Site Preparation

Site preparation for an oil and gas well, in most instances, looks like any other construction site. OSHA uses Safety and Health Regulations for Construction [1926] to assess safety compliance during this phase of the development of a drilling site.

Once the location for the site has been established, the area is prepared for drilling, with the following steps:

- Site Preparation
  - Leveling Site
  - Excavating and Trenching
- Conductor-rathole-mousehole
  - Conductor Hole and Pipe
  - Rathole
  - Mousehole
- Transporting Equipment
  - Transporting Equipment by Truck
  - Unload at Drill Site


Fig. 1. Clearing the drilling site

Leveling Site ^ TOP

The site is leveled (if necessary) with a bulldozer and/or a grader.

Potential Hazards:

- Damaging buried pipelines and cables.
- Unpredictable weather changes can create unexpected hazards.
- Irritant and toxic plants, pollens, and other entrained materials.
- Uneven ground may cause bulldozers to roll over.


Fig. 2. Leveling uneven ground

Possible Solutions:

- Perform a site line location survey.

- Plan for hazards due to unpredictable changing weather.
- After weather changes, conduct inspections for new hazards.
- Protect employees engaged in site clearing from hazards of irritant and toxic plants. Teach the employees about available first aid treatments. [1926.604(a)(1)]
- Provide rollover guards on all equipment used in site clearing operations. [1926.602]
- Provide overhead and rear canopy guards on rider-operated equipment. [1926.604(a)(2)]

Excavating and Trenching

^ TOP

The scale and duration of excavating and trenching are very minor and site-specific. On some drilling sites, a below-ground-level *cellar* may be excavated. This is where the main borehole is to be drilled. A reserve pit and settling pits may be excavated and are used for water or drilling fluid (*mud*) discharges.

Fig. 3. Reserve pit

Potential Hazards:

- Dust and other airborne contaminants can cause respiratory problems or allergic reactions.
- Damaging buried pipelines and cables.

Fig. 4. Excavating at a drill site

Possible Solutions:

- Wear appropriate respiratory protection. [1910.134]
- Perform a site line location survey.

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Site Preparation >> Conductor Hole, Rathole, and Mousehole

Prior to commencing the rig-up process, the conductor, rathole and mousehole are completed.

Special companies may be hired to begin drilling these three holes.

- Conductor Hole and Conductor Pipe
- Rathole
- Mousehole

Fig. 1. Conductor hole

Conductor Hole and Conductor Pipe

∧ TOP

This is a large diameter hole, lined with pipe, also called a starter hole, varies in depth down of tens of feet to a few hundred feet depending on the local geology.

Some sites do not require a conductor hole.

Potential Hazard:

- Being struck by hoisting line or suspended drill or casing.

Possible Solutions:

- Wear Personal Protective Equipment: hard hats, safety glasses, safety toe boots, and work gloves. [1910.135], [1910.133], [1910.136]
- Keep employees away if they are not working at this job.

Fig. 2. Installing conductor hole casing

Rathole

^ TOP

A rathole is a hole in the rig floor, 30 to 35 feet deep, lined with casing that projects above the floor, into which the kelly is placed when hoisting operations are in progress.

This is either done by the portable rig that drills the conductor hole or can be done by the primary rig after rigging-up.

Potential Hazard:

- Falling or stepping into an uncovered rathole.

Possible Solution:

- Cover the hole until it is lined with casing or other material during rigging-up.

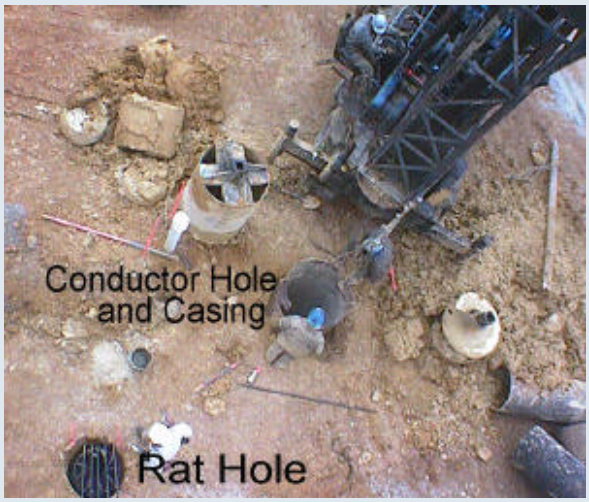

Fig. 3. Rat hole - covered

Mousehole

^ TOP

A mousehole is a shallow bore hole under the rig floor, usually lined with pipe, in which joints of drill pipe are temporarily placed.

This is either done by the portable rig that drills the conductor hole or can be done by the drilling rig after rigging-up.

Potential Hazard:

- Falling or stepping into an uncovered mousehole.

Possible Solution:

- Cover the hole until it is lined with casing or other material during rigging-up.

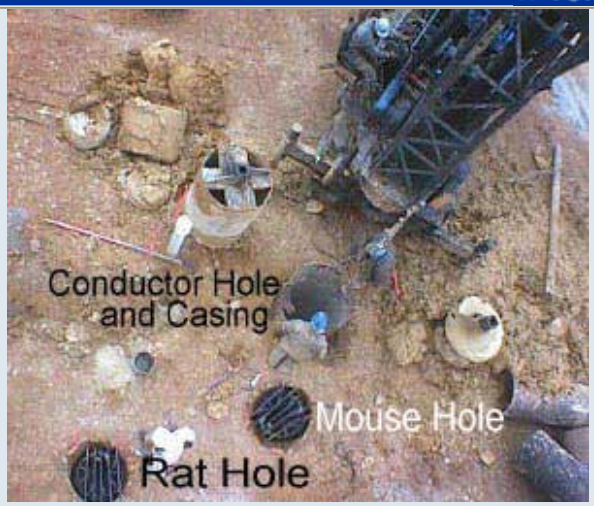

Fig. 4. Mousehole - covered

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Site Preparation >> Transporting Equipment to the Site

Depending on the location of the well, access to the site may require preparation of a road bed. A site, and its access road, must accommodate a large number of temporary and semi-permanent structures and tanks, all brought in by truck. The tasks are:

- Transporting Equipment by Truck
- Unload at Drill Site

Fig. 1. Transporting equipment

Transporting Equipment by Truck

^ TOP

Equipment is loaded on trucks at the previous drill site or storage yard, secured and transported to the new drill location.

Potential Hazards:

- At a newly prepared drill site, the soils may not be compacted sufficiently to support the incoming load. This could cause the load to become unstable.
- The load may not be secured properly, causing it to shift or the tie-downs to fail.
- In slick conditions, the truck may slide off the road.

Fig. 2. Transporting derrick

Possible Solutions:

- Make sure that the access road and drill pad at the drill site has been properly prepared before attempting to drive on it.
- Drive slowly; always being cautious of shifting weight.
- Loads should be tied down with proper devices and inspected before and during transport. U.S. Department of Transportation, [393.100] General rules for protection against shifting or falling cargo.
- Always drive with caution, whatever the conditions.

Unload at Drill Site

^ TOP

Equipment is unloaded and placed approximately where it will be rigged up.

Potential Hazard:

- Improperly secured loads could cause equipment to slide or collapse during unloading.

Possible Solution:

- Inspect loads before loading or unloading.

Fig. 3. Unloading doghouse

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