Crews dug this trench for a new 14-inch High Density Polyethylene (HDPE) water line piping that runs from MFC to TREAT.

**Team completes vital MFC Firewater Replacement Tank and Pump House Project**

*By Rick Bolton and Nora Heikkinen for the Project Management Office*

A collaborative team completed a $9 million infrastructure project ahead of schedule and under budget for the Materials & Fuels Complex (MFC) and Transient Reactor Test (TREAT) Facility.

The MFC Firewater Replacement Tank and Pump House Project was finished two weeks ahead of schedule and approximately $200,000 below budget. With completion of the project, MFC and TREAT have a reliable firewater and potable water system for current and future operations.
Firewater tanks and piping systems are essential for fire protection and make an important contribution during firefighting emergencies, especially when firefighting demands more water than the plant water system can adequately supply. Completing the upgrade significantly improves MFC’s and TREAT’s ability to respond to fire emergencies, and the project was completed in time to support TREAT restart.

“The project presented unique challenges that required both construction and modifications,” said Bob Miklos, director of Production Facilities & Infrastructure at MFC. “The outstanding teamwork and collaboration by the project team led to this successful outcome.”

This major project entailed multiple aspects, including demolition and removal of an obsolete fuel oil system and an existing 200,000-gallon firewater storage tank, construction of a new pump house, and installation of a new 400,000-gallon water tank that will supplement an existing 400,000-gallon potable/firewater tank at MFC.

It involved design and installation of pump controls and water treatment system for existing and new potable water pumps and deep wells, and installation of a fire alarm system, a fire suppression sprinkler system in the pump house, and firewater tank insulation system.

The project team also replaced nearly 2 miles of pipe (through basalt) in order to upgrade the firewater system and provide potable water. The existing 400,000-gallon tank was upgraded to more reliably withstand winter conditions. All of these tasks were accomplished while keeping all services active during construction.

The indirectly funded Institutional General Plant Project (IGPP) capital acquisition started in July 2013, and was completed in June 2016. Its purpose was to improve the capacity, redundancy and reliability of the MFC firewater and potable water systems, making them compliant with DOE O 420.1C and applicable state and federal regulations. Conceptual design began in FY 2013. Final design, decommissioning and demolition, and advanced procurements occurred in FY 2014 and FY 2015.
The main construction effort began in June 2015, and the project was closed out in June 2016. The overall effort involved 15,000 man-hours from INL employees, and 26,000 subcontractor man-hours. “Because the project finished so well, it’s easy to forget that actual construction started two months late because we re-bid the contract to improve competition,” said Mike Patterson, MFC manager of projects. “While that put the project manager at a disadvantage for schedule performance, it reduced the contract award significantly. It also allowed selection of an exceptional construction team, which was able to overcome the late start.”

Key INL players included Zane Mickelsen, project manager; Rich Lee, construction field representative; Randy Heyrend, project engineer; Linda Hergesheimer, Planning and Financial Controls specialist; Erik Hallgren, MFC Balance of Plant systems engineer; Brian Jorgensen, MFC Balance of Plant Operations supervisor; Albert Wilcox, subcontract administrator; and Mike Patterson, MFC manager of projects.

Subcontractor selection contributed greatly to project success, and subcontractors North Wind, L&L Mechanical, 3-D Fire Protection, Nash Electrical, Chicago Bridge & Iron, and ATS Inland NW met all and even exceeded some expectations.

Other key INL contributors were Brion Pearson, MFC facility fire protection engineer; Ron Carbiener, quality engineer; Bret Killian, quality inspector; Ken Cathey, quality inspector; Doug Clark, fire protection engineer; Dave Covert, structural engineer; Don Lewis, systems engineer; Blair Cowley, electrical engineer; Troy Kraupp, Rob Hergesheimer and Elisa Smith, design/drafting; Cory Johnson, control engineer; Kevin Steuhm, procedure development; Jim Roeder, industrial safety; Rex Steele, industrial hygiene; and Larry Duncan, systems engineer.
“A number of other organizations and employees cooperated to make this project a success,” Mickelsen said. Miklos agreed: “This project is a model for performing project activities within operating facilities.”

Workers move one part of the new 400,000-gallon water tank into place at MFC.