

STATE OF MARYLAND
DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES

The Johns Hopkins University
BALTIMORE 18, MARYLAND

WELL COMPLETION REPORT

This report must be submitted within 90 days after completion of the well

WELL DESCRIPTION

WELL LOG		CASING AND SCREEN RECORD			Permit Number Six (6)
State the kind of formations penetrated, their depth, their thickness, and if water-bearing		State the kind and size of casing, liner, shoe, screen, and other accessories (if no casing used, give diameter of well)			Name of Owner Columbia Carbon Company
GW-1513, Ray O. Arnold, at Al #1 - started drilling 7-24-54 - completed drilling 9-23-54		FEET	FEET	FEET	PUMPING TEST
			FEET	FEET	Hours Pumped
			FEET	FEET	Pumping Rate Gallons per Minute
Log of Well			FEET	FEET	WATER LEVEL
Space	0 - 6	16" 65# drive pipe	18'5"	-	Distance from land surface to water:
Top Soil	6 - 8	10-3/4" 32.75# ran at 100' DLM	101'8"	101'8"	Before Pumping
Yellow Clay	8 - 12	8-5/8" 24# ran at 543' DLM w/ M.B.H. packer	545'6"	-	When Pumping
Blue Clay	12 - 25				APPEARANCE OF WATER
Slate	25 - 170	7" 23# ran at	3557'5"	-	Clear
Black Lime	170 - 180	3537' SLM with guide shoe on botm. with centralizer in center of first joint			Cloudy
Slate	180 - 195	Well not tubed			Taste
Lime	195 - 205	F. Water @ 65' - hole full			Odor
Slate " Shells	205 - 390	F. Water @ 200' - hole full			Height of Casing Above Land Surface
Lime	390 - 400	Gas Pays:			PUMP
Slate & Shells -wh.	400 - 1100	3548' show			Type
Slate & Shells -dark	1100 - 1400	3564' show			Capacity
Slate & Sh. -white	1400 - 2000	3665' 10/10 W. 2" 133MCF			Gallons per Minute
Slate & Shells -dark	2000 - 2240	3666' 80/10 W. 2" 377MCF			Gallons per Hour
Slate & Shells -wh.	2240 - 2295	3686-3703' 28/10 E. 2" 823MCF			Pump Column Length
Hard Rock	2295 - 2345	3703-3707' 34/10 E. 2" 907MCF			REMARKS
Slate & Shells -wh.	2345 - 2430				See reverse side for hydrafracing record
Slate & Shells -dark	2430 - 2640				
Slate & Shells -wh.	2640 - 2850				
Slate & Shells -dark	2850 - 3140				
Slate " Shells -wh.	3140 - 3210				
Slate & Shells -dark	3210 - 3525				
Chert	3525 - 3640				
3533' DLM-3533' SLM					
3548' DLM-3548' SLM					
Shale break	3640 - 3664				
Oriskany	3664 - 3805' SLM				
Total depth	- 3805' SLM 3800' DLM				

See reverse side

Well Was Completed
Date Oct. 6, 1954
Well Driller
Nollem Oil and Gas Co.
Signature

WELL LOG

Hydrofracing record

9-27-54 - 2 1/2" casing at 3527'. Model "X" drillable packer set with oil and pumped in at rate of 2 1/2 bbls. per minute at 1200# - pumped 6 bbls. in.

9-28-54 - Hydrofraced with 5000# sand. Pumped in 42 bbls. oil at 2000# pressure with 7 trucks. Pumped in 3000 gallons kerosene and 6,000# sand. Started in at 2000# and went up to 3000#. Pumped in 40 bbls. oil with gel breaker followed with 78 bbls. kerosene. Pressure at 3000# - dropped to 1200# and then on to 2400# - 2400# when finished pumping.

Before hydrofracing gas gauged 907,000 cubic feet - final open flow 11,000,000 cubic feet - 24 hour pressure 1450#.

3 day pressure 1450#

Depth (ft)	Pressure (psi)	Notes
3527	1200	Oil pumped in
3527	2000	Start of hydrofracing
3527	3000	Pressure increase
3527	1200	Pressure drop
3527	2400	Final pressure
3527	1450	3 day pressure
3527	1450	24 hour pressure
3527	1450	Final open flow

State of Maryland
 DEPARTMENT OF GEOLOGY, MINES AND WATER RESOURCES
 The Johns Hopkins University
 Baltimore 18, Maryland

APPLICATION FOR PERMIT TO DRILL OIL OR GAS WELL
 (Applications must be submitted in triplicate)

Cities Service Oil Co

OWNER <u>COLUMBIAN CARBON COMPANY</u> <i>John</i> STREET <u>Box 873</u> POST OFFICE <u>Charleston 23, W. Va.</u>	LOCATION OF WELL <u>GW-1513, Ray C. Arnold #1</u> COUNTY <u>Garrett</u> NEAREST POSTOFFICE <u>Redhouse</u> Distance from Post Office <u>4,000 feet</u> Direction from Post Office <u>North</u>
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PERMIT TO DRILL WELL

NOT TO BE FILLED IN BY APPLICANT

PERMIT NO. SIX (6)

The permit is herewith granted subject to the conditions stipulated.

[Signature]
 Director

Date July 6, 1954

Special conditions that may apply:

APPROXIMATE DEPTH OF WELL (feet) <u>4,500 feet</u> METHOD OF DRILLING <u>Cable Tool</u> DEEPEST GEOLOGIC FORMATION WELL WILL BE DRILLED <u>Helderberg</u> DISTANCE OF WELL LOCATION TO NEAREST BUILDING (feet) <u>1,200 feet</u>	NUMBER OF SHIFTS PER DAY <u>2</u> LICENSED DRILLER IN CREW OF EACH SHIFT <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">NAME</th> <th style="width: 50%; text-align: center;">ADDRESS</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;"><u>names will be supplied later</u></td> </tr> </tbody> </table>	NAME	ADDRESS	<u>names will be supplied later</u>	
NAME	ADDRESS				
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The names and post office addresses of the owners of the tracts of land included on the plat or map accompanying the application are to be given below.

- Ray C. Arnold and Mabel V. Arnold, Route #2, Oakland, Maryland
- Dan J. Hershberger & Lydia D. Hershberger, Route #2, Oakland, Maryland
- Lawrence A. Junkins and Rose N. Junkins, Route #2, Oakland, Maryland
- Savilla C. Sanders, Widow, Route #2, Oakland, Maryland
- David B. Reger, P.O. Box 816, Morgantown, W. Va.

NOTE

A BOND FOR \$2,500 PAYABLE TO THE STATE OF MARYLAND MUST ACCOMPANY THE APPLICATION THIS APPLICATION FORM MUST BE FILLED OUT WITH TYPEWRITER OR IN BLOCK LETTERS