Rick Snyder, Governor
Dan Wyant, Director

Oil & Gas Pre-Drill Water Well Testing

Michigan Department of Environmental Quality
Office of Oil, Gas, and Minerals

The Michigan Department of Environmental Quality, Office of Oil, Gas, and Minerals (OOGM) implements thorough and effective regulations covering all aspects of oil and gas development, including prevention and monitoring of spills and potential water contamination. However, some homeowners wish to conduct independent testing of their water source prior to oil and gas drilling activities. In response to questions on this issue, the OOGM has developed the following lists of parameters useful to establish a water quality baseline. It is important to note that when testing private well water, conditions that affect water quality may already exist and warrant the attention of homeowners. These conditions might occur irrespective of any nearby oil and gas development.

Nationally, several tiered approaches to pre-drill water quality sampling exist. The following are two tiered options, the tier that a homeowner selects may depend on their budget and the level of background data the homeowner desires.

Tier 1 - General Oil and Gas Pre-Drill Screening

The following parameters are a basic suite of analyses that provides a background for water quality as it relates to oil and gas activity:

- Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)
- Total Dissolved Solids (TDS)
- Chloride
- Methane

Tier 2 – More Comprehensive Pre-Drill Screening

Although potentially expensive, a more comprehensive water quality analysis can be obtained by testing for the following parameters:

- Alkalinity
- Oil & Grease
- pH
- Specific Conductance
- Total Dissolved Solids (TDS)
- Total Suspended Solids (TSS)
- Chloride
- Sulfate
- Total Hardness
- Surfactants (MBAS/foaming agents)
- Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)
- Dissolved Methane
- Dissolved Ethane
- Dissolved Propane
- Nitrate as N
- Total Chromium
- Total Arsenic
- Total Barium
- Total Lead
- Total Selenium
- Total Strontium
- Total Calcium
- Total Iron
- Total Magnesium
- Total Manganese
- Total Potassium
- Total Sodium
- E. Coli
- Total Coliform
- Turbidity

It should be noted that water well sampling provides water quality data for a single point in time. Water quality results can vary considerably because of many factors, including: seasonally fluctuating static water levels, water well construction, use of the water supply, sampling technique, weather and atmospheric conditions. **It is recommended** that homeowners who wish to perform pre-drill sampling work with a professional environmental consultant and certified laboratory in order to: understand these natural variations in water quality; choose an appropriate sample suite of parameters; and to ensure the quality of the data obtained from pre-drill sampling and analysis.

Finding a Laboratory

Local health departments are the main regulatory agency with respect to residential wells. They are required to maintain a list of environmental contaminants within their jurisdiction. Follow this link for contact information of local county health departments: **http://www.michigan.gov/mdch/0,1607,7-132--96747--,00.html**

The Laboratory Certification Program operates under the authorization of the Michigan Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), and the United States Environmental Protection Agency (USEPA) to certify laboratories for the analysis of drinking water. All laboratories testing Michigan drinking water samples for regulatory and compliance monitoring must be certified by this program. The Laboratory Certification Program certifies laboratories to ensure that proper methods and quality control are used in the testing of drinking water samples. The link below will direct users to lists of certified laboratories: **http://michigan.gov/deq/0,4561,7-135-3307_4131_4155---,00.html**

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Rev. Sept. 2012 EQP 6553