Data Explorations in Ecology Project



Name _

Date _____

Hydrofracking and Forests

Read "Fracking Fury" by Janna Palliser. Based on this reading, answer the following questions:

 What is hydrofracking?

Hydrofracking is a mechanical process that allows us to get natural gas from shale rock that is deep underground. Large cracks, or fractures, are created by pumping lots of fluid (water cand chemicals) down into a well and into the rock. When the rock begins to fracture, natural gas that was inside the rock moves up and is captured by the drilling process.

b. Where is the closest shale gas available to you?

Answers will vary.

- Benefits of HydrofrackingDrawbacks of HydrofrackingProvides a source of energy natural gasUses a lot of waterProvides jobsCan pollute groundwaterNatural gas is a cleaner fuel than coal or oilCreates a lot of polluted waste waterLess reliance on foreign sources of gasCan cause earthquakesMay affect human health from water or air
pollution associated with the drilling
- c. Complete the chart below, based on the reading.

d. Based on what you have read, do you think hydrofracking should be allowed to continue? Explain your answer, using evidence from the article.

Answers will vary.

2. Use the graph below to answer the following questions. This study, conducted by scientists at Duke University, examined methane concentrations in drinking water wells located at various distances from Marcellus gas wells in Pennsylvania.





Figure 3 from Osborn, S.G., A. Vengosh, N.L. Warner & R. Jackson. 2011. Methane contamination of drinking water accompanying well-drilling and hydraulic fracturing. Proceedings of the National Academy of Sciences 108: 8172-8176.

a. What is the difference in methane concentration between active and non-active extraction areas?

The methane concentration in wells near active drilling sites varies a lot more than the concentration in wells near non-active sites. More of the values are higher near the active sites.

- b. What is the range in methane concentration for sampling sites that were in active extraction areas within 1000m from a gas well?
 The range is from 0 to 65 mg CH4/L.
- c. What do you think could be the cause of the variability in methane concentration in active extraction areas?

The methane concentration could vary because of the way in which the well was drilled, the underlying geology, how close the groundwater is to the well, etc.