

New Mexico-Arizona District

Post Office Box 1978

Roswell, New Mexico 88201

Telephone 505 622 4041

W. P. Tomlinson

District Engineer

February 3, 1967

New Mexico Oil Conservation Commission (4)

P. O. Box 2088

Santa Fe, New Mexico

Attention: Mr. A. L. Porter, Jr.

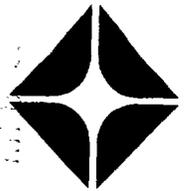
Re: Horseshoe-Gallup Unit  
San Juan County, New Mexico

Gentlemen:

In accordance with Rule 11 of Order No. R-2210 concerning the Horseshoe-Gallup Unit in San Juan County, New Mexico, Atlantic Richfield Company requests approval to convert the following three producing wells to injection. These wells were not listed as future injection wells in the Exhibits presented by Atlantic at the hearing.

Unit Well No.	Former Operator	Former Lease	Former Well No.	Location
20	Atlantic	Navajo	20	SE/4NE/4 Section 32, T-31-N, R-16-W
211	El Paso	Horseshoe Ute	2	SE/4SE/4 Section 33, T-31-N, R-16-W
236	El Paso	Horseshoe Canyon	9	SE/4NW/4 Section 3, T-30-N, R-16-W

All three of these wells are located along the east side of the fairway portion of the field where both the upper and lower sands are developed. They are in areas with nine-spot injection patterns. The nine-spot patterns in this area are not providing sufficient injection points to efficiently sweep the reservoir. Also, center wells in existing nine-spots have tended to water out prematurely as a result of preferential NE-SW permeability which exists primarily in the upper zone. These facts are borne out by the production history of the three wells proposed for conversion to injection. Well No. 20 is presently making 18 BO and 146 BWPD, Well No. 211 is making 1 BO and 27 BWPD, and Well No. 236 is making 1 BO and 60 BWPD. In all three cases the conversions will result in



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establishing the more efficient five-spot patterns.

Schematic sketches of Wells Nos. 20, 211 and 236 are attached as Exhibits Nos. 1, 2 and 3. As shown, injection is proposed to be into the upper zone through the tubing casing annulus and into the lower zone through tubing with the two zones separated by a packer. This is the identical physical hookup of all the dual injectors in the project. Exhibit No. 4 is an SP-Sonic Log of Well No. 20 while Exhibits Nos. 5 and 6 are Induction-Electric Logs of Wells Nos. 211 and 236. Exhibit No. 7 is a plat showing the location of the three proposed wells, all wells within the Unit, and offset Operators and wells. It is anticipated that approximately 500 BWPD per zone will be injected into all three wells at surface pressures in the range of 600 to 800 psig.

Well No. 236 is approximately 3/4 of a mile from Pan American's Northeast Hogback Unit. Therefore, Pan American was furnished copies of this letter of our intent to convert the three wells to injection as provided for in Section 3 of Rule 11.

We would appreciate approval of this request at your earliest convenience. Please forward a copy of your approval letter to the United States Geological Survey and the New Mexico Commissioner of Public Lands. If you need additional information please let us know.

Yours very truly,



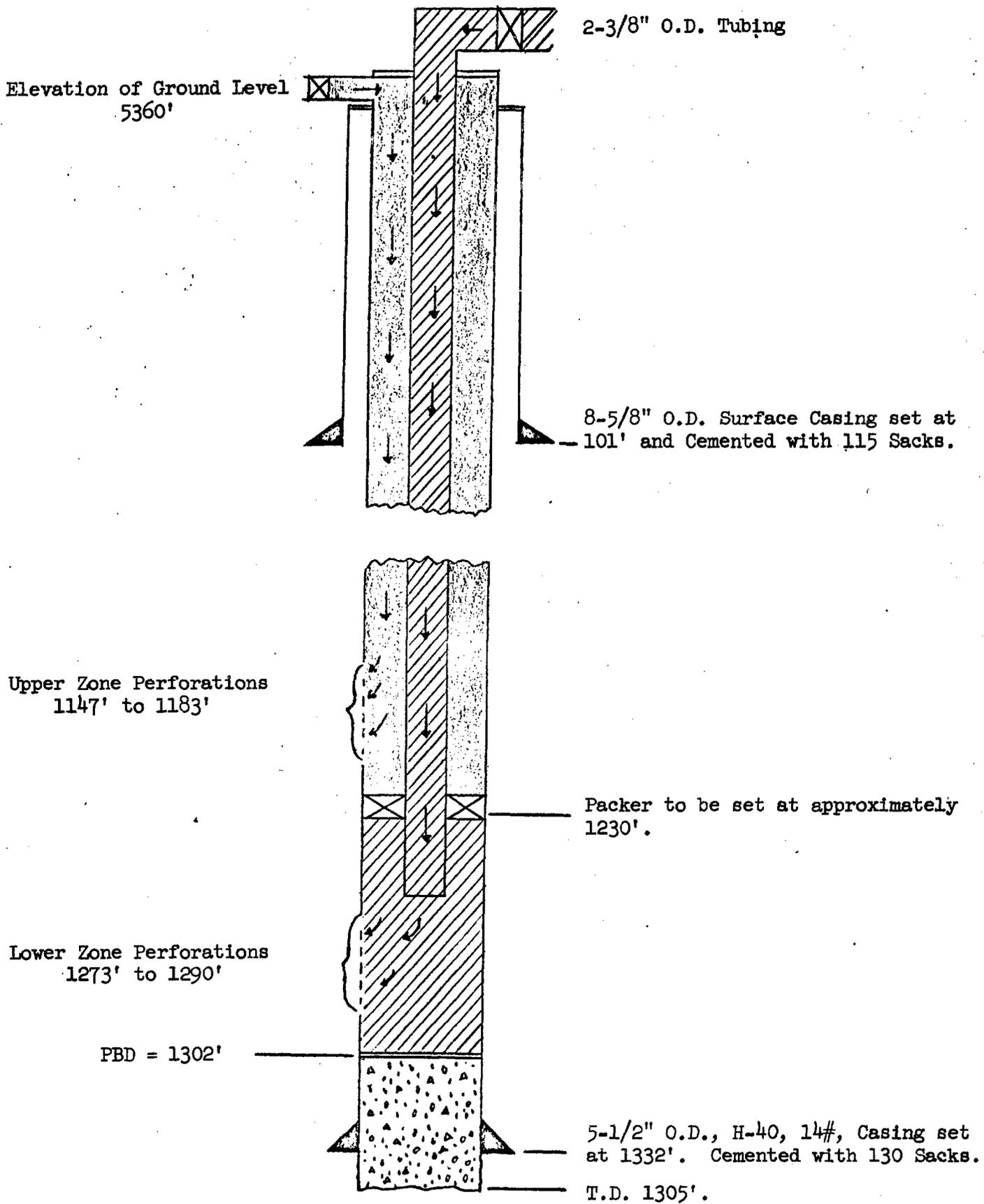
W. P. Tomlinson

WPT:jcb

Attachments

cc: U.S.G.S.  
P. O. Box 959  
Farmington, New Mexico  
Attention: Mr. Phil McGrath  
  
Commissioner of Public Lands  
State Land Office  
Santa Fe, New Mexico

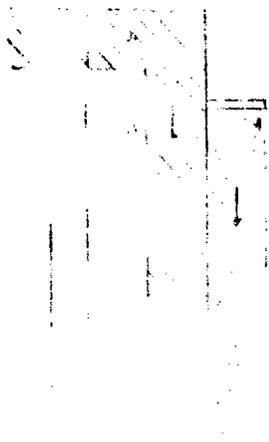
State of New Mexico  
State Engineer  
State Capitol  
Santa Fe, New Mexico  
Attention: Mr. Frank Irby  
  
Pan American Petroleum Corp.  
Security Life Building  
Denver, Colorado



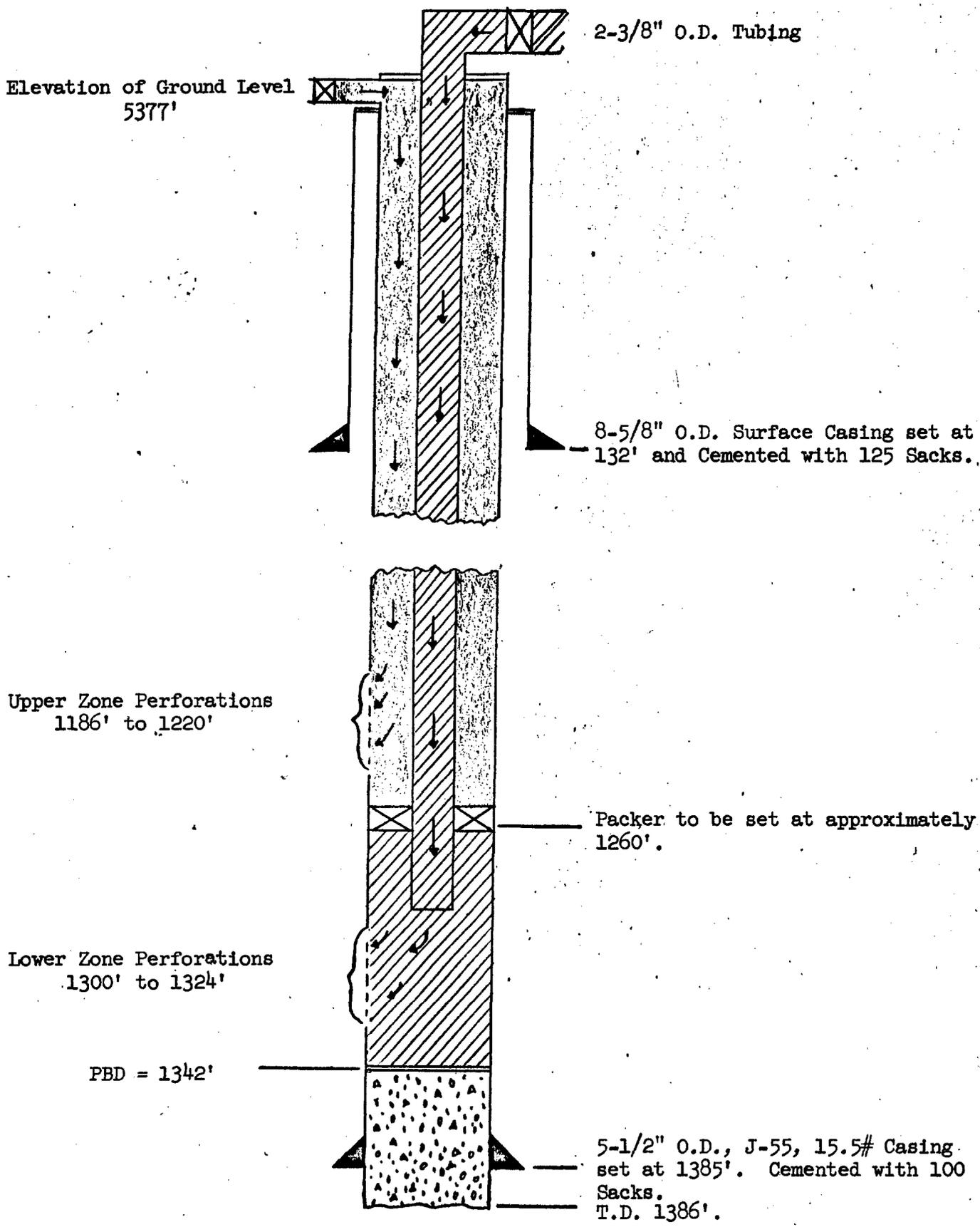
ATLANTIC RICHFIELD COMPANY  
Schematic Drawing

Horseshoe-Gallup Unit Well No. 20  
San Juan County, New Mexico

EXHIBIT NO. I

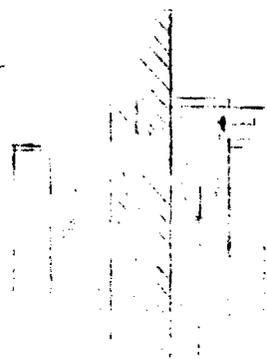


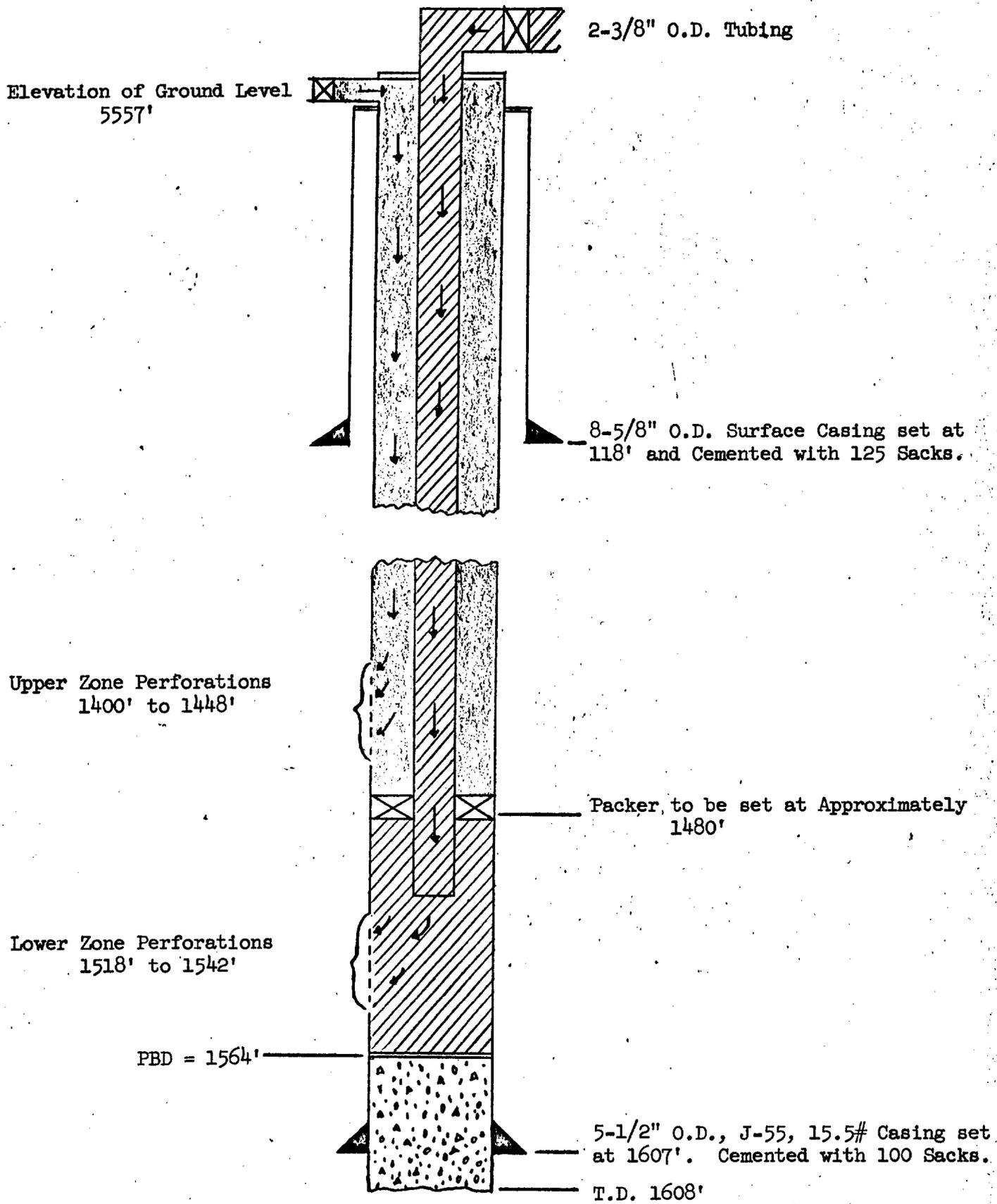
level



ATLANTIC RICHFIELD COMPANY  
Schematic Drawing

Horseshoe-Gallup Unit Well No. 211  
San Juan County, New Mexico





ATLANTIC RICHFIELD COMPANY  
Schematic Drawing

Horseshoe-Gallup Unit Well No. 236  
San Juan County, New Mexico

**SCHLUMBERGER WELL SURVEYING CORPORATION**  
HOUSTON, TEXAS



*Sonic Log*

COUNTY SAN JUAN, N.M.  
FIELD or LOCATION HORSESHOE GALLUP  
WELL NAVAJO # 20  
COMPANY ATLANTIC REFG. CO.

COMPANY ATLANTIC REFINING  
WELL NAVAJO # 20  
FIELD HORSESHOE GALLUP  
LOCATION SEC. 32-31N-16W  
COUNTY SAN JUAN  
STATE NEW MEXICO

Other Survey NONE  
Location of W 1980' FR N/  
417' FR E/  
SEC. 32-31N-  
Elevation: K.B.: 53  
D.F.: 53  
or G.L.: 53

Log Depths Measured From KB 7 Ft. above GL

RUN No.	ONE		
Date	12-4-58		
First Reading	1333		
Last Reading	1000		
Feet Measured	333		
Csg. Schlum.	--		
Csg. Driller	92		
Depth Reached	1337		
Bottom Driller	1338		
Mud Nat.	GEL-CHILL		
Dens.	9.2	50	
Visc.	1.8	@ 60	°F
Mud Resist.		@	°F





LARGE FORMAT  
EXHIBIT HAS  
BEEN REMOVED  
AND IS LOCATED  
IN THE NEXT FILE