

AKKERMAN MICROTUNNELING EQUIPMENT PROMINENT IN SACRAMENTO

By Laura Anderson



A NEW WATER intake facility on the Sacramento River will supplement ground-water and existing water conservation programs to the Sacramento County and East Bay area of California for many years to come. Mining 30' below the water table requires expertise. Microtunneling, often referred to as remote controlled pipejacking, is the best application for unstable ground conditions. In the spring of 2008, subcontractor Water C. Smith successfully installed 829' of 102" steel casing under I-5 in Sacramento, just east of the intake facility with Akkerman micro-tunneling equipment.

The Freeport Regional Water Intake Facilities job, owned by the Freeport Regional Water Authority, will provide up to 185 mgd of drinking water to an estimated 2.5 million customers. The scope of the project includes several pipeline segments and a water surface treatment plant. The contractor is Balfour/Beatty.

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Akkerman MTBM SL74 into 65' launch shaft near Freeport Regional Water Intake Facility in Sacramento.

Pipelines will provide Sacramento County residents with supplemental groundwater and East Bay residents with water during dry periods. The \$903 million costs were split between the two communities. The construction portion of this project began in December 2006 and will continue through 2011. The Freeport Regional Intake Facility, located on the Sacramento River, will feature a landscaped buffer and art and poetry wall to help with aesthetics for adjacent homes.

Walter C. Smith's work consisted of two drives, the first 487' drive under I-5 and the second 342' drive under Freeport Boulevard. A few years earlier, an attempted drive by a different contractor near the same area as the first drive was conducted via microtunneling, and failed due to the varied, wet ground conditions. Consequently, Walter C. Smith had some justified apprehension when approaching this drive, as well as concerns about the larger sized Microtunneling Boring Machine (MTBM) and drive length in this type of soil.

The launch shaft needed to be 65' deep with the ability to withstand the high water head and an estimated 1,400 tons of jacking force for pipeline advancement. Both the launch and reception shafts were designed with grout concrete in front of the pit seal and applied to the entrance and exit portals to properly hold back the high water head.

Superior MTBM operation was essential to avoid any ground subsidence. Walter C. Smith operators encountered some challenges with the constant monitor and control of water pressures. They found that the MTBM performed best when the microtunneling slurry pressure was adjusted to counterbalance the ground water pressure and in turn, decrease jacking forces.

Walter C. Smith used an Akkerman MTBM SL74 with an increase kit to 102" and control container, Westfallia jacking frame and custom separation plant. Despite their initial uneasiness, operators reported that all components performed well with very little down time.

Construction on the Freeport Regional Water Intake Facilities job will continue through 2011 and commence with the construction of the Vineyard Surface Water Treatment Plant.



Laura Anderson is a marketing specialist for Earth Pressure Balance, Guided Boring Machine, Microtunneling, Tunneling and Pipejacking equipment manufacturer, Akkerman Inc. of Brownsdale, MN. ○

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