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GENERALIZED CHECKLIST FOR PLUGGING AND ABANDONMENT OF A WELL

[see A.A.C. R12-7-126 – 127 below, for all details]

❖ Use Form 9 – Application to Plug and Abandon

- **One hard copy**
- **One electronic copy**
- Before abandoning any well, the operator shall submit an application to plug and abandon, to the Arizona Oil & Gas Conservation Commission and obtain approval.
- General requirements for all plugged wells (*see A.A.C. R12-7-127(D) through 127(H) for details*):
 - All operators are required to submit Form 9, and receive approval, before abandoning any well.
 - Notify the Oil and Gas Administrator at least 48 hours before starting abandonment operations.
 - Proper weight & consistency of plugging mud to prevent movement of other fluids into or within the borehole
 - Cement surface plug at least 50 ft.
 - Hole shall be marked by metal pipe at least 4 in. dia., extending at least 4 ft. above ground surface, set securely in cement
 - Restore well site to natural state
 - Backfill all pits
 - Remove all debris, trash
- Open hole:
 - In general, plug size shall be 50 ft. below bottom to 50 ft. above top – for any zone containing fluid with potential to migrate, any zone of lost circulation, any zone containing potentially valuable minerals, including noncommercial hydrocarbons, coal, and oil shale
 - Plug all fresh water zones, 50 ft. below bottom of zone to 50 ft. above top
 - Open hole below the shoe of cemented casing shall be plugged with cement, extending from at least 50 ft. below to at least 50 ft. above the shoe.
- Cased hole:
 - Plug the perforated interval – at least 50 ft. below to at least 50 ft. above interval
 - For any segment of hole where casing is recovered, cement plug shall be at least 50 ft. below to at least 50 ft. above the stub
 - No annular space that extends to the surface shall be open; a minimum of the top 100 feet of each annulus shall be plugged with cement

Within 15 days of plugging, submit a plugging report to the Commission:

❖ **Use Form 10 – Plugging Record**

- **One hard copy**
 - **One electronic copy**
- Class, sacks and density of cement (sacks per cubic foot)
 - Method used for plugging well
 - Casing record
 - Size, kind, depth of plugs used
 - Name & depth interval of every formation containing fresh water, oil, gas, or geothermal resources

R12-7-126. Application to Plug and Abandon

- A. Before abandoning any well, the operator shall submit an application to plug and abandon to the Commission and obtain approval. The application shall set forth the name and location of the well, the mechanical condition of the well, the productive zone and latest production, and a complete description of the proposed work. The plan shall provide for the protection of all formations containing usable-quality water, oil, gas, or geothermal resources.
- B. In the case of a drilling well or an emergency, the application may be made by electronic communication, and the Commission may by electronic communication authorize the work; however, the operator shall file a written application within 10 days after the emergency authorization is given even though the work has already been commenced or completed. The Commission shall confirm the emergency authorization in writing upon receipt of the written application.

R12-7-127. Plugging Methods and Procedures

- A. Before abandoning any well, the operator shall submit an application to plug and abandon to the Commission for approval as required in R12-7-126. All down-hole plugging shall be conducted through drill pipe or tubing, unless otherwise approved by the Commission.
- B. Open hole
 1. A cement plug shall be placed to extend at least 50 feet below the bottom, except as limited by total depth or plugged back total depth, to 50 feet above the top of any zone containing fluid with a potential to migrate, any zone of lost circulation, and any zone containing potentially valuable minerals, including noncommercial hydrocarbons, coal, and oil shale.
 2. All freshwater zones shall be plugged with a continuous cement plug which shall extend from at least 50 feet below to at least 50 feet above the freshwater zone, or a 100-foot plug shall be centered across the base of the freshwater zone and a 100-foot plug shall be centered across the top of the freshwater zone.
 3. Open hole below the shoe of cemented casing shall be plugged with cement which shall extend from at least 50 feet below to at least 50 feet above the shoe.

C. Cased hole

1. A cement plug shall be placed opposite all open perforations and extend to a minimum of 50 feet below, except as limited by total depth or plugged back total depth, to 50 feet above the perforated interval. In lieu of the cement plug, a bridge plug may be placed within 50 to 100 feet above the open perforations and followed by at least 50 feet of cement.
2. If any casing is cut and recovered, a cement plug shall be placed to extend at least 50 feet above and below the stub.
3. No annular space that extends to the surface shall be left open to the drilled hole below. If this condition exists, a minimum of the top 100 feet of each annulus shall be plugged with cement.

D. Plugging mud having the proper weight and consistency to prevent movement of other fluids into or within the bore hole shall be placed across all intervals not plugged with cement. In the absence of other information at the time plugging is approved, plugging mud shall be made up with a minimum of 15 pounds per barrel of sodium bentonite and a nonfermenting polymer, have a minimum consistency of 9 pounds per gallon, a minimum viscosity of 50 seconds per quart, and mixed with fresh water.

E. A cement surface plug of at least 50 feet shall be placed in the smallest casing which extends to the surface. The top of this plug shall be placed as near the eventual casing cut-off point as possible.

F. The abandoned well shall be marked by a piece of metal pipe not less than 4 inches in diameter securely set in cement and extending at least 4 feet above the general ground level. The well location and identity shall be permanently inscribed as required in R12-7-106(A). An abandoned well location on tilled or otherwise unique land shall be marked in a manner approved by the Commission.

G. The drill site of an abandoned well shall be restored as nearly as possible to its natural state, to the satisfaction of the Commission. All pits shall be filled and all equipment and debris shall be removed from the location.

H. The operator shall notify the Commission at least 48 hours before starting abandonment operations to allow a representative of the Commission to witness the operations required in this Section. To ensure the integrity or placement of any plug, the representative may order the plug to be tested.

I. Within 15 days after the plugging of any well, the operator shall file with the Commission a plugging record setting forth in detail the method used in plugging the well, including the casing record; the size, kind, and depth of plugs used; and the name and depth interval of each formation containing fresh water, oil, gas, or geothermal resources.

J. Seismic shot holes

1. All seismic shot holes shall be plugged and abandoned within 30 days of firing.
2. Seismic shot holes which do not encounter freshwater zones shall be filled with a high-grade bentonite slurry or some other comparable plugging material as approved by the Commission.
3. Seismic shot holes which do encounter freshwater zones shall be plugged with cement in accordance with the applicable provisions of subsections (B) and (D).
4. Seismic shot-hole locations shall be restored in accordance with subsection (G) and the operator shall file a plugging record in accordance with subsection (I).