

Castleton WWTF Sludge Tank Inspection and Repair

Analysis Brief

Agenda

- **Problem Statement**
- **Facts & Assumptions**
- **Estimated Costs**
- **Course of Action #1**
- **Course of Action #2**
- **Questions**

Problem Statement

When does the Town of Castleton schedule the drainage, cleaning, inspection, and repair of Sludge Holding Tank #2, while determining a feasible funding remedy.

FACTS

- 1) Sludge Tank #2 built in 1997
- 2) Sludge Tank has never been drained, cleaned, or inspected.
- 3) 1 quote for scope of work received out of three submitted. Emptying tank only.
- 4) Englobe with except sludge without extra testing (savings of \$3k). Each test costs \$3k.
- 5) **1st De-Watering test performed by Senesac estimated 2% Solids in tank (the lower % means less Solids and less \$)**
- 6) Inorganics screenings (normal trash) in Tank can be disposed of by WWTF in an extra dumpster.
- 7) Aquastore inspection of Tank estimated at \$2k per 11/1/2021 quote.
- 8) Aquasore cost to repair existing hole in Tank estimated at \$1,175k per 11/1/2021 quote.
- 9) **1 dry ton solids is equal to \$1,835.97 per dry ton.**

ASSUMPTIONS

- 1) **Estimated low dry tons is estimated at 65 dry tons (\$119k for removal from tank).**
- 2) **Estimated high dry tons is estimated at 150 dry tons (\$275k for removal from the tank).**
- 3) **Solids in Tank will not exceed 8% based on current tests performed. Cost \$119k for removal from the tank and \$45k for disposal/transportation).**
- 4) **Solids test performed on 10/29 by Senesac will be no more than 8% (one-week until result).**
- 5) Tank will only require one repair (“bullet hole”)
- 6) Senesac will charge half cost for de-mobilization of equipment in the winter if inclement/cold weather hinders completion of the job (estimated at \$4,750k). Same for Mobilization in spring (estimated at \$6,250k).
- 7) Tank will pass inspection and hole is repairable by Aquastore.

ESTIMATED COSTS

SENESAC CHARGES

Activity	Cost
Mobilization/Set-up*	\$12,500.00
Demobilization	\$9,500.00
Dry Ton Removal	Cost
1 Dry Ton	\$1,835.97
30 Dry Tons	\$55,079.01
65 Dry Tons	~\$119,338.05
80 Dry Tons	\$146,877.60
150 Dry Tons	~\$275,395.50
Low Estimate Total	\$141,338.05
High Estimate Total	\$297,395.50

*SENESAC daily "Stand-By" rate is \$3,500.00

Other Considered Costs:

- Extra labor by SENESAC to clean Digesters as needed (TBD)
- Possible overtime by Town employees in support of SENESAC (mitigated by adjusting schedules as needed).

ENGLOBE CHARGES

Wet Ton Disposal**	Cost
1 Wet Ton	\$151.80
296 Wet Tons (65 Dry)	~\$44,931.60
682 Wet Tons (150 Dry)	~\$103,527.60
Low Estimate Total	\$44,931.60
High Estimate Total	\$103,527.60

**Disposal is \$151.80 per Wet Ton if coordinated/paid by town to ENGLOBE directly.

INORGANIC DISPOSAL

Dumpster***	Cost
1	~\$200.00

***Disposal cost may be mitigated if Transfer Station can take inorganics.

AQUASTORE CHARGES

Activity	Cost
Tank Leak Repair	\$1,775.00
Tank Inspection	\$2,000.00
Estimated Total	\$3,775.00

TOTAL ESTIMATED COSTS

Activity	Low Estimated Cost	High Estimated Cost
Mobilization/Set-up	\$12,500.00	\$12,500.00
Demobilization	\$9,500.00	\$9,500.00
Dry Ton Removal	\$119,338.05	\$275,395.50
Wet Ton Disposal	\$44,931.60	\$103,527.60
Inorganic Disposal	\$200.00	\$200.00
Tank Leak Repair	\$1,775.00	\$1,775.00
Tank Inspection	\$2,000.00	\$2,000.00
TOTAL	\$190,244.65	\$404,898.10

**Does not include SENESAC daily "Stand-By" rate of \$3,500.00 and/or additional labor to clean digesters. Does not account for additional manpower from Town.*

Course of Action #1 (Fall)

- Start Tank drainage, sludge removal, inspection, and tank repair beginning NOV 2021.

Advantages

- Eliminates the possibility of tank failure over the next six months
- Protects against future cost increases
- Prevents a potential problem from getting worse
- Lower flow of influent in fall vs. spring. This equals less sludge.
- Dryer conditions for equipment mobilization and operation
- SENESAC availability

Dis-advantages

- Potential cost increase
- SENESAC availability in spring
- Higher flow of influent in spring vs. fall. This equals more sludge.
- Occurrence of cold/inclement weather – stand-by charge

Timeline

- Begin 2nd/3rd week NOV 21
- End: 3rd week DEC21

Course of Action #2 (Spring)

- Start Tank drainage, sludge removal, inspection, and tank repair beginning April 2022.

Advantages

- Warmer weather – less chance of stand-by costs
- Time to resource financing remedy
- Time to resource support requirements more in-depth

Dis-advantages

- Potential cost increase
- SENESAC availability in spring
- Higher flow of influent in spring vs. fall. This equals more sludge.
- Making a potential problem worse
- WWTF staff diversion away from normal spring maintenance tasks

Timeline

- Begin April 2022
- End: May 2022

Questions