

OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

MISCELLANEOUS REPORTS ON WELLS

Submit this report in triplicate to the Oil Conservation Commission or its proper agent within ten days after the work specified is completed. It should be signed and sworn to before a notary public for reports on beginning drilling operations, results of shooting well, results of test of casing shut-off, result of plugging of well, and other important operations, even though the work was witnessed by an agent of the Commission. Reports on minor operations need not be signed and sworn to before a notary public. See additional instructions in the Rules and Regulations of the Commission.

Indicate nature of report by checking below:

REPORT ON BEGINNING DRILLING OPERATIONS		REPORT ON REPAIRING WELL	
REPORT ON RESULT OF SHOOTING OR CHEMICAL TREATMENT OF WELL		REPORT ON PULLING OR OTHERWISE ALTERING CASING	
REPORT ON RESULT OF TEST OF CASING SHUT-OFF	9 5/8"	REPORT ON DEEPENING WELL	
REPORT ON RESULT OF PLUGGING OF WELL			

Hobbs, New Mexico

Place

November 5, 1945

Date

OIL CONSERVATION COMMISSION,
SANTA FE, NEW MEXICO.

Gentlemen:

Following is a report on the work done and the results obtained under the heading noted above at the _____

Gulf Oil Corporation Lea State Well No. 1 in the _____
Company or Operator Lease

G. NE 1/4 of Sec. 6, T. 13 S., R. 32 E., N. M. P. M.,
Caprook Field, Lea County.

The dates of this work were as follows: Cemented Nov. 1, 1945 - Tested November 3, 1945

Notice of intention to do the work was (~~XXXXXX~~) submitted on Form C-102 on November 3 19 45
and approval of the proposed plan was (~~XXXXXX~~) obtained. (Cross out incorrect words.)

DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED

The hole was washed down and the casing was tested with 1200# pressure applied for 30 minutes. The plug was drilled and the hole tested with 1200# pressure applied for 30 minutes. Both tests were OK and after approval of Mr. Yarbrough, State Oil and Gas Inspector, preparation was made to drill ahead.

Witnessed by H. L. Campbell

Name

Gulf Oil Corporation

Company

Rotary Foreman

Title

Subscribed and sworn before me this _____

5th day of Nov., 1945

J. W. Gamm

Notary Public

I hereby swear or affirm that the information given above is true and correct.

Name E. J. Gallagher

Position District Superintendent

Representing Gulf Oil Corporation
Company or Operator

My commission expires February 25, 1946

Address Hobbs, New Mexico

Remarks:

Ray Yarbrough
Oil & Gas Inspector
Title

THE UNIVERSITY OF CHICAGO
DIVISION OF THE PHYSICAL SCIENCES
DEPARTMENT OF PHYSICS

PHYSICS 311
LECTURE 10
THERMODYNAMICS

1. The first law of thermodynamics states that the change in internal energy of a system is equal to the heat added to the system minus the work done by the system. Mathematically, this is expressed as $\Delta U = Q - W$.

2. For a process involving an ideal gas, the work done by the gas is given by $W = \int P dV$, where P is the pressure and V is the volume.

3. The heat added to a system is given by $Q = \int T dS$, where T is the temperature and S is the entropy.

4. The internal energy of a system is a function of its state variables, and for an ideal gas, it is given by $U = \frac{f}{2} nRT$, where f is the number of degrees of freedom, n is the number of moles, R is the gas constant, and T is the temperature.

5. The entropy of a system is a measure of its disorder, and for an ideal gas, it is given by $S = nR \ln \left(\frac{V}{V_0} \right) + \frac{f}{2} nR \ln \left(\frac{T}{T_0} \right)$, where V_0 and T_0 are reference values.

6. The second law of thermodynamics states that the total entropy of a system and its surroundings never decreases. Mathematically, this is expressed as $\Delta S_{\text{total}} \geq 0$.

7. The Carnot cycle is a theoretical cycle that operates between two heat reservoirs at temperatures T_1 and T_2 . The efficiency of the Carnot cycle is given by $\eta = 1 - \frac{T_2}{T_1}$.

8. The Clausius inequality states that the change in entropy of a system is greater than or equal to the heat added to the system divided by the temperature. Mathematically, this is expressed as $\Delta S \geq \frac{Q}{T}$.

9. The Gibbs free energy is a thermodynamic potential that is useful for determining the spontaneity of a process. It is defined as $G = U - TS + PV$, where U is the internal energy, T is the temperature, S is the entropy, P is the pressure, and V is the volume.