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PRESSURELESS™ OZONE WATER PURIFICATION SYSTEMS

Ozonation System Installation Water Treatment Plant Abbotsford, Wisconsin

Abbotsford is a progressive and growing community of approximately 2,000 people located in the heart of rural Wisconsin. Abbotsford is proud of its award-winning water, sewer, public works, and parks systems.

The Abbotsford water system consists of 13 wells, two water treatment plants and two water towers, serving 900 customers and yielding approximately 350,000 gallons of water per day.



CHALLENGE

Large-diameter dug wells resulted in high levels of bacteria, unsafe for the city's water supply.

SOLUTION

Abbotsford studied replacing the dug wells with drilled wells, but geologic conditions made treating the water from the dug wells a better solution. Abbotsford chose an Ozone Technology Ozonation System to provide primary disinfection of raw water from the city's well collection system. Chlorine is injected into the ozone-treated water for residual disinfection.

RESULTS

The Ozone Technology Ozonation System at Abbotsford has been operating successfully since 1997, providing a safe, dependable, economical means of eliminating harmful bacteria from the water supply, while requiring only minimal use of chlorine.

BENEFITS

The Pressureless Ozonation System at Abbotsford:

- Enhances safety
- Increases dependability
- Reduces maintenance
- Lowers water treatment costs
- Eliminates water-borne bacteria
- Reduces chlorine usage



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TECHNICAL INFORMATION

A 200 gr/hr pressureless ozonation system provides 3 log removal of Giardia disinfection level. Turbine injectors inject an ozone/air mixture into raw water, removing trichloroethylene, benzene, and radon.



TECHNICAL SPECIFICATIONS

General system specifications

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| Ozone produced | 10 pounds per day (200 grams per hour) |
| Total flow rate | 800 gpm |
| Ozone treatment side-stream flow rate | Direct injection via aspiration |
| Ozonation contact tank size | 10,000 gallons each injector |
| Ozonation and off-gas destruct time | 20 minutes (10 minutes each injector in series) |

Ozone Generation subsystem specifications

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| Number of ozone generators | 1 |
| Ozone output | 200 gr/hr |
| Ozone concentration | 2% |
| Gas flow to ozone generator (at full output) | 4.9 cfm (8.3 m ³ /hr) |
| Cooling water required (at full output) | 1.75 gpm (6.6 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 | 136 |

Air Preparation subsystem specifications

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| 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 | 3 kW |
| Regeneration air inlet temperature | Room ambient |
| Regeneration air outlet temperature | 230°F at regeneration heating cycle termination |

Ozone Injection subsystem specifications

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| Ozone injectors (from ozone generator control cabinet) | 2 turbine injectors driven by a single 15 hp pump |
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