

Hydrology Section — Land, Water and Conservation Division

South Carolina Department of Natural Resources

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DNR

PROJECT: Well Drilling Program

OBJECTIVE: Construct monitoring wells in strategic areas to monitor ground-water levels and assess ground-water availability

Monitoring wells are periodically drilled by DNR to fill data gaps in the Ground Water Monitoring Network. New wells are added to the network if drilling funds are available. Well drilling and construction are contracted out to certified drillers through the State bidding process. Most of these wells are drilled on State-owned properties, such as Wildlife Management Areas, State Parks, and State Forests, to reduce costs associated with purchasing land and to ensure access to the site. Wells are designed by Hydrology Section staff to meet the needs of the monitoring program. Information collected from the drill cuttings collected during the drilling operations and from geophysical logs acquired upon completion of the borehole are used to aid in the delineation and mapping of the aquifers and confining units of the Coastal Plain and are incorporated into the Aquifer Delineation program.

In 2008, DNR drilled five Floridan aquifer wells, two in Hampton County and three in Jasper County. These wells were drilled primarily to monitor ground-water levels but they also provided information regarding the lateral extent of the Middle Floridan aquifer and the vertical hydraulic continuity between the Upper and Middle Floridan aquifers. During this project, an Upper Floridan well and a Middle Floridan well were drilled at Lake Warren State Park in Hampton County; a Middle Floridan well was drilled at Gillisonville in Jasper County (at an existing monitoring site owned by DNR); and Upper Floridan and Middle Floridan wells were drilled at the Blue Heron Nature Center in Jasper County, which is operated by the Jasper County Soil and Water Conservation District.

Also in 2008, two Middendorf aquifer wells were drilled in Sumter County because of the large ground-water withdrawals from this aquifer in that county. One well is located at Manchester State Forest and one at Woods Bay State Park. A Black Creek well and a Middendorf well were also drilled in southern Chesterfield County at the McBee Wildlife Management Area (WMA) to monitor increased pumping in this area and in support of a ground-water flow model that is being developed for the county by the U.S. Geological Survey (USGS). All nine of these wells are now equipped with automatic water-level recorders.



Well drilling at Lake Warren State Park (Hampton County) in 2008



Well drilling at McBee WMA (Chesterfield County) in 2008

In 2012, DNR will be drilling three wells at Lee State Park in Lee County and one well at Wee Tee State Forest in western Williamsburg County. A continuous core to bedrock (554 feet) was previously drilled (1996) at Lee State Park in a collaborative project between the USGS and DNR. Wells at Lee State Park will be drilled from 75 to 250 feet deep and completed in the surficial, Black Creek, and Middendorf aquifers. An aquifer test will be made of the Black Creek aquifer to obtain hydraulic properties of the aquifer. A deep test hole to bedrock (about 1,900 feet) will be drilled at Wee Tee State Forest. Drill cuttings will be collected every 10 feet and geophysical logs will be obtained from the test hole. A well will then be completed in the Black Creek aquifer and an aquifer test will be made to determine the hydraulic characteristics of the aquifer in this area.