

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	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

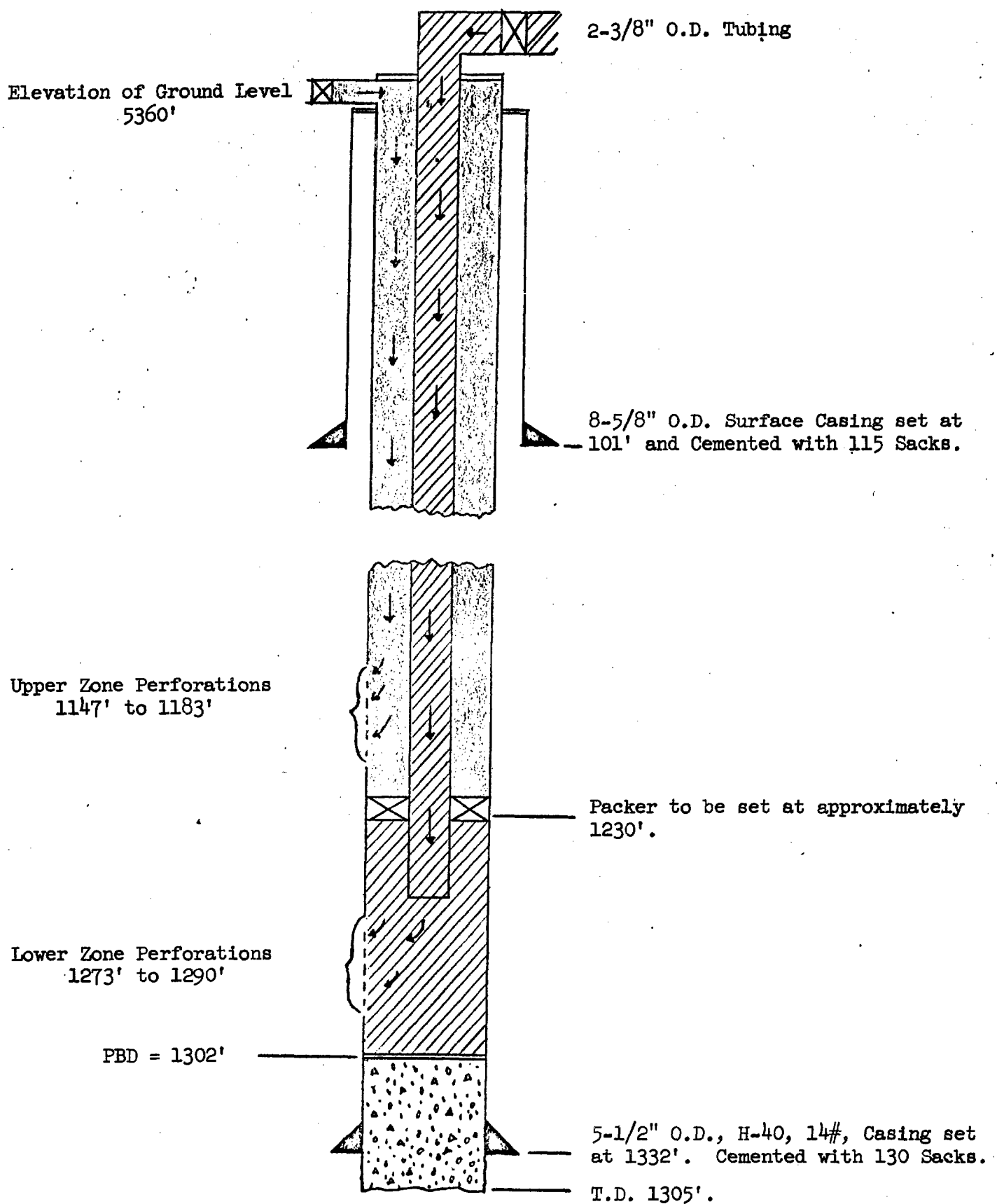
Attachments

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

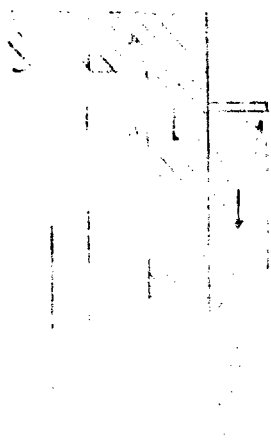
Pan American Petroleum Corp.
Security Life Building
Denver, Colorado



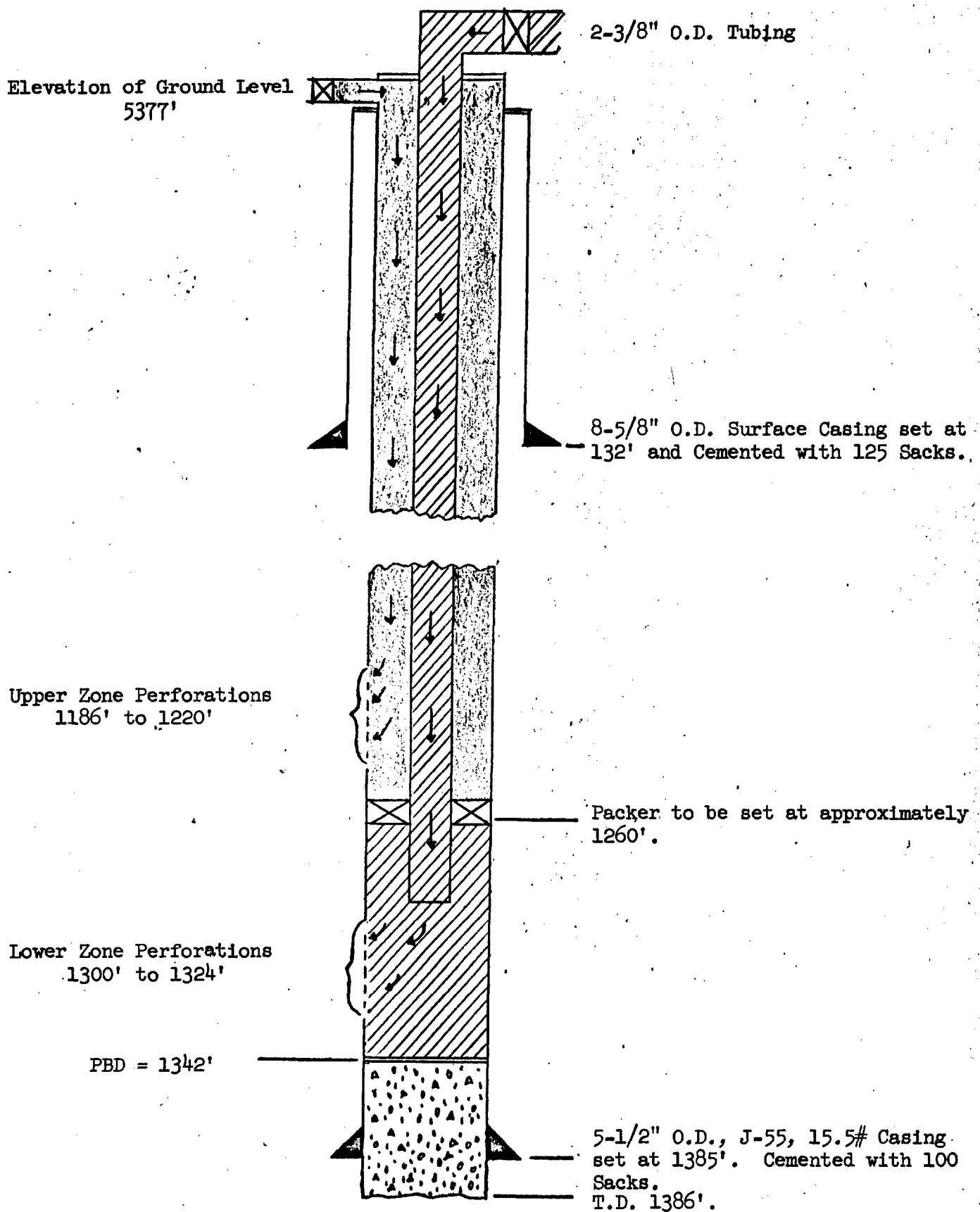
ATLANTIC RICHFIELD COMPANY
Schematic Drawing

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

EXHIBIT NO. I



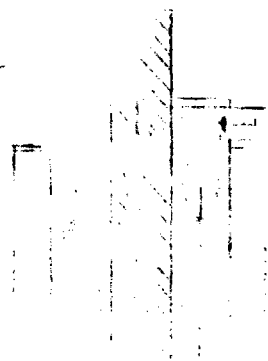
level

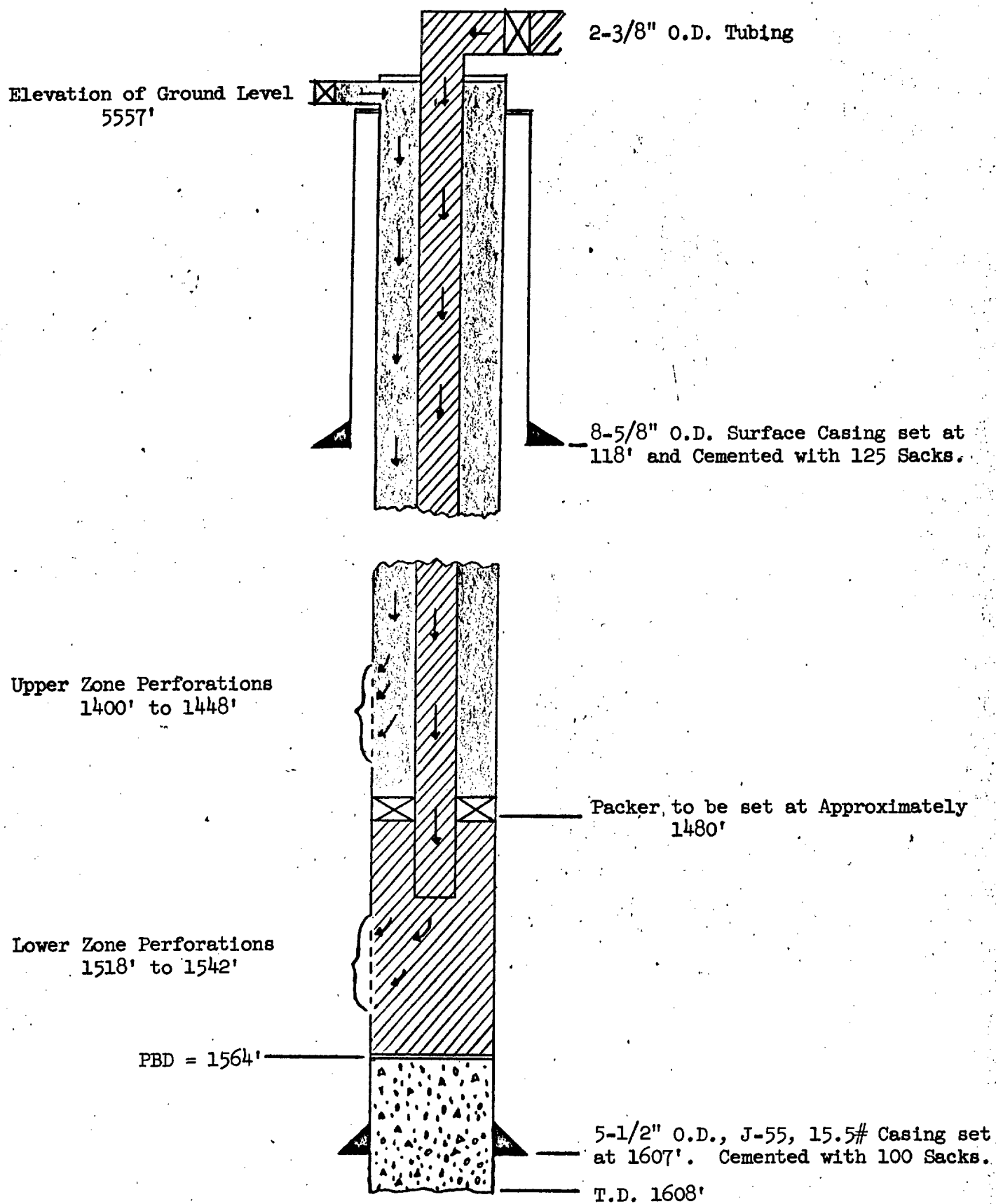


ATLANTIC RICHFIELD COMPANY
Schematic Drawing

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

EXHIBIT NO. 2





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
 COMPANY
 WELL NAVAJO # 20 *#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.:
 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-CHIEF	
Dens.	9.2	50
Visc.	1.8	@ 60 °F
Mud Resist.		@ °F

HOUSTON, TEXAS



Production - Electrical Log

COMPANY EL PASO NAT. GAS CO.

Other Surveys

Location of Well

Elevation: D.F.: 5384
K.B.: 5385
or G.L.: 5377

FILING No. _____

RUN No.	ONE								
Date	4-6-58								
First Reading	1379								
Last Reading	134								
Feet Measured	124.5								
Csg. Schlum.	134								
Csg. Driller	124								
Depth Reached	138.5								
Bottom Driller	138.5								
Depth Datum	128								
Mud Nat.	CHEN GEL								
Dens. Visc.	8.8 47								
Mud Resist.	1.8 @ 70 °F	@	°F	@	°F	@	°F	@	°F
"	1.5 @ 85 °F	@	°F	@	°F	@	°F	@	°F
Rmf	1.3 @ 85 °F	@	°F	@	°F	@	°F	@	°F
Rmc	1.7 @ 85 °F	@	°F	@	°F	@	°F	@	°F

SCHLUMBERGER WELL SURVEYING CORPORATION

HOUSTON, TEXAS



Induction-Electrical Log

Other Surveys	None	Location of Well	FIELD PAINT	Elevation: D.F.: 556 K.B.: or G.L.: 553	FILING No.
COMPANY EL PASO NAT.	GAS PRODUCTS CO.	WELL HORSESHOE CANYON #9 #236	FIELD HORSESHOE CANYON	LOCATION SEC. 3-30N-16W 2310N 1640W	COUNTY SAN JUAN STATE NEW MEXICO

[illegible]

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