



Case Study WTP #4

Liquid Carbon Dioxide
Supply For Water Treatment
Municipality

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Highlights:

Location — Southeastern Georgia
Scope of Project:

- Engineering & manufacture of turn-key system to store and regasify Liquid Carbon Dioxide (CO₂)
- (1) 6 ton (1420 gallons) bulk CO₂ cryogenic tank – horizontal configuration
- (1) Electric pressure building/vaporizer combo unit
- (1) Dual path pressure and flow control manifold
- Startup, commissioning, and on-site equipment and safety training
- Project Completion: November 2016

System Configuration:

The AIS certificated system included horizontal CO₂ storage, vaporizer pre-installed in tank cabinet, pressure-building vaporizer pre-installed in tank cabinet, pressure reducing valve, outlet gas temperature with local alarm and low temperature shutdown valve. Everything necessary for the complete operating system. All components were factory and field tested and designed for ease of site installation. Chart's personnel was hired for the Project Management.

Application:

A Water Treatment Plant (WTP) located in Georgia with liquid CO₂ to be used as part of the arsenic removal process on a new build facility.

Project Background:

Based on Chart's previous experience and proven performance in the WTP industry, Chart was requested to develop the CO₂ system for water treatment. The new build plant would need to be put online to allow the current WTP to be taken out of service and capacity expanded. This new build will be the first plant in Georgia to treat arsenic in the process. Requested bulk storage of CO₂ to reduce a lot of existing manual processes currently used in the industry when dealing with CO₂ requirement.

Significant Accomplishments:

- System complies with American Iron and Steel (AIS) requirements.
- Chart was able to provide a total turnkey equipment package with US factory-built equipment and skids for easy site installation.
- Feed System to furnish vaporizer rated to 75 lb/hr in gas form at 100 psi to downstream operation.
- Dual circuit Pressure Regulation Manifold installed downstream of vaporizer to automatically control the flow and pressure of the CO₂ gas to supply connection.
- Designed for ease of operation, including Relief Sector Valves, which allows activation of either of two safety circuits – gives ability to isolate one during the maintenance process.
- Unit was vacuum jacketed and did not require a re-condensing unit, ultimately saving electricity costs.

