

NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

NOTICE OF INTENTION TO DRILL

Notice must be given to the Oil Conservation Commission or its proper agent and approval obtained before drilling begins. If changes in the proposed plan are considered advisable, a copy of this notice showing such changes will be returned to the sender. Submit this notice in triplicate. One copy will be returned following approval. See additional instructions in Rules and Regulations of the Commission.

Monument, New Mexico

January 22, 1936

Place

Date

OIL CONSERVATION COMMISSION, Santa Fe, New Mexico

Gentlemen:

You are hereby notified that it is our intention to commence the drilling of a well to be known as

Amerada Petroleum Corporation State "L" Well No. 1 in SW 1/4 NW 1/4

Company or Operator Lease Well No. 1 in SW 1/4 NW 1/4 of Sec. 20, T. 19, R. 37, N. M. P. M., Monument Field, Lea County.

N.

The well is 1980 feet [N.] [S.] of the North line and 660 feet

[E.] [W.] of the West line of Sec. 20-19-37

(Give location from section or other legal subdivision lines. Cross out wrong directions.)

If state land the oil and gas lease is No. Assignment No.

If patented land the owner is

Address

If government land the permittee is

Address

The lessee is Amerada Petroleum Corporation

Address Tulsa, Oklahoma

Grid for well location with 'X' in the top-left cell.

AREA 640 ACRES LOCATE WELL CORRECTLY

We propose to drill well with drilling equipment as follows:

Rotary

The status of a bond for this well in conformance with Rule 39 of the General Rules and Regulations of the Commission is as follows:

We propose to use the following strings of casing and to land or cement them as indicated:

Table with columns: Size of Hole, Size of Casing, Weight Per Foot, New or Second Hand, Depth, Landed or Cemented, Sacks Cement. Rows include 17 1/2" casing, 12" casing, and 8 3/4" casing.

If changes in the above plan become advisable we will notify you before cementing or landing casing. We estimate that the first productive oil or gas sand should occur at a depth of about 3800 feet.

Additional information:

Approved [Signature] Jan 29 1936 except as follows:

Sincerely yours,

Amerada Petroleum Corporation

Company or Operator

By [Signature]

Position Farm Boss

Send communication regarding well to

Name J. A. Starkey

Address Monument, N.M.

OIL CONSERVATION COMMISSION,

By [Signature]

Title

Mathematical Induction

Principle of Mathematical Induction

Let $P(n)$ be a statement involving the natural number n . If $P(1)$ is true and $P(k) \Rightarrow P(k+1)$ for all $k \in \mathbb{N}$, then $P(n)$ is true for all $n \in \mathbb{N}$.

Example 1: Prove that $1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$ for all $n \in \mathbb{N}$.

Solution: Let $P(n)$ be the statement $1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$.
Step 1: $P(1)$ is true because $1 = \frac{1(1+1)}{2} = 1$.
Step 2: Assume $P(k)$ is true, i.e., $1 + 2 + 3 + \dots + k = \frac{k(k+1)}{2}$.
We need to show $P(k+1)$ is true, i.e., $1 + 2 + 3 + \dots + k + (k+1) = \frac{(k+1)(k+1+1)}{2}$.
LHS = $\frac{k(k+1)}{2} + (k+1) = \frac{k(k+1) + 2(k+1)}{2} = \frac{(k+1)(k+2)}{2}$.
RHS = $\frac{(k+1)(k+1+1)}{2} = \frac{(k+1)(k+2)}{2}$.
Since LHS = RHS, $P(k+1)$ is true. Hence, $P(n)$ is true for all $n \in \mathbb{N}$.

Example 2: Prove that $2^n > n$ for all $n \in \mathbb{N}$.

Solution: Let $P(n)$ be the statement $2^n > n$.
Step 1: $P(1)$ is true because $2^1 = 2 > 1$.
Step 2: Assume $P(k)$ is true, i.e., $2^k > k$.
We need to show $P(k+1)$ is true, i.e., $2^{k+1} > k+1$.
LHS = $2 \cdot 2^k > 2 \cdot k > k+1$ (since $k > 1$).
RHS = $k+1$.
Since LHS > RHS, $P(k+1)$ is true. Hence, $P(n)$ is true for all $n \in \mathbb{N}$.

Example 3: Prove that $1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$ for all $n \in \mathbb{N}$.

Solution: Let $P(n)$ be the statement $1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$.
Step 1: $P(1)$ is true because $1^2 = \frac{1(1+1)(2 \cdot 1 + 1)}{6} = 1$.
Step 2: Assume $P(k)$ is true, i.e., $1^2 + 2^2 + 3^2 + \dots + k^2 = \frac{k(k+1)(2k+1)}{6}$.
We need to show $P(k+1)$ is true, i.e., $1^2 + 2^2 + 3^2 + \dots + k^2 + (k+1)^2 = \frac{(k+1)(k+1+1)(2(k+1)+1)}{6}$.
LHS = $\frac{k(k+1)(2k+1)}{6} + (k+1)^2 = \frac{k(k+1)(2k+1) + 6(k+1)^2}{6} = \frac{(k+1)(k(2k+1) + 6(k+1))}{6}$.
RHS = $\frac{(k+1)(k+1+1)(2(k+1)+1)}{6} = \frac{(k+1)(k+2)(2k+3)}{6}$.
Since LHS = RHS, $P(k+1)$ is true. Hence, $P(n)$ is true for all $n \in \mathbb{N}$.