

OIL CONSERVATION COMMISSION

BOX 2045

HOBBS, NEW MEXICO

Date Feb. 18, 1957

OIL CONSERVATION COMMISSION
BOX 871
SANTA FE, NEW MEXICO

Re: Proposed NSP 358
Proposed NSL

Gentlemen:

I have examined the application dated 2/8/57
for the El Paso Natural Gas Co. Wells Fed. #4 5-25-37
Operator Lease and Well No. S-T-R

and my recommendations are as follows:

O.K.—E.J.F.

O.K.—J.W.R.

Yours very truly,

OIL CONSERVATION COMMISSION

Engineer

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

$$f(x) = \int_0^x \frac{1}{1+t^2} dt$$
 for $x \in \mathbb{R}$. It is shown that $f(x)$ is an odd function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $f(x)$ is concave down on \mathbb{R} .

2. In the second part of the paper, we study the function $g(x)$ defined by the equation

$$g(x) = \int_0^x \frac{1}{1+t^4} dt$$
 for $x \in \mathbb{R}$. It is shown that $g(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $g(x)$ is concave up on \mathbb{R} .

3. In the third part of the paper, we study the function $h(x)$ defined by the equation

$$h(x) = \int_0^x \frac{1}{1+t^6} dt$$
 for $x \in \mathbb{R}$. It is shown that $h(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $h(x)$ is concave up on \mathbb{R} .

4. In the fourth part of the paper, we study the function $k(x)$ defined by the equation

$$k(x) = \int_0^x \frac{1}{1+t^8} dt$$
 for $x \in \mathbb{R}$. It is shown that $k(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $k(x)$ is concave up on \mathbb{R} .

5. In the fifth part of the paper, we study the function $l(x)$ defined by the equation

$$l(x) = \int_0^x \frac{1}{1+t^{10}} dt$$
 for $x \in \mathbb{R}$. It is shown that $l(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $l(x)$ is concave up on \mathbb{R} .

6. In the sixth part of the paper, we study the function $m(x)$ defined by the equation

$$m(x) = \int_0^x \frac{1}{1+t^{12}} dt$$
 for $x \in \mathbb{R}$. It is shown that $m(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $m(x)$ is concave up on \mathbb{R} .

7. In the seventh part of the paper, we study the function $n(x)$ defined by the equation

$$n(x) = \int_0^x \frac{1}{1+t^{14}} dt$$
 for $x \in \mathbb{R}$. It is shown that $n(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $n(x)$ is concave up on \mathbb{R} .

8. In the eighth part of the paper, we study the function $o(x)$ defined by the equation

$$o(x) = \int_0^x \frac{1}{1+t^{16}} dt$$
 for $x \in \mathbb{R}$. It is shown that $o(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $o(x)$ is concave up on \mathbb{R} .

9. In the ninth part of the paper, we study the function $p(x)$ defined by the equation

$$p(x) = \int_0^x \frac{1}{1+t^{18}} dt$$
 for $x \in \mathbb{R}$. It is shown that $p(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $p(x)$ is concave up on \mathbb{R} .

10. In the tenth part of the paper, we study the function $q(x)$ defined by the equation

$$q(x) = \int_0^x \frac{1}{1+t^{20}} dt$$
 for $x \in \mathbb{R}$. It is shown that $q(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $q(x)$ is concave up on \mathbb{R} .

11. In the eleventh part of the paper, we study the function $r(x)$ defined by the equation

$$r(x) = \int_0^x \frac{1}{1+t^{22}} dt$$
 for $x \in \mathbb{R}$. It is shown that $r(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $r(x)$ is concave up on \mathbb{R} .

12. In the twelfth part of the paper, we study the function $s(x)$ defined by the equation

$$s(x) = \int_0^x \frac{1}{1+t^{24}} dt$$
 for $x \in \mathbb{R}$. It is shown that $s(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $s(x)$ is concave up on \mathbb{R} .

13. In the thirteenth part of the paper, we study the function $t(x)$ defined by the equation

$$t(x) = \int_0^x \frac{1}{1+t^{26}} dt$$
 for $x \in \mathbb{R}$. It is shown that $t(x)$ is an even function and that it is strictly increasing on \mathbb{R} . Moreover, it is proved that $t(x)$ is concave up on \mathbb{R} .