

APR 25 1963  
April 25, 1963

State of New Mexico  
Oil Conservation Commission  
P. O. Box 2045  
Hobbs, New Mexico

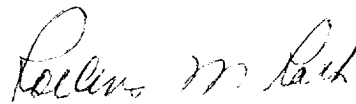
Attention: Mr. Joe Ramey

Dear Sir:

The following deviation survey was run with a Toteco instrument while drilling our State of New Mexico "AD", Well No. 1 located in Section 10, T-10-S, R-36-E, Lea County, New Mexico.

<u>Depth</u>	<u>Degree Off</u>
336	1/4
1007	1/4
1555	0
2672	0
4155	3/4
5042	3/4
5528	1-1/4
6339	3/4
6884	1-1/4
7300	1
7567	1-1/2
8050	3/4
8600	1/2
9180	1/2
9618	1/2
10,293	1
10,730	1/2
11,051	1-1/4
11,507	1-3/4

I hereby certify that the information given above is true and complete to the best of my knowledge.

  
Hollins M. Roth  
Petroleum Engineer

Subscribed and sworn to before me this 25th day of April, 1963.

MY COMMISSION EXPIRES JULY 15, 1965

  
Notary Public Lea County  
State of New Mexico

## Theorem 1.1

Let  $\mathcal{H}$  be a Hilbert space and let  $T$  be a bounded linear operator on  $\mathcal{H}$ . Then the following conditions are equivalent:

- (i)  $T$  is self-adjoint, i.e.  $T = T^*$ .
- (ii)  $\langle Tx, y \rangle = \langle x, Ty \rangle$  for all  $x, y \in \mathcal{H}$ .
- (iii)  $\langle Tx, x \rangle \in \mathbb{R}$  for all  $x \in \mathcal{H}$ .

Proof. (i)  $\Rightarrow$  (ii)

$$\begin{aligned} \langle Tx, y \rangle &= \langle T^*y, x \rangle \\ &= \langle y, Ty \rangle \\ &= \langle x, Ty \rangle \end{aligned}$$

$$\langle Tx, x \rangle \in \mathbb{R}$$

$$\begin{aligned} \langle Tx, x \rangle &= \langle T^*x, x \rangle \\ &= \langle x, Tx \rangle \\ &= \overline{\langle Tx, x \rangle} \end{aligned}$$

$$\langle Tx, x \rangle = \overline{\langle Tx, x \rangle}$$

Conversely, (ii)  $\Rightarrow$  (i) is straightforward. (iii)  $\Rightarrow$  (i) is also straightforward.

$$\begin{aligned} \langle Tx, x \rangle &= \langle T^*x, x \rangle \\ &= \langle x, Tx \rangle \\ &= \overline{\langle Tx, x \rangle} \end{aligned}$$

Thus,  $\langle Tx, x \rangle \in \mathbb{R}$  for all  $x \in \mathcal{H}$  implies  $T = T^*$ .

□