**ES486 Video Review Exercise Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Earth Revealed Living with Earth: Energy Resources**

Watch the video at the following URL: <https://www.learner.org/series/earth-revealed/26-living-with-earth-part-ii/>

Answer the review questions below. Use internet search resources as needed to augment your answers. Provide sketches or image-capture diagrams where required.

1. Philosophical Question: what is the ultimate power of the human species in altering planet Earth?
2. True or False: petroleum fossil fuels are renewable energy resources compared to human life spans
3. What type of rock forming environments are associated with petroleum hydrocarbon accumulation.
4. What is the geologic time frame typically associated with the formation of oil and natural gas?
5. Describe the concept of a “vibroseis” and what is it used for.
6. What is the name of electronic receivers used in detection of seismic waves at the Earth’s surface.
7. What is the name of the diagram that is output from seismic exploration studies.
8. What types of geologic features in the subsurface are delineated and identified using reflection seismology survey techniques?
9. How many barrels of oil are associated with Bakersfield, CA oil field in the video? What are the dimensions of the oil field in real-world distances?
10. True or False: oil occurs in open pools beneath the Earth’s surface.
11. How much of the original oil remains in the subsurface following initial removal via wells
12. Describe the process of horizontal drilling, perforation and “fracking”. Why is it utilized in petroleum extraction? Draw sketch or provide image capture illustrating your answer.
13. What is the advantage of horizontal drilling techniques, as opposed to vertical wells.
14. What is “remote sensing”, provide some examples and how it used in petroleum exploration.
15. What is the advantage of remote sensing compared to traditional geologic mapping at local scales?
16. What type of electromagnetic radiation is used in remote sensing analysis of the Earth’s surface, provide some specific examples as presented in the video.
17. How are remote sensing “bands” defined? What are the criteria used for describing “bands” in the context of the electromagnetic spectrum?
18. What are the names / lists of scientists who use remote sensing techniques to analyze the Earth from space?
19. What is the process of “mosaic”ing in remote sensing. Describe what it is used for and why the technique is beneficial compared to small-area aerial photography
20. List the three advance techniques demonstrated in the video that are used in regards to petroleum exploration.
21. What is the best estimate of world oil reserves at the time of this video recording, and how much supply was left at the time?
22. List and discuss the importance of three alternative renewable energy sources that could be developed as alternatives to traditional hydrocarbon (oil and gas) fossil fuel energy.