1. Explain hydraulic fracturing or fracking. How is it different from traditional drilling? Who are the proponents and opponents?

*Fracking is horizontal drilling; traditional is vertical drilling*

**PRO:** Military (DOD & DOE) in order to make USA energy independent, oil & gas companies and employees of those companies, some politicians, property owners.

**CON:** some environmentalists, some property owners, health professionals

2. Discuss the pros and cons of the process.

**PRO:** Access to previously inaccessible natural gas; new supply of natural gas that augments oil supplies which helps make USA more energy independent; economically feasible

**CON:** Non-renewable energy source; environmental damage to air and water from runoff; more methane gas (which is hazardous to air and climate) is released with fracking; earthquakes; chemicals used in process could be hazardous and are currently unidentified; lack of regulation; lack of knowledge of long-term consequences; transportation issues; competition with farmers, residents and other industries for water.

3. Describe the benefits and/or risks of fracking in the George Washington National Forest. Should the ban on fracking in national forests be continued?

**Benefit:** does not affect urban areas; creates jobs

**Risks:** rising water prices, chemicals (known and unknown) entering water supply from runoff, disruption of forest; potential contamination of water for “downstream” population of 4.5 Million people.

Yes, ban should be continued.

4. What legislation/regulations (local/state/federal) would you like to see implemented to make fracking environmentally viable?

- Eliminate exceptions in Clean Air and Water Acts
- Complete transparency of chemicals and matter used in process
- Minimum national standards which state and localities must meet
- Consolidate regulating agencies under one department (i.e., Bureau of Land Management, Dept. of Interior, National Parks, etc.)
5. Discuss the future outlook for hydraulic fracturing and the development/implementation of other energy sources.

*Fracking is here to stay, so we recommend implementing measures of regulation through local, state and federal legislation which would: protect the environment; establish procedures for clean-up of accidents and runoff; and require costs for mitigating damage to the environment be covered by energy companies using fracking.*

*Consider natural gas obtained through fracturing as an *interim solution* for energy independence until new sources of energy are found.*

**Other Notes/questions from the unit related to the topic:**

1. Quoted material in article should have had an introduction line for the reader, such as: According to xxx study [or author] published in xxxx, the use of fracking.....
2. Can hydraulic fracturing be done in the ocean?
3. Is there a new method of fracturing, using a gel?
4. Is there anything like a contained pool or container at the surface that captures the runoff or hazardous waste produced by fracturing?
5. Can the water and chemicals used in fracturing be re-used?
6. Is fracturing considered an “interim measure” for energy or is it a long-time energy source.