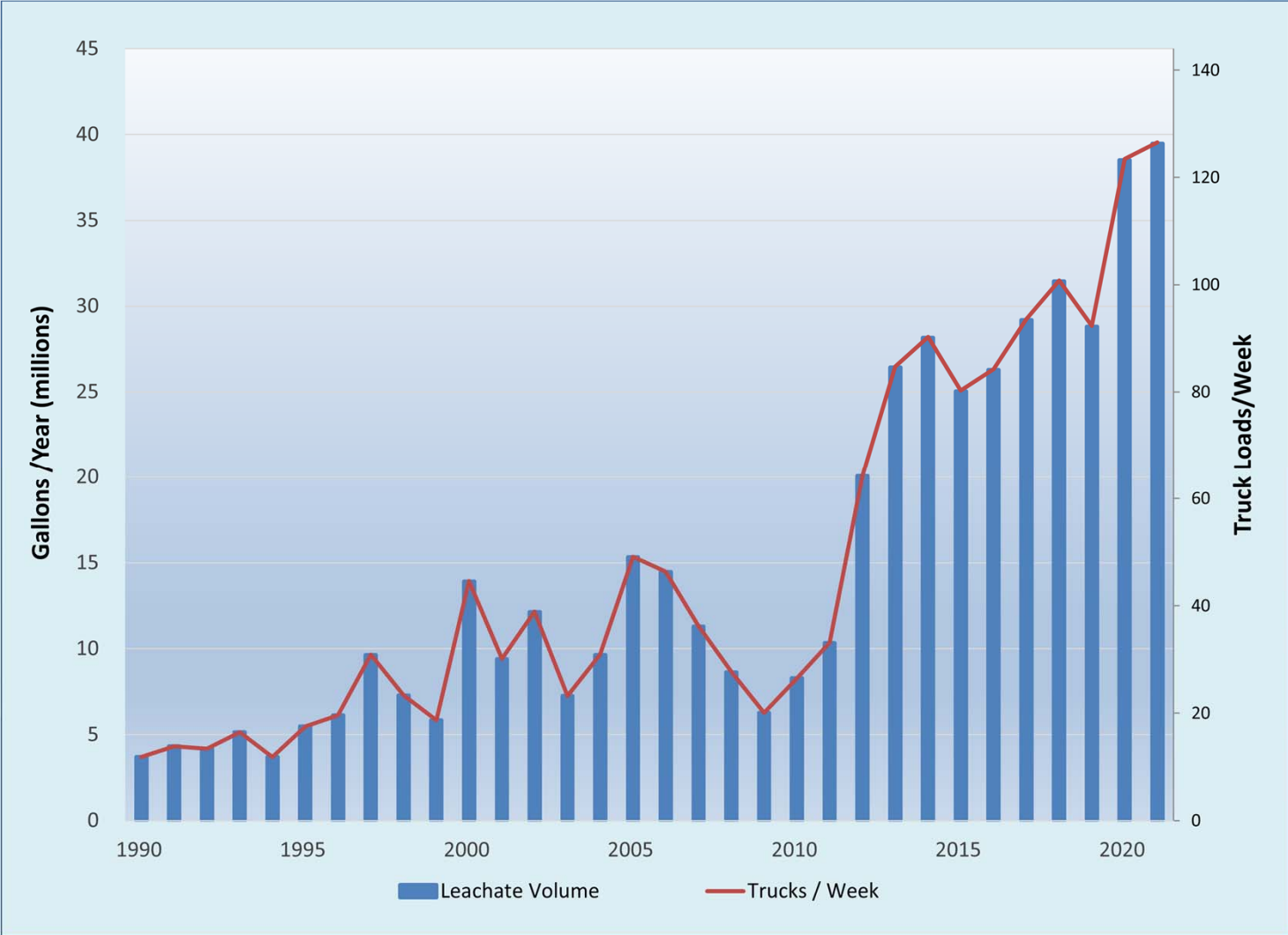
# What is Leachate ?

Leachate is the liquid that forms when water (rainfall, surface run-on, waste component ... ) travels through solid waste

*Solid Waste Association of North America*



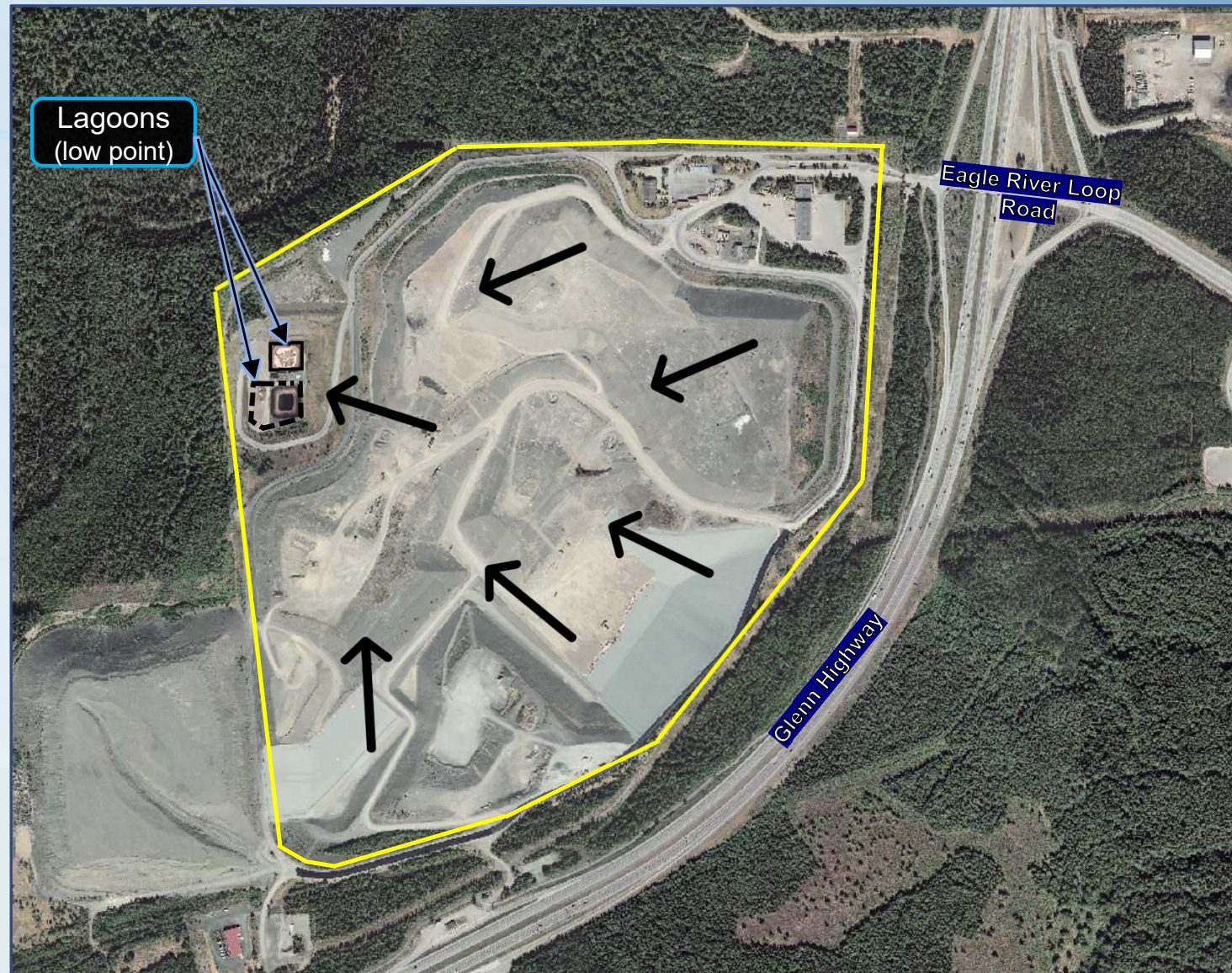
# How Much Leachate is Generated?





# Leachate Lagoon Upgrade Highlights

- Lagoon Volume will be Increased
  - 3 MG to 5.5 MG
  - Give Ability to Attenuate Large Surges
  - Allows for Operational Flexibility
  - Allow Room for Any Future Pretreatment Needs
- Sludge Removal Will Be Simplified
  - Reduce O&M Costs
- Construction 2023

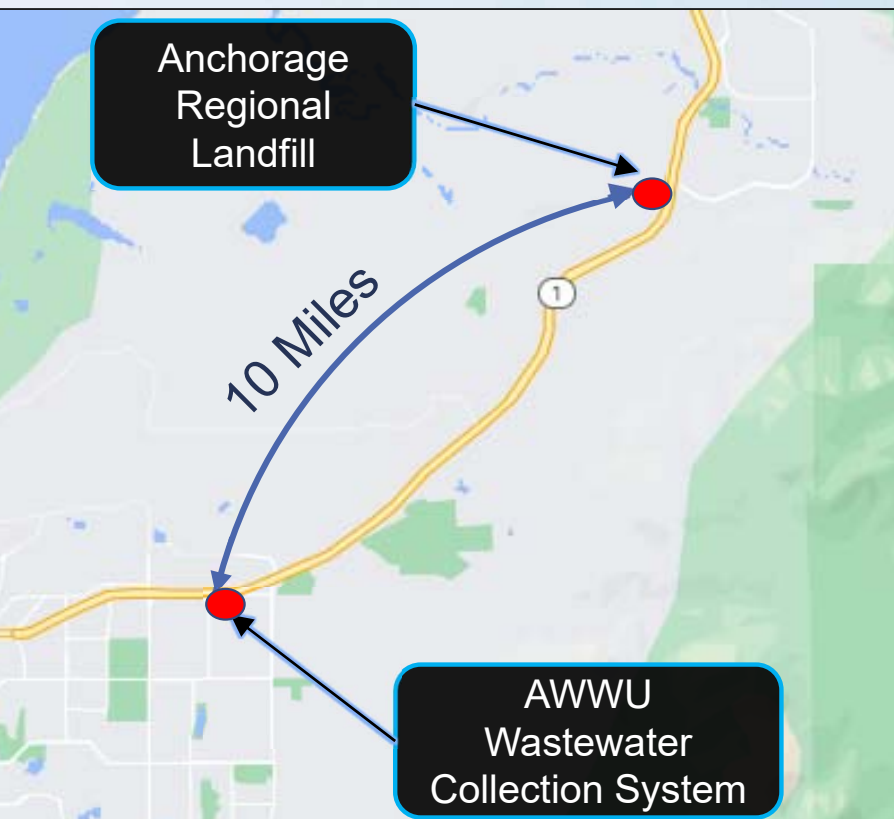




# Current Leachate Management

Trucking 40 Million Gallons/Yr to the AWWU Wastewater Collection System

- 6,500 Trips Annually or 17 trips per day



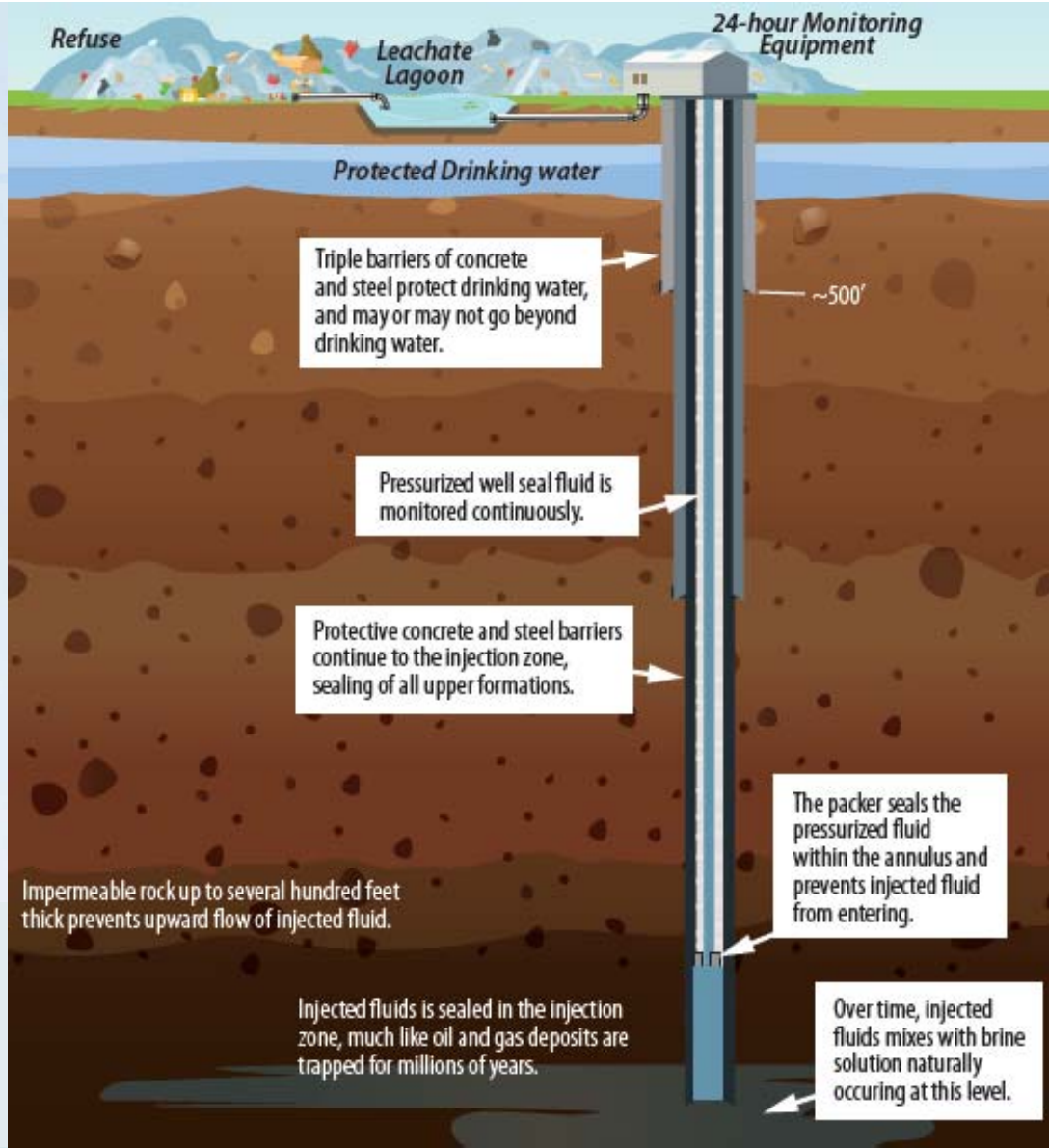
Alternative	Initial Capital Cost	Annual O&M Costs	NPV (20 year period)	Payback Period (Years)	O&M Cost / Gallon	Cons	Pros
Truck to Turpin Septage Station	\$9,700,000	\$3,000,000	\$(48,500,000)	0	7.6¢	<ul style="list-style-type: none"> <li>Subject to Changing Treatment Plant Requirements</li> <li>Inherit Risks Involved In Trucking</li> </ul>	
Deep Injection Well	\$20,900,000	\$500,000	\$(27,500,000)	5.3	1.3 ¢		<ul style="list-style-type: none"> <li>Provides a LongTerm Safe and Reliable Method for Managing Landfill Leachate</li> <li>Reduces SWS Dependents on Others</li> <li>Low Operational Costs</li> <li>Reduces # of SemiTrucks on Roads</li> </ul>
Evaporator	\$21,700,000	\$2,700,000	\$(57,000,000)	>20	6.8 ¢	<ul style="list-style-type: none"> <li>Operationally Challenging</li> <li>Would Loose Out on Some LFG Revenue</li> <li>Still Need to Truck a Small Portion of the Leachate</li> <li>Need to Dispose of Concentrate</li> </ul>	<ul style="list-style-type: none"> <li>Reduces SWS Dependents on Others</li> <li>Reduces # of Semi -Trucks on Roads</li> </ul>
ERWWTF	\$20,200,000	\$2,100,000	\$(47,000,000)	16	5.2 ¢	<ul style="list-style-type: none"> <li>Subject to Changing Treatment Plant Requirements</li> </ul>	<ul style="list-style-type: none"> <li>Reduces # of Semi -Trucks on Roads</li> </ul>

# Class I Deep Injection Well

- Deep Injection wells are regulated under the Safe Drinking Water Act, and are viewed by the EPA as a safe and responsible method for managing non-hazardous waste
- Approximately 800 permitted, active Class 1 Injection wells in U.S. and 20 in Alaska
- It is estimated that the non-hazardous liquid will be injected close to a mile below the surface, well below any potential source of drinking water.
  - Leachate will be permanently contained, like natural oil and gas deposits
- Inject into geology that contains acceptable pore space and fluid that is (>10,000 mg/L TDS) not usable.







# Steps to a Successful Deep Injection Well

## Evaluation Phase:

- ✓ Capital and O&M Costs
- ✓ Regional Geology
  - Geologists estimate a high likelihood of favorable geology and fluid.
- ✓ Area Fault Lines
  - Performed a microgravity survey that showed ARL is on the downthrown side of a major area fault line which is mandatory
- ✓ Pre-Application Meetings with EPA
  - EPA Sees No Fatal Flaws
- Stratigraphic Well (Exploratory Well - 5,000 to 7,000 feet deep)
  - Confirm Confining Layer Geology
  - Confirm Injection Zone Geology
  - Confirm Formation Fluid Characteristics

## Design, Permitting, and Construction:

- Design Well and Pretreatment System based on Stratigraphic Well Information
- Submit Application to the EPA
- EPA Technical Evaluation
- Draft Permit & Public Comment Period / Public Outreach
- EPA Decision and Final Permit
- Construct Well and Pretreatment Infrastructure
- Begin Operation of Well - Regular Well Testing & Reporting

# Construction Cost & Schedule

## Deep Injection Well:

- Cost: \$8 MM - \$11 MM
- Schedule: 2022 to 2025

## Lagoon Upgrades:

- Cost \$7 MM
- Schedule 2023





# Questions ?

