



using a substructure in gas drilling

Safety is an important priority in the gas patch. When the producing zone has been penetrated, there may be natural gas or methane mixed with the circulation air or mud returning to the surface. It is vital that these gasses be removed from the area surrounding the rig and crew. This is the function of the rotating control head and blowout preventer.

Once the surface casing has been set and cemented, the BOP (blowout preventer) is installed on top of the surface casing, then the Rotating Control Head is installed on top of the BOP. This acts as a seal around the drillstring elements and seals the top of the hole. The blowout tube attaches to the discharge of the Rotating Control Head and takes the circulation fluids away from the rig to

a discharge pit. If gas is present, it may be flared (burned off) at the end of the blowout tube. (cover photo)

There are a wide range of BOP's. In some areas, a short annular seal and rotating head is used. This "short stack" is only 3-4 ft. high. In other areas it is necessary to run a "full stack" which can be 10-12 ft. high.

This is where the SUBSTRUCTURE comes into the picture. The substructure is a fabricated steel structure designed to elevate the rig enough to clear the BOP. For light mobile rigs like the RD20, there are three basic types of substructures.

FLOAT - A low height structure that elevates the rig 12-24 in. above ground level.

HALF-HEIGHT SUBSTRUCTURE - A medium height structure that elevates the rig 4-6 ft. above ground level.

FULL-HEIGHT SUBSTRUCTURE - A high structure that elevates the rig 10-12 ft. above ground level.

Most floats and half-height substructures are fixed height. The rig is backed up onto the sub and leveled. Most full-height subs are elevated with hydraulic cylinders. The rig backs up onto the inclined sub and the cylinders raise the front to the full height.

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