

## 11. WELL DRILLING AND OPERATING

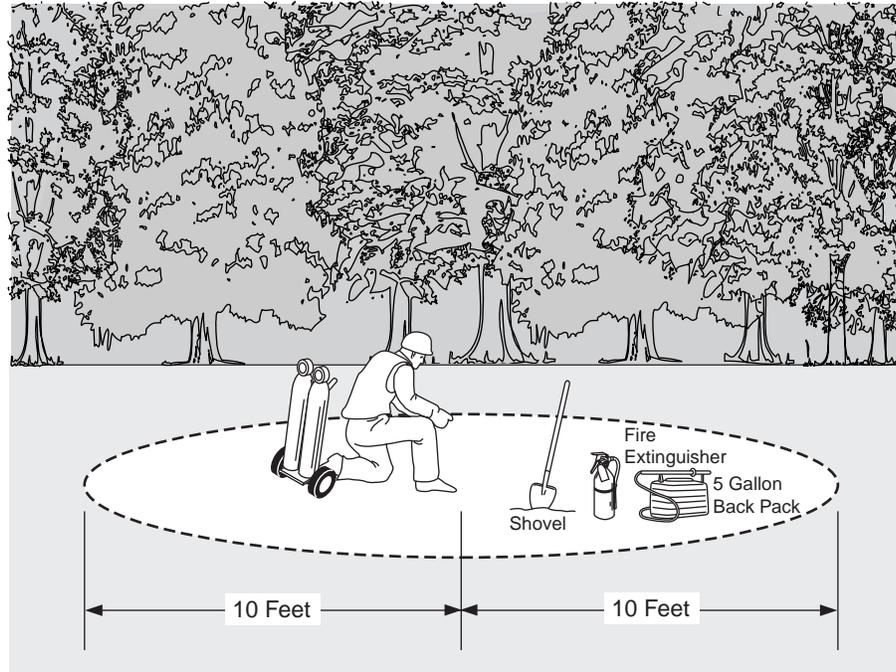
- *PRC§4427 (Clearance and tools required for welding and cutting)*
- *PRC §4442 (Using equipment without a spark arrester)*
- *PRC §4442.5 (Spark arrester notice to buyer or lessee of necessity of use)*
- *14CCR §918.7 (Welding and blasting watch)*
- *CFR §261.52 (Spark arresters required on National Forest land)*

There have not been a large number of fires resulting from well drilling or operating but those that have occurred have caused considerable damage and were difficult to suppress. The greatest hazard is associated with petroleum and gas wells because of the expected presence of methane and/or hydrogen sulfide gas, both highly flammable. Other deep drilling (e.g., geothermal or water) can produce such flammable gases. For example, drillers searching for water have been known to discover natural gas fields.

The same state laws apply to drilling rigs as any other machine operated on forest-covered, brush-covered, or grass-covered land (i.e., all internal combustion engines, except muffler-equipped motive power for highway licensed vehicles, must be equipped with an effective spark arrester; in addition, all such machines operating in a fixed location must have a clearing of all flammable materials of at least 10 feet in all directions). For oil and gas drilling, this is not enough. Consequently, many local ordinances and company rules call for much more.

Among the more common requirements are water-cooled exhaust systems, explosion-proof lights, smoking prohibition, provision of fire extinguishers, additional clearance of flammables, “fire watch” during welding, and cutting or welding only under special short-term permit.

Historically, the greatest wildland fire risk associated with well drilling has been welding. If there is any possibility of the presence of methane, hydrogen sulfide, or any other flammable gas, no welding should be done within 50 feet of the well head. In any event, no welding should be done without first clearing all flammable vegetation down to mineral soil for a radius of at least 10 feet from the location where the welding is to be done. Five-gallon backpack and a shovel within 25 feet of the operation are required on site.



**Figure 11-1.**  
**Clearance Around Pipe Welding Operation**

A fire problem associated with the operation of wells is the direct ignition of dry grass or leaves by high temperature steam lines laid on the surface of the ground. These pipes may be for recharging oil wells or for collecting geothermal steam for a power plant. Any of three solutions seem to be satisfactory: 1) to bury the pipe to insulate it, 2) to treat the soil for a foot or two on each side of it with a proper herbicide, 3) or soil sterilizer.