

Lec. 1

Drilling equipment

Onshore Drilling

Onshore (on dry ground) drilling refers to drilling deep holes under the earth's surface, in order to extract natural resources – usually oil and gas – from the earth.



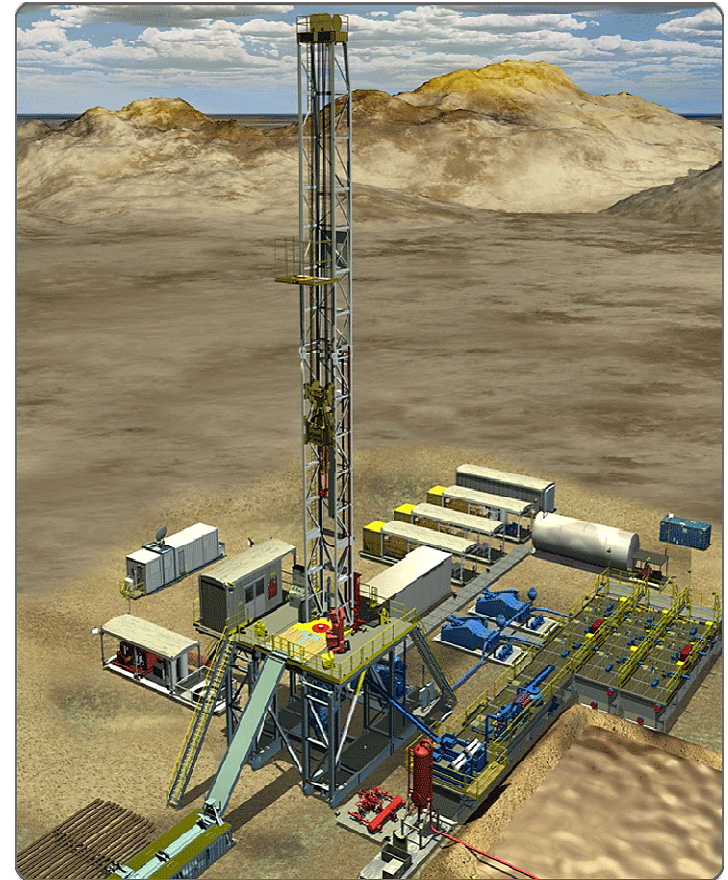
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Parts of Onshore Drilling

1. Derrick

The **derrick** is an open-framework structure of steel beams. The height of the derrick must be such as to permit the vertical movement of the travelling block for a distance greater than the equivalent of one stand. For example, **to handle a stand of 3 drill pipes (about 27 m long) the derrick has to be about 40 m high**. The derrick is designed to resist the loads tripped in and out of the well in the operating phases. Derricks are usually pyramidal in shape. If the derrick design does not allow it to be moved easily in one piece, special ironworkers must assemble them piece by piece.



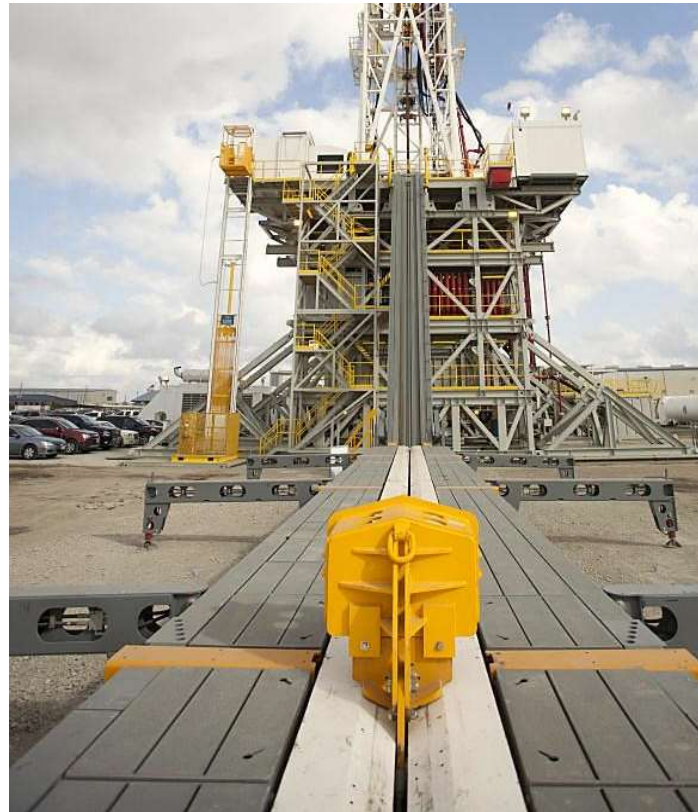
2. Substructure

The foundation on which the derrick and usually the drawworks sit; contains space for storage and well control equipment.



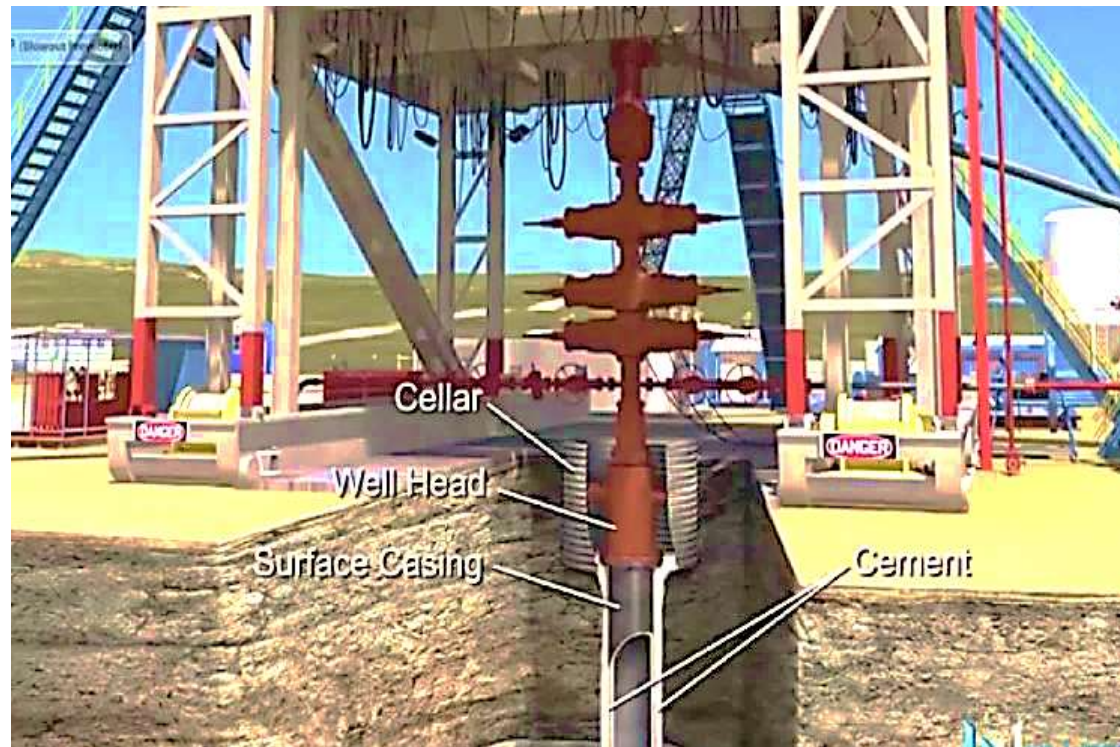
3. Catwalk

The ramp at the side of the drilling rig where pipe is laid to be lifted to the derrick floor by the catline or by an air hoist.



4. Cellar

On land, a majority of wells begin with digging a cellar from three to fifteen feet in depth. The purpose of a cellar is to align the production Christmas tree at ground level, providing easier access to the valves, chokes and other equipment. Or a pit in the ground to provide additional height between the rig floor and the well head to accommodate the installation of blowout preventers.



5. Doghouse:

A small enclosure on the rig floor used as an office for the driller or as a storehouse for small objects.



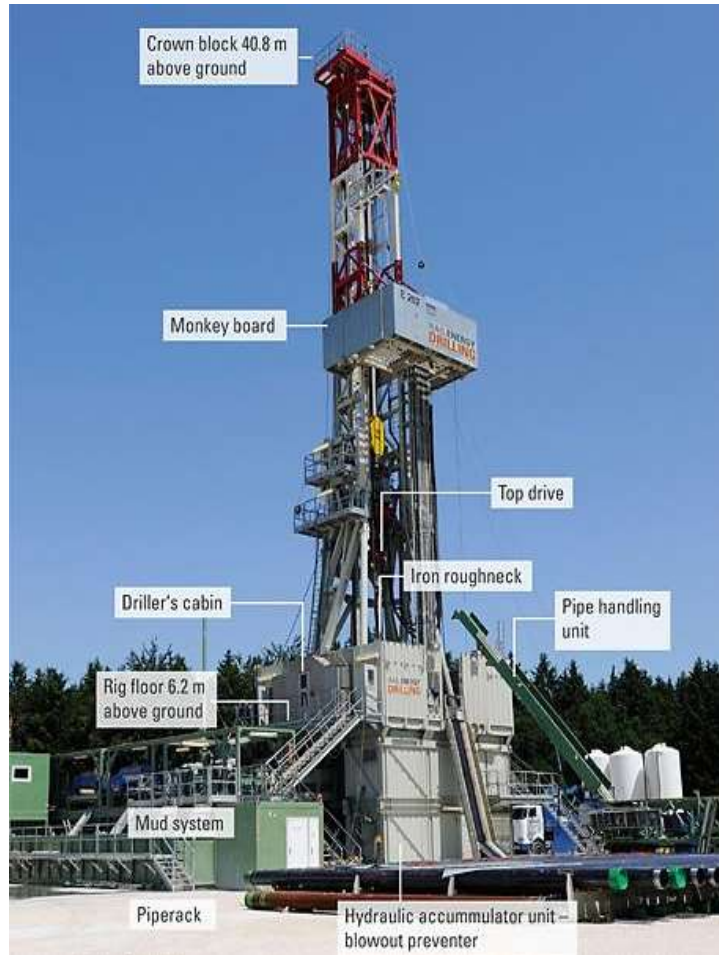
6. Drillers Console

The control panel, located on the platform, where the driller controls drilling operations.



7. Monkey board

a monkey board located at a height in the derrick or mast equal to two, three, or four lengths of pipe respectively.



8. Mousehole

Shallow bores under the rig floor, usually lined with pipe, in which joints of drill pipe are temporarily suspended for later connection to the drill string.

