



Oil Resource

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Key Terms

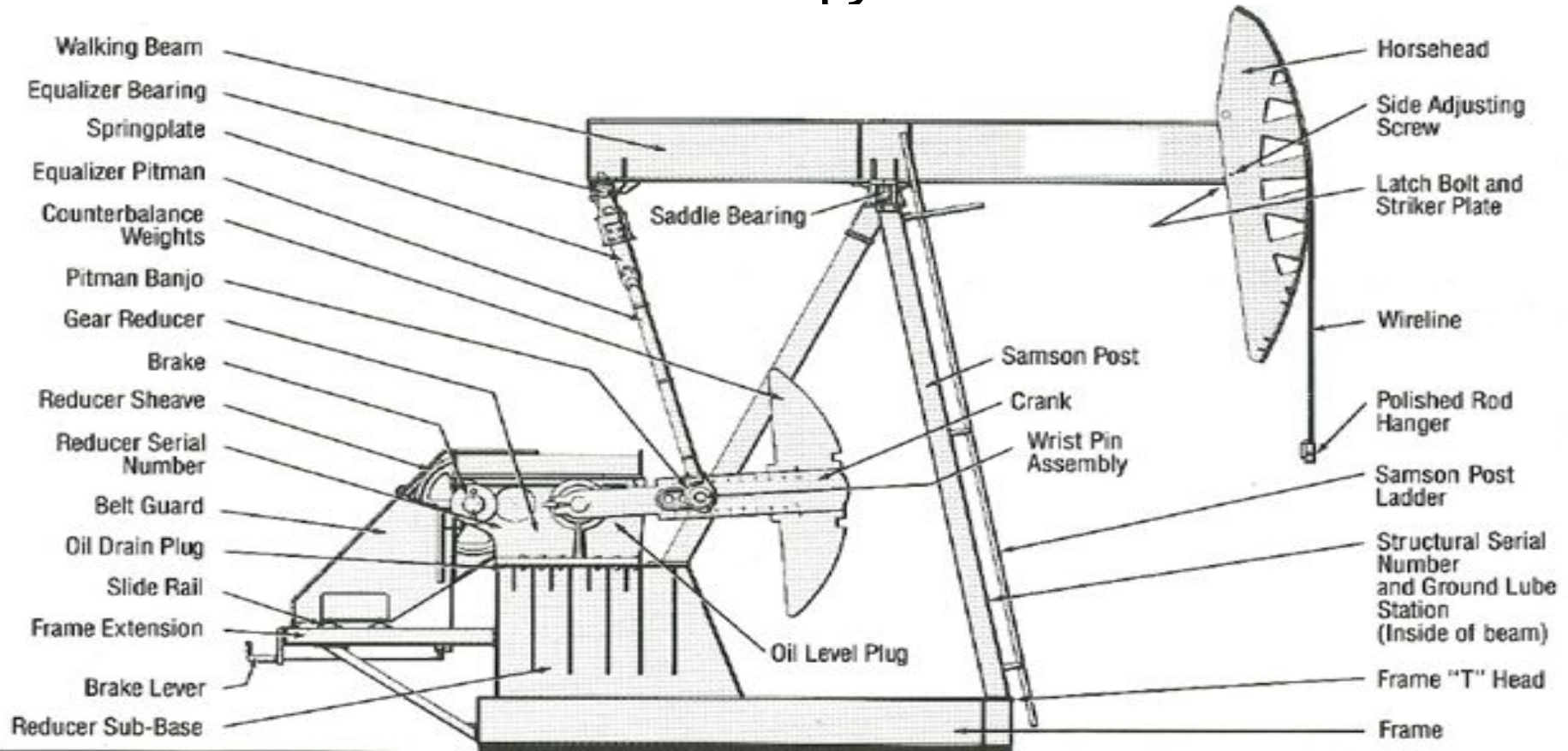
Oil- a thick black liquid formed from the remains of small animals, algae, and protists that lived hundreds of million years ago. This is also known as petroleum.

Refinery- a factory where crude oil is separated into fuels and other products by heating.

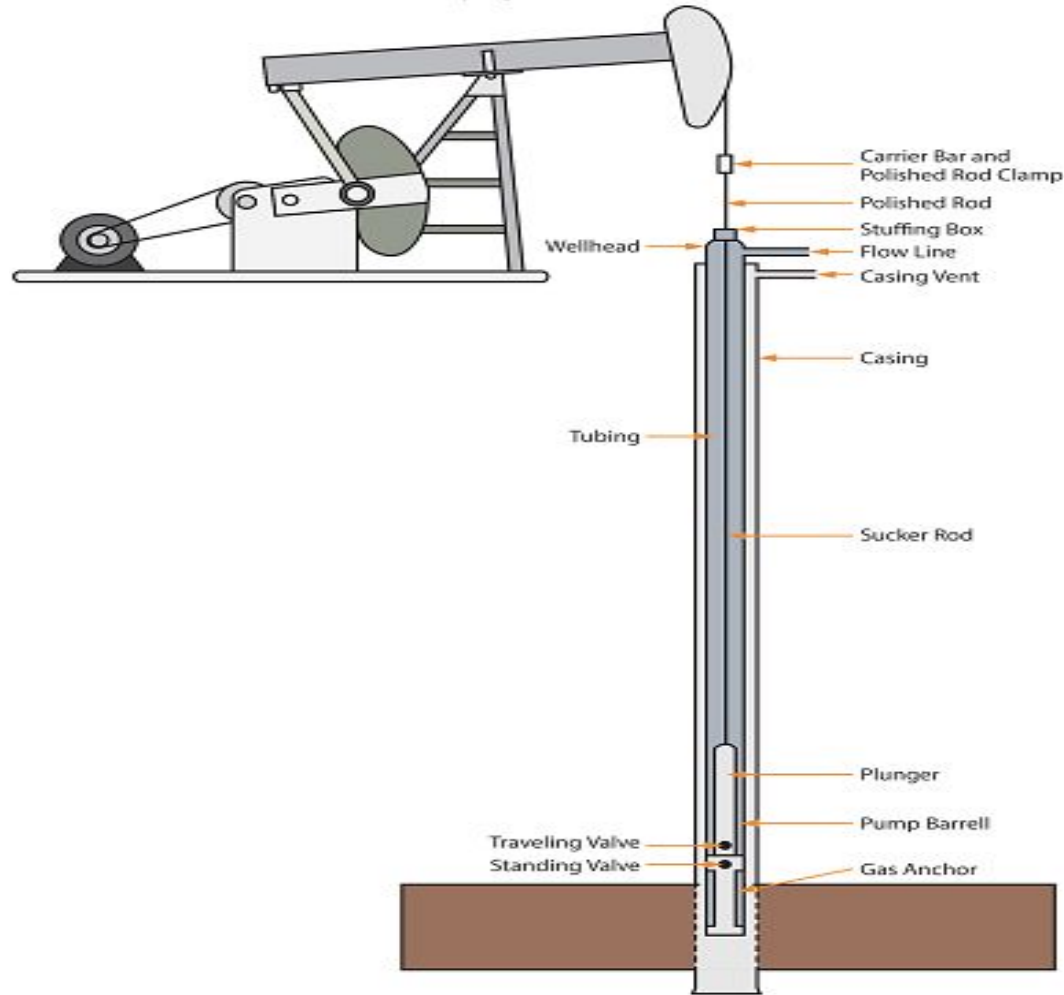
Petrochemicals- compounds that are made from oil. These can be used in plastics, paints, medicines, and cosmetics

Crude oil- oil when it is first pumped out of the ground

Oil Pumpjack



Beam Pumping Unit



Oil Pumpjack

The oil pumpjack, also known as a derrick pump and a sucker rod pump (because of its plunger like mechanics), uses a series of gears and mechanisms to pump a polished rod up and down an oil well in a piston-like motion designed to conserve energy while collecting oil deep down in the ground.

How do they work?

To collect oil, they first draw power from prime movers, specialized engines that run off electricity or gas, by rotating a counterweight that's attached to an arm, moving the beam up and down. A cable that sits on the opposite end produces an up and down motion on the rod assembly. As a result, it opens up a hollow chamber and draws in the oil before closing the valve up and the motion stops. As stated by Oilscams.org, "That movement also brings the liquid or natural gas up to the surface, and it is then separated from the crude oil and stored in tanks." After it is stored in tanks, the action resumes. The process can average up to 20 strokes per minute, where each stroke can produce between 1 to 10 gallons. In total, each machine can make up to 5 barrels per minute.

Pros & Cons of Oil Energy

PROS:

- ❑ They fuel most cars, airplanes, homes, trains and others transportations
- ❑ It is cheap since a necessity in many people's daily lives
- ❑ It's a reliable and dependable resource
- ❑ Has high- energy density so it can produce a mass of energy with a little amount of oil.

CONS:

- ❑ Finding oil is difficult to find because it is located deep below the surface
- ❑ Takes millions of years of decomposing organic material to form
- ❑ Non renewable/ limited amount
- ❑ The chemicals produced pollute the air, water, and land
- ❑ Environment is ruined from drilling, transporting, and refining the oil

Best Location to Build Oil Plant

The best location to build an oil plant is West Virginia, US. There is an actual company called Cunningham Energy and they extract oils from the Appalachian basin, along with the Illinois and Williston basins. According to Investopedia, the United States is the top oil-producing country in the world. The way you would find out if there is any oil in the area you're planning to build a plant at, is to use soundwaves. The sound waves would travel down and bounce off of objects, then return as echoes. The scientists then would record how long it would take for the echoes to travel back. The amount of time it takes for the echoes to return depends on the amount of solid rock and oil that the waves travel through. This information determines the best place/location to build the plant. However, only about one out of six wells drilled produces a useable amount of oil.

Quiz

1. What is oil?
2. Define the key term "*Refinery*"
3. Identify one pro and one con of oil energy.
4. What is the machine to collect oil called?
5. What is the best location to build an oil rig?

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