

HYPERION WATER RECLAMATION PLANT VALVE REFURBISHMENT

Case Study



PROJECT

Hyperion Water Reclamation Plant
Valve Refurbishment

LOCATION

Los Angeles, CA

PRODUCTS

Mueller / Pratt Isolation Valves
(60-inch, 78-inch)

SCOPE

Established over a century ago, the Hyperion Water Reclamation Plant is the largest and oldest wastewater treatment facility in the Los Angeles metro area. Responsible for treating up to 800 million gallons of water per day, the maintenance and supervision of the Hyperion plant is of vital importance to the city of Los Angeles. The most recent maintenance project at the Hyperion plant involved the refurbishment of 10 Pratt butterfly valves originally installed in the 1970s and a custom-built 120-inch diameter butterfly valve from an unknown manufacturer.

PROBLEM

Over decades of use, the primary outfall pipeline of the Hyperion Water Reclamation Plant experienced expected deterioration; additionally, it was discovered that ten isolation butterfly valves as well as a significant, 120-inch diameter butterfly valve, had experienced corrosion of the valve bodies and discs. This corrosion posed a significant danger to the Hyperion plant, as failure of any single valve could result in a backflow event and flooding of the plant. Hyperion plant officials determined that refurbishment of the corroded butterfly valves was necessary to preserve plant operations and prevent a costly equipment failure.

SOLUTION

Following a two-day inspection of the Hyperion plant and its equipment, maintenance officials determined that the ten butterfly valves demanding attention (five 60-inch and five 78-inch valves) were Pratt models installed approximately 50 years ago. As the Los Angeles Department of Public Works maintained documentation on the equipment, the manufacturer was able to easily identify the necessary files, parts and valves necessary to replace or refurbish the existing valves.

While the ten Pratt valves offered a relatively straightforward path to refurbishment, the 120-inch diameter butterfly valve that was most critical to maintaining plant operations and ensuring public safety was discovered to be custom-made with no documentation or identification of the manufacturer. Additionally, the connecting flange bolt drilling and pipe flanges were also unique to the installation, requiring a complete replacement with new flange drilling.

Maintenance of the Hyperion Water Reclamation Plant also demanded a new actuation system, as the plant's previous plans for redundancy were now considered obsolete and unreliable. To design and install a new, high-torque actuator system, Moog Flo-Tork was added to the project. The resulting solution from Moog Flo-Tork provides up to three million inch-pounds of torque from either of two rack-and-pinion actuators, offering the necessary redundancy as well as a significant upgrade in system safety.



To deliver the required upgrades while limiting disruption to plant operations and the environment, Hyperion crews and suppliers worked day and night for six weeks. Moog Flo-Tork added additional shifts to expedite construction and assembly of the two actuators, significantly reducing the time necessary to complete the maintenance. The refurbished Pratt isolation butterfly valves and the new 120-inch gravity-flow valve were available for timely assembly, allowing the work to continue without interruption. Since the installation, all 11 valves and the new actuation system have worked flawlessly, providing the necessary infrastructure upgrade with minimal impact on plant operations.

CONCLUSION

Having refurbished the corroded butterfly valves and upgraded the technology of the plant's actuation system and gravity-flow valve, the Hyperion Water Reclamation Plant is now positioned to perform safely and efficiently for decades. The improved redundancy and reduced possibility of equipment failure ensures that Los Angeles residents and plant employees will benefit from increased security and reliable performance. Demonstrating the long-term viability of Pratt valves as well as the company's commitment to proper inspection and maintenance, the Hyperion project offers a roadmap for all wastewater treatment plants on proactive upkeep, informed equipment selection, and efficient repairs.

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