

APPENDIX R**CRITERIA FOR DETERMINING DEPTH OF FRESH WATER AND SURFACE CASING REQUIREMENTS**

When processing an Application for Permit to Drill (APD), the geologist is required to identify the maximum depth of usable water as defined in 43 CFR 3162.5-2.

Usable water is defined as that water containing 5,000 milligrams per liter or less total dissolved solids. Water of this quality is to be protected, usually by surface casing and cement.

Determining the depth to fresh water requires specific water quality data in the proposed well vicinity or geophysical log determination of water quality (by the resistivity method), depending on existing well proximity and log availability. If water quality data or logs from nearby wells are not available, the area within a two-mile radius of the proposed well is checked for water wells. If wells exist, surface casing is required to be set 200 feet below the deepest fresh water zone found in these wells or to reach a depth below the reasonably estimated level of usable water (as defined in 43 CFR 3162.5-2).

In some cases, such as shallower wells, cementing the casing/borehole annulus from total depth (of from a staging tool) up to the base level of usable water is required, rather than requiring extensive surface casing.