

Company COLUMBIAN CARBON CO
 Address Box 873 CHARLESTON, W. VA
 Farm UNITED STATES OF AMERICA C-4227
 Tract 110 Acres 2467.20 Lease No. MA-022928
 Well (Farm) No. M1 Serial No. GN 1355
 Elevation (Spirit Level) 3199.90' Thornwood 7.5' quad
 Quadrangle TRUCE KNOB T370 W 180
 County POCAHONTAS District GREEN BANK
 Engineer Wendell S. Moore
 Engineer's Registration No. 2113
 File No. _____ Drawing No. W-4-61
 Date 31 Oct 61 Scale 1" = 2000'

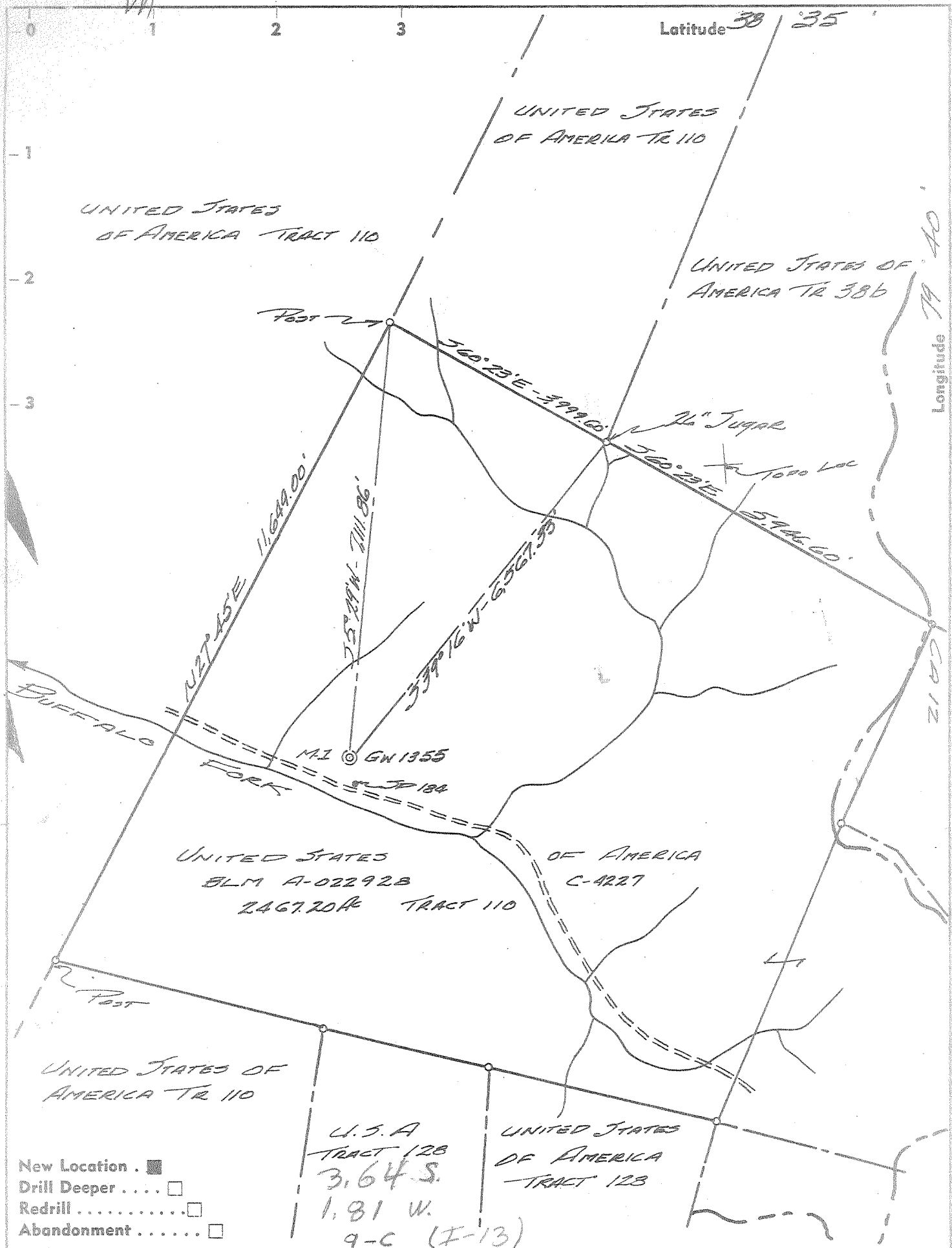
STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION
 CHARLESTON

WELL LOCATION MAP
 FILE NO. POCA-19

+ Denotes location of well on United States Topographic Maps, scale 1 to 62,500 latitude and longitude lines being represented by border lines as shown.

- Denotes one inch spaces on border line of original tracing.

ALLEY BLUEPRINT & SUPPLY CO.
 Samples 10' - 5730' 6-6 322 Deep Well



- New Location .
- Drill Deeper
- Redrill
- Abandonment

U.S.A
TRACT 128
3,645.
1,81 W.
9-C (F-13)

Company COLUMBIAN CARBON CO
 Address Box 873 CHARLESTON, W. Va
 Farm UNITED STATES OF AMERICA C-4227
 Tract 110 Acres 2467.20 Lease No. BLMA-022928
 Well (Farm) No. M1 Serial No. GN 1355
 Elevation (Spirit Level) 3199.90' 5 W
 Quadrangle SPRUCE KNOB 3370 W 180
 County POCAHONTAS District GREEN BANK
 Engineer Wendell S. Moore
 Engineer's Registration No. 2113
 File No. _____ Drawing No. W-21-61
 Date 31 OCT 61 Scale 1"=2000'

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STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION 27

Quadrangle Spruce Knob SW

WELL RECORD

Permit No. Poca 19

Oil or Gas Well Gas
(KIND)

Company Columbian Carbon Company, Oper.
Address P. O. Box 873, Charleston 23, W. Va.
Farm United States of America Acres 2467.20
Location (waters) Buffalo Fork
Well No. M-1, GW-1355 Elev. 3199.90'
District Green Bank County Pocahontas
The surface of tract is owned in fee by Bureau of Land Management
Interior Bldg. Address Washington, D. C.
Mineral rights are owned by Bureau of Land Management, et al
(for further add. contact C. C. C.) Address _____

Drilling commenced 2-9-62
Drilling completed 3-15-62
Date Shot not shot From _____ To _____
With _____
Open Flow /10ths Water in _____ Inch
/10ths Merc. in _____ Inch
Volume 1,800,000 Cu. Ft.
Rock Pressure _____ lbs. _____ hrs.
Oil _____ bbls., 1st 24 hrs.
WELL ACIDIZED not acidized

WELL FRACTURED see reverse side

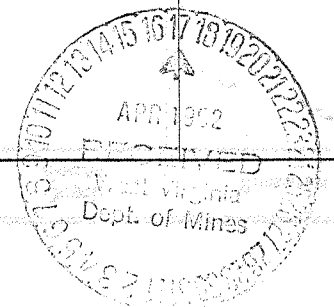
RESULT AFTER TREATMENT 2,579,000 cu. ft. (Oriskany)

ROCK PRESSURE AFTER TREATMENT 3 days 1725#

Fresh Water 170' Feet Salt Water 1280' Feet

| Formation | Color | Hard or Soft | Top | Bottom | Oil, Gas or Water | Depth | Remarks |
|----------------|-------|--------------|------|--------|-------------------|-------|---------|
| Sand | | | 0 | 60 | | | |
| Lime and Shale | | | 60 | 132 | | | |
| Sand | | | 132 | 200 | F. water | 170' | |
| Lime | | | 200 | 220 | | | |
| Shale | | | 220 | 250 | | | |
| Sand | | | 250 | 275 | | | |
| Shale | | | 275 | 435 | | | |
| Lime | | | 435 | 475 | | | |
| Sand | | | 475 | 500 | | | |
| Shale | | | 500 | 545 | | | |
| Sand | | | 545 | 580 | | | |
| Lime | | | 580 | 670 | | | |
| Shale | | | 670 | 725 | | | |
| Lime | | | 725 | 775 | | | |
| Sand | | | 775 | 920 | | | |
| Lime | | | 920 | 1000 | | | |
| Shale | | | 1000 | 1035 | | | |
| Lime | | | 1035 | 1100 | | | |
| Shale | | | 1100 | 1200 | | | |
| Lime | | | 1200 | 1240 | | | |
| Shale | | | 1240 | 1320 | S. water | 1280' | |
| Sand | | | 1320 | 1400 | | | |
| Lime | | | 1400 | 1425 | | | |
| Shale | | | 1425 | 1450 | | | |
| Lime | | | 1450 | 1475 | | | |
| Sand | | | 1475 | 1500 | | | |

(over)



CASING CEMENTED _____ SIZE _____ No. Ft. _____ Date _____
see reverse side
COAL WAS ENCOUNTERED AT none FEET _____ INCHES _____
FEET _____ INCHES FEET _____ INCHES
FEET _____ INCHES FEET _____ INCHES

| Casing and Tubing | Used in Drilling | Left in Well | Packers |
|-------------------|------------------|--------------|----------------------|
| Size | | | |
| 16 | | | Kind of Packer _____ |
| 13 3/8" 48# | 30'4" | 30'4" | none |
| 10 | | | Size of _____ |
| 8 1/4" 24# | 1221'1" | 1221'1" | |
| 6 1/2" | | | Depth set _____ |
| 5 3/16" 17# | 5061'3" | 5061'3" | |
| 3 | | | Perf. top _____ |
| 2 3/8" 4.7# | 4842'9" | 4842'9" | Perf. bottom _____ |
| Liners Used | w/ 2" cage | | Perf. top _____ |
| | | | Perf. bottom _____ |

| Formation | Color | Hard or Soft | Top ²⁹ | Bottom | Oil, Gas or Water | Depth Found | Remarks |
|--|--|--------------|-------------------|--------|-------------------|-------------|---------|
| Sandy Lime | | | 1500 | 1550 | | | |
| Shale | | | 1550 | 1570 | | | |
| Lime | | | 1570 | 1600 | | | |
| Shale | | | 1600 | 1650 | | | |
| Lime | | | 1650 | 1775 | | | |
| Shale | | | 1775 | 1845 | | | |
| Lime | | | 1845 | 1995 | | | |
| Shale | | | 1995 | 2260 | | | |
| Sandy Lime | | | 2260 | 2400 | | | |
| Shale | | | 2400 | 2500 | | | |
| Lime | | | 2500 | 2530 | | | |
| Shale | | | 2530 | 2860 | | | |
| Lime | | | 2860 | 2890 | | | |
| Shale | | | 2890 | 3540 | | | |
| Lime and Shale | | | 3540 | 3665 | | | |
| Shale | | | 3665 | 3925 | | | |
| Shale w/ Lime streaks | | | 3925 | 4499 | | | |
| Shale | | | 4499 | 4520 | | | |
| Lime and Chert | | | 4520 | 4610 | | | |
| Black Shale | | | 4610 | 4684 | | | |
| Black Chert | | | 4684 | 4740 | | | |
| Shale | | | 4740 | 4784 | | | |
| Oriskany Sand | | | 4784 | 4790 | Gas Pay | 4784-90' | 1,800 M |
| Sand and Lime streaks | | | 4790 | 4830 | | | |
| Sand, Shale and Lime | | | 4830 | 4878 | | | |
| Sand and Lime | | | 4878 | 4939 | | | |
| Sand, Shale and Lime | | | 4939 | 5049 | | | |
| Shale and Lime | | | 5049 | 5208 | | | |
| Lime and Shale | | | 5208 | 5246 | | | |
| Lime, Shale and Chert | | | 5246 | 5284 | | | |
| Lime and Shale | | | 5284 | 5537 | | | |
| Shale and Lime | | | 5537 | 5592 | | | |
| Lime and Shale | | | 5592 | 5710 | | | |
| Lime | | | 5710 | 5730 | | | |
| Total depth | | | ----- | 5730' | | | |
| Samples show: | | | | | | | |
| Oriskany | | | 4534 | 4654 | | | |
| | | | 4784 | 4984 | | | |
| CASING RECORD | | | | | | | |
| 2-10-62 | Ran 13-3/8" casing at 30'DLM-cemented with 30 sacks | | | | | | |
| 2-14-62 | Ran 8-5/8" casing at 1200'DLM-cemented with 50 sacks | | | | | | |
| 3-18-62 | Ran 5-1/2" casing at 5028' w/ Whirler Guide Shoe at 5028' and Differential fill up collar on top of 1st joint. Centralizers at 4900' 4850' 4750' 4600' 4500' 4400' and 4350'. Ran 2 sacks Baraflos and 200 sacks cement. | | | | | | |
| See perforating and fracturing record on attached sheet. | | | | | | | |

Date April 16, 19 62

APPROVED Columbian Carbon Co., Oper., Owner

By W. S. Moore, Mgr. of Prod.
(Title)

7000-17

GW-1355, United States of America M-1

3-2-62 - Before killing well gas gauged between 1,819 and 1,836 MCF.

3-16-62 Ran Gamma Gamma, Caliper, Gamma Ray, Lateral and Neutron Logs -
Chert 4410-28' - Oriskany Sand 4518-4606' - Chert 4678-4698' - Oriskany 4782-5000'

3-20-62 Perforated 4414-18' 4526-31' 4533-36' 4573-81' 4591-93' 4600-04' 4680-83'
4686-89' 4 shots per foot = 136 shots - 1/2 frac jets - 1/2 plain jets.

3-21-62 Fractured Upper Oriskany. Ran 7 bbls. water to fill to bottom perforations.
Ran 500 gallons MCA, 1500 gallons regular acid, filled hole with water. Broke down
at 2500# - started sand 1/4#/gallon - increased to 1/2#, 1# and 1-1/2# maximum.
Started perf balls after 7,000# sand - used 60 perf balls - cut with 7,000# sand left.
Pressure rose gradually to 2900# at end of sand and 3200# at end of flush. Flushed
with 110 barrels water. Used 750 barrels water, 25 gallons Tergitol, 24,000# sand,
60 perf balls. Average injection rate 26 bbls/minute - 1300# on well.

3-23-62 Perforated lower zone of Oriskany 4784-92' 4 shots/foot. Before perforating
gas from zone fraced on 3-21-62 gauged 9/10 W. 2" = 127 MCF - after perforating all
gas gauged 23/10 W. 2" = 202 MCF.

3-24-62 Ran 3" and Baker Full Bore Packer set at 4,730'. Before setting packer all gas
gauged 12/10 W. 3" = 328MCF. Pumped in 500 gallons MCA acid, 1500 gallons regular
acid. Broke down at 3250#. Started to frac at 2650# pressure - had 15,000# sand in when
got circulation into 7" at upper perforations. Flushed tubing at 3,000#. Packer sanded.
Circulated fluid out upper perforations and freed packer. Pulled above all perforations
and shut in braden head. Let well flow.

3-25-62 Pulled tubing and packer.

3-26-62 Ran 2" tubing with cage and bull plug on bottom. Gas gauging 95/10 M. 2" = 1,516M-
still wet.

| | |
|--|----------------|
| 4-10-62 Final open flow after blowing 11 hours (Tubing only 8 hours-Tubing & B. H. 3 hrs.) | |
| Braden head 42/10 M. 3" | 2,268 MCF |
| Tubing 4/10 M. 2" | <u>311 MCF</u> |
| Total gas | 2,579 MCF |

