



# TONKA EQUIPMENT COMPANY

## Project Profile

### POMEROY, OHIO WATER TREATMENT PLANT

#### **CITY OF POMEROY**

*Owner/Water Superintendent*

Contact: John Anderson  
740-992-2166

#### **DESIGN ENGINEER**

*M-E Companies*

Contact: Alan Brown  
Mitch Altier, P.E.  
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#### **TONKA REPRESENTATIVE**

*Sabatka, Davis & Associates Inc.*

Contact: Dave Sabatka  
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#### **APPLICATION:**

Iron and Manganese Removal  
Hardness Reduction  
Flow: 450 gpm

#### **TONKA PROCESS EQUIPMENT:**

Integrated Dualator® VI Filter and Ion Exchange Softening System

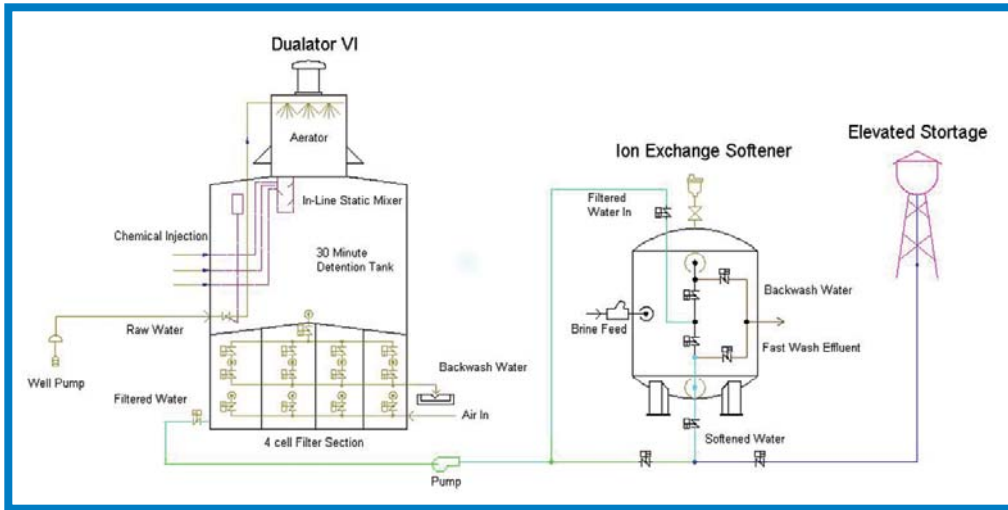
#### **PROJECT:**

The city of Pomeroy consulted with M-E companies to design and build a new water treatment plant to treat the extremely high amount of manganese in its raw well water. In addition, the city included an ion exchange water softening system. Tonka supplied the major equipment components – the Dualator® VI and ion exchange softeners along with the integrated control panel.

#### **PROCESS:**

The treatment process consists of four steps within the Dualator® VI – aeration, chemical feed, detention, and filtration for manganese removal. The aeration step in the Dualator® VI provides iron oxidation and offers the reduction of any nuisance dissolved gases. Chlorine and sodium permanganate are added to the water as it passes through a static mixer into the detention section. The detention tank allows for 30 minutes of detention time ensuring the iron and manganese oxidation reactions complete prior to filtration. The final step in the Dualator® VI is filtration through a dual-media filter bed of manganese greensand and anthracite where the iron and manganese particles are removed. These steps completely satisfy Ohio EPA's strict guidelines for iron and manganese reduction and meet all Ten States Standard requirements. A portion of the effluent water from the Dualator® VI is then treated by the ion exchange softeners, with the balance being bypassed around the softeners. This gives the operator the flexibility to adjust the flows proportionally to target the desired effluent hardness: 130 mg/L hardness as CaCO<sub>3</sub> in Pomeroy's case.





Schematic of Integrated Dualator® VI & Ion Exchange System

Tonka also provided the control panel, which controls the automatic functions of the Dualator® VI and the ion exchange softeners including the brine cycle. The control panel includes a touch screen operator interface for simple monitoring of the system, and provides ultimate operational flexibility. The water treatment equipment brings current state-of-the-art technology to maximize treatment plant production.

**VALUE ADDED FEATURE:**

The Dualator® VI treatment unit 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, reducing the required amount of water for backwashing compared to conventional methods.

**PERFORMANCE:**

The Tonka treatment equipment supplied on this project is extremely efficient in delivering high quality drinking water as indicated below.

	<u>RAW WATER</u>	<u>FINISHED WATER</u>
Iron (Fe)	0.1 mg/L	ND
Manganese (Mn)	3.5 mg/L	0.009 mg/L
Hardness	420 mg/L	130 mg/L (Blended finished water)

**FOR ADDITIONAL DETAILS 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.



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