

RoscoeMossDISPATCH

Field stories and the tools that fuel them.



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Drilling : Under Unique Conditions



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Wonderful Citrus

The ongoing drought has left many water well owners in precarious positions. Increased pumping due to lack of available surface water has forced the water table to drop in many areas, creating what is known as dewatered formations.

These dewatered formations can cause numerous problems for well drillers who use conventional direct rotary or reverse circulation methods. Specifically, they can cause washout and lost circulation zones that deplete the drilling fluids in the borehole. The sudden change in fluid level in the well introduces the risk of the borehole collapsing during drilling. Oftentimes, wells that are successfully completed can have significantly diminished water production, due to excessive build-up of drilling fluids and lost circulation materials that are introduced to the formation during the drilling process.

► California-based grower, Wonderful Citrus, needed two replacement water wells at a growing operation in Madera, CA. A local hydrogeologist was hired to design the wells and identified the risk of lost circulation due to dewatered formations and declining groundwater levels in the area. Drilling contractor **Boart Longyear** was brought on with their Foremost Dual Rotary DR-40SHD drilling rig to complete the wells. The benefit of dual rotary drilling is that the rig simultaneously advances an outer casing as the internal drill bit is

drilling. This casing advancement method greatly reduces the risk of borehole collapse, which also increases the opportunity of constructing the most productive water well. The wells are constructed in a telescoping format, with varying diameters of boreholes drilled dual rotary to specified depths. The final borehole was drilled via reverse circulation, with the final 14" diameter well casing and screen installed in the well from bottom to surface.

Well #1

CASING	DIAMETER	SETTING DEPTH
Surface Conductor	30"	40'
Borehole #1	28"	230'
Borehole #2	26"	346'
Roscoe Moss Louved Screen	14"	860'

Well #2

CASING	DIAMETER	SETTING DEPTH
Surface Conductor	34"	15'
Intermediate Conductor #1	30"	230'
Borehole #1	26"	380'
Roscoe Moss Louvered Screen	14"	1175'

- ▶ In both wells, 14" x .375" wall **Roscoe Moss Company Ful Flo Louvered Screen and Blank Casing** were successfully installed without any issues of lost circulation or borehole washout. It should also be noted that both wells were drilled and completed in 3 weeks.

This project proved successful for the well owner due to understanding the unique drilling challenges the location presented and consulting with industry professionals for the selection of equipment designed to optimally perform the project. At the end of the day, the wells were completed without incident, and the grower received the water vital for its operation.

