**Section 245.600 Water Quality Monitoring**

Water quality monitoring shall be conducted pursuant to the requirements of this Section and in accordance with the water quality monitoring work plan submitted pursuant to Section 245.210(a)(20). Unless specified otherwise, all distances are measured horizontally from the closest edge of the well site.

a) Water Quality Monitoring Work Plan

*Each applicant for a high volume horizontal hydraulic fracturing permit shall provide the Department with a* water quality monitoring *work plan to ensure accurate and complete sampling and testing as required under this Section.* A water quality monitoring *work plan shall include, at a minimum, the following* (Section 1-80(a) of the Act):

1) *information identifying all water sources within the range of testing under this Section* (Section 1-80(a)(1) of the Act);

2) *a sampling plan and protocol* consistent with the requirements of subsections (b), (c) and (d), *including notification to the Department at least 7 calendar days prior to sample collection* (Section 1-80(a)(2) of the Act);

3) *the name and contact information of an independent third party under the supervision of a professional engineer or professional geologist that shall be designated to conduct sampling to establish a baseline as provided for under subsection (b)* (Section 1-80(a)(3) of the Act);

4) *the name and contact information of an independent third party under the supervision of a professional engineer or professional geologist that shall be designated to conduct sampling to establish compliance with monitoring as provided within subsection* *(c)* (Section 1-80(a)(4) of the Act);

5) *the name and contact information of an independent testing laboratory* accredited or certified by the Agency *to perform the required laboratory method* and *to conduct the analysis required under subsections (b) and* (c) (Section 1-80(a)(5) of the Act). When no laboratory has been accredited or certified by the Agency to analyze a particular substance requested in subsection (d), results will be considered only if they have been analyzed by a laboratory accredited or certified by another State agency or an agency of the federal government, if the standards used for the accreditation or certification of that laboratory are substantially equivalent to the accreditation standard under Section 4(o) of the Illinois Environmental Protection Act [415 ILCS 5];

6) proof that the applicant provided each landowner referenced in subsections (a)(7) through (a)(10) with a notice of water sampling rights under the Act pursuant to a form prescribed by the Department and prior to the landowner’s execution of any document regarding water sampling.

7) *proof of access and the right to test within the area for testing prescribed within subsections* *(b)* and (c) (Section 1-80(a)(6) of the Act);

8) *copies of any non-disclosure agreements made* with landowners, if applicable (Section 1-80(a)(6) of the Act). *Landowners of private property may condition access or permission for sampling of private water wells or ponds wholly within* their *property or a portion of any perennial stream or river that flows through* their *property under a non-disclosure agreement* thatincludes *the following terms and conditions* (Section 1-80(d) of the Act):

A) *the permittee shall provide the results of the water quality testing to the* private *property* landowners (Section 1-80(d)(1) of the Act);

B) *the permittee shall retain the results of* all *water quality testing* conducted pursuant subsections (b) and (c) *until at least 1 year after completion of all* water quality *monitoring for review by the Department upon request* (Section 1-80(d)(2) of the Act);

C) *the permittee shall not file with the Department the results of the water quality testing, except that under subsection* (a)(7)(D) (Section 1-80(d)(3) of the Act)*; and*

D) *the permittee shall notify* and provide to *the Department* and the Agency *within 7 calendar days of its receipt of the water quality data any testing under subsection (c)* indicating *concentrations* that *exceed the standards or criteria referenced in the definition of "pollution or diminution" under Section* 245.110 (Section 1-80(d)(4) of the Act);

9) documentation that *the landowner of the private property declines, expressly and in writing, to provide access or permission for sampling,* if applicable. Under these conditions, s*ampling of* private *water wells or ponds wholly contained within private property shall not be required* (Section 1-80(d) of the Act);

10) *evidence as to the good faith efforts* (for example, logs of oral communications and copies of written communication) *that were made to secure documentation* that *the* landowner *of the private property declines to provide proof of his or her refusal to allow access* for the purposes of conducting sampling *in writing*, if applicable. *Permits issued under* this Part *cannot be denied if the* landowner *of the private property declines to provide proof of his or her refusal to allow access in writing and the permittee provides evidence that good faith efforts were made to gain access for the purposes of conducting* sampling (Section 1-80(d) of the Act); and

11) *identification of practicable contingency measures, including provision for alternative drinking water supplies, which could be implemented in the event of pollution or diminution of a water source as provided for in Section* 245.610 (Section 1-80(a)(7) of the Act).

b) Baseline Testing

Before *conducting high volume horizontal hydraulic fracturing operations on a well, a permittee shall retain an independent third party, as* identified pursuant to *subsection (a)(3)*. The permittee, through its independent third party, shall, after giving the Department 7 calendar days' notice, *conduct baseline water quality sampling of all water sources within 1,500 feet of the well site* (Section 1-80(b) of the Act) pursuant to the laboratory analysis procedures of subsection (d) and as follows:

1) If an aquifer to be sampled is inaccessible through *groundwater wells within 1,500 feet of* the *well site*, *the permittee shall conduct* groundwater well *sampling of* that aquifer at the next *closest groundwater well* that *the permittee has permission* to *access*.

2) *Installation of a groundwater monitoring well is not required to satisfy the sampling requirements of this Section.*

3) Baseline testing results shall be submitted to the Department no later than 3 calendar days before commencing HVHHF operations, unless there are non-disclosure agreements with the applicable private property landowners. In the case of non-disclosure agreements, the permittee shall provide a certification to the Department that the baseline testing results have been provided to the applicable private property landowners no later than 3 calendar days before commencing HVHHF operations.

4) *The Department shall post the results* of the baseline sampling and analysis conducted under this subsection (b) *on its website within 7 calendar days after receipt.* *The* posted *results shall, at a minimum, include* the following:

A) the well name, well site location and permit number;

B) the sampling site GPS latitude and longitude location, and ground elevation of the well. The GPS location shall be recorded as degrees and decimal degrees recorded to 6 decimal places in the North American Datum 1983 projection and shall be accurate to within 3 feet. The reported GPS location is required to be an actual GPS field measurement and not a calculated or conversion measurement;

C) *a detailed description of the sampling and testing conducted under this subsection* (b), including the results of the sampling and testing;

D) *the chain of custody of the samples*;

E) *quality control of the testing.* (Section 1-80(b) of the Act)

c) Follow-up Monitoring

*After baseline tests are conducted under subsection (b) and following* the completion of HVHHF operations, *the permittee*, through its independent third party, *shall* perform the following:

1) *Notify the Department* *at least 7 calendar days prior to taking the samples*; and

2) Sample and test *all water sources* that were *subjected to sampling under subsection (b) in the same manner* following the procedures under subsection (d) *6 months, 18 months, and 30 months after the high volume horizontal hydraulic fracturing operations have been completed*, unless *the water source was sampled under this subsection* (c) *or subsection (b)* *within the previous month.* (Section 1-80(c) of the Act)

d) Laboratory Analysis Procedures

1) *Sampling shall, at a minimum, be consistent with the* water quality monitoring *work plan* as approved by the Department *and allow for a determination of whether any hydraulic fracturing additive or other* oil or gas well *contaminant has caused pollution or diminution* (Section 1-80(e) of the Act). For each water source required to be sampled and tested under subsections (b) and (c):

A) *a minimum of 3* separate *samples*, or as many as required by the work plan and any conditions placed on the permit, *shall be collected by the independent third party, under the supervision of a* licensed *professional engineer or professional geologist* (Section 1-80(b) of the Act) consistent with the approved water quality monitoring work plan; and

B) each sample collected *shall be* submitted to and *analyzed by an* Agency-accredited or -certified *independent testing laboratory* (Section 1-80(b) of the Act) for the following:

i) *pH* (Section 1-80(e)(1) of the Act);

ii) *total dissolved solids, dissolved methane, dissolved propane, dissolved ethane, alkalinity, and specific conductance* (Section 1-80(e)(2) of the Act);

iii) *chloride, sulfate, arsenic, barium, calcium, chromium, iron, magnesium, selenium, cadmium, lead, manganese, mercury, and silver* (Section 1-80(e)(3) of the Act);

iv) *BTEX* (Section 1-80(e)(4) of the Act);

v) *gross alpha and beta particles to determine the presence of any naturally occurring radioactive materials* (Section 1-80(e)(5) of the Act);

2) The independent third party's laboratory request submitted to the Agency- accredited or -certified independent testing laboratory shall include:

A) the applicant's name, well name, well location and permit number;

B) a detailed description of the sampling methods used to collect the samples, the date and time of the sampling collections, the location where each sample was collected and by whom, and the specific testing requested;

C) the chain of custody for the samples up to the point when the samples are relinquished to the laboratory; and

D) a specific request to the laboratory that the laboratory's report also include:

i) the name and address of the laboratory;

ii) the sampling method and testing requested in subsection (d);

iii) the analyses being performed;

iv) the test methods used to perform the analyses;

v) the date and time of the analyses;

vi) the identification of any test results performed by a subcontracted laboratory;

vii) the name of any subcontracted laboratory used and the applicable accreditation that the subcontracted laboratory holds and maintains for the analyses performed;

viii) the complete chain of custody through all the analyses in the laboratory and any subcontracted laboratory used;

ix) the test results with the units of measurements used, when appropriate;

x) an interpretation of the test results, including the definitions for any data qualifiers applied to the test results;

xi) the name, title and signature of the person authorizing the test results; and

xii) a summary of the laboratory's quality control results for the analyses performed;

3) *The permittee shall, within 7 calendar days after receipt of results of* baseline or follow-up monitoring *tests conducted under this Section, submit* the independent third party's lab request under subsection (d)(2) and *the results to the Department* for a water source not subject to a non-disclosure agreement *or*, except as provided by subsection (d)(5), only *to the* landowner *of the water source pursuant to a non-disclosure agreement under subsection* (a)(7) (Section 1-80(b) and (c) of the Act);

4) For a water source subject to a non-disclosure agreement, if the independent third party follow-up monitoring test results indicate that concentrations exceed the standards or criteria referenced in the definition of "pollution or diminution" in Section 245.110, the permittee shall submit the independent third party lab requests and the results of those tests to the Department and the Agency within 7 calendar days after its receipt of the follow-up monitoring test results. The permittee must identify which specific standards or criteria are exceeded.

e) Upon receipt of the independent third party's lab requests and the results of the laboratory analyses for follow-up monitoring under subsection (c), the Department shall, in consultation with the Agency as the Department deems appropriate, determine *whether any hydraulic fracturing additive or other* oil or gas well *contaminant has caused pollution or diminution for purposes of Sections* 245.610 and 245.620 (Section 1-80(e) of the Act).

f) If the Department makes a determination of pollution or diminution under subsection (e), the procedures set forth in Section 245.615 shall be followed.