UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Notice to Lessees and Operators of Onshore Federal and Indian Oil and Gas Leases Within the Jurisdiction of the Farmington Resource Area Office (Covering Northwest New Mexico and the Navajo Reservation Lands in Northwest Arizona and Southeast Utah)

(NTL-FRA 90-1)

Requirements to Operate on Federal and Indian Leases: Casing and Cementing Requirements

This Notice is issued pursuant to the authority prescribed in the Oil and Gas Operating Regulations, Title 43 CFR 3162 and 3164, in accordance with Onshore Orders 1 and 2 and the terms of Federal and Indian oil and gas leases under the jurisdiction of the Bureau of Land Management /1, 2 and 4.

I. General

Lessees and operators shall conduct operations in a manner which protects other natural resources and environmental quality; which protects life and property; which results in maximum ultimate economic recovery of oil and gas with minimum waste and with minimum adverse effect on the ultimate recovery of other mineral resources. In that respect these standards are formulated in order to facilitate the extraction of hydrocarbons with minimum adverse impact on usable water resources. Usable water resources are to be protected by quality cement applications with special enhancements in selected critical intervals. These requirements are applicable to all wells drilled under Applications for Permit to Drill (APDs) received by the Bureau of Land Management after the effective date of this Notice and apply to lessees and operators of all leases within the jurisdiction of the Farmington Resource Area /1, 2 and 3.

II. Definitions

As used in this Notice, certain terms are defined as follows:

A. "Cement circulated to surface" shall mean excess cement circulated from the annulus between the casing and borehole or between two strings of casing; including excess cement circulated up from the top of a cementing stage or a liner top.

B. "Usable water" shall mean water containing 10,000 ppm or less of total dissolved solids /7.

III. Requirements for Isolation and Protection of Formations Containing Usable Water

A. All permeable zones containing fresh water and other usable water containing 10,000 ppm or less of total dissolved solids (tds) shall be isolated and protected from contamination by cement circulated in place

for the protection of all permeable zones. Permeable zones in all formations, down to, and including the Ojo Alamo Formation, are to be treated as aquifers containing usable water (except for any parts exempted under Section V.A. of this Notice).

1. All usable water present in other formations, in addition to those mentioned in Section III.A. above, shall be protected in like manner /6.

B. The following methods and procedures are required to ensure that a reasonable effort is made to place a high integrity cement barrier to cross flow, through the annulus, between usable water zones, hydrocarbon bearing zones, and any strata that could be a source of contaminants:

1. The hole size shall be no smaller than 1 1/2" larger diameter than the casing O.D. across all usable water zones.

2. An adequate spacer must be pumped ahead of the cement slurry to help prevent mud contamination of the cement /9.

3. An adequate number of casing centralizers must be run through usable water zones to ensure that casing is centralized through these zones. The adequate number of centralizers to use shall be determined by API standards /10.

4. Centralizers to impart a swirling action around the casing (such as turbulators) are required just below and into the base of the lowest usable water zone. These devices will assist mud displacement, increase cement bonding potential, and create an effective hydraulic seal.

5. A chronological log must be kept which records the pump rate, pump pressure, slurry density, and slurry volume for the cement job. This log shall be sent to BLM after completion of the job.

All criteria noted above must be addressed in the APD for approval. These items must be documented in an appropriate Sundry Report and reported to BLM after completion of the work.

C. Each stage of cement is to be circulated to cover all permeable zones below the next higher stage or shoe of the next larger casing string, or to the surface. (See Sections V.B. and V.C. of this Notice for authorized exceptions).

D. Cement tops for all stages of cement used to protect usable water zones must be verified by cement circulated to surface or by wireline log /8. Suggested wireline logs are temperature surveys or cement bond logs.

E. All casing cementing programs shall be implemented and verified as meeting the objectives set forth in the approved APD. Remedial cementing is required for all cementing operations that fail to meet these requirements and must be performed prior to acceptance of the Well Completion Report (see Section V.C. of this Notice for authorized exceptions).

F. Liners are to extend to a minimum of 100 feet above the shoe of the next larger casing, and cemented. The interval of overlap shall be sealed and pressure tested (see Section V.B. of this Notice for authorized exceptions) /5.

G. Pre-perforated liners are to be secured in place with a locking device /5.

IV. Suggested Practices for More Effective Cement Jobs

In addition to the required cementing practices, the following suggested practices may provide even more effective cementing, although these practices may not always be practical.

A. If at all possible, the wellbore should be stable (not kicking, sloughing, or losing circulation) prior to running of casing and cementing.

B. During the running of casing, or once casing is run, circulate a minimum of 1 1/2 hole volumes to condition hole for adequate mud displacement. The mud funnel viscosity and yield point should be as low as well conditions permit.

C. When applicable, casing movement (rotation or reciprocation) should be used to enhance mud characteristics after casing reaches bottom and until the first stage cement is in place.

D. A small amount of neat cement (i.e. 25 sx) can be pumped ahead of filler cement to aid in the detection of the cement top in case the cement does not circulate to the surface.

V. Authorized Exceptions to Requirements

A. Any aquifer may be exempted from the requirement set forth in Section III of this Notice, provided the lessee or operator shows that no usable water , containing 10,000 ppm or less of total dissolved solids, is present in samples of formation fluid drawn from that strata in the immediate vicinity of the proposed well; or by demonstrating the total dissolved solids from the aquifer are greater than 10,000 ppm in the well by an acceptable method of TDS calculation from well log analysis.

B. Open hole completions and/or pre-perforated liners are exempt from the requirements set forth in Sections III.C. and III.F. of this Notice /5.

C. Requirements to perform remedial cementing of gaps in the cement column may be waived, provided no more than one permeable zone is exposed to the uncemented annulus.

D. Exceptions to any provision of this NTL may be granted by the Area Manager.

APPROVED:

JUN 01 1990

Effective Date

Ron Fellows

Ron Fellows
Area Manager

Reference List of Related Requirements:

1 43 CFR 3162.1(a) (10-1-88 Edition)
2 43 CFR 3162.5-1(a) (10-1-88 Edition)
3 Onshore Oil and Gas Order No.2 III.B.
4 43 CFR 3164.2(a) (10-1-88 Edition)
5 Onshore Oil and Gas Order No. 2 III.B.1. b
6 Onshore Oil and Gas Order No. 1 III.G.4.a. (2)
7 Onshore Oil and Gas Order No. 2 II. Y.
8 43 CFR 3162.5-2(d) (10-1-88 Edition)
9 Onshore Oil and Gas Order No. 2 III.B.1.g.
10 API Specification 10D