

Summary Comparison of Baseline Water Sampling

State	Presumptive Law	Sampling Radius	Rebuttal of Presumption	Sampling Criteria	Referenced Law
North Carolina	Yes	5,000 feet from wellhead	<ol style="list-style-type: none"> 1. Contamination existed prior to commencement of drilling activities evidenced by a pre-drilling test of water supply. 2. Owner of water supply refused operator access to conduct pre-drilling test. 3. Water supply in question is not within 5,000 feet of wellhead. 4. Contamination occurred as the result of a cause other than activities of the operator. 	No information listed.	G.S. 113-421. Presumptive liability for water contamination.
Ohio Department of Natural Resources, Division of Oil & Gas		1,500 feet from wellhead to include both urban and rural areas.		The sampling shall be conducted in accordance with the guidelines established in "Best Management Practices For Pre-drilling Water Sampling."	Senate Bill 315 and 1509.06 Application for permit to drill, reopen, convert, or plug back a well.
Pennsylvania Department of Environmental Protection, Office of Oil & Gas Management	Yes	1,000 feet from wellhead for conventional well with pollution occurring 6 months after completion of drilling. 2,500 feet from wellhead for unconventional well with pollution occurring	<ol style="list-style-type: none"> 1. Pollution existed prior to drilling, stimulation, or alteration determined by pre-activity survey. 2. Landowner refused to allow operator to conduct pre-drilling survey. 3. Pollution occurred as 	Survey must be conducted by an independent certified laboratory. Sample collection must be completed by someone independent of the operator or laboratory. Air Monitoring	Oil & Gas Act 13, Title 58, 3218 Protection of water supplies.

Summary Comparison of Baseline Water Sampling

State	Presumptive Law	Sampling Radius	Rebuttal of Presumption	Sampling Criteria	Referenced Law
		<p>12 months of the later of completion, drilling, stimulation, or alteration of well.</p>	<p>the result of a cause other than drilling. 4. Water supply is not within 2,500 feet of the wellhead. 5. Pollution occurred more than 12 months after completion of drilling or alteration.</p>	<p>Owners or operators of facilities conducting natural gas operations in unconventional formations shall submit to DEP a source report identifying and quantifying actual air contaminant emissions (3227(a))</p> <p>Source reports must be submitted to DEP annually by March 1 for air contaminant emissions during the preceding calendar year (unless otherwise directed by the federal Clean Air Act or other regulation adopted under Act 13) (3227(b))</p>	
<p>Colorado – surface water</p> <p>Colorado Oil & Gas Conservation Commission (COGCC)</p>		<p>Drilling, Completion, Production, & Storage (DCPS) operations within surface water supply areas must meet buffer zone requirements. Internal Buffer zone is 0 feet to 300 feet. Intermediate Buffer zone is 301 feet to 500 feet. External Buffer zones include 501 feet to 2,640 feet. DCPS operations may</p>		<p>Current applicable EPA-approved analytical methods for drinking water must be used and analyses must be performed by laboratories that maintain state or nationally accredited programs.</p> <p>Copies of all test results described above shall be provided to the</p>	<p>Rule 317B Public Water System Protection</p>

Summary Comparison of Baseline Water Sampling

State	Presumptive Law	Sampling Radius	Rebuttal of Presumption	Sampling Criteria	Referenced Law
		<p>not be conducted in Internal Buffer zones without a variance. DCPS operations in the Intermediate and External Buffer zones require a pre-drill sample collected immediately down gradient of the wellhead and a follow up sample collected 3 months after activities are complete.</p>		<p>Commission and the potentially impacted Public Water System(s) within three (3) months of collecting the samples. In addition, the analytical results and surveyed sample locations shall be submitted to the Commission in an electronic data deliverable format.</p>	
<p>Colorado – groundwater</p> <p>Colorado Oil & Gas Conservation Commission (COGCC) and Colorado Oil & Gas Association (COGA) Voluntary Baseline Groundwater Quality Sampling Program</p>		<p>Water samples will be collected from the 2 closest features located within 0.5 miles of the wellhead. A second sample will be collected from each feature within 1 year of well completion.</p>		<p>All samples will be collected by qualified individuals experienced with water quality sampling and sent to an accredited laboratory for analysis. Laboratory results will be provided to each landowner within three months of collecting the sample(s). With landowner consent, the laboratory results will also be submitted to the Colorado Oil and Gas Conservation Commission (COGCC) for inclusion in their electronic database.</p>	
<p>Colorado – groundwater</p>		<p>One half (1/2) mile from well to include all</p>		<p>Initial sample collected within 12 months prior</p>	<p>Rule 609 Statewide Groundwater Baseline</p>

Summary Comparison of Baseline Water Sampling

State	Presumptive Law	Sampling Radius	Rebuttal of Presumption	Sampling Criteria	Referenced Law
		available water sources up to a maximum of four. If more than 4 sources are present the operator shall select the 4 to sample locations based on (1) proximity, (2) type of water source, (3) Orientation of sampling locations, (4) Multiple aquifers available, and (5) condition of water source.		to setting conductor pipe. One subsequent sample shall be collected between 6 and 12 months and a second subsequent sample collected between 60 and 72 months following completion of the well.	Sampling and Monitoring. Effective May 1, 2013
North Dakota North Dakota Industrial Commission, Department of Mineral Resources, Oil & Gas Division		One mile (1.61 kilometers) of an oil or gas well site.	Certified water quality and quantity test within one year preceding drilling operations.	Certified water quality and quantity test performed within one year preceding the commencement of drilling operations. Property owner is entitled to recover the cost of making such repairs, alterations, or construction ensuring the delivery to the surface owner of that quality and quantity of water available to the surface owner prior to the commencement of drilling operations.	Chapter 38-11.1 Oil & Gas Production Damage Compensation 38-11.1-06 Protection of Surface and Groundwater – Other responsibilities of Mineral Developer
Arkansas	No rule in place for baseline sampling				15 February 2013 spoke to Alan York, Assistant General Counsel; water sampling is performed

Summary Comparison of Baseline Water Sampling

State	Presumptive Law	Sampling Radius	Rebuttal of Presumption	Sampling Criteria	Referenced Law
					only if complaint is received by landowner.
<p>West Virginia</p> <p>Department of Environmental Protection</p>	Yes	1500 feet from the center of the horizontal well pad.	<p>In order to rebut the presumption of liability, the operator must prove by a preponderance of the evidence one of the following defenses:</p> <p>(1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity.</p>	<p>Any operator electing to preserve its defenses shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary.</p> <p><u>Air Monitoring</u></p> <p>The secretary shall, by July 1, 2013, report to the Legislature on the need, if any, for further regulation of air pollution occurring from well sites, including the possible health impacts, the need for air quality inspections during drilling, the need for inspections of compressors, pits and impoundments, and any</p>	<p>§22-6A-18. Civil action for contamination or deprivation of fresh water source or supply; presumption; water rights and replacement; waiver of replacement.</p> <p>§22-6A-22. Air quality study and rulemaking.</p>

Summary Comparison of Baseline Water Sampling

State	Presumptive Law	Sampling Radius	Rebuttal of Presumption	Sampling Criteria	Referenced Law
				<p>other potential air quality impacts that could be generated from this type of drilling activity that could harm human health or the environment. If he or she finds that specialized permit conditions are necessary, the secretary shall promulgate legislative rules establishing these new requirements.</p>	
API				<p>Once the location for a well has been selected and before it is drilled, water samples from any source of water located nearby should be obtained and tested in accordance with applicable regulatory requirements. This would include rivers, creeks, lakes, ponds, and water wells. If testing was not done prior to drilling, it should be done prior to hydraulically fracturing a well. The area of sampling should be</p>	<p>Hydraulic Fracturing Operations – Well Construction and Integrity Guidelines, API Guidance Document HF1 First Edition, October 2009 – Chapter 10 Data Collection, Analysis, and Monitoring, 10.2 Baseline Assessment</p>

Summary Comparison of Baseline Water Sampling

State	Presumptive Law	Sampling Radius	Rebuttal of Presumption	Sampling Criteria	Referenced Law
				based on the anticipated fracture length plus a safety factor.	
National Ground Water Association & Ground Water Protection Council				Step 1: Have a qualified water well system professional test groundwater quality. Step 2: Analyze water sample for constituents outlined in NGWA list to establish baseline water quality. Step 3: Retest water quality against baseline results within 6 months of well completion. Subsequent screening: An increase in concentration or occurrence of pH, specific conductance or TDS, and dissolved methane could indicate more sophisticated water quality testing is required.	

Environmental Standards Committee – “bucket” number 6

1. Collection of baseline data to include groundwater, surface water, and air quality.
2. Establish standards to satisfy the pre-drilling testing requirements established under G.S. 113-421(a)
3. List of contaminants an operator must include in testing.
4. Necessary qualifications for persons conducting pre-drilling collection and testing.