Petroleum Geology of the North Slope

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Petroleum Geology of the North Slope

• North Slope Oil & Gas Resources
• Elements needed for a Petroleum Field
North Slope Oil & Gas Resources

Beaufort Sea
Light Oil
Viscous & Heavy Oil
Gas/Condensate

Prudhoe Bay Development
Comparative Map Of Anchorage

Looking Ahead
North Slope Subsurface
North Slope Reservoir Rocks

West End of Prudhoe Bay

Schrader Bluff

Kuparuk

Ivishak

Looking Ahead
North Slope Fields & Source Rocks

Producing Fields and planned production
- Oil source rock
- Gas source rock

- Badami
- Polaris, West Sak, Milne Pt., Orion, Tarn, Meltwater, Tabasco
- Shale Wall
- HRZ
- Kuparuk, Pt. McIntyre, Niauk, Milne Pt., Aurora, Borealis, Palm, Midnight Sun, Pt. Thomson
- Alpine, Fiord
- Kingak
- Prudhoe Bay, Milne Pt.
- Shublik
- Prudhoe Bay, Northstar, Sag Delta North, Eider
- Lisburne
- Endicott, Liberty
- Kekiktuk Coals (gas)
Not all oil is the same...
Elements needed to make a Petroleum Field

- Already discussed:
  - **Reservoir rock** (container to hold petroleum)
  - **Source rock** (where the petroleum comes from)

- Other Elements needed:

  **Migration** *(have to move petroleum from source to reservoir)*

  **Trap/Seal** *(how to keep oil &/or gas in reservoir rock)*
How to get Petroleum out of the ground...

Drilling Wells

Wells in the Liberty Field will have a horizontal departure of 6-8 miles. This is equivalent to the distance from the Port of Anchorage to Huffman Road.