

HARMAN-9-14

API No. 45-027-20290-00-03 VDMR Well Rep. No. _____
DMQ File No. BU-170

Operator COLUMBIA GAS TRANSMISSION CORPORATION
Farm ALFRED DEEL
Co. Well No. 20471

County BUCHANAN Quadrangle HARMAN - 7-1/2'
Location (UTM) N 4,123,630; E 392,820 UTM Zone 17
(Lat. and Long.) _____

Field _____ Province APPALACHIAN PLATEAUS
Elev. (specify) 1698.85' GR. TD 4669' Form. at TD DEVONIAN SHALE
INITIAL FLOW - 678,000 CU. FT. Age DEVONIAN

Date compl. or abandoned DECEMBER 28, 1978
Result GAS WELL
Gas Shows 3824' to 3832'; 3849' to 3854'; 4558' to 4568
Gas Pays 3822' to 3828'

Main Production _____ Prod. Form. BIG LIME AND BEREA
Age MISSISSIPPIAN

Treatment: CO2 FRACTURED BEREA WITH 500 GALLONS OF MUD ACID, 34,000
CO2, 30,000 # 80/100 AND 30,000 # 20/40 SAND. ACIDIZED BIG LIME ON
12-6-68 WITH 1,000 GALLONS OF 28% HCL, 6,000 GALLONS 14% HCL, 10 BARRELS
WATER AND 70 BARRELS FLUSH.
Initial Production _____
FINAL FLOW - 2,130,000 CU. FT.

Oil shows _____
Water FW X at 100' _____ at _____ at _____
SW _____ at _____ at _____ at _____

Coal _____

Plat X Plotted X Completion Report X
Drillers Log _____ Geologic Log _____
Samples _____ Interval Sheet _____
Sample Interval _____
Remarks _____

Geophysical Logs S.P. _____ Res X Gamma X Neutron _____
Density X Sonic _____ Other INDUCTION, TEMPERATURE

Stratigraphic Data Source

<u>Formation</u>	<u>Top</u>	<u>Datum (Subsea)</u>	<u>Thickness</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Remarks

References

Released to Open File: Completion MARCH 28, 1979
Samples NONE

(Note: UTM measurements in meters, all others in feet)

Commonwealth of Virginia
DEPARTMENT OF LABOR AND INDUSTRY
Division of Mines
Big Stone Gap, Virginia

~~REDEVELOP~~
NOTICE OF INTENTION TO DRILL ~~DEEPEN~~ DRILL ~~OR~~ GAS WELL

(One copy of this report and three identical copies of a plat or map, on a scale not smaller than 400 feet to the inch, and showing information required by Section 45-114, Code of Virginia, 1950, must be submitted to the Division of Mines, and copies sent by registered mail to all persons defined in above law, prior to obtaining a permit to drill.)

TO: DIVISION OF MINES
BIG STONE GAP, VIRGINIA

Charleston, West Virginia
Place

January 4, 19 78
Date

Gentlemen:

The undersigned proposes to begin as soon as a permit therefor is obtained from the Division of Mines, to drill, ~~redrill or deepen~~ (strike out two) a well for ~~oil or~~ gas on the Pittston Company Farm, comprising 28,810.88 acres, in the Prater District of Buchanan County, Virginia, having the fee title thereto, or as the case may be, under grant or lease dated May 1, 1970, made by The Pittston Company to United Fuel Gas Co. and recorded on the --- day of ---, 19--- in the office of the County Clerk for said County in Book 195, page 198.

The proposed location of the well, as shown on the attached plat or map, is about 4300 feet Southwest of Stewart Gap and about 2800 feet East of Head of Cindy Fork.

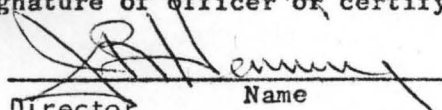
It is proposed to drill this well to a depth of about 4650 feet. Samples or cuttings therefrom ~~will~~ be available for examination by a member of the staff of the Virginia Geological Survey. Cuttings ~~will~~ be furnished the Survey.

A plat or map, in triplicate, on a scale not smaller than 400 feet to the inch, showing the proposed location of the well and other information, required in Section 45-114, Code of Virginia, 1950, is attached hereto. Copies of the plat and notice of intention to drill, redrill or deepen the aforementioned well have been sent to all interested persons as required by Section 45-114, above cited, as follows (List names and mail address of each. Use back of sheet if additional space is required):

1. The Pittston Company, Dante, Virginia 24327
2. Harmon Coal Company, Harmon, Virginia 24618
3. _____
4. _____
5. _____
6. _____

Very truly yours,

Signature of officer or certifying party:


Director Name
Exploration and Development Title

Columbia Gas Transmission Corporation
Drilling Company or Operator
P. O. Box 1273
Street Address
Charleston, West Virginia 25325
City or Town, and State

File 64-170 Date Received 1-6-78 Well No. 20471

Chart



COMMONWEALTH OF VIRGINIA
DIVISION OF MINES AND QUARRIES
DEPARTMENT OF LABOR AND INDUSTRY
BIG STONE GAP, VIRGINIA

~~DEEPEN~~
APPLICATION FOR PERMIT TO DRILL ~~OIL OR~~ GAS WELL
~~REDRILL~~

(Required by Section 45-115, Code of Virginia, 1950. To be accompanied by Permit fee of twenty-five dollars and bond and surety therefor, as specified by Section cited. To be submitted in duplicate, one copy to be returned to applicant after action by Division of Mines and Quarries.)

TO: DIVISION OF MINES AND QUARRIES
BIG STONE GAP, VIRGINIA

Charleston, West Virginia

Place

January 4, 1978

Date

Gentlemen:

The undersigned hereby makes application for a Permit to drill, ~~redrill~~/~~or~~/~~deepen~~ (strike out two) a well for ~~oil~~/~~or~~/gas on the Pittston Company Farm, comprising 28,810.88 acres, in the Prater District of Buchanan County, Virginia, having the fee title thereto, or as the case may be, under grant or lease dated May 1, 19 70 made by The Pittston Company to United Fuel Gas Company and recorded on the ---- day of ----, 19 --- in the office of the County Clerk for the said County in Book 195 page 198.

The proposed location of the well is shown on a location plat or map submitted to the Division of Mines and Quarries, by the undersigned, together with Notice of Intention to Drill, ~~Redrill~~/~~or~~/~~Deepen~~ a Well for ~~Oil~~/~~or~~ Gas (Form 2) on the 4th day of January, 19 78.

The proposed well will be known as Well No. 20471 of Columbia Gas Transmission Corp. (company, etc.) It is proposed to drill this well to a depth of about 4650 feet.

The proposed location is about 3520 feet distant from the nearest property or lease line; about --- feet distant from the nearest mining opening, or quarry (strike out words not applicable); and/or about 4600 feet distant from the nearest ~~drilling~~/~~abandoned~~, producing, ~~or~~/~~applied for~~ (strike out words not applicable) ~~oil~~/~~or~~ gas (strike out words not applicable) well.

There is enclosed herewith a certified check or U. S. Postal Money Order, in the amount of twenty-five (\$25.00), payable to the Treasurer of Virginia, covering fee for a Permit to Drill a Well for Oil or Gas, as required by Section 45-115, Code of Virginia, 1950.

Bond and surety therefor to insure compliance with the provisions of Chapter 8, Title 45, Code of Virginia, 1950, for this well, in the amount of \$3,200.00 is submitted herewith of (give status of) Policy No. 8073-06-75

Correspondence regarding this well should be addressed to Mr. J. R. Henning
P. O. Box 1273, Charleston, West Virginia 25325.

Signature of officer or certifying party:

Very truly yours,

J. R. Henning
Director Name
Exploration and Development Title

Columbia Gas Transmission Corporation
Drilling Company or Operator
P. O. Box 1273
Street
Charleston,
City of Town
West Virginia 25325
State

Space below this line is for the use of the Board only.
ACTION OF DIVISION OF MINES AND QUARRIES

Received on 1-6-, 19 78.
Approved and Permit (No. 290) granted on 1-23-, 19 78.
Denied
Reasons for denial

DIVISION OF MINES AND QUARRIES
By W. Kelly State Chief Geologist
Title

File No. B4-170 Well No. 20471 Permit No. 290

Commonwealth of Virginia
DEPARTMENT OF LABOR AND INDUSTRY
Division of Mines
Big Stone Gap, Virginia

~~XXXXXXXXXX~~
NOTICE OF INTENTION TO DRILL OIL OR GAS WELL
~~XXXXXXXXXX~~

(One copy of this report and three identical copies of a plat or map, on a scale not smaller than 400 feet to the inch, and showing information required by Section 45-114, Code of Virginia, 1950, must be submitted to the Division of Mines, and copies sent by registered mail to all persons defined in above law, prior to obtaining a permit to drill.)

TO: DIVISION OF MINES
BIG STONE GAP, VIRGINIA

Charleston, West Virginia
Place

November 15, 19 77
Date

Gentlemen:

The undersigned proposes to begin as soon as a permit therefor is obtained from the Division of Mines, to drill, redrill or deepen (strike out two) a well for oil or gas on the Pittston Company Farm, comprising 28810.88 acres, in the Prater District of Buchanan County, Virginia, having the fee title thereto, or as the case may be, under grant or lease dated May 1, 1970, made by The Pittston Company to United Fuel Gas Co. and recorded on the --- day of ---, 19 --- in the office of the County Clerk for said County in Book 195, page 198.

The proposed location of the well, as shown on the attached plat or map, is about 2310 feet Southwest of Stewart Gap and about 1815 feet East of Head of Cindy Fork.

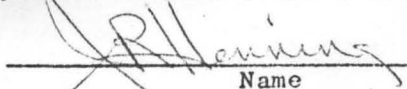
It is proposed to drill this well to a depth of about 4750 feet. Samples or cuttings therefrom ~~will~~ will be available for examination by a member of the staff of the Virginia Geological Survey. Cuttings ~~will~~ will be furnished the Survey.

A plat or map, in triplicate, on a scale not smaller than 400 feet to the inch, showing the proposed location of the well and other information, required in Section 45-114, Code of Virginia, 1950, is attached hereto. Copies of the plat and notice of intention to drill, redrill or deepen the aforementioned well have been sent to all interested persons as required by Section 45-114, above cited, as follows (List names and mail address of each. Use back of sheet if additional space is required):

- The Pittston Company, Dante, Virginia 24327
- Harmon Coal Company, Harmon, Virginia 24618
- _____
- _____
- _____
- _____

Very truly yours,

Signature of officer or certifying party:


Name
Director, Exploration & Development
Title

COLUMBIA GAS TRANSMISSION CORPORATION
Drilling Company or Operator
P. O. Box 1273
Street Address
Charleston, West Virginia 25325
City or Town, and State

File _____ Date Received _____ Well No. 20471

(To be filled in by
Division of Mines)

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF LABOR AND INDUSTRY

(To be filled in by
Division of Mines)

BUCHANAN
County

DIVISION OF MINES

Well No. 20471

PRATER
District

BIG STONE GAP, VIRGINIA

Permit No. 290

HARMAN
Quadrangle

DEEPENED
OIL AND GAS WELL COMPLETION REPORT
ABANDONMENT

County Code 027

BU-170
File

Well
Classification DEVELOPMENT

(This report and a copy of electrical log, if made, must
be submitted to the Division of Mines within 30 days after
abandonment or completion of well, as required by Section
45-113, Code of Virginia, 1950.)

Company Columbia Gas Transmission Corp.

Address P. O. Box 1273

Charleston, WV

Farm Alfred Deel

Acres 28,810.88

County Buchanan

District Prater

Well No. (Company) 20471

Elevation (ground surface) 1698.85 ft.

Location: (Give direction and distance in feet from two (2) map coordinates (Latitude and Longitude) shown
on location plat or map previously filed with the Division of Mines or shown on quadrangle topo-
graphic map of area.)

13,250 feet South of 37° 17' 30" and

200 feet West of 82° 12' 30"

Surface of tract is owned in fee simple by Pittston Company

Address Dante, VA

Mineral rights are owned by Pittston Company

Address Dante, VA

Location made by Columbia Gas Civil Engineering

Drilling commenced October 24, 1978

Drilling contractor Ray Resources Corp.

Drilling completed November 2, 1978

Address 630 Commerce Square, Chas., WV

Well completed as ^{gas}~~oil~~ well on December 28, 1978

Well abandoned at _____ feet on _____: Reason _____

Well plugged on _____, 19____ Affidavit filed _____, 19____

Total depth 4669 feet. Steel line measurement _____ feet.

Commenced producing on _____, 19____

Oil Well

Initial production, _____ Barrels per day.

Stimulation Record _____

Breakdown Pressure _____ psi; Average Injection Pressure _____ psi;

Average Injection Rate _____ BPM; Instant Shut-in Pressure _____ psi;

Min. Shut-in Pressure _____ psi;

Final Production _____ Barrels per day.

Gravity and grade of oil _____

Oil pays at (1) _____ feet to _____ feet. Oil shows at (1) _____ feet to _____ feet.

(2) _____ feet to _____ feet. (2) _____ feet to _____ feet.

(3) _____ feet to _____ feet. (3) _____ feet to _____ feet.

(4) _____ feet to _____ feet. (4) _____ feet to _____ feet.

Main production at _____ feet to _____ feet. (5) _____ feet to _____ feet.

Gas Well

Initial open flow, gas:

Gaged _____ /10ths. Water in _____ inch.

Volume 678

19 /10ths. Mercury in 2 inch.

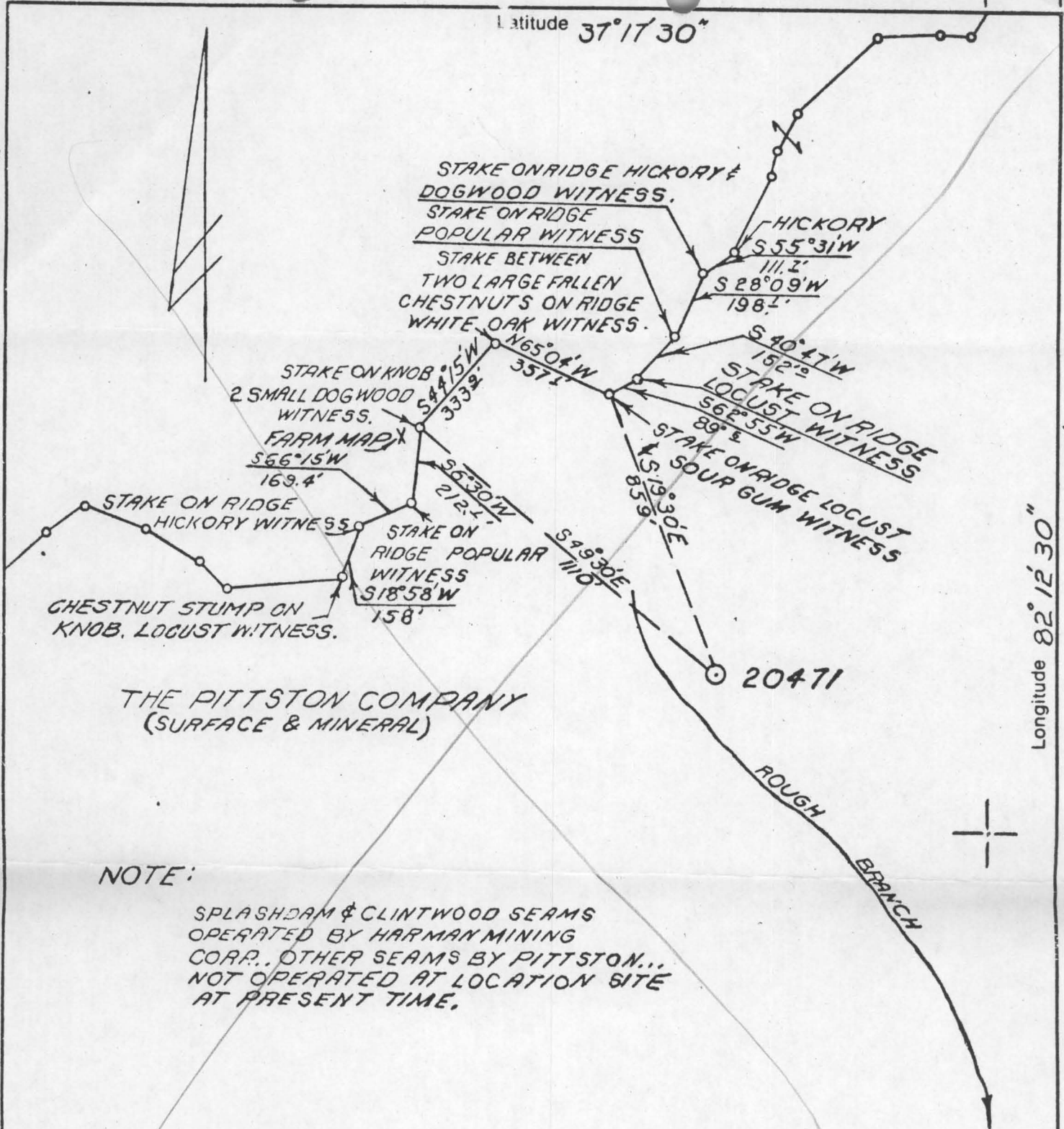
Mcf.; Rock Pressure _____ lbs. _____ hrs.

LOG

Furnished by _____ Date _____

Compiled by J. L. Osbourn Date 8-8-79

GEOLOGIC AGE	FORMATION	GENERAL LITHOLOGY	COLOR	TOP (feet)	BOTTOM (feet)	THICKNESS (feet)	REMARKS OIL, GAS WATER DEPTHS SHUT DOWN FISHING, ETC.
	Sand			0	40	40	
	Sand & Shale			40	826	786	Water @ 100'
	Sand			826	900	74	
	Sand & Shale			900	996	96	
	Sand			996	1034	38	
	Shale			1034	1198	164	
	Sand			1198	1405	207	
	Shale			1405	1433	28	
	Sand			1433	1502	69	
	Shale			1502	1546	44	
	Sand			1546	1638	92	
	Shale			1638	1644	6	
	Sand			1644	1674	30	
	Shale			1674	1840	166	
	Sand			1840	2028	188	
	Red Rcock			2028	2154	126	
	Sand			2154	2194	40	
	Shale			2194	2297	103	
	Sand			2297	2373	76	
	Shale			2373	2463	90	
	Sand			2463	2490	27	
	Shale			2490	2566	76	
	Sand			2566	2652	86	
	Sand & Shale			2652	2846	194	
	Maxon			2846	2907	61	
	Shale			2907	2942	35	
	Sand			2942	2954	12	
	Shale			2954	3074	120	
	Maxon			3074	3206	132	
	Sand & Shale			3206	3334	128	
	L. Lime			3334	3430	96	
	Pencil Cave			3430	3441	11	
	B. Lime			3441	3828	387	Gauged Gas in B. Lime - 678 MCF
	Injun			3828	3917	89	
	Weir			3917	4120	203	
	Slate & Shale			4120	4536	416	
	Coffee Shale			4536	4554	18	
	Berea			4554	4613	59	
	Shale			4613	4669	56	
	T.D.			4669			



THE PITTSTON COMPANY
(SURFACE & MINERAL)

NOTE:

SPLASHDAM & CLINTWOOD SEAMS OPERATED BY HARMAN MINING CORP., OTHER SEAMS BY PITTSTON, NOT OPERATED AT LOCATION SITE AT PRESENT TIME.

See Revised Plat

- New Location
- Storage
- Drill Deeper
- Abandonment
- Re-Drill/Fracture

"I, the undersigned, hereby certify that this map is correct to the best of my knowledge and belief and shows all the information required by the rules and regulations of the oil and gas section of the mining laws of VIRGINIA. Minimum degree of accuracy is one part in 200

ENGR. REG. N^o. 2330 (W.V.A.) Signed [Signature]
BOX 1273 CHARLESTON, WEST VIRGINIA

Company COLUMBIA GAS TRANS. CORP.
 Address BOX 1273 CHARLESTON, W.V.A.
 Farm THE PITTSTON CO.
 Lease PT. 64340 Acres 28,810.88'
 Well Farm No. _____ Ser. No. 20471
 Elevation - Spirit Level 1854.92'
 Quadrangle HARMAN, VA.
 Township or District PRATER
 County BUCHANAN
 Sec., Lot, Qr. _____ T _____ R _____
 Coordinates LAT. 37°15'33" LONG. 82°12'43"
 File No. 30-393 Dwg. No. _____
 Date 10-26-77 Scale 1" = 400'

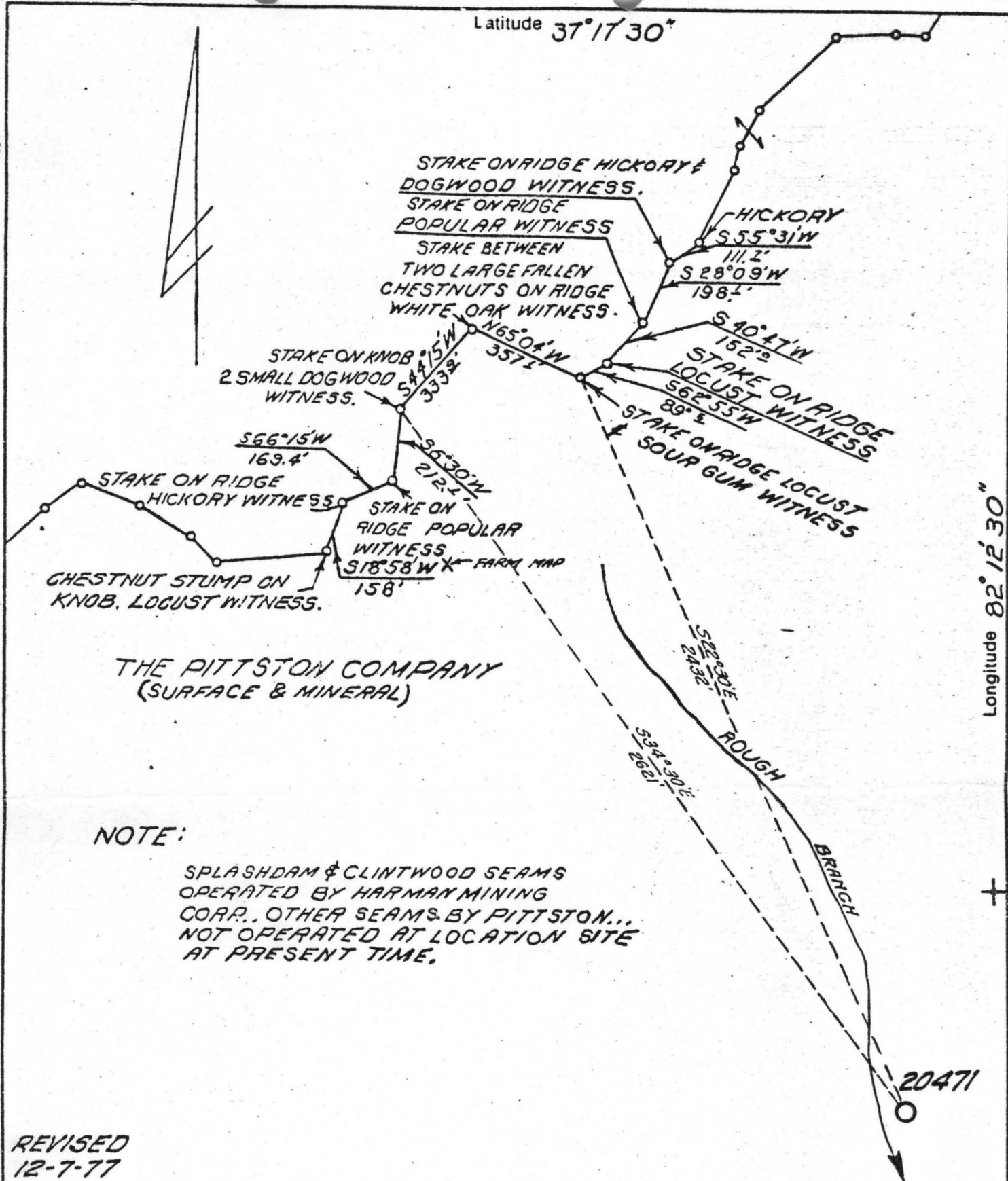
FORM 1495 CE 4 CSD
 COLUMBIA GAS SYSTEM
 COLUMBIA GAS TRANSMISSION CORPORATION
WELL LOCATION MAP
STATE OF VIRGINIA
 (+) Denotes Values Of Well On United States Topographic Maps
 Scale 15' 7 1/2'

Longitude 82°12'30"

VIRGINIA DIVISION 

RECEIVED
NOV 18, 1977
RECEIVED

MINERAL RESOURCES



THE PITTSTON COMPANY
(SURFACE & MINERAL)

NOTE:

SPLASHDAM & CLINTWOOD SEAMS OPERATED BY HARMAN MINING CORP., OTHER SEAMS BY PITTSTON... NOT OPERATED AT LOCATION SITE AT PRESENT TIME.

REVISED
12-7-77

- New Location
- Storage
- Drill Deeper
- Abandonment
- Re-Drill/Fracture

"I, the undersigned, hereby certify that this map is correct to the best of my knowledge and belief and shows all the information required by the rules and regulations of the oil and gas section of the mining laws of VIRGINIA Minimum degree of accuracy is one part in 200

ENGR. REG. N^o. 2330 (CWVA) Signed [Signature]
BOX 1273 CHARLESTON, WEST VIRGINIA

FORM 1495 CE 4 CSD

Company COLUMBIA GAS TRANS. CORP.
 Address BOX 1273 CHARLESTON, W.VA.
 Farm THE PITTSTON CO.
 Lease PT. 64340 Acres 28,810.88'
 Well Farm No. _____ Ser. No. 20471
 Elevation - Spirit Level 1698.85'
 Quadrangle HARMAN, VA.
 Township or District PRATER
 County BUCHANAN
 Sec., Lot, Qr. _____ T _____ R _____
 Coordinates LAT. 37°15'18" LONG. 82°12'33"
 File No. 30-393 Dwg. No. _____
 Date 10-26-77 Scale 1" = 400'

COLUMBIA GAS SYSTEM
COLUMBIA GAS TRANSMISSION CORPORATION
WELL LOCATION MAP
STATE OF VIRGINIA

(+) Denotes Values Of Well On United States Topographic Maps

Scale 15' 7 1/2'

FILE NO : BU-170

PERMIT NO : 290

VIRGINIA DIVISION 

RECEIVED
JAN 25 1978
RECEIVED

MINERAL RESOURCES

VIRGINIA DIVISION OF MINERAL RESOURCES
Box 3667, Charlottesville, VA 22903

INTERVAL SHEET

Page 1 of 2

Date rec'd: Date Processed: 12-3-80

PROPERTY: Pittston Co. Well # 20471

COMPANY: Columbia Gas Transmission

COUNTY: Buchanan

Well Repository No.: W- 6010

Sample Interval: from 0 to: 4000'

Number of samples: 205

Total Depth: 4669'

Oil or Gas: X Water: Exploratory:

From-To	From-To	From-To	From-To	From-To
0 - 10	300 - 310	600 - 610	960 - 970	1270 - 1280
10 - 20	310 - 320	610 - 620	970 - 980	1280 - 1290
20 - 30	320 - 330	620 - 630	980 - 990	1290 - 1300
30 - 40	330 - 340	630 - 640	990 - 1000	1300 - 1310
40 - 50	340 - 350	640 - 650	1000 - 1010	1310 - 1320
50 - 60	350 - 360	650 - 660	1010 - 1020	1320 - 1330
60 - 70	360 - 370	660 - 670	1020 - 1030	-
70 - 80	-	-	1030 - 1040	1340 - 1350
80 - 90	380 - 390	740 - 750	1040 - 1050	1350 - 1360
90 - 100	390 - 400	750 - 760	1050 - 1060	1360 - 1370
100 - 110	400 - 410	760 - 770	1060 - 1070	1370 - 1380
110 - 120	410 - 420	770 - 780	1070 - 1080	1380 - 1390
120 - 130	-	780 - 790	1080 - 1090	-
130 - 140	430 - 440	790 - 800	1090 - 1100	-
140 - 150	440 - 450	800 - 810	1100 - 1110	1410 - 1420
150 - 160	450 - 460	810 - 820	1110 - 1120	1420 - 1430
160 - 170	460 - 470	820 - 830	1120 - 1130	1430 - 1440
170 - 180	470 - 480	830 - 840	1130 - 1150	1440 - 1450
180 - 190	480 - 490	840 - 850	1150 - 1160	1450 - 1460
190 - 200	490 - 500	850 - 860	1160 - 1170	1460 - 1470
200 - 210	500 - 510	860 - 870	1170 - 1180	1470 - 1480
210 - 220	510 - 520	870 - 880	-	1480 - 1490
220 - 230	-	880 - 890	1190 - 1200	1490 - 1500
230 - 240	530 - 540	890 - 900	1200 - 1210	1500 - 1510
240 - 250	540 - 550	900 - 910	1210 - 1220	1510 - 1520
-	550 - 560	910 - 920	1220 - 1230	1520 - 1530
260 - 270	560 - 570	920 - 930	1230 - 1240	1530 - 1540
270 - 280	570 - 580	930 - 940	1240 - 1250	1540 - 1550
280 - 290	580 - 590	940 - 950	1250 - 1260	1550 - 1560
290 - 300	590 - 600	950 - 960	1260 - 1270	1560 - 1570

VIRGINIA DIVISION OF MINERAL RESOURCES
Box 3667, Charlottesville, VA 22903

INTERVAL SHEET
Continued

Page 2 of 2

Well Repository No.: W- 6010

From-To	From-To	From-To	From-To	From-To
1570 - 1580	1970- 1980	2340_ 2350	-	-
1580 - 1590	1980- 1990	2350_ 2360	-	-
1590 - 1600	1990- 2000	2360_ 2370	-	-
1600 - 1610	2000- 2010	-	-	-
1610 - 1620	2010- 2020	-	-	-
1620 - 1630	2020 - 2030	4480 - 4490	-	-
-	2030 - 2040	4490 - 4500	-	-
1640 - 1650	2040 - 2050	-	-	-
1650 - 1660	2050 - 2060	4510 - 4520	-	-
1660 - 1670	-	4520 - 4530	-	-
1670 - 1680	-	4530 - 4540	-	-
1680 - 1690	-	4540 - 4550	-	-
1690 - 1700	-	-	-	-
1700 - 1710	2070 - 2080	4570 - 4580	-	-
1710 - 1720	2080 - 2090	4580 - 4590	-	-
1720 - 1730	2090 - 2100	-	-	-
1730 - 1740	2100 - 2110	-	-	-
1740 - 1750	2110 - 2120	-	-	-
1750 - 1760	2120 - 2130	-	-	-
1760 - 1770	-	-	-	-
1770 - 1780	2140 - 2150	-	-	-
1780 - 1790	2150 - 2160	-	-	-
1790 - 1800	2160 - 2170	-	-	-
1800 - 1810	2170 - 2180	-	-	-
1810 - 1820	2180 - 2190	-	-	-
1820 - 1830	2190 - 2200	-	-	-
1830 - 1840	2200 - 2210	-	-	-
1840 - 1850	2210 - 2220	-	-	-
1850 - 1860	2220 - 2230	-	-	-
1860 - 1870	2230 - 2240	-	-	-
1870 - 1880	2240 - 2250	-	-	-
1880 - 1890	2250 - 2260	-	-	-
1890 - 1900	2260 - 2270	-	-	-
1900 - 1910	2270 - 2280	-	-	-
1910 - 1920	2280 - 2290	-	-	-
1920 - 1930	2290 - 2300	-	-	-
1930 - 1940	2300 - 2310	-	-	-
1940 - 1950	2310 - 2320	-	-	-
1950 - 1960	2320 - 2330	-	-	-
1960 - 1970	2330 - 2340	-	-	-