

# Oil Fired Power Plant Virtual Field Trip

(Your tour through operation and environmental impact of power generation)

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# Oil Fired Power Plant Virtual Field Trip Lecture

## Notes

**\*\*Lecture notes do not necessarily always go in order of the slides\*\***

Ⓢ Oil Fired. Petroleum Power Plants Account for about \_\_\_\_\_ % of US Energy Generation.

Ⓢ About how many Billion Kilowatt Hours are generated annually in Oil Fired Power Plants? \_\_\_\_\_ BKwh

Ⓢ Oil is mostly used for \_\_\_\_\_ and \_\_\_\_\_.

Ⓢ What is a non-renewable resource?

\_\_\_\_\_  
\_\_\_\_\_

Ⓢ Where is oil found? \_\_\_\_\_

Ⓢ Explain how sound waves are used to locate oil reserves -

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Ⓢ What similarities and differences are there between finding oil on land versus off-shore?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Ⓢ Is there always a guarantee that oil will be found after seismic testing shows a positive result? \_\_\_\_\_ Yes \_\_\_\_\_ NO Explain why.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Ⓢ Define the terms:

1. Hoist attachment - \_\_\_\_\_

2. Derrick (mast) - \_\_\_\_\_
3. Traveling block - \_\_\_\_\_
4. Hook - \_\_\_\_\_
5. Injection head - \_\_\_\_\_
6. Mud injection column - \_\_\_\_\_
7. Turntable driving the drilling pipes - \_\_\_\_\_
8. Winches - \_\_\_\_\_
9. Motors - \_\_\_\_\_
10. Mud pump - \_\_\_\_\_
11. Mud pit - \_\_\_\_\_

④ What is well logging?

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④ List some hazards of off-shore drilling-

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④ Name and describe some advantages of off-shore drilling-

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④ Explain the operation for each of the following drilling rigs:

1. Semi-submersible -

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2. Drill ship -

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3. Jack-up -

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④ Crude is refined into what products?

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④ By what means is crude oil transported?

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Ⓢ Complete the following diagram, and explain how each component is used to produce energy-

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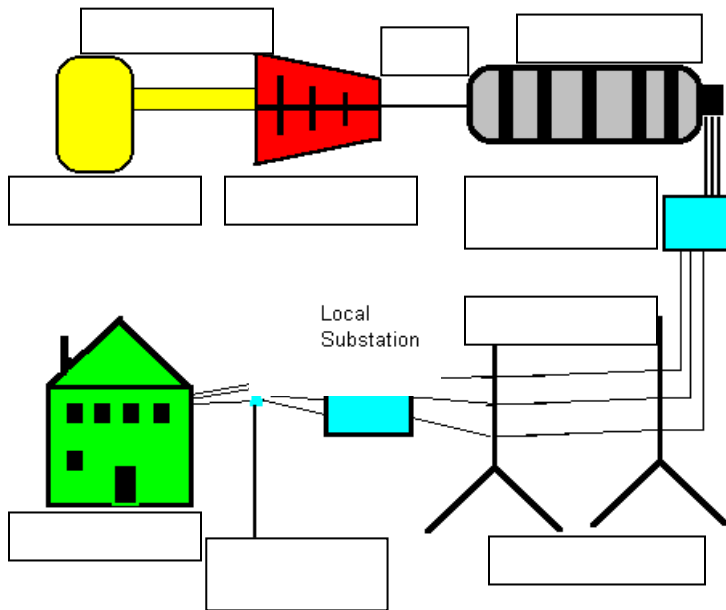
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Ⓢ Name and explain 5 emissions that are released as a result of oil fired power production. Tell the environmental impact of each-

1. 

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2. 

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3. 

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4. 

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5. 

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Ⓢ How are water discharges considered detrimental to the environmental?

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Ⓢ What solid wastes are generated from oil power generation?

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Ⓢ Where are most of the new oil reserves expected to be found?

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Ⓢ Concerning the Alaska pipeline-  
What is the total length? \_\_\_\_\_

Between what cities does it traverse? \_\_\_\_\_

How many major habitats does it go through? \_\_\_\_\_

List these major habitats from the question above-

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At what city is the oil put on ships? \_\_\_\_\_

What major problem must be overcome for oil to flow through the pipeline?

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Is any of the pipeline buried?  No  Yes if yes how many miles? \_\_\_\_\_

Ⓢ Explain the Exxon Valdez incident. What environmental impacts did it have? Provide examples-

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Ⓢ What methods were used to clean up the Exxon Valdez oil spill?

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Ⓢ How much coastline was affected by the Exxon Valdez oil spill?

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Ⓢ What areas in Alaska were surveyed for sea otter mortality? Give the survey method used.

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Ⓢ Explain the function of oil booms -

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Ⓢ What is meant by in-situ burning?

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Ⓢ What is a dispersant and what is it used for?

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Ⓢ Explain the superfund -

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Ⓢ Briefly describe the following federal regulations -

1. Oil Pollution Prevention -

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2. Clean Water Act -

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3. Oil Pollution Act (OPA) -

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4. Oil Spill Liability Trust Fund -

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5. National Contingency Plan -

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