Off Florida's Gulf Coast

Anatomy of a rig

A blowout occurs when natural gas or oil under extreme pressure escapes unexpectedly. Blowout preventers are a chief technology in protecting the environment. Here’s how they work:

1. Ram blowout preventer
   - If sensors within the well detect a blowout, hydraulic release two cylinder halves to seal the wellhead.
2. Annular blowout preventer
   - These seal blowouts in the space between the well wall and the well pipe.

Preventing blowouts

Environmental concerns

1. Drilling mud
   - Drilling mud can cause an oil spill.
2. Contaminants can be re-injected into the seabed after wells are drilled.
3. Discharges of:
   - Drilling mud, gas, oil under extreme pressure escapes unexpectedly.
   - Contaminants can be re-injected into the seabed.
   - Ancient seawater released after drilling.
   - Contaminants from nearby on-shore support facilities.

How and gas form

1. 100-400 million years ago, sea creatures and animals were buried in the seafloor.
2. Heat and pressure transformed them into oil and natural gas, stored in porous rock.
3. In a saltwater field, oil and gas then leach.

Drilling could be banned on the continental shelf.

Top U.S. offshore producers of oil

Top U.S. oil and natural gas exploration in Gulf of Mexico state waters, 3 to 10 miles from shore, a ban could still be in place in environmentally sensitive areas such as the Keys and aquatic preserves.

Drilling could be banned offshore in the Gulf of Mexico.

San Joaquin Geological Society, Dennis Lowe and Jeff Meesey, FLORIDA TODAY

Source: American Petroleum Institute, Society of Petroleum Engineers, Environmental Stewardship, Institute for Marine Mammals Studies, Florida Institute of Technology and DEEPWATER REPORT.

Top ten crude oil-producing states (During August 2009, in thousand barrels per day)

1. TEXAS
2. L ouisiana
3. ALASKA
4. MONTANA
5. OKLAHOMA
6. IRAQ
7. NEW MEXICO
8. ANGOLA
9. BRAZIL
10. COLOMBIA

Top 12 importers of crude oil to the United States (During August 2009, in thousand barrels per day)

1. CANADA
2. MEXICO
3. VENEZUELA
4. NIGERIA
5. SAUDI ARABIA
6. B. & A. GERMANY
7. ALGERIA
8. BRAZIL
9. RUSSIA
10. MEXICO
11. KUWAIT
12. ANGOLA

**Estimated U.S. production (2007)**

<table>
<thead>
<tr>
<th>State</th>
<th>Production (2007)</th>
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</thead>
<tbody>
<tr>
<td>ALASKA</td>
<td>227,000</td>
</tr>
<tr>
<td>CALIFORNIA</td>
<td>31,200</td>
</tr>
<tr>
<td>LOUISIANA</td>
<td>17,600</td>
</tr>
<tr>
<td>TEXAS</td>
<td>231,000</td>
</tr>
</tbody>
</table>

**Top U.S. offshore producers of oil**

1. 3.4
2. 2.9
3. 2.7
4. 1.8
5. 1.6
6. 2.3
7. 2.2
8. 1.5
9. 1.2
10. 1.0

**Drilling 101**

1. A drilling rig typically is used to drill 1,000 to 4,000 feet of water. The jack-up rig is a mobile drilling rig that is anchored near the seabed. The legs are lowered, raising the rig to the seabed.
2. Drill pipe, containing the machinery for turning the drilling bit, is inserted into the well. The machinery in the rig (drill pipe, motor, engine) is raised and lowered as the drill moves in and out of the well.
3. The mud circulation system helps to maintain the drilling operation. The mud is circulated through the drill pipe, up into the well, and back to the rig. The mud is used to cool and lubricate the drilling bit and to remove the cuttings from the well.

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