

OVERCLIFF WATER STORAGE TANK

TOWN OF ST. JOHNSBURY, VERMONT



Crews Remove Old Bolted Steel Tanks Installed in 1932.



New Glass-Fused-to-Steel Tanks.

The Town of Saint Johnsbury retained Dufresne Group (DG) to compare the cost of renovating the two painted steel tanks as compared to the cost of replacement. The tank replacement alternative required that construction activities be confined to 0.15 acres of the 0.3 acre site. In addition, under either alternative, water service using one tank had to be maintained at all times during the project. DG found that the cost of replacement was significantly less than renovation on both a capital cost and on a life cycle cost basis. After funding was secured from both the State of Vermont and Rural Development, DG was contracted to complete design activities and engineering services during construction for replacement of the tanks.

Site limitations and an existing vertical ledge face required tanks that could be constructed using only the existing tank footprint. Glass-fused-to-steel bolted panel tanks were recommended as the best solution to these constraints. The construction contract was awarded for \$1.169 million, 2.5% under the engineering estimate of \$1.20 million. The bolted panel steel tank design allowed for tank construction during winter season.

The tanks will improve system hydraulics, and are expandable from 33 feet (500,000 gallon capacity each) to 42 feet in height (630,000 gallon capacity each) if future demand requires.

KEY FEATURES:

- Construction cost was 2.5% under the engineer's final design cost estimate
- Security hardened vent and access hatch
- Limited site access due to property line configuration
- Overflow elevation increased by 6.2 ft based on hydraulic modeling
- Starter ring designed to allow for future vertical expansion
- Free standing aluminum geodesic dome