



# GeoServices, Ltd.

## It's All About Water™

### Marcellus Shale Services

Natural gas production from the Marcellus Shale is a rapidly expanding and dynamic field with intense water supply needs. GeoServices, Ltd. has decades of experience working with regulators and river basin personnel as well as an extensive water resources and hydrogeologic background. This combination can be applied to develop and permit frac water supplies, assess water quality issues, and, if needed, characterize sources of contamination.

#### ***Frac Water Supply***

Our staff of geologists has the experience and ability to locate and secure water sources needed by the natural gas industry. This experience includes obtaining frac water from surface water, ground water, and public water supplies. For ground water, these services include well siting for new sources, ground water availability analysis and aquifer testing. Services for assessment of surface water sources commonly include safe yield analysis and passby determinations.

#### ***Stray Gas***

GeoServices' program of stray gas evaluation is designed to address regulatory requirements, characterize stray gases, and determine the source. This evaluation is useful in mitigating problems associated with stray gas and providing baseline data for attribution should litigation arise. Elements of our stray gas evaluation services include:

- Identifying geochemical parameters for testing and sampling protocol
- Reviewing historic gas migration incidents
- Identifying geologic features and fractures
- Developing 3-D conceptual models
- Identifying sampling locations to evaluate vertical and horizontal distribution
- Measuring gas concentrations at wells and surrounding features and collecting samples

#### ***Permits***

In addition to assisting with source water development permits, GeoServices provides support to obtain permits required by regulatory agencies and river basin commissions.

**GEOSERVICES'** professional staff looks forward to a detailed discussion of your needs. Please call, e-mail, or contact us through our website, [www.GeoServicesLtd.com](http://www.GeoServicesLtd.com).

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