



Henry J. Mills Water Treatment Plant Chemical System Upgrade

Metropolitan Water District of Southern California

The Metropolitan Water District of Southern California (MWD) Henry J. Mills Water Treatment Plant is one of five filtration plants in MWD's water distribution system. To support continued growth in Southern California MWD undertook several projects to upgrade the facility's capacity from 160 million gallons per day (MGD) to over 325 MGD.

One of the projects was the upgrade to the existing chemical storage facility, which was performed by Filanc. The goal of the project was to increase storage capacity and to improve the safety of the storage of chlorine gas and liquid on the site. Filanc's scope included construction of a new chlorine containment facility, including tank truck unloading and storage buildings, evaporator room, and chlorine scrubber areas. The firm also constructed a new fluorosilicic acid unloading area, storage, and injection facility with a roof canopy.

The project was completed in July 2009; the Filanc team met all of MWD's budget, schedule and exacting quality performance expectations on the project. Highlights of the chemical system upgrade include:

Construction Phasing

When Filanc began work on the chemical system upgrade, the plans called for the chemical storage facility, which consisted of two separate storage areas on the site, to be constructed as one project. However, MWD required that the chemical system remain operational throughout construction. The original solution, to build and operate a temporary facility during construction, was not feasible due to the impact on the schedule. Therefore, Filanc proposed splitting the construction into two distinct phases: build the storage facility on the north side first, and then construct the south side facility. This approach would allow MWD to transfer operations over to the north facility while construction continued to the south facility to maintain operations without the need of a temporary structure.

Specifications

Design Engineer:

Metropolitan Water District of Southern California

Constructed Value:

\$20.7 million

Completed:

June 2009

Project Highlights:

- New chemical storage facility and fluoridation facility
- Construction phasing was revised from the original design to accommodate existing operations
- Partnering program facilitated open communication and proactive problem solving
- Self-performance of pipe welding delivered high quality work for the fluoridation facility

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The original design of the chemical storage facility did not accommodate a phased construction approach. Therefore, the Filanc team worked closely with MWD, the designer and other stakeholders to identify changes needed to allow the project to be built in two phases. For example, some of the components of the electrical system required to operate the first phase were shown as being part of the second phase of the project. The team worked together to relocate electrical equipment and control panels to allow the first phase of the facility to go online while the second phase was being built.

Communication

Filanc and MWD engaged in a partnering program for the work on the chemical system upgrade. The team held two formal partnering sessions, one at the start of the project and one before the second phase commenced, to outline the goals of the project and the communication expectations for the team. Filanc maintained open lines of communication with MWD and set goals identifying potential issues including solutions that would benefit the project's objectives. Filanc provided monthly report cards to all partnering stakeholders to keep the team informed about the status of the projects. These report cards as well as other issues were discussed by the team at regular informal lunch meetings.

Proactive communication was particularly important in planning the transfer of operations from the existing facility to the new facility. Filanc held meetings with the plant's operations and maintenance teams prior to the transfer to coordinate how the start up would happen. These meetings ensured that the transfer occurred smoothly without disrupting the plant's operations.

Quality

The Filanc team's experience with fluoridation facilities taught them that the quality of the piping was particularly important. Fluorosilicic acid is extremely corrosive; if the piping work is not done correctly, damaging corrosion can occur. Filanc worked with a proven piping fabricator for the bulk of the piping and also self-performed the welding to ensure that qualified welders were using the proper equipment. As a result, the fluoridation facility was operational to meet an early completion milestone without any quality issues.

Safety

Filanc is committed to all aspects of safety on the job site including risk control, active employee participation, safety training, work site hazard identification and control, and a continuously updated safety program. The project went over 38,140 Man-hours with no lost time incidents or accidents.



“ The work was performed in accordance with Metropolitan's standards for quality. Filanc maintained a superior safety record, with zero accidents and no lost time. The facility was delivered within the anticipated timeframe. ”

David Yanez, P.E.
Project Resident Engineer
Metropolitan Water District

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