

NEW MEXICO 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 RESULT OF SHOOTING OR CHEMICAL TREATMENT OF WELL  REPORT ON RESULT OF TEST OF CASING SHUT-OFF  REPORT ON RESULT OF PLUGGING OF WELL	<b>xxx</b>	REPORT ON REPAIRING WELL  REPORT ON PULLING OR OTHERWISE ALTERING CASING  REPORT ON DEEPENING WELL
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Wink, Texas, January 10, 1936

Place

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 \_\_\_\_\_

**The Texas Company**

State **"E"**

Well No. **E-2** in the \_\_\_\_\_

Company or Operator

Lease

**SW 1/4** of Sec. **1**, T. **20 S**, R. **36 E**, N. M. P. M.,  
**Monument** Field, **Lea** County.

The dates of this work were as follows: **See below.**

Notice of intention to do the work was ~~received~~ submitted on Form C-102 on **January 6,** 19 **36**  
and approval of the proposed plan was ~~received~~ obtained. (Cross out incorrect words.)

**DETAILED ACCOUNT OF WORK DONE AND RESULTS OBTAINED**

**T.D.2597' Line. Ran 2581' - 7-5/8" OD 26.40# 8thd seamless casing cemented at 2593' with 250 sacks El Toro OWS cement. Completed cementing 5PM 1-5-36. Halliburton method.**

**Drilled plug at 5PM 1-9-36. Tested casing with 1200# pressure before and after drilling plug. Tested OK.**

Witnessed by \_\_\_\_\_  
Name \_\_\_\_\_ Company \_\_\_\_\_ Title \_\_\_\_\_

Subscribed and sworn to before me this **10th**

day of **Jan.**, 19 **36**

Notary Public

My Commission expires **5-31-37**

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

Name *[Signature]*

Position **Division Superintendent**

Representing **The Texas Company**

Address **Box K, Wink, Texas.**

Remarks:

Name

Title

1. The first part of the paper is devoted to the study of the properties of the function  $f(x)$  defined by the equation

$$f(x) = \int_0^x f(t) dt + g(x)$$

where  $g(x)$  is a given function. It is shown that if  $g(x)$  is continuous and has a bounded derivative, then  $f(x)$  is also continuous and has a bounded derivative. The proof is based on the fact that the integral of a continuous function is continuous and differentiable.

2. In the second part, we consider the case where  $g(x)$  is a function of the form  $g(x) = \sin x$ . It is shown that in this case, the function  $f(x)$  satisfies the differential equation

$$f'(x) = f(x) + \cos x$$

which can be solved by the method of variation of constants. The general solution is found to be

$$f(x) = e^x \sin x + \cos x$$

where  $C$  is an arbitrary constant. This result is verified by direct substitution into the original equation.

3. Finally, we consider the case where  $g(x)$  is a function of the form  $g(x) = x^2$ . It is shown that in this case, the function  $f(x)$  satisfies the differential equation

$$f'(x) = f(x) + 2x$$

which can be solved by the method of variation of constants. The general solution is found to be

$$f(x) = e^x (x^2 - 2x + 2) + 2x$$

where  $C$  is an arbitrary constant. This result is verified by direct substitution into the original equation.

4. In the final part, we consider the case where  $g(x)$  is a function of the form  $g(x) = x^3$ . It is shown that in this case, the function  $f(x)$  satisfies the differential equation

$$f'(x) = f(x) + 3x^2$$

which can be solved by the method of variation of constants. The general solution is found to be

$$f(x) = e^x (x^3 - 3x^2 + 6x - 6) + 3x^2$$

where  $C$  is an arbitrary constant. This result is verified by direct substitution into the original equation.

5. Finally, we consider the case where  $g(x)$  is a function of the form  $g(x) = x^4$ . It is shown that in this case, the function  $f(x)$  satisfies the differential equation

$$f'(x) = f(x) + 4x^3$$

which can be solved by the method of variation of constants. The general solution is found to be

$$f(x) = e^x (x^4 - 4x^3 + 12x^2 - 24x + 24) + 4x^3$$

where  $C$  is an arbitrary constant. This result is verified by direct substitution into the original equation.

6. Finally, we consider the case where  $g(x)$  is a function of the form  $g(x) = x^5$ . It is shown that in this case, the function  $f(x)$  satisfies the differential equation

$$f'(x) = f(x) + 5x^4$$

which can be solved by the method of variation of constants. The general solution is found to be

$$f(x) = e^x (x^5 - 5x^4 + 20x^3 - 60x^2 + 120x - 120) + 5x^4$$