

# FRACKING FACTS AND FEARS

47

stayed buried in the shale. The flowback wastewater must be treated and stored underground, but it can never be released safely back into nature. There are fears that contaminated waste water can find its way into drinking water supplies. 3) You have to destroy natural habitats aboveground to install fracking drill rigs and infrastructure. 4) Fracking is being linked to causing earth tremors and small earth quakes in areas of the world which are traditionally seismically stable. 5) Fracking allows more fossil fuels to be obtained and burned leading to more greenhouse gas emissions which promote climate change. 6) The emphasis on this type of fossil fuel takes the focus away from trying to find renewable solutions for our energy needs.

(8) With all of these serious concerns, some countries like Germany, France, Scotland and Bulgaria, have banned fracking and many others have halted the practice until further safety studies can be done. Still, some nations are moving forward with and intensifying their use of fracking. In the United States, fracking has been aggressively pursued. The American government wants a secure domestic source of oil and gas so that it doesn't have to depend on foreign supplies, and also so that it doesn't have to use coal which is much more polluting than oil or gas. However, some states like Vermont, New York and Maryland view the risks as too great and have banned fracking, while other states are beginning to rethink their adoption of this technique.

## Article Questions

- 1) What is the difference in the fossil fuels extracted from conventional drilling and the fossil fuels extracted using fracking?  
 The fuels extracted from conventional drilling are found in large freely flowing pools whereas the fuels extracted from fracking are found bound within the small gaps and pores within sedimentary rock called shale. (2)
- 2) List the three main components in slickwater.  
 1) water, 2) proppant, 3) fracking chemicals (5)
- 3) If slickwater is used for fracking, but the proppant is mistakenly left out of the slickwater, how would this effect the fracking process?  
 Without the proppants, the cracks in the shale made by the pressurized fluid would eventually collapse. This would re-trap the shale oil and shale gas in the rock and prevent it from being extracted. (5)
- 4) Flowback wastewater is disposed of in a process called deep-well injection, which pumps large quantities of wastewater down into porous sandstone and limestone rock formations underground. What potential problems could result from this?  
 1) The waste water can leak into drinking water supplies and contaminate them.  
 2) The deep-well injections themselves could cause tremors and Earthquakes.  
 (Both of these have already been documented in the United States and elsewhere.)
- 5) What two things makes the flowback wastewater too contaminated to return to the natural environment?  
 1) The fracking chemicals, 2) The produced water which contains heavy metals and radioactive elements. (7)
- 6) Which one of the risks involved in fracking concerns you the most and why?  
 Various answers. (7)
- 7) What can the United States do to decrease fracking, yet meet its energy needs in the future?  
 1) Refocus its attention, funding and research and development away from fracking and towards renewable energy. 2) Focus on energy reduction and conservation. © Tangstar Science