

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.

Monument, New Mexico

April 6, 1937

Place

Date

OIL CONSERVATION COMMISSION,
Santa Fe, New Mexico.

Gentlemen:

Permission is requested to connect Amerada Petroleum Corporation W. P. Byrd
Company or Operator Lease
Wells No. 5 in SE 1/4 NW 1/4 of Sec. 18, T. 20, R. 36, N. M. P. M.
Monument Field, Lea County, with the pipe line of the
Texas Pipe Line Co.
Pipe Line Co. Address

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

Location of tank battery 1320' from North. 8340' from East. Section 18 - 20 - 36

Description of tanks 2 - High 500 barrel wrought iron tanks.

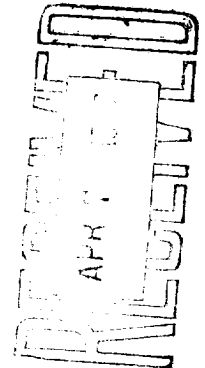
Logs of the above wells were filed with the Oil Conservation Commission April 6, 1937 19____

All other requirements of the Commission have [~~been~~ not] been complied with. (Cross out incorrect words.)

Additional information:

This well was drilled to the total depth of 3875'. 2 1/2" upset tubing was set at 3870'. Well was swabbed in and flowed 450 barrels clean oil on 5 hour test. Hourly average of 92 barrels. Flowing through 1" open choke on 2 1/2" tubing. Daily gas rate of 3,540,000. Gas oil ratio 1603

DUPLICATE



Yours truly,

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

OIL CONSERVATION COMMISSION,
By Gouney
Title _____
Date _____

Amerada Petroleum Corporation
Owner or Operator
By J. A. Stankus
Position Sup't.
Address Monument, New Mexico

PHYSICS 551: QUANTUM MECHANICS

PROBLEM SET 10: ANGULAR MOMENTUM AND SPIN

Due: Friday, November 11, 2011

1. (10 points)

(a) (5 points)

(b) (5 points)

Consider a particle with spin $s = 1/2$ and orbital angular momentum $l = 1$. The total angular momentum is $J = L + S$. The eigenvalues of J^2 and J_z are $J(J+1)\hbar^2$ and $M\hbar$, respectively. The eigenvalues of L^2 and L_z are $L(L+1)\hbar^2$ and $M_L\hbar$, respectively. The eigenvalues of S^2 and S_z are $S(S+1)\hbar^2$ and $M_S\hbar$, respectively.

(a) Find the possible values of the total angular momentum quantum number J and the magnetic quantum number M . (5 points)

(b) Find the possible values of the total angular momentum quantum number J and the magnetic quantum number M . (5 points)

2. (10 points)

(a) (5 points)

(b) (5 points)

3. (10 points)

4. (10 points)