

# INDUSTRIAL CASE STUDY

## IFM Replaces Retention Tanks and Softeners without water service interruption



Industrial Fluid Management, Inc. was hired by National Travel Center to replace seven steel retention tanks and re-bed two softener units for their Public Water System, in Central Ohio. The retention tanks were aged, and the plumbing was showing deterioration. The steel retention tanks were plumbed in series, and there were not any valves in-line. The retention tanks could not be blown down or bypassed in this current set up. The water quality was starting to become poor. Sediment in the steel retention tanks was causing discolored water, and the softener resin needed replaced because hardness was starting to cause staining.



The challenge was to do a replacement of the steel retention tanks and re-bed both softeners without shutting down the travel center's operations. This facility provided showers for drivers as well as supplied two different restaurants. The goal was to provide potable water to maintain these functions plus meet fire suppression requirements.

Below is an outline of the project and how the above requirements were met:

Equipment to be replaced:

- (7) 30"x72" steel retention tanks and 2" piping



Replacement equipment:

- (7) 30"x72" fiberglass retention tanks, 2" piping, 2" ball valves
- (2) 14 cu.ft. per tank re-bed of softening resin (same as current)



All treatment tanks and systems were temporarily bypassed by tying in a 2" valve prior to the distribution system inside the water treatment room.

Water was supplied to the system through this 2" valve from a 5000 gallon tanker that was placed on site by the Crabtree Water Hauling Company. Crabtree Water Hauling Company is a registered potable water hauler approved by the local Health Department to supply the 5000 gallon tank onsite with water. The water was being hauled by Crabtree Water Hauling from the City of Columbus. To meet the demand of water, maintain chlorine residual, and operate the system with good pressure, the following equipment was used:

A 2" flooded suction line from the onsite tanker fed an 80 gpm centrifugal pump located inside a trailer. This pumping trailer was provided by the Jamison Well Drilling Company. The 80 gpm pump provided sufficient water for both the operation of the facility and fire suppression.

The existing pressure tank was used with a pressure switch to control the 80 gpm pump and maintain system pressure. Along with this, a cycle stop valve was installed on the discharge side of the pump to prevent water hammering from occurring as the pump turned on and off. The pump was set to come on at about 38PSI and shut off at about 60PSI. A second back up submersible pump was onsite to meet the requirements of the Ohio EPA and give an emergency option if the centrifugal pump failed.

On the discharge side of the centrifugal pump, before the water entered the system, an injection fitting was tied into the 2" line to allow for a Stenner Feed pump (Model 85MPH17) to inject 12.5% sodium hypochlorite into the system. A free chlorine residual of 2.00 mg/l was the target residual to be maintained in the distribution system during the project. Jamison Well Drilling used the existing electrical relays inside the water treatment room to turn on the Sodium Hypochlorite pump whenever the centrifugal pump came on. Chlorine residuals were checked and logged every 3 hours from the distribution system. Very light Chlorine was needed during the project. The water that was being supplied by the City of Columbus had a chlorine residual of more than 1.0mg/L in it.



There was a 2" MAGMETER installed after the chlorine injection point and prior to the water entering the system. This meter was used to record the gallons of water used out of the tanker and for reporting the daily usage of the facility. 1250 gallons was the lowest the tanker onsite was to get before refilling. This ensured that 25% of the tanker was full at all times.

During the project the system was operated by Industrial Fluid Management around the clock. Coordination with the water hauler was a key to the success of the project. The facility averaged 7,000-10,000 gallons each day of water usage. Mornings and early evenings were the peak times of usage. The project lasted 2.5 days. The tanker was filled 5 times during the pro-

ject including the initial load. A total of 17,321 gallons was used while the project was going on.

The Project Completion dates: June 19, 2012 - June 22, 2012

Day 1: Steel Retention tanks and existing piping was removed and new fiberglass tanks, PVC piping, and valves were installed. Tanks were disinfected per AWWA standards and filled with water.

Day 2: System was allowed 24 hours for disinfection and all plumbing was tested for leaks. The (2) 14 cu.ft. softener tanks were re-bed with new resin. System was flushed to drain and (2) total coliform samples were collected one (1) hour apart. The City of Circleville accepted the total coliform samples late on the second so the 24 hour test could be confirmed the next day.

Day 3: After the total coliform samples were confirmed negative, the new system was put on line and the temporary pump equipment was removed from the facility.



**Water Supply:**

Crabtree Water Hauling Company  
City of Columbus PWS OH2504412

**Laboratory:**

City of Circleville

**Equipment and Installation:**

Jamison Well Drilling  
Industrial Fluid Management, Inc.

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