

Excavation begins on new reservoir link to Bay Area

Matthew Artz, Bay Area News Group, 4-8-11

Work is under way on a 3.5-mile tunnel designed to safeguard the supply of Hetch Hetchy Reservoir water in the event of a major earthquake.

Construction crews starting in Sunol so far have tunneled about 100 feet into rock and earth on what promises to be a slow journey toward Fremont's Mission San Jose district.

By the time the New Irvington Tunnel is completed in 2014, crews will have excavated about 734,000 cubic yards of material -- the equivalent of 61,000 dump-truck trips, said officials with the San Francisco Public Utilities Commission.

The \$227 million tunnel project is part of the utility commission's \$4.6 billion effort to upgrade the Hetch Hetchy water system that serves 2.4 million customers in four Bay Area counties.

The existing Irvington Tunnel plays a crucial role for the water system, connecting several pipelines bringing water from the Sierra to Bay Area communities.

But the 81-year-old tunnel is susceptible to heavy damage from a major earthquake, so a second tunnel was recommended. Once the new tunnel is completed, the existing tunnel will be inspected for needed repairs for the first time in 45 years, commission spokeswoman Francis Zamora said.

Workers are digging the new tunnel with 26-ton machines called roadheaders. The machines have two steel balls with tungsten carbide tips that are shaped like Christmas lights, but are powerful enough to cut through rock.

The machine also has a drill to probe for groundwater and gas deposits -- as well as crablike arms at its base that sweep the displaced rock and earth into a conveyor belt.

As the machine plows forward at a rate of about 22 feet a day, work crews build rail tracks behind it so that the excavated dirt and rock can go from the conveyor belt to rail cars that carry the material out of the tunnel.

One of the biggest challenges so far, workers said, has been groundwater intrusions. At some spots, the water has been pouring into the 13.5-foot-tall horseshoe-shaped tunnel at about 20 gallons per minute, workers said.

Crews must pump out that water and seal holes where the water is intruding.

A second tunneling effort is about to begin near Interstate 680.

Crews there have dug a 115-foot shaft, from which they will begin tunneling their way to Fremont's Mission San Jose district.

The excavation work is scheduled to be completed in 2013, at which time crews will begin inserting the 8.5-foot diameter water pipeline and filling in the tunnel with concrete.