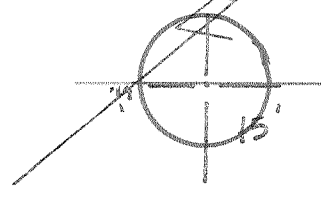


Latitude 37°45'00"

"T" RAIL ON RIDGE BY LARGE ROCKS. CHESTNUT OAK, LOCUST & GUM WITNESS.

565°11'E
2,850.6'

8931



COTIGA DEVELOPMENT CO.

88
1.92S
1.95W
88

FARM MAP

"T" RAIL ON RIDGE 10' SOUTH OF ROAD. LOCUST & HICKORY WITNESS.

37 43 20
82 17 05



N72°54'E
2075.2'
N85°05'E
1857'

"T" RAIL ON KNOB. 2 LYNN WITNESS - RED PAINT - 30' WEST OF ROAD.

W. H. BRONSON, ETAL
(MINERAL)

20569

WADE & RUBY COLLINS
(SURFACE)

S88°51'E
2760.5'

Longitude 82°15'00"

3850'

BENCH MARK DESCRIPTION

□ CUT ON END S.W. WINGWALL OF R.R. BRIDGE # 933 10' SOUTH OF SOUTH RAIL OVER MILLERS CREEK. ELEV. 647.59'

"T" RAIL. CALL CHESTNUT OAK.

"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 WEST VIRGINIA. Minimum degree of accuracy is one part in 200

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

ENGR. REG. NO. 2330
BOX 1273 CHARLESTON, W.VA.

Signed *[Signature]*

Company COLUMBIA GAS TRANS. CORP.
 Address BOX 1273 CHARLESTON, W.VA.
 Farm W. H. BRONSON, ETAL, WADE & RUBY COLLINS
 Lease 177726 Acres 800
 Well Farm No. _____ Ser. No. 20569
 Elevation - Spirit Level 1536.68' NE
 Quadrangle WILLIAMSON - KY - W.VA.
 Township or District TUG RIVER ?
 County MINGO
 Sec., Lot, Qr. _____ T _____ R _____
 Coordinates LAT: 37°43'22" LONG: 82°17'02"
 File No. 26-15 Dwg. No. _____
 Date 5-12-78 Scale 1"=800'

FORM 1495 CE # CSD

COLUMBIA GAS SYSTEM
 COLUMBIA GAS TRANSMISSION CORPORATION
 WELL LOCATION MAP
WEST VIRGINIA

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

MING-915

Scale 15' 7 1/2'

DEEP WELL

47-059

SEP 19 1978

6-6 1173 2-3 26 28 BREEDEN CK 244



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

WELL RECORD

Rotary Oil _____
Cable _____ Gas
Recycling _____ Comb _____
Water Flood _____ Storage _____
Disposal _____ (Kind)

Quadrangle Williamson, Ky.-WV
Permit No. 059-915

Company Columbia Gas Transmission Corp.
Address P. O. Box 1273, Chas, W. Va.
Farm W. H. Bronson, et al Acres 800
Location (waters) Dan Branch of Tug River
Well No. 20569 Elev. 1537
District Tug River County Mingo
The surface of tract is owned in fee by Wade & Ruby Collins
Address _____
Mineral rights are owned by Lois M. Bronson,
Agent Address Williamson, WV 25661
Drilling Commenced 2-22-79
Drilling Completed 3-11-79
Initial open flow Show cu. ft. _____ bbls.
Final production attached cu. ft. per day _____ bbls.
Well open _____ hrs. before test _____ RP.
Well treatment details:

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16			
Cond. 16"	70.70	70.70	120 sks (71')
13-10"			
9 5/8"	1861.20'	1861.20'	626 sks (1861')
8 5/8"			
7"	2534.53'	2535'	100 sks (700')
5 1/2"			
4 1/2"	4703.30'	4703.30'	135 ft ³ (1008')
3"			90 sks (745')
2 3/8"	4662'2"	4662'2"	
Liners Used			

Attach copy of cementing record.

"See Attached Sheet"

Coal was encountered at N/A Feet _____ Inches _____
Fresh water _____ Feet _____ Salt Water 1630, 2250 Feet _____
Producing Sand Big Lime & Berea/Brown Shale Depth 2562-2746; 3346-4755

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Sand			0	65		
Sand & Shale			65	216		
Shale			216	280		
Sand & Shale			280	1350		
1st Salt Sand			1350	1740	1" water @ 1630'	
Sand			1740	1796		
2nd Salt Sand			1796	2376	Water @ 2250'	
Sand			2376	2458		
Maxon			2458	2512		
Shale			2512	2562		
Big Lime			2562	2746		
Shale			2746	2800		
Injun			2800	2820		
Sand & Shale			2820	3010		
Shale			3010	3329		
Coffee Shale			3329	3346		
Berea			3346	3392		
Brown Shale			3392	4755		
D.T.D				4755		

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MAY 30 1980
OIL & GAS DIVISION
DEPT. OF MINES

WELL TREATMENT DETAILS

- 11-5-79 Shot Marcellus w/34' of 17,000 psi (Kinotech Process)
- 11-9-79 Foam fractured Marcellus w/500 gal Mud Acid; 41,828 total gallons treating fluid; 350,000 scf N₂; 30,000# 80/100 and 27,500# 20/40 Sand
- 12-4-79 Foam fractured Shale w/500 gal. Mud Acid; 43,088 total gallons treating fluid; 392,000 scf N₂; 27,000# 20/40; 30,000# 80/100 Sand
- 12-17-79 Cross Link fractured w/N₂ assist. w/500 gallons Mud Acid; 30,194 total gallons treating fluid; 195,000 scf N₂; 27,090 gallons YF-PSD; 60,000# 20/40 Sand & 30,000# 80/100 Sand
- 1-7-80 Acidized Big Lime w/2000 gal 28% Hcl cut to 4000 gal. 14% Hcl and 10 bbls over flush

Final Production:

Big Lime - 133 Mcf after 6 hours; 354# Rock Pressure (48 hours)
Berea/Brown Shale - 146 Mcf after 6 hours; 362# Rock Pressure (48 hours)

133
146

279 mcf - FOF

Date May 20 19 80

APPROVED Joseph Campbell Owner

By Sen. Prod. & Serv. Work Lines
(Title)



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

RECEIVED

AUG 21 1978

OIL & GAS DIVISION
DEPT. OF MINES

Oil and Gas Division

OIL AND GAS WELL PERMIT APPLICATION

TO THE DEPARTMENT OF MINES,
Charleston, W. Va.

DATE August 17, 1978

Surface Owner Wade & Ruby Collins

Company Columbia Gas Transmission Corp.

Address _____

Address P. O. Box 1273, Charleston, W. Va.

Mineral Owner Lois M. Bronson, Agent

Farm W. H. Bronson et.al. Acres 800

Address Box 988, Williamson, W. Va. 25661

Location (waters) Dan Br. of Tug River

Coal Owner Same as above

Well No. 20569 Elevation 1536.68

Address _____

District TUG RIVER Lee County Mingo

Coal Operator Naugatuck Development Company

Quadrangle Williamson

Address Lovely, Kentucky

THIS PERMIT MUST BE POSTED AT THE WELL SITE

All provisions being in accordance with Chapter 22,
of the W. Va. Code, the location is hereby approved
for drilling. This permit shall expire if

INSPECTOR TO BE NOTIFIED Arthur St. Clair

operation have of commenced by 1-5-79

ADDRESS P.O. Box 157, Brenton, W. Va.

Robert F. [Signature]

Deputy Director - Oil & Gas Division

PHONE 732-6227

GENTLEMEN:

The undersigned well operator is entitled to drill upon the above named farm or tract of land for oil and gas, having fee title thereto, (or as the case may be) under grant or lease dated October 21, 1975 by W. H. Bronson made to Columbia Gas Trans. Corp. and recorded on the --- day of --- 1975, in Mingo County, Book 53 Page 19

NEW WELL DRILL DEEPER REDRILL FRACTURE OR STIMULATE
OIL AND GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1969.

The enclosed plat was prepared by a registered engineer or licensed land surveyor and all coal owners and/or operators have been notified as of the above date.

The above named coal owners and/or operator are hereby notified that any objection they wish to make, or are required to make by Section 3 of the Code, must be received by, or filed with the Department of Mines within ten (10) days.

Copies of this notice and the enclosed plat were mailed by registered mail, or delivered to the above named coal operators or coal owners at their above shown respective address --- day --- before, or on the same day with the mailing or delivery of this copy to the Department of Mines at Charleston, West Virginia.

PLEASE SUBMIT COPIES OF ALL
GEOPHYSICAL LOGS DIRECTLY TO:

WEST VIRGINIA GEOLOGICAL AND
ECONOMIC SURVEY
P. O. BOX 879
MORGANTOWN, WEST VIRGINIA 26505
AC-304 - 292-6331

Address
of
Well Operator

Very truly yours,
(Sign Name) *[Signature]*
Well Operator
Director, Exploration & Development
P. O. Box 1273
Street
Charleston
City or Town
West Virginia 25325
State

*SECTION 3. . . . If no objections are filed or found by the Department of mines, within said period of ten days from the receipt of notice and plat by the department of mines, to said proposed location, the department shall forthwith issue to the well operator a permit reciting the filing of such plat, that no objections have been made by the coal operators or found thereto by the department and that the same is approved and the well operator authorized to proceed.

BLANKET BOND

MING- 915 PERMIT NUMBER

**THIS IS AN ESTIMATE ONLY
ACTUAL INFORMATION WILL BE SUBMITTED ON OG-10 UPON COMPLETION**

PROPOSED WORK ORDER TO X DRILL _____ DEEPEN _____ FRACTURE-STIMULATE _____
 DRILLING CONTRACTOR: (If Known) _____ RESPONSIBLE AGENT: _____
 NAME _____ NAME Joe Campbell
 ADDRESS _____ ADDRESS P. O. Box 2946, Hunt., W. Va.
 TELEPHONE _____ TELEPHONE 529-4173
 ESTIMATED DEPTH OF COMPLETED WELL: 4730 ROTARY X CABLE TOOLS _____
 PROPOSED GEOLOGICAL FORMATION: Berea-Shale
 TYPE OF WELL: OIL _____ GAS X COMB _____ STORAGE _____ DISPOSAL _____
 RECYCLING _____ WATER FLOOD _____ OTHER _____

TENTATIVE CASING PROGRAM:

CASING AND TUBING SIZE	USED FOR DRILLING	LIFT IN WELL	CEMENT LIFT UP OR SACKS - CUBIC FT
20 - 16			
13 - 10 <u> 3/8 </u>	<u> 30' </u>		<u> Cement to Surface </u>
9 - 5/8			
8 - 5/8	<u> 2150' </u>		<u> Cement to Surface </u>
7			
5 1/2			
4 1/2	<u> 4730' </u>		
3			
2 <u> 3/8 </u>	<u> 4730' </u>		<u> Perf. Top </u>
Liners			<u> Perf. Bottom </u>
			<u> Perf. Top </u>
			<u> Perf. Bottom </u>

APPROXIMATE FRESH WATER DEPTHS _____ FEET SALT WATER _____ FEET
 APPROXIMATE COAL DEPTHS _____
 IS COAL BEING MINED IN THE AREA? Yes BY WHOM? _____

TO DRILL:

SUBMIT FIVE (5) COPIES OF OG - 1, \$100.00 PERMIT FEE, PERFORMANCE BOND AND PERMANENT COPY OF PLAT.

TO DRILL DEEPER OR REDRILL:

SUBMIT FIVE (5) COPIES OF OG - 1, SHOWING ORIGINAL PERMIT NUMBER AND PERFORMANCE BOND ON WELLS DRILLED PRIOR TO 1929, A PERMANENT COPY OF THE PLAT AND THE ORIGINAL WELL RECORD MUST ALSO BE SUBMITTED.

TO FRACTURE - STIMULATE:

OIL AND/OR GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1929, FIVE (5) COPIES OG - 1, PERFORMANCE BOND, PERMANENT PLAT AND ORIGINAL WELL RECORD.

OIL AND/OR GAS WELL ORIGINALLY DRILLED ON AND/OR AFTER JUNE 5, 1929, FIVE COPIES OG - 1, SHOWING ORIGINAL PERMIT NUMBER, AND PERFORMANCE BOND.

Required forms must be filed within ninety (90) days of completion for bond release. Inspector to be notified twenty four (24) hours in advance.

The following waiver must be completed by the coal operator if the permit is to be issued within ten days of receipt thereof.

WAIVER: I the undersigned, Agent for _____ Coal Company, Owner or Operator of the coal under this lease have examined and place on our mine maps this proposed well location.

We the _____ Coal Company have no objections to said well being drilled at this location, providing operator has complied with all rules and regulations in Articles 4, 5, and 7, Chapter 22 of the West Virginia Code.

For Coal Company

Official Title