

LATITUDE 38° 15' 00"

LONGITUDE 81° 47' 30"



7.5 OGIS topo location

7.5' 10c 2.17S 15' 10c \_\_\_\_\_  
1.54W (calc.) \_\_\_\_\_

Company \_\_\_\_\_

Farm \_\_\_\_\_

Quad JULIAN 7 1/2'

County LINCOLN

District WASHINGTON

WELL LOCATION MAP

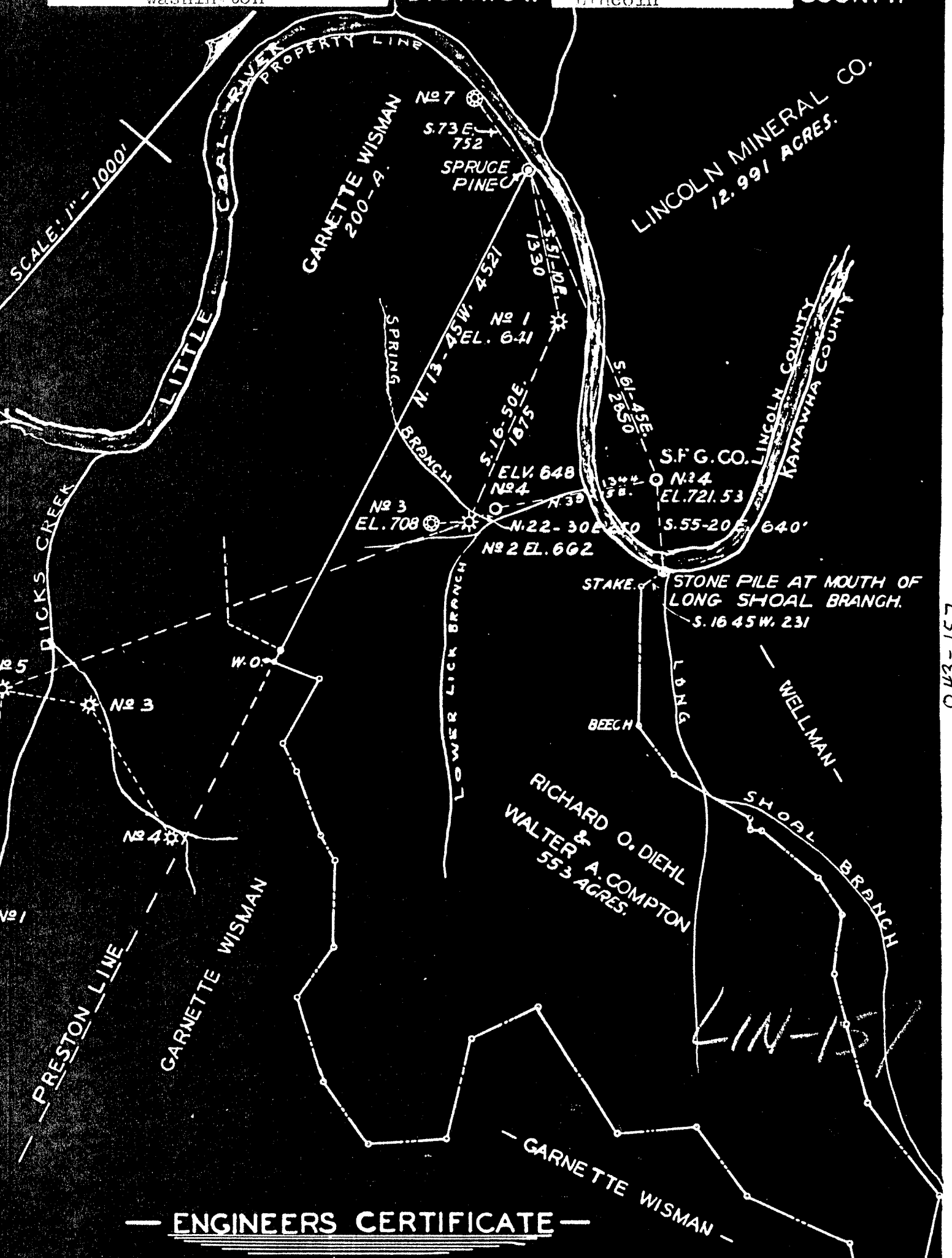
File No. 043-1157

Deep

66

(277)

PLAT OF WELL LOCATION No. 4 BY THE [REDACTED]  
 FORWARD GAS COMPANY OF CHARLESTON, WEST VIRGINIA, ON THE  
 LINCOLN MINERAL COMPANY (STANDARD FUEL COMPANY) TRACT  
 CONSISTING OF 12.997 ACRES, MORE OR LESS, LOCATED IN  
 Washington DISTRICT, Lincoln COUNTY.



**ENGINEERS CERTIFICATE**

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS MAP IS CORRECT AND SHOWS ALL THE INFORMATION TO THE BEST OF MY KNOWLEDGE AND BELIEF REQUIRED BY THE OIL & GAS SECTION OF THE MINING LAWS OF WEST VIRGINIA.

*J. D. Moore*  
 CIVIL & MINING ENGINEER.

ACKNOWLEDGED BEFORE ME THE UNDERSIGNED AUTHORITY BY J. D. MOORE, THIS THE 12TH DAY OF OCTOBER, 1935, MY COMMISSION EXPIRES ON THE 30TH DAY OF JUNE, 1937.

043-157

15' location

S 2.19

W 3.87

81° 45'

608 LINCOLN COUNTY, W. VA., WELL RECORDS

Lincoln Mineral Company No. 4 Well.

Washington District, Lincoln County, W. Va.  
By Harvard Gas Company.  
Permit No. Lin-157.  
Elevation, 744' B.  
158 M. cu. ft. gas (Shale); gas show in Oriskany.  
Located 2.19 mi. S. of 38° 15' and 3.87 mi. W. of 81° 45'—NE—Madison  
Quadrangle.  
On north side of Little Coal River, (in southern loop), opposite mouth  
of Long Shoal Branch.  
0.95 mi. N. E. of McCorkle; 3.0 mi. S. W. of Brounland.

	Top.	Bottom.	Thickness.	Elevation (top)
Big Lime	1412	1588	176	— 668
Big Injun Sand	1588	1618	30	— 844
Berea Sand	2050	2073	23	—1306
Corniferous Lime	4350	4436	86	—3606
Oriskany Sand	4436	4450	14)	—3692
	4490	4523	33)	

Thickness, Devonian Shales, 2277 feet. Total depth, 4534½';  
Remarks: Completed July 1936. (4552' DLM).  
Shot at 4440-4452' no results. Shot at 3465-3665'.  
Show of oil, 4378'.  
Oriskany gas show, 4446'.  
On 12,991 acres.

(277) Alum Creek  
DEEP WELL

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DEPT 309  
157  
1021A3

Washington District, Lincoln County, W. Va.

By The Harvard Gas Co., Chas. F. Howard, 503 Kanawha Banking & Trust Co. Bldg.,  
Charleston, W. Va.

In loop, on north side of Little Coal River, opposite mouth of Long Shoal Branch,  
above railroad, 0.95 mi. N. E. of McCormick, and 3.0 mi. S. W. of Brounland.

3.65 mi. N. of 38° 10' and 0.72 mi. E. of 81° 50' - NE - Madison Quadrangle.

Elevation, 746' L.

Oriskany Sand dry. Reported 184 M. gas, after shot, but horizon not given.

0 - 12	Surface	2530 - 2570	Slate and shells
12 - 31	Red mud	2570 - 2805	Slate
31 - 36	Coal	2805 - 2990	Shelly
36 - 98	Sand	2990 - 3110	Slate
98 - 140	Slate	3110 - 3200	Slate and shells
140 - 195	Shelly	3200 - 3220	White slate
195 - 260	Slate	3220 - 3300	Brown shale
260 - 295	Sand	3300 - 3379	White slate
295 - 400	Slate and shells	3379 - 3400	Brown shale
400 - 460	Slate	3400 - 3450	White slate
460 - 470	Lime shells	3450 - 3505	Brown shale
470 - 500	Slate	3505 - 3515	White slate
500 - 508	Coal	3515 - 3670	Brown shale
508 - 606	Slate	3670 - 3713	Slate
606 - 705	Salt Sand	3713 - 3720	Shell
705 - 745	Salt Sand break	3720 - 4012	Slate
745 - 970	Sand	4012 - 4032	Brown slate
970 - 1130	Slate and shells	4032 - 4053	Shell
1130 - 1225	Maxton Sand	4053 - 4111	Brown slate
1225 - 1230	White slate	4111 - 4118	Brown shale
1230 - 1250	Red rock	4118 - 4125	White slate
1250 - 1300	White slate	4125 - 4155	Brown shale
1300 - 1304	Red rock	4155 - 4162	Lime shell
1304 - 1370	Slate	4162 - 4200	Brown shale
1370 - 1396	Little Lime	4200 - 4207	Lime shell, black
1396 - 1412	Pencil Cave	4207 - 4350	Brown shale
1412 - 1588	Big Lime	4350 - 4436	Corniferous Lime
1588 - 1618	Big Injun Sand	4436 - 4450	Oriskany Sand
1618 - 1710	Slate	4450 - 4462	Lime
1710 - 1770	Shells	4462 - 4490	Black lime
1770 - 1870	White slate	4490 - 4523	Oriskany? Sand
1870 - 2035	Slate and shells	4523 - ...	Lime
2035 - 2050	Brown shale	4534½	Total depth
2050 - 2073	Berea Sand	4552	Corrected total depth
2073 - 2400	Slate and shells		(See note below)
2400 - 2530	Lime shell		

"All measurements below the Berea Sand are made by "derrick string" measurements inasmuch as it was impossible to get a pick-up with the ordinary measurement. A derrick measurement was taken at the top of the Corniferous Limestone at 4350' and another was taken on the bottom of the hole. It was found that the actual total depth of the well was 4552', a difference of 19' as that shown on the log. This was occasioned by the drilling line stretching to that extent in drilling from the top of the Coerniferous to the bottom of the hole."

LINCOLN MINERAL CO. NO. 4 WELL.

Washington District, Lincoln County, W. Va.

By Harvard Gas Co., Charleston, W. Va.

located 3.87 mi. N. of 87° 45' and 2.19 mi. E. of 38° 15' - NE - Madison Quadrangle.

Elevation, 744' 1.

Permit Lin-157.

Drilling completed July 7, 1936.

Shot at 3465-3665' with 1320 pounds of gelatin and at 4440-4452', with 30 qts.  
No results.

Show of oil in Carniferous lime at 4378'.

Try hole in Oriskany Sand.

Coal was encountered at 31-36' and 500-508'.

Sample record from Flowers March 20, 1950.

4340  
744  
3596

Lin # 157

Top. Bottom. Thickness.

Top.	Bottom.	Thickness.	
4330	- 4340	10	Shale, black, highly carbonaceous, slightly pyritic; small amount is calcareous
SPRINGVILLE CHERT, 93 FEET			
4340	- 4350	10	limestone, brownish-black, very shaly, slightly pyritic
4350	- 4354	4	limestone, brownish-gray to brownish-black, very shaly, somewhat cherty
4354	- 4362	8	Chert, light- to medium-gray, some white, calcareous to a cherty limestone, brownish-gray (shaly), some brownish-black (very shaly)
4362	- 4369	7	Chert, white to medium-gray, some brownish-gray (calcareous) to limestone, light brownish gray to brownish-gray, some brownish-black (shaly)
4369	- 4369	4	No sample
4373	- 4388	15	limestone, brownish-gray to brownish-black, some light brownish gray, shaly, somewhat dolomitic, very cherty to calcareous chert, white to medium-gray; some brownish-black to grayish-black, calcareous, silicified shale in the lower part
4388	- 4393	5	Siltstone (at top), light-gray to brownish-gray, calcareous, dolomitic, very cherty to a calcareous, dolomitic chert, white to light brownish gray
4393	- 4401	8	Chert, very light gray to light brownish gray, calcareous, dolomitic (high in magnesium content ? - effervesces very slowly in cold dilute HCl).
4401	- 4407	6	limestone, light-gray to brownish-gray, highly dolomitic (high magnesium content ?), very cherty; trace of glauconite
4407	- 4415	8	Chert, light-gray to brownish-gray, highly calcareous, somewhat dolomitic, sandy in the lower part; trace of glauconite
4415	- 4418	3	Chert, light-gray to light brownish gray, moderately calcareous, slightly dolomitic
4418	- 4422	4	Sandstone, light-gray, very fine to fine-grained, subrounded to rounded, calcareous, slightly glauconitic
4422	- 4433	11	Siltstone to sandstone (very fine), light-gray, highly calcareous cherty, very cherty in part; contains some glauconite
PRIMARY SANDSTONE, 10 FEET			
4433	- 4439	6	Sandstone, light-gray, very fine to fine-grained, contains a few medium, rounded grains, most of the grains are clear and glassy, highly calcareous, very highly calcareous in the lower part
4439	- 4440	1	Sandstone, very light to light-gray, fine-grained, some medium (rounded) and some very fine grains, highly calcareous
4440	- 4443	3	Sandstone, light-gray, very fine to fine-grained, very highly calcareous and some sandy limestone

(OVER)

LINCOLN MINERAL CO. NO. 4 WELL (Continued).

Top. Bottom. Thickness.

HELDRETHS FORMATION, 82+ FEET

4443 - 4447	4	Limestone, very light to medium-gray, very silty and sandy (fine)
4447 - 4449	2	Limestone to sandstone (fine to very fine), medium light gray
4449 - 4451	2	Sandstone (very fine, silty) to chert, very light to light-gray, highly calcareous
4451 - 4452	1	Chert, very light gray, somewhat calcareous
4452 - 4454	2	Chert to siltstone, very light gray, some brownish-gray to brownish-black (shaly) in lower part, calcareous
4454 - 4456	2	Chert, brownish-gray to brownish-black (shaly), highly calcareous
4456 - 4457	1	Sandstone (very fine) to chert, light-gray to brownish-gray, highly calcareous
4457 - 4461	4	Chert, light-gray to brownish-gray, calcareous, dolomitic
4461 - 4464	3	Chert, brownish-gray to brownish-black (shaly), calcareous, highly dolomitic
4464 - 4470	6	Limestone to chert, brownish-black, shaly, dolomitic
4470 - 4474	4	Limestone, brownish-gray to brownish-black, moderately dolomitic, very shaly
4474 - 4478	4	Shale, brownish-black to grayish-black, highly calcareous, somewhat dolomitic
4478 - 4482	4	Shale (calcareous) to limestone (shaly), brownish-black, some light-gray to brownish-gray, slightly sandy and cherty, somewhat dolomitic
4482 - 4486	4	Limestone (shaly) to shale (calcareous), brownish- and grayish-black, cherty, dolomitic
4486 - 4490	4	No sample
4490 - 4494	4	Siltstone to sandstone (very fine), light- to medium-gray, some dark-gray, highly calcareous at the top, cherty, glauconitic
4494 - 4498	4	Siltstone and sandstone (very fine), very light to light-gray, calcareous to a silty and sandy limestone, cherty, slightly glauconitic
4498 - 4505	7	No sample
4505 - 4518	13	Chert (sandy and silty) to siltstone and sandstone (very fine), very light to light-gray at the top to light and medium-gray in the lower part, calcareous, highly calcareous in the lower part, slightly glauconitic
4518 - 4525	7	Siltstone and sandstone (very fine), light- to medium-gray, highly calcareous; trace of glauconite; a large amount of chert and some shaly material at the bottom.

WEST VIRGINIA DEPARTMENT OF MINES

OIL AND GAS DIVISION

PRELIMINARY DATA SHEET NO. 1

File No. \_\_\_\_\_

Well No. L.M. 4

Harvard Gas Company Company of Charleston

West Virginia on the Lincoln Mineral Co Farm

containing 12,991 acres. Location \_\_\_\_\_

Washington District, in Lincoln County, West Virginia

The surface of the above tract is owned in fee by \_\_\_\_\_

of \_\_\_\_\_ address, and the <sup>Oil & gas</sup> ~~mineral~~ rights are owned by

Lincoln Mineral Company of Charleston, W. Va.

The oil and gas privileges are held under lease by the above named company, and this well is drilled under permit

No. LTM 157 issued by the West Virginia Department of Mines, Oil and Gas Division

Nov 12, 193 5

Elevation of surface at top of well, 744 Spirit Barometric.

The number of feet of the different sized casings used in the well.

18' feet 10" size. ~~Wood~~ conductor.

1422 feet 6 5/8" size, csg. \_\_\_\_\_ feet \_\_\_\_\_ sized csg.

1444 feet 2" tubing size, csg. \_\_\_\_\_ feet \_\_\_\_\_ sized csg.

255 feet 8 1/2" Pulled size, csg. \_\_\_\_\_ feet \_\_\_\_\_ sized csg.

Hook w/ 1 packer of 2 5/6" size, set at 1444'

\_\_\_\_\_ packer of \_\_\_\_\_ size, set at \_\_\_\_\_

\_\_\_\_\_, in casing perforated at \_\_\_\_\_ feet to \_\_\_\_\_ feet.

\_\_\_\_\_, in casing perforated at \_\_\_\_\_ feet to \_\_\_\_\_ feet.

Coal was encountered at 31 feet, thick ness 60" inches, and at 500'

feet; thickness 96" inches; and at \_\_\_\_\_ feet; thickness \_\_\_\_\_ inches.

Liners were used as follows: (Give details) None

7/17/36  
Date.

Approved HARVARD GAS COMPANY, Owner.

By Chas. F. Howard  
(TITLE) Presid.



Lin 157

ard Gas ..... Company  
Bank & Trust Bldg Address  
J. Va.  
Well No. .... No. 4

COMPLETION DATA SHEET  
No. 2  
FORMATION RECORD

Name	Color	Character	Oil, Gas or Water	Top	Bottom	Thickness	Total Depth	Remarks
Surface				0	12			
Red Mud				12	31			
Coal				31	36			
Sand				36	98			
Slate				98	140			
Shelly				140	195			
Slate				195	260			
Sand				260	295			
Slate & Shells				295	400			
Slate				400	460			
Lime Shells				460	470			
Slate				470	500			
Coal				500	508			
Slate				508	606			
Salt Sand				606	705			
Salt Sand Break				705	745			
Sand				745	970			
Slate & Shells				970	1130			
Maxon Sand				1130	1225			
White Slate				1225	1230			
Red Rock				1230	1250			
White Slate				1250	1300			
Red Rock 2				1300	1304			
Slate				1304	1370			
Little Lime				1370	1396			
Pencil Cave				1396	1412			
Big Lime				1412	1588			
Big Injun				1588	1618			
Slate				1618	1710			
Shells				1710	1770			
White Slate				1770	1870			
Slate & Shells				1870	2035			
Brown Shale				2035	2050			
Berea sand				2050	2073			
Slate & Shells				2073	2400			
Lime Shell				2400	2530			
slate & Shells				2530	2570			
slate				2570	2605			
shelly				2605	2990			
slate				2990	3110			
slate & Shells				3110	3200			
White Slate				3200	3220			
Brown Shale				3220	3300			
white Slate				3300	3379			
Brown Shale				3379	3400			

continued

shot  
Well was not shot at ..... feet; well was shot at ..... feet.

Salt salt  
Fresh water at ..... feet; fresh water at ..... feet.

producing hole.  
Well was dry

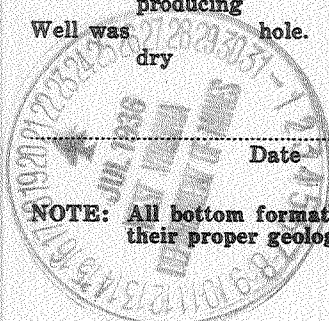
Date

Approved

Owner

NOTE: All bottom formations must be noted as indicated above and all key-rocks and oil and gas sands must be recorded under their proper geological names in the district as well as any local names commonly used in the district for such strata.

deep well





Harvard Gas Company

COMPLETION DATA SHEET

Address

No. 2

Well No. -2- L. M. # 4

FORMATION RECORD

Name	Color	Character	Oil, Gas or Water	Top	Bottom	Thickness	Total Depth	Remarks
White Slate				3400	3450			
Brown Shale				3450	3505			
White Slate				3505	3515			
Brown Shale				3515	3670			
Slate				3670	3713			
Shell				3713	3720			
Slate				3720	4012			
Brown Slate				4012	4032			
Shell				4032	4053			
Brown Slate				4053	4111			
Brown Shale				4111	4118			
White Slate				4118	4125			
Brown Shale				4125	4155			
Lime Shell				4155	4162			
Brown Shale				4162	4200			
Lime Shell Black				4200	4207			
Brown Shale				4207	4350			
Corniferous Lime				4350	4436			
Criskany Sand				4436	4450			
Lime				4450	4462			
Black Lime				4462	4490			
Criskany Sand				4490	3523			
Lime				4523				
Total Depth							4534 1/2	

The actual total depth of this well by derrick string measurements was 4552'. The difference is occasioned by the stretching of the drilling line from the top of the Corniferous limestone to the bottom of the hole.

A show of oil had been encountered in the Corniferous Lime at 4378'.

To properly protect the upper shale gas a solid rock bridge was set at 4350-4361 and five sacks of cement was dumped on top of the bridge. The well was then shot with 1320 pounds of gelatin 3465-3665'.

shot  
Well was not shot at 30 qts 4440-4452' feet; well was shot at 3465-3665' feet.

No results

Salt  
Fresh water at \_\_\_\_\_ feet; salt  
fresh water at \_\_\_\_\_ feet.

producing  
Well was \_\_\_\_\_ hole.

HARVARD GAS COMPANY

July 27, 1936

Approved

BY: *Hubert Howard*

Owner

NOTE: All bottom formations must be noted as indicated above and all key-rocks and oil and gas sands must be recorded under their proper geological names in the district as well as any local names commonly used in the district for such strata.

