

- 4) The primary source of energy trapped in Marcellus Shale deposits is:
- A. Coal
 - B. Natural Gas
 - C. Limestone
 - D. Oil
 - E. Multiple Fossil Fuels
- 5) Which of the following is true when comparing sources of energy? When natural gas is burned instead of oil or coal:
- A. Lower concentrations of the chemicals contributing to greenhouse gases and acid rain (CO₂ and SO₂) are emitted.
 - B. Air quality may improve.
 - C. Natural gas can be less expensive source of energy for heating homes and businesses.
 - D. All of the above.
 - E. None of the above.
- 6) On average, how much water is used for the hydraulic fracturing of a single Marcellus Shale well?
- A. 10,000 to 100,000 gallons
 - B. 500,000 to 1 million gallons
 - C. 4 to 7 million gallons
 - D. 25 million gallons
- 7) Who regulates water withdrawals for hydraulic fracturing in Pennsylvania?
- A. Pennsylvania Department of Conservation and Natural Resources
 - B. Susquehanna River Basin Commission
 - C. Pennsylvania Department of Environmental Protection
 - D. Natural Gas Companies
- 8) What is currently considered the most practical disposal option for flowback water (frac water) from hydraulic fracturing?
- A. Reuse at another drilling site
 - B. Purifying and returning the water to the stream or river it was drawn from
 - C. De-icing roads in the winter
 - D. Injection wells
 - E. Reverse osmosis
- 9) Discuss how drilling-related activities could potentially reduce biodiversity downstream from drilling sites.

10) How could you monitor changes in aquatic biodiversity and water quality downstream from an active drilling site?

The next series of questions asks you to rate the following statements on a scale of 1 to 5, with 1 representing "I Strongly Disagree" and 5 representing "I Strongly Agree". For each statement, please circle the number that best corresponds to how you feel:

Statement	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
11) Drilling for Marcellus Shale natural gas greatly harms our drinking water and the environment.	1	2	3	4	5
12) Development of Marcellus Shale natural gas reserves creates important jobs for the shale region.	1	2	3	4	5
13) The US needs to invest more money in renewable sources of energy.	1	2	3	4	5
14) If properly regulated, natural gas development is safe for the environment and people.	1	2	3	4	5
15) Pennsylvania would be better off without natural gas development.	1	2	3	4	5

Read the following five statements. Which are written in a neutral or factual way and which express the writer's opinion or bias? Circle the answer that best represents how the statement is written.

16) In a case that echoed the BP oil spill, a well blew out on June 3 rd . Natural gas and frack fluid spewed from the gas well for 16 hours onto hunting club land inside the Moshannon State Forest.	Biased Fact-based
17) Pennsylvania has proposed new standards for treatment and discharge limits associated with the disposal of waste water that can contain high concentrations of total dissolved solids (TDS) and salts.	Biased Fact-based
18) As the number of wells increases in Lycoming County from a few hundred to an estimated 10,000, it defies reason to think that these spectacular creeks will not be contaminated.	Biased Fact-based
19) The invention of horizontal drilling allows drillers to reach large volumes of gas from one well.	Biased Fact-based
20) If shale development continues to grow, water usage for well fracking could reach 650 million barrels per year in the Marcellus region of Pennsylvania, New York and West Virginia.	Biased Fact-based