



● ● ● ● ● ● ●
PRESSURELESS™ OZONE WATER PURIFICATION SYSTEMS

Ozonation System Installation Water Treatment Plant Liberty City, Texas

Liberty City is a growing city in the timberlands of northeastern Texas, with a current population of approximately 2,000. Liberty City grew with the oil industry that resulted from East Texas oilfield discoveries in the 1930s. Oil continues to be an important part of the area's economy, as well as manufacturing, tourism, and agribusiness.

CHALLENGE

When Liberty City Water Supply Corporation created a new source of water by expanding into an area of colored ground water, they needed an economical method of removing the color from the water, while reducing the amount of chlorine required to achieve residual disinfection. In addition, the system they chose had to be easy to install and operate without the necessity of hiring additional staff.

SOLUTION

The corporation chose an Ozone Technology Model N-500 Ozonation System, which produces ozone that treats well water in a stainless steel contact tank. The ozone-treated water then flows to a ground storage tank where chlorine is injected as required. Booster pumps transfer the water to the distribution system. The Model N-500's state-of-the-art computer system monitors and operates the Ozonation System around the clock.



RESULTS

Since its installation in 1999, the Model N-500 Ozonation System has proved to be an economical, efficient method for eliminating color from the ground water—with minimal use of chlorine for residual disinfection, and without the need for additional staff.

BENEFITS

The Pressureless Ozonation System at Liberty City:

- Enhances safety
- Increases dependability
- Reduces maintenance
- Reduces chlorine usage
- Eliminates unpleasant color
- Lowers water treatment and personnel costs

Ozonation System Installation Water Treatment Plant Liberty City, Texas

TECHNICAL INFORMATION

A Model N-500 Ozonation System produces 25 pounds per day (500 grams per hour) of 2% ozone. Two venturi injectors inject the ozone into well water. The ozone and well water are mixed for about ten minutes in a contact tank. Gravity draws the treated water downhill to a ground storage tank where chlorine is injected as required. Pumps transfer the water to the distribution system.



TECHNICAL SPECIFICATIONS

General system specifications

Ozone produced	25 pounds per day (500 grams per hour)
Total flow rate	2 treatment trains at 550 gpm
Ozone treatment side-stream flow rate	2 streams at 265 gpm each
Ozonation contact tank size	4,600 gallons
Ozonation reaction time	8 minutes

Ozone Generation subsystem specifications

Number of ozone generators	1
Ozone output	500 gr/hr
Ozone concentration	2%
Gas flow to ozone generator (at full output)	12.25 cfm (20.1 m ³ /hr)
Cooling water required (at full output)	4.4 gpm (16.6 lpm)
Cooling water temperature at inlet to ozone generator	70°F (21.1°C) nominal
Supply voltage	460 (480) VAC, 3-phase, 60 Hz
Control voltages	24 VDC and 120 VAC
High voltage	10,800 VAC maximum
Number of high voltage electrodes in ozone generator	340

Air Preparation subsystem specifications

Number of air dryers	2
Dryer type	Non-pressurized absorptive desiccant (negative pressure)
Air drying capability	-40°F dew point or better
Desiccant type	Granular silica gel
Dryer operation cycle time (between changes)	Equivalent of 36 hours operation at full output (7 days maximum)
Dryer regeneration time	2.5 hours nominal (8 hours maximum)
Dryer heater power	7.5 kW
Regeneration air inlet temperature	Room ambient
Regeneration air outlet temperature	230°F at regeneration heating cycle termination

Ozone Injection subsystem specifications

Number of ozone injectors (from ozone generator control cabinet)	2 injectors driven by a single 15 hp pump
--	---