



SOLIDS MANAGEMENT IMPROVEMENT PROJECT

TRINITY RIVER AUTHORITY, DALLAS, TX

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BACKGROUND

Trinity River Authority Wastewater Treatment Plant

- Treats 198 million gallons of wastewater per day
- Serves 1.4 million people in Dallas-Fort Worth area
- Plant is upgrading processes to advanced mesophilic anaerobic digestion



Sludge Parameters:

- 25-32% Solids
- 0 mg CaCO₃/L
- pH 7.2-8.4
- 65-75°F

Slurry Parameters:

- 6-10% Solids
- 8,000-10,000 mg CaCO₃/L
- pH 7.2-8.4
- 95-105°F

COST ESTIMATE

ENGINEER'S OPINION OF PROBABLE COST

SLUDGE TRANSPORTATION

\$357,900

MIXING

\$42,500

PIPES AND FITTINGS

\$99,100

PUMPS

\$11,300

CONCRETE PAD

\$91,200

ALKALINITY

\$7,200

15% CONTINGENCY

\$37,700

TOTAL COST

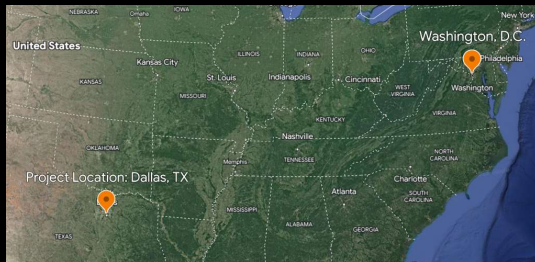
\$647,000

MIXING

- Mixing 8 batches of sludge per day
- Each batch takes 75 minutes
- 17.3 cubic yards of sludge per batch
- 10,490 gallons of water per batch
- 2,025 pounds of baking soda per batch
- Mixing by recirculation pumps and stationary mixers
- Batches will be sampled via dipstick and tested for all slurry parameters

	Basin 1			Basin 2			Basin 3		
Time	Loading	Mixing	Unloading	Loading	Mixing	Unloading	Loading	Mixing	Unloading
9:00-9:15 AM	x	-	-	-	-	-	-	-	-
9:15-9:30 AM	x	-	-	-	-	-	-	-	-
9:30-9:45 AM	-	x	-	x	-	-	-	-	-
9:45-10:00 AM	-	x	-	x	-	-	-	-	-
10:00-10:15 AM	-	-	x	-	x	-	x	-	-
10:15-10:30 AM	-	-	-	-	x	-	x	-	-
10:30-10:45 AM	x	-	-	-	-	x	-	x	-
10:45-11:00 AM	x	-	-	-	-	-	-	x	-
11:00-11:15 AM	-	x	-	x	-	-	-	-	x

TRANSPORTATION



- Shipping 35 truckloads of sludge from D.C. to Dallas
- Shipping 5 trucks full of sludge per day
- 27.7 cubic yards of sludge per truck
- Total volume of 961 cubic yards of sludge

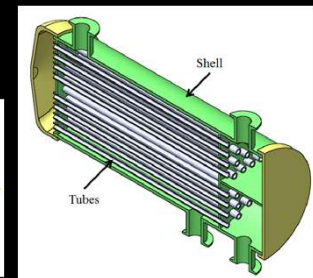
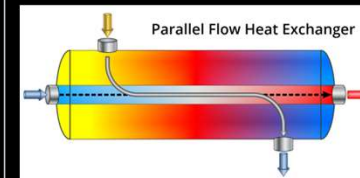
SITE LAYOUT

- 120' x 165' concrete pad for temporary systems
- Sludge offload area on pad's south side
- Sludge and baking soda will be stockpiled in transfer area
- Skid steer will transfer sludge and baking soda from loading area to the mixing basins



SLURRY HEATING

- Shell in Tube heat exchanger using parallel flow
- Heating Medium: Steam to Water
- Ambient Temperature: 67°F
- End Temperature: 100°F
- Area: 197ft²
- Efficiency: 52%



SUSTAINABILITY

