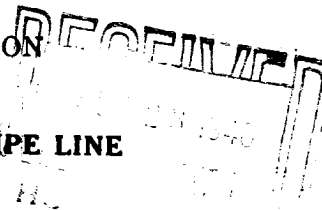


NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

REQUEST FOR PERMISSION TO CONNECT WITH PIPE LINE



THIS REQUEST SHOULD BE SUBMITTED IN TRIPLICATE. See instructions in the Rules and Regulations of the Commission.

Fort Worth, Texas

Place

August 21, 1940

Date

OIL CONSERVATION COMMISSION,  
Santa Fe, New Mexico.

Gentlemen:

Permission is requested to connect The Texas Company State of New Mexico "F" (#54144)  
Company or Operator Lease

Wells No. 1, 2 in SE-1/4 of Sec. 24, T. 19 S, R. 36 E, N. M. P. M.,

Monument

Field,

Lea

County, with the pipe line of the

Gulf Refining Co., Tulsa Pipe Line Division, Tulsa, Oklahoma  
Pipe Line Co. Address

Status of land (State, Government or privately owned) State

Location of tank battery Center of E-1/2 of SE-1/4 Section 24

Description of tanks Two high 500 barrel bolted steel tanks

Logs of the above wells were filed with the Oil Conservation Commission Well #1 - 12-17-35  
Well #2 - 4-11-36 19

All other requirements of the Commission have (~~been~~) been complied with. (Cross out incorrect words.)

Additional information:

Yours truly,

Permission is hereby granted to make pipe line connections requested above.

OIL CONSERVATION COMMISSION

By Roy Garbrough  
A. ANDREAS  
Title State Geologist

Date Member Oil Conservation Com's'n

THE TEXAS COMPANY

Owner or Operator

By [Signature]  
Position Assistant Division Manager

Address Box 1720, Fort Worth, Texas

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

$$f(x) = \int_0^x \frac{1}{1+t^2} dt, \quad x \in \mathbb{R}.$$

It is well known that this function is the arctangent function, i.e.  $f(x) = \arctan x$ . The main result of this section is the following theorem:

**Theorem 1.** Let  $f(x)$  be the function defined by the equation

$$f(x) = \int_0^x \frac{1}{1+t^2} dt.$$

Then the function  $f(x)$  satisfies the following properties:

(i)  $f(x)$  is an odd function, i.e.  $f(-x) = -f(x)$  for all  $x \in \mathbb{R}$ .

(ii)  $f(x)$  is a strictly increasing function on  $\mathbb{R}$ .

(iii)  $f(x)$  is bounded on  $\mathbb{R}$ , i.e.  $f(x) \in (-\frac{\pi}{2}, \frac{\pi}{2})$  for all  $x \in \mathbb{R}$ .

(iv)  $f(x)$  is a concave down function on  $\mathbb{R}$ .

(v)  $f(x)$  is a concave up function on  $\mathbb{R}$ .

(vi)  $f(x)$  is a concave down function on  $\mathbb{R}$ .

(vii)  $f(x)$  is a concave up function on  $\mathbb{R}$ .

(viii)  $f(x)$  is a concave down function on  $\mathbb{R}$ .

(ix)  $f(x)$  is a concave up function on  $\mathbb{R}$ .

(x)  $f(x)$  is a concave down function on  $\mathbb{R}$ .