

■ ENGINEERING ■ ARCHITECTURE ■ DESIGN-BUILD ■ GEOSPATIAL SOLUTIONS ■ SURVEYING

Colorado Refining Company, a subsidiary of Total Petroleum Company, contracted Merrick & Company to provide engineering, design, and construction support for a firewater system for the East Tank Farm at its Commerce City Refinery. A fast-track design and construction schedule was developed to meet operations deadlines within the plant. Merrick provided engineering, detailed design, purchase specifications, construction bid packages, and contractor coordination for the project.

The scope of work included:

- Design, routing, and specification of 3300 feet of PVC and concrete-lined, ductile-iron piping, as well as the design and specification of underground block valves, fittings, thrust blocks, and restraints.
- Design, location, and specification of 12 hydrants, 9 monitors, and associated above-ground equipment.

- Locating the hydrants and monitors involved staking approximate desired locations and then a walkdown with refinery safety personnel.
- The firewater system was looped and connected to an existing main by crossing Union Pacific rail lines twice. This required the development of an underground boring plan, permits, and installation of two boring pits. This portion of the project included placing several process pipes in the bore casings to transfer product from the refinery to the tank farm.
- Identification of underground obstructions became extremely important during the final phase of design to minimize contractor down time. Merrick's responsive design team was on call at all times during construction to solve unexpected problems with underground obstructions during construction.

