

**OBTAINING WATER TO DEVELOP NATURAL GAS WELLS
IN THE MARCELLUS SHALE OF PENNSYLVANIA**

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Natural gas wells in the Marcellus Shale require significant water for stimulation by hydrofracturing. Water use for Marcellus gas wells in Pennsylvania is tightly regulated, and companies developing gas wells in the Marcellus Shale must take the regulatory environment into account when planning their exploration programs.

Obtaining regulatory approvals for water to develop Marcellus Shale gas wells in Pennsylvania is dependent on the river basin in which the gas wells will be located. The principal basins in Pennsylvania are the Ohio River Basin, the Susquehanna River Basin, and the Delaware River Basin. Water from the Ohio River Basin is regulated by the Pennsylvania Department of Environmental Protection (DEP). Water in the Susquehanna and Delaware River Basins is regulated by the Susquehanna River Basin Commission (SRBC) and the Delaware River Basin Commission (DRBC), respectively, as well as the DEP. SRBC or DRBC approval must be obtained prior to the start of Marcellus Shale gas well drilling or construction of water-related structures for Marcellus Shale gas wells. These approvals are required regardless of the water source, which may include municipal water, surface water, or groundwater. Storage of water and disposal of frac-flow back water must also be addressed in the permitting process.

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