

# **City of Hayward**

## **24499 Soto Road, Hayward, California**

### **I. Respondent and Presenter:**

Bert Weiss – Operations and Maintenance Manager

### **II. Treatment Plant Characteristics:**

- Hesperian Pump Station Water Distribution
- 53 employees
- ~150,000 customers served

### **III. Innovation: The Unique and Unusual Hesperian Pump Station**

#### **A. Description**

The Hesperian Pump Station is a feature that is fairly unique to the City's unusual water system that can be run both "forwards" and "backwards." Hayward sits between two regional water systems, the SFPUC system and the EBMUD system, and can technically be supplied by either agency. It however also has the ability to use its own transmission mains to connect them both of the regional systems. The Hesperian Pump Station and the associated manifold and valve sets are what makes this a possibility even though there is a significant difference in delivery pressures from either regional supplier (approximately 65 psi for EBMUD vs approximately 130 psi from the SFPUC).

#### **B. Type of Innovations**

- Inter-agency agreements or other administrative changes
- Optimization of existing resources

## **C. Motivation for Innovations**

Up until the mid-1950s, Hayward supplied its residents and businesses with potable water from a fairly extensive set of wells. But it was becoming clear that the future water needs would be best served by either of the regional players: EBMUD to the north of Hayward and SFPUC to south. It seems that EBMUD assumed that they were always going to be the wholesaler because they proactively ran a disproportionately large diameter pipe to the end of their service area/distribution system. For some strange reason, the SFPUC wanted Hayward as a customer. To “sweeten” the deal, they offered Hayward a service agreement that included no upper limit in water that would be supplied, and no sunset date to that agreement. Between a deal like that, and the fact that the SFPUC provided the water pressure that they did, Hayward signed on the line with the SFPUC. In fact, to this day, 85 percent of the water used in Hayward is supplied entirely by gravity-induced line pressure.

## **D. Barriers/Challenges**

To eventually create a seriously functional regional inter-tie that utilized the City of Hayward’s transmission mains required two pump stations to be built and a relatively short run of pipe to create a large tie-in to the EBMUD system. That of course was the simple part, negotiating the agreements for who was responsible for what and under what circumstances the interties would be used for where undoubtedly the hardest, or at least the most cumbersome part of the effort. About 14 years ago, when the Skywest

Pump Station (owned by EBMUD and the SFPUC and operated and maintained by the City of Hayward) was completed, about a year after the Hesperian Pump Station was finished, the two regional players had an intertie, and the City of Hayward had a serious alternative water supply in the event that something happened to the SFPUC system's Bay Division 1, 2 & 5 lines. Since then, improvements have been made that have transformed the inter-tie from an advanced notice planned inter-tie that could be activated in about a week to an emergency inter-tie that can be activated in a number of hours.

## **E. Benefits**

The benefits of unparalleled distribution system operation. Hayward can be entirely supplied by the SFPUC; be entirely supplied by EBMUD; can be supplied by the SFPUC and at the same time push "extra" unused water into the EBMUD system; or vice versa. The pump stations and the associated manifolds are what allow any of these modes of operation to be in place with Hayward's customers being entirely oblivious to which mode of operation we are in. That is some very serious beneficial system flexibility, even if the Hayward operators are tasked with the nail-biting responsibility of running at least 85 percent of the distribution system backwards.

## **F. Effect on Staff Training**

Hayward has a relatively small number of highly-skilled staff that serve as the system operators running these pump stations. The folks are either mechanics or electricians, so finding people with the skill sets that make them both specialists and gifted generalists is a bit of a challenge

## **G. Lessons Learned:**

The process or the system works great. Improvements continue to be made, the latest of which were entirely designed and built by Hayward's Distribution System operators.

- One involved adding a 16-inch blow-off to the line between the EBMUD inter-tie valves and the Skywest pump station, which allows the portion of the inter-tie that needs to be flushed prior to activation to be flushed in very short order, and
- The other improvement was made to the manifold of the Hesperian Pump Station. Hayward operators cut in a very cool 16-inch plunger valve, which allows the water pressure of the entire flatlands of Hayward up to the 250-foot elevation point of the hills (aka 85 percent of the service area) to be regulated and modulated with just one valve.