

Latitude 37°45'00"

FARM MAP
Corrected 15'
boundaries

S 1.00
W 0.96

+035
+03W

COTIGA DEVELOPMENT CO.
(SURFACE & MINERAL)

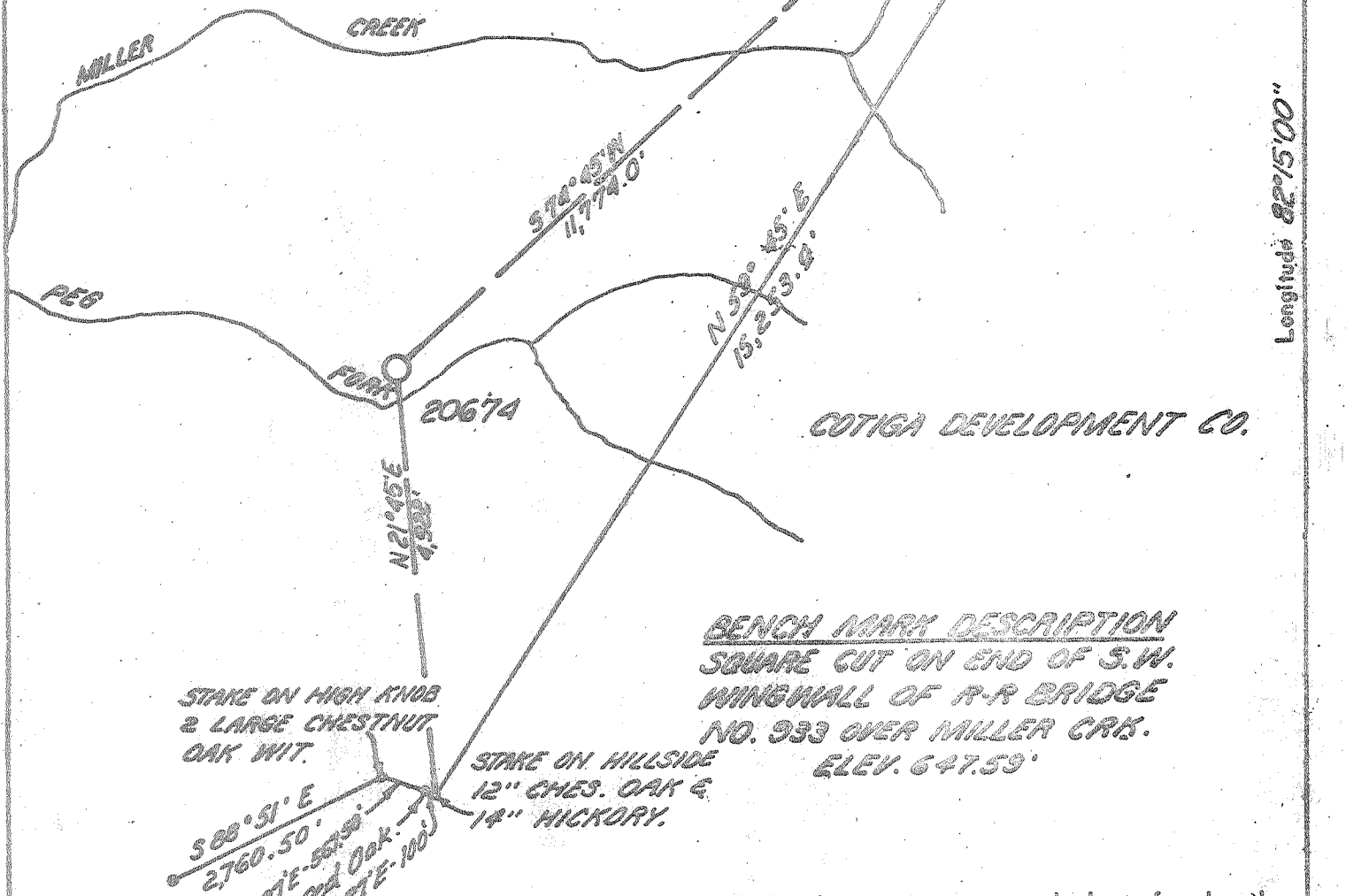
STAKE @
RIDGE BETWEEN
4 CHESTNUT OAKS



S 1.00
W 0.96

5250'

Longitude 82°15'00"



BENCH MARK DESCRIPTION
SQUARE CUT ON END OF S.W.
WINGWALL OF R-R BRIDGE
NO. 933 OVER MILLER CRK.
ELEV. 647.59'

STAKE ON HIGH KNOB
& LARGE CHESTNUT
OAK WIT.

STAKE ON HILLSIDE
12" CHES. OAK &
14" HICKORY.

5 08° 51' E
2760.50'
5 43° 27' E - 56.50'
24" Red Oak - 100'
6 43° 27' E - 100'

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

REVISED
MAY 10, 1979

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

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

Signed

Company COLUMBIA GAS TRANS. CORP.
 Address BOX 1273 CHARLESTON, W. VA.
 Farm COTIGA DEVELOPMENT CO.
 Lease 50052 Acres 9,638.97
 Well Farm No. _____ Ser. No. 20674
 Elevation - Spirit Level 918.14' NE
 Quadrangle WILLIAMSON, KY. - W. VA.
 Township or District HARDEE
 County MINGO
 Sec., Lot, Qr. _____ T _____ R _____
 Coordinates LAT: 37°44'08" LONG: 82°16'03"
 File No. 26-15 Dwg. No. _____
 Date 1-16-79 Scale 1" = 2000'

FORM 1499 CZ 4 CSD
(REV. 11-70)

COLUMBIA GAS SYSTEM
COLUMBIA GAS TRANSMISSION CORPORATION
WELL LOCATION MAP

STATE OF WEST VIRGINIA

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

47-059-0919-REV

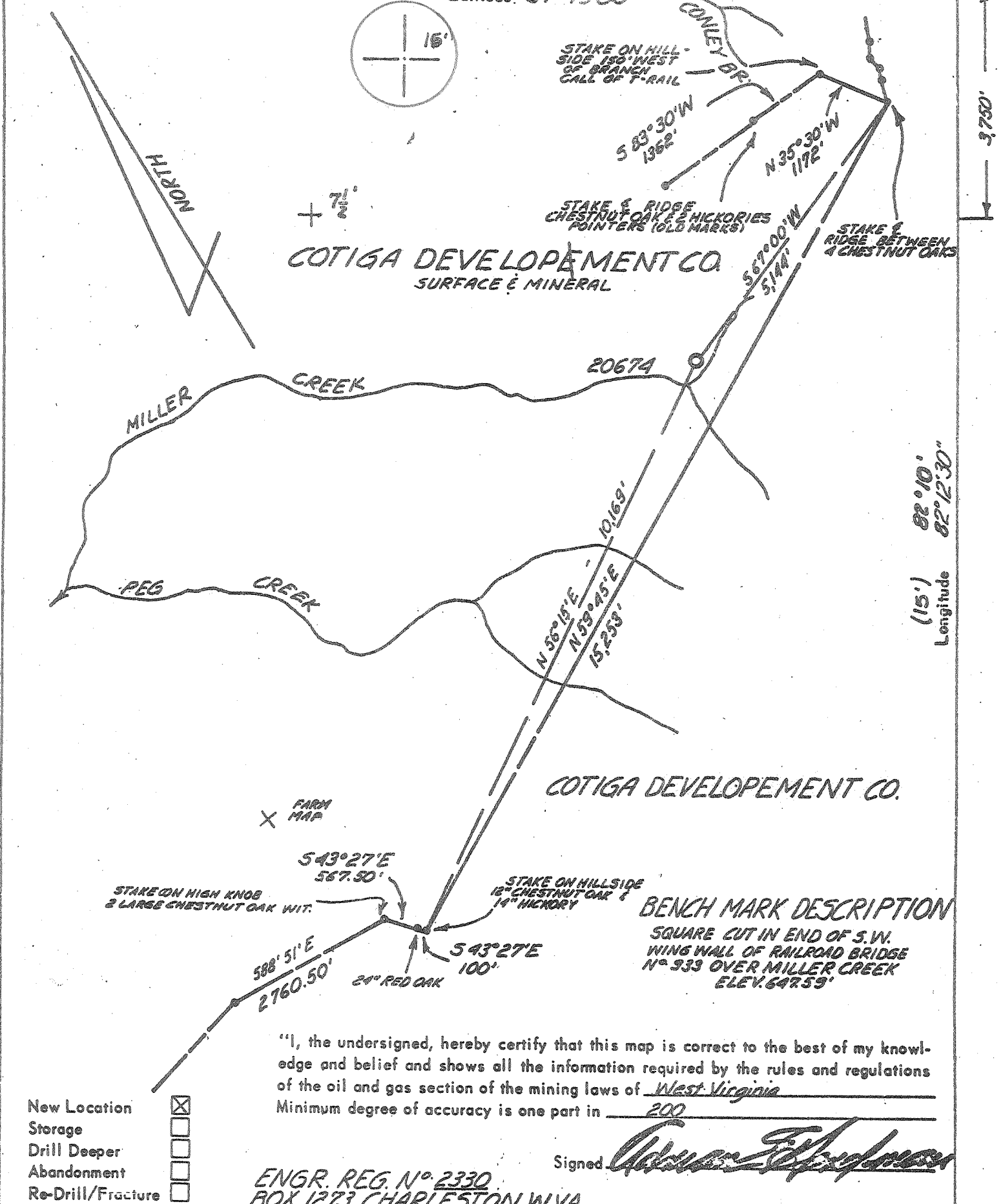
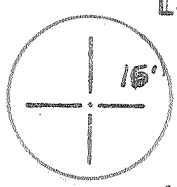
Scale 15' 7-1/2'

JUN 21 1979

DEEPWELL

BREEDEN CR 244

Latitude 37°45'00"



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

Company COLUMBIA GAS TRANS. CORP.
 Address BOX 1273 CHAS, W.VA.
 Farm COTIGA DEVELOPEMENT CO.
 Lease 50052 Acres 9,638.97
 Well Farm No. _____ Ser. No. 20674
 Elevation - Spirit Level 1080.36' NW
 Quadrangle DELBARTON, W.VA.-KY., Matewan 15'
 Township or District HARDEE
 County MINGO
 Sec., Lot, Qr. _____ T _____ R _____
 Coordinates Lat. 37°44'22" Long. 82°18'29"
 File No. 28-17 Dwg. No. _____
 Date 1-16-1979 Scale 1"=2000'

FORM 1408 CE 4 CSD (REV. 11-78)

COLUMBIA GAS SYSTEM
 COLUMBIA GAS TRANSMISSION CORPORATION

WELL LOCATION MAP
 STATE OF
 WEST VIRGINIA

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

47-059-0919

Scale 15' 7-1/2'

MAR 30 1979

4335' H.A. 10



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

WELL RECORD 17

RECEIVED

APR 24 1980

Quadrangle Williamson, Ky-WV
Permit No. 059-Rev-Ming-919

OIL & GAS DIVISION
DEPT. OF MINES
Rotary Cable _____ Gas X
Recycling _____ Comb. _____
Water Flood _____ Storage _____
Disposal _____ (Kind) _____

Company Columbia Gas Transmission Corp.
Address P. O. Box 1273, Charleston, WV
Farm Cotiga Development Acres 9639
Location (waters) Miller's Creek
Well No. 20674 Elev. 1040'
District Hardee County Mingo
The surface of tract is owned in fee by Cotiga Development Co.
Address Paoli, PA 19301
Mineral rights are owned by Cotiga Development Co. Address Paoli, PA 19301
Drilling Commenced 9-17-79
Drilling Completed 9-27-79
Initial open flow 0 cu. ft. _____ bbls.
Final production 641,000 cu. ft. per day _____ bbls.
Well open 6 hrs. Before test 453# RP.

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16			
Cond. 13-10' 13 3/8	63'	63'	60 sks (63')
9 5/8			
8 5/8	1951.50	1951.50	462 sks (1951')
7			
5 1/2			
4 1/2	4084	4084	269 sks (2450')
3			
2 3/8	3666' 8"	3666' 8"	---
Liners Used			

Well treatment details: Attach copy of cementing record.
Foam fractured Brown Shale w/750 gal. Mud Acid; 47,538 total gallons treating fluid; 408,000 Scf N₂; 30,000# 80/100 Sand; 30,000# 20/40 Sand

Foam fractured Berea & Upper Shale w/750 gal. Mud Acid; 48,078 total gallons treating fluid; 372,000 Scf N₂; 30,000# 80/100 & 30,000# 20/40 Sand

Coal was encountered at N/A Feet _____ Inches
Fresh water 85 Feet _____ Salt Water _____ Feet _____
Producing Sand Brown Shale and Berea Depth 2788-4136; 2720-2820

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Sub Base			0	10		
Surface Clay & Shale			10	25		
Sandstone			25	85		
Sand & Shale			85	113		2" Water @ 85'
Sand			113	210		
Sand & Shale			210	228		
Sand			228	285		
Sand & Shale			285	776		
Sand			776	854		
Sand & Shale			854	875		
Sand			875	1087		
Sand & Shale			1087	1156		
Salt Sand			1156	1744		
Sand & Shale			1744	1834		
Maxon			1834	1854		
Little Lime			1854	1898		
Pencil Cave			1898	1904		
Big Lime			1904	2074		
Injun			2074	2106		
Shale			2106	2131		
Weir Shells			2131	2354		
Shale			2354	2720		

-continued-
(over)

* Indicates Electric Log tops in the remarks section.

MAY 29 1980

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Berea Sand			2720	2792		
Brown Shale			2792	4137		
<u>Corniferous Lime</u>			4137	4139		
T.D.				4139		

Date April 22, 1980, 19

APPROVED *J. H. Holston*, Owner

By Technical Manager
(Title)

PROPOSED WORK ORDER

THIS IS AN ESTIMATE ONLY:
ACTUAL INFORMATION MUST BE SUBMITTED ON FORM IV-35 UPON COMPLETION

DRILLING CONTRACTOR (IF KNOWN) _____

Address _____

GEOLOGICAL TARGET FORMATION, Berea-Shale

Estimated depth of completed well, 4335 feet Rotary X / Cable tools _____ /

Approximate water strata depths: Fresh, _____ feet; salt, _____ feet.

Approximate coal seam depths: _____ Is coal being mined in the area? Yes _____ No X

CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS				FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per ft	New	Used	For drilling		
Conductor	13-3/8	H-40	48	X		60'	To surface	Kinds
Fresh water	8-5/8	H-40	24	X		2050'	To surface	
Coal								
Intermediate	4-1/2	K-55	10.5	X		4335'		
Production								Depths set
Tubing	2-3/8	J-55	4.6	X		4335'		
Liners								Perforations:
								Top Bottom

NOTE: Regulation 7.02 of the Department of Mines provides that the original and four copies of Form IV-2 must be filed with the Department, accompanied by (i) a plat in the form prescribed by Regulation 11, (ii) a bond in one of the forms prescribed by Regulation 12, or in lieu thereof the other security allowed by Code § 22-4-2, (iii) Form IV-9, "Reclamation Plan", applicable to the reclamation required by Code § 22-4-12b and Regulation 23, (iv) unless previously paid on the same well, the fee required by Code § 22-4-12a, and (v) if applicable, the consent required by Code § 22-4-8a from the owner of any water well or drilling within 200 feet of the proposed well.

A separate Form IV-2 shall not be required for fracturing or stimulating a well where fracturing or stimulating is to be part of the work for which a permit is sought and is noted as such on the Form IV-2 filed in connection therewith.

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 operations have not commenced by 11/12/79.

[Signature]
Deputy Director, Oil & Gas Division

to be completed by the coal operator and by any coal owner or coal lessee who has recorded a declaration under Code § 22-4-20, if the permit is to be issued within fifteen (15) days of receipt thereof:

W A I V E R

The undersigned coal operator _____ / owner _____ / lessee _____ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of the well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

Date: _____, 19____

By _____
Its _____