

MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

MISCELLANEOUS NOTICES

Submit this notice in triplicate to the Oil Commission or its proper agent before the work specified is to begin. A copy will be returned to the sender on which will be given the approval, with any modifications considered advisable, or the rejection by the Commissioner or agent, of the plan submitted. The plan as approved should be followed, and work should not begin until approval is obtained. See additional instructions in the Rules and Regulations of the Commission.

Indicate nature of notice by checking below:

NOTICE OF INTENTION TO TEST CASING SHUT-OFF		NOTICE OF INTENTION TO REPAIR CHEMICALLY TREAT WELL	XXXX
NOTICE OF INTENTION TO CHANGE PLANS		NOTICE OF INTENTION TO PULL OR OTHERWISE ALTER CASING	
NOTICE OF INTENTION TO REPAIR WELL			
NOTICE OF INTENTION TO DEEPEN WELL		NOTICE OF INTENTION TO PLUG WELL	

Odessa, Texas
Place

April 21, 1939
Date

OIL CONSERVATION COMMISSION,
Santa Fe, New Mexico.

Gentlemen:

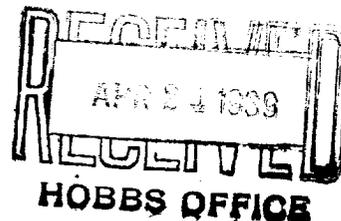
DUPLICATE

Following is a notice of intention to do certain work as described below at the

Phillips Pet. Co. C.D. Woolworth #4 Well No. 4 in SW/4
 Company or Operator Lease
 of Sec. 23, T. 24-S, R. 36-E, N. M. P. M., Cooper Field,
 Lea County.

FULL DETAILS OF PROPOSED PLAN OF WORK
FOLLOW INSTRUCTIONS IN THE RULES AND REGULATIONS OF THE COMMISSION

T. D. 3350 Lime. It is proposed to set packer at 3510' and acidize pay formation thru perforations in 7" casing from 3310' to 3350' with 1000 gal. Dowell XX.



Approved APR 24 1939, 19
except as follows:

Phillips Petroleum Company
Company or Operator

By *Carl Griffin*

Position District Superintendent

Send communications regarding well to

Name Earl Griffin

Address Drawer 811, Odessa, Texas

OIL CONSERVATION COMMISSION,
 By *Ray Yarkrough*
 Title OIL & GAS INSPECTOR

Mathematical Induction

Principle of Mathematical Induction

Let $P(n)$ be a statement involving 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: Prove that $1 + 2 + \dots + n = \frac{n(n+1)}{2}$ for all $n \in \mathbb{N}$.

Let $P(n) = 1 + 2 + \dots + n = \frac{n(n+1)}{2}$.

Step 1: $P(1)$ is true because $1 = \frac{1(1+1)}{2} = 1$.

Step 2: Assume $P(k)$ is true, i.e., $1 + 2 + \dots + k = \frac{k(k+1)}{2}$.

Then $1 + 2 + \dots + k + (k+1) = \frac{k(k+1)}{2} + (k+1)$.

$= \frac{k(k+1) + 2(k+1)}{2}$

$= \frac{(k+1)(k+2)}{2}$

$= \frac{(k+1)((k+1)+1)}{2} = P(k+1)$.

Therefore, $P(n)$ is true for all $n \in \mathbb{N}$.

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

Let $P(n) = 2^n > n$.

Step 1: $P(1)$ is true because $2^1 = 2 > 1$.

Step 2: Assume $P(k)$ is true, i.e., $2^k > k$.

Then $2^{k+1} = 2 \cdot 2^k$.

$> 2 \cdot k = k + k > k + 1 = P(k+1)$.

Therefore, $2^n > n$ for all $n \in \mathbb{N}$.

Example: Prove that $1 + 3 + 5 + \dots + (2n-1) = n^2$ for all $n \in \mathbb{N}$.

Let $P(n) = 1 + 3 + 5 + \dots + (2n-1) = n^2$.

Step 1: $P(1)$ is true because $1 = 1^2$.

Step 2: Assume $P(k)$ is true, i.e., $1 + 3 + \dots + (2k-1) = k^2$.

N. MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

MISCELLANEOUS NOTICES

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Indicate nature of notice by checking below:

Table with 4 rows and 2 columns of notice types. Row 1: NOTICE OF INTENTION TO TEST CASING SHUT-OFF vs NOTICE OF INTENTION TO SHOOT OR CHEMICALLY TREAT WELL. Row 2: NOTICE OF INTENTION TO CHANGE PLANS vs NOTICE OF INTENTION TO PULL OR OTHERWISE ALTER CASING. Row 3: NOTICE OF INTENTION TO REPAIR WELL vs (empty). Row 4: NOTICE OF INTENTION TO DEEPEN WELL vs NOTICE OF INTENTION TO PLUG WELL. A 'XXXX' is marked in the second column of the third row.

Odessa, Texas

April 15, 1939

Place

Date

OIL CONSERVATION COMMISSION, Santa Fe, New Mexico.

Gentlemen:

DUPLICATE

Following is a notice of intention to do certain work as described below at the

Phillips Pet. Co. C.D. Woolwerth

Well No. 4 in SW/4

Company or Operator Lease

of Sec. 23, T. 24-S, R. 36-E, N. M. P. M., Cooper Field,

Lea County.

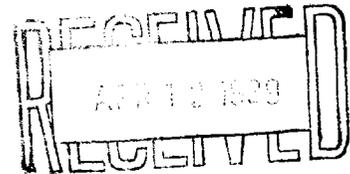
FULL DETAILS OF PROPOSED PLAN OF WORK

FOLLOW INSTRUCTIONS IN THE RULES AND REGULATIONS OF THE COMMISSION

T.D. 3420 Lime. It is proposed to pull tubing & rerun tubing with packer (perforations in tubing above packer) to determine the water horizon. If favorable conditions exist, plug off lower casing perforations by cementing, acidize if necessary, and put well back on production.

This repair work is calculated to reduce water production and increase oil production.

APR 16 1939



HOBBES OFFICE

Approved _____, 19 _____ except as follows:

Phillips Petroleum Company Company or Operator By [Signature]

Position District Superintendent

Send communications regarding well to

Name Earl Griffin

Address Drawer 811, Odessa, Texas

OIL CONSERVATION COMMISSION,

By Roy Garbraugh

Title _____

FIELD & GAS INSPECTOR

Mathematical Analysis

Chapter 1: Introduction

1.1. Real Numbers

The real number system is the foundation of mathematical analysis. It includes the rational numbers and the irrational numbers. The real numbers are ordered and complete. The completeness property is essential for the proof of the Intermediate Value Theorem and the existence of limits.

1.2. Limits and Continuity

The concept of a limit is central to calculus. A function $f(x)$ has a limit L as x approaches a if for every $\epsilon > 0$, there exists a $\delta > 0$ such that $|f(x) - L| < \epsilon$ whenever $0 < |x - a| < \delta$. Continuity is defined in terms of limits.

1.3. Differentiation

The derivative of a function $f(x)$ at a point x is defined as the limit of the difference quotient: $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$. The derivative represents the instantaneous rate of change of the function.

1.4. Integration

The definite integral of a function $f(x)$ over the interval $[a, b]$ is defined as the limit of Riemann sums: $\int_a^b f(x) dx = \lim_{n \rightarrow \infty} \sum_{k=1}^n f(x_k^*) \Delta x_k$.