



# TONKA EQUIPMENT COMPANY

## Project Profile

### MANVILLE WATER SUPPLY CORPORATION

Lee County, TX

#### MANVILLE WATER SUPPLY CORP.

*Manager*

Contact: Tony Graf  
512-365-7696

#### DESIGN ENGINEER

*J.F. Fontaine & Associates, Inc.*

Contact: Jerry Fontaine, P.E.  
903-729-6005

#### TONKA REPRESENTATIVE

*Environmental Improvements, Inc.*

Contact: Curtis Cathey  
800-374-7008

#### GENERAL CONTRACTOR

*Water Treatment Construction Co.*

Contact: Ed Wilkerson  
979-775-0200



#### APPLICATION:

Iron & Manganese Removal  
Flow: 4 MGD

#### TONKA PROCESS EQUIPMENT:

The plant incorporates:

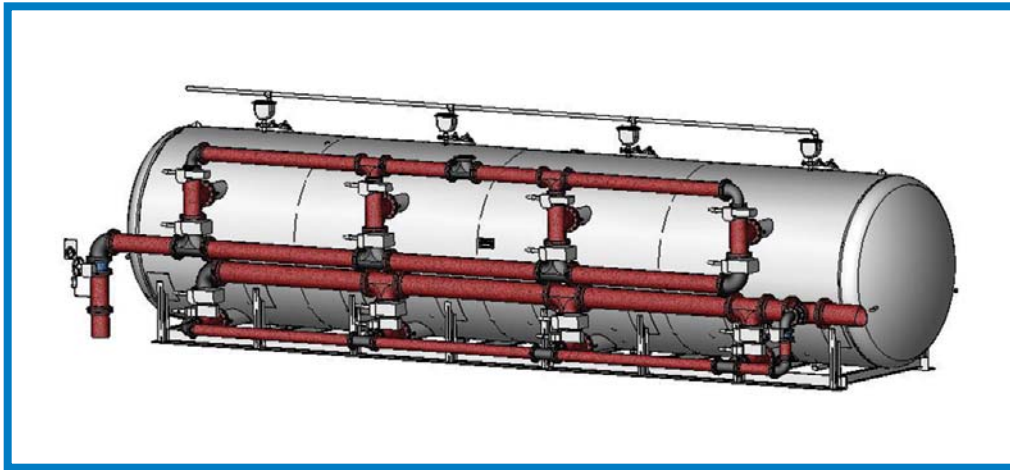
- Two 4-Cell – 10'Ø x 48' Horizontal filters
- IMAR filter media
- Tonka's Simul-Wash™ backwash system

#### PROJECT:

With continued population growth in its service area east of Austin, TX, Manville WSC required more water to keep ahead of the growth curve. New wells were drilled and additional water provided by Alcoa operations at no charge; however, Manville WSC needed to treat this source water for iron and manganese removal. J.F. Fontaine & Associates studied, designed, and administered the construction of a new four million gallon per day iron treatment plant to meet the treatment goals of Manville WSC. Tonka Equipment Company worked closely with J. F. Fontaine & Associates to design a customized solution for this plant using state-of-the-art processes to reduce wastewater volumes by 50% compared to conventional water plant designs.

#### PROCESS:

Prior to the raw water entering the filters, caustic, chlorine, and potassium permanganate are added via a Tonka inline static mixer. The water is then evenly split between each filter cell where it flows through IMAR filter media, removing the iron and manganese. Each horizontal pressure filter is comprised of four completely isolated cells. This unique feature allows one cell to be off-line while the other three cells continue to filter, backwash or be open to the atmosphere for inspection. From the filter, the water directly enters the distribution system.



This 3D SolidWorks model shows one of the horizontal pressure filters supplied by Tonka Equipment Company.

The filter system includes the value-added Simul-Wash™ backwash system. This unique backwash system uses air and water simultaneously, at sub-fluidized rates, to provide the most effective means of backwashing granular filter media.<sup>1</sup> Tonka's media rejecting Simul-Wash™ trough enables the air and water backwash cycle to continue indefinitely without media loss. This results in optimal filter cleaning efficiency and prolonged filter runs, while saving approximately 50% of backwash wastewater compared to conventional methods. The filters are designed to operate with either a continuous feed or intermittent feed of potassium permanganate depending on water quality parameters.

The system is controlled by Tonka's PLC-based automatic control panels which have been customized to backwash the filters by loss of head, time, or operator initiation. The duration of the backwash and other functions are operator adjustable through a color touch screen interface.

### PERFORMANCE:

The raw water analysis summarized below reflects moderate concentrations of iron and manganese existing in the water. The treatment process has been highly effective in delivering quality water as indicated below.

	Raw Water	Finished Water
Iron	1.08 mg/L	ND mg/L
Manganese	0.14 mg/L	ND mg/L

### FOR ADDITIONAL DETAILS, PLEASE CONTACT:

Tonka Equipment Company

<sup>1</sup> Amirtharajah, Appiah, et al. *Optimum Backwash of Dual Media Filters and GAC Filter-Adsorbers With Air Scour*, AWWA Research Foundation and American Water Works Association, 1991.



# TONKA EQUIPMENT COMPANY

763-55-WATER • 763-559-2837 • FAX: 763-559-1979 • [www.tonkaWATER.com](http://www.tonkaWATER.com)

P.O. Box 41126 • Plymouth, MN 55441-0126 • 13305 Watertower Circle • Plymouth, MN 55441