

LATITUDE 38°42'30"

LONGITUDE 79°45'00"

12.07.01

POCAHONTAS CO GREENBANK DIST

RANDOLPH CO DRY FORK DIST

UNITED STATES OF AMERICA DEPARTMENT OF INTERIOR

All Waters Shown of West Fork of Greenbrier River

1828.67 AC PORTION OF THE TOTAL 1364 AC OF TRACT 29 WITHIN GOVERNMENT P 52 SHOWN ON TAX MAP 3 & BEING P 4 TAX MAP 1 6595 AC

GAS WELL #7465 (POC-31)

GAS WELL #7454 (POC-25)

GAS WELL #7466 (POC-32)

MOUNTAIN

TR 28

TR 27

N70°45'E 3734' (86.88CH)

S70°46'E TR 30

GAS WELL #7461 (POC-31)

GAS WELL #7470 (POC-12)

GAS WELL #7464 (POC-30)

4" x 10" x 24" Stone In a Mound of Stones Marked WICO 24 FS

MONONGAHELA

Set Stone Marked WICO 22-52 FS Birch & Sugar Pointer

2" x 18" x 26" Set Stone In a Mound of Stones Marked WICO 21-52 FS Maple Pointer

NORTH

RUN

N73°01'E 400' (81.54CH)

S52°45'E 3430' (78.37CH)

N70°25'W 2262' (34.87CH)

GAS WELL #7477 (POC-39)

GAS WELL #7456 (POC-26)

GAS WELL #7476 (POC-33)

MIDDLE

GAS WELL #7463 (POC-29)

FOREST

1852 AC± OR TR 32 WITHIN GOVERNMENT P 34

GAS WELL #7469 (POC-4)

CHARGE: Gen-Aux-Actly-Tr Gnr 107-03371-W2282-6433

NOTES: This Map is For Well Location Only & Does Not Represent A Complete Property Survey. No Dwellings Or Surface Coal Operations Within 2000'.

REF: FB 2000 PG 76-86 FB 2057 PG 13

REF: INV 4280N/608E Form map "P3-501"

FILE NO. DRAWING NO. SCALE 1" = 2000' MINIMUM DEGREE OF ACCURACY 1/200 PROVEN SOURCE OF ELEVATION Top of Concrete Pad of Well No 7461 0.80' Above Ground Elev 3387.84

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENERGY.

(SIGNED) R.P.E. L.L.S. 819

PLACE SEAL HERE

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY OIL AND GAS DIVISION



DATE February 2, 1993 OPERATOR'S WELL NO. 7461 API WELL NO.

47 075 00011-7 STATE COUNTY PERMIT

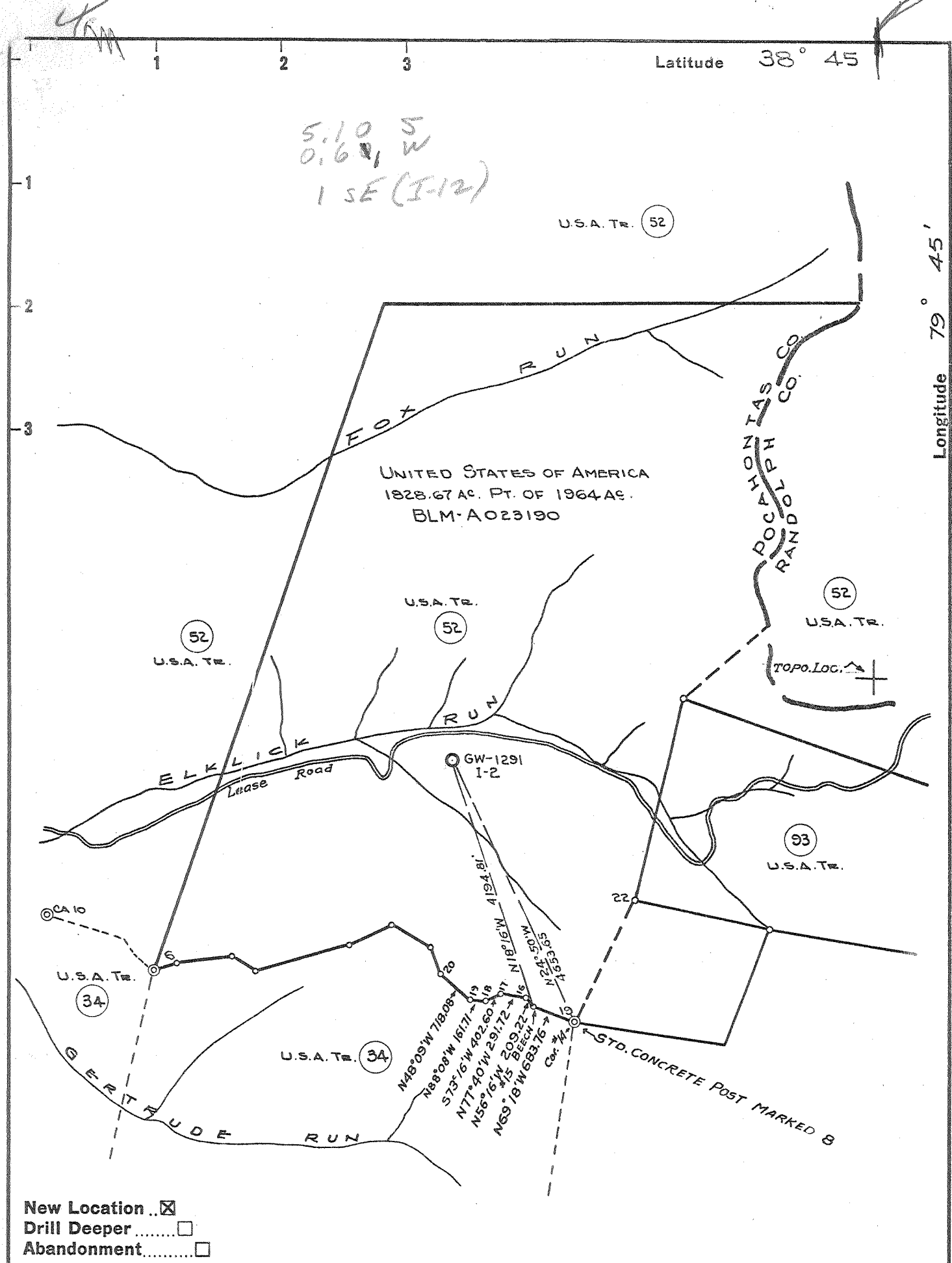
WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL (IF "GAS,") PRODUCTION STORAGE X DEEP SHALLOW LOCATION: ELEVATION 3387.04 WATER SHED Eiklick Run Of West Fork Of Greenbrier River DISTRICT Greenbank COUNTY Pocahontas QUADRANGLE Wildell, WV COORDINATES LAT: 38°40'30" LONG: 79°45'28" SURFACE OWNER United States of America Dept of Interior ACREAGE 1828.67± OIL & GAS ROYALTY OWNER USA Dept of Interior LEASE ACREAGE 48.212.33 COAL OWNER LEASE NO. 90700

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) Storage Recondition

PLUG AND ABANDON / CLEAN OUT AND REPLUG TARGET FORMATION chert ESTIMATED DEPTH 5980' WELL OPERATOR COLUMBIA GAS TRANSMISSION CORP DESIGNATED AGENT ROBERT C WEIDNER ADDRESS PO Box 1273, Charleston, WV 25325-1273

9.0 (261) deep well

POCAHONTAS COUNTY NAME PERMIT



New Location
 Drill Deeper
 Abandonment

Company COLUMBIAN CARBON COMPANY
 Address BOX 873 CHARLESTON, W.V.A.
 Farm UNITED STATES OF AMERICA
 Tract 52 Acres 1828.67 Lease No. BLM-A023190
PT. 1964 AC
 Well (Farm) No. I-2 Serial No. GW-1291
 Elevation (Spirit Level) 3453.34'
 Quadrangle DURBIN NE. S-514 W-058
 County POCAHONTAS District GREENBANK
 Engineer R. B. Anderson
 Engineer's Registration No. 2074
 File No. _____ Drawing No. W-5-58
 Date 7-28-59 Scale 1" = 2000'

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

WELL LOCATION MAP
 FILE NO. POCA-11

+ 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.

6-6 221 Deep Well F58



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

Quadrangle Durbin NE

Permit No. POCA-11

WELL RECORD

Oil or Gas Well Gas
(KIND)

Company Columbian Carbon Company
Address Box 873, Charleston 23, W. Va.
Farm United States of America Acres 1964
Location (waters) Elklick Run
Well No. I-2' GW-1291 Elev. 3453.34'
District Greenbank County Pocahontas
The surface of tract is owned in fee by Bureau of Land Management
Interior Building Address Washington, D. C.
Mineral rights are owned by Same
Address _____

Drilling commenced 8-6-58
Drilling completed 9-14-58
Date Shot not shot From _____ To _____
With _____

Open Flow /10ths Water in _____ Inch
/10ths Merc. in _____ Inch
Volume See reverse side. Cu. Ft.

Rock Pressure _____ lbs. _____ hrs.
Oil _____ bbls., 1st 24 hrs.

WELL ACIDIZED Not acidized

WELL FRACTURED See reverse side.

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			Kind of Packer
16			
18 3/8" 48#	31'11"	31'11"	Baker Full Bore
10 3/4" 32#	1265'3"	1265'3"	Size of 3"
8 1/4"			
6 7/8" 23#	6014'8"	6014'8"	Depth set 5683'
5 3/16"			
3 1/2" 9.5#	5752'6"	5752'6"	Perf. top
2			Perf. bottom
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED _____ SIZE _____ No. Ft. _____ Date _____
See reverse side.

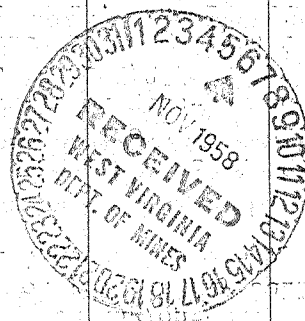
COAL WAS ENCOUNTERED AT None FEET _____ INCHES _____
FEET _____ INCHES _____ FEET _____ INCHES _____
FEET _____ INCHES _____ FEET _____ INCHES _____

RESULT AFTER TREATMENT Chert gas 926 MCF - Oriskany gas 16,324 MCF = Total 17,250 MCF

ROCK PRESSURE AFTER TREATMENT 10 days Oriskany 1494# - Chert 1955#.

Fresh Water 239', 310' Feet _____ Salt Water _____ Feet _____

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Slate & Shells			0	54			
Gritty Lime			54	300	Fresh water	239'	1-10" blr/hour
Sand			300	350	" "	310'	Hole full
Lime and Shale			350	462			
Lime, Shale & Sand			462	480			
Lime and Sand			480	525			
Lime and Shale			525	615			
Lime			615	646			
Hard Limey Sand			646	665			
Lime and Sand			665	711			
Lime			711	741			
Sand			741	787			
Shale and Sand			787	848			
Sand			848	899			
Lime and Shale			899	999			
Lime			999	1070			
Shale and Lime			1070	1141			
Lime			1141	2705			
Shale			2705	3050			
Shale and Lime			3050	3770			
Brown Shale			3770	4670			
Shale and Lime			4670	4912			
Shale			4912	5065			
Black Shale			5065	5080			
Dark Shale			5080	5535			
The following formations determined by samples:							
Onondaga			5535	5566 SLM			
Chert			5566	5681 SLM	Gas in Chert approx. 100 MCF.		
Shale			5681	5743 SLM			
Oriskany Sand			5743	5935			



Formation	Color	Hard or Soft	Top 8	Bottom	Oil, Gas or Water	Depth Found	Remarks			
Helderburg			5935	5964	Landing Flange	- 5980'	Rotary Meas.			
Total depth				5964'	Landing Flange Meas.					
				5980'	Rotary Meas.					
9-26-58	Perforated	Chert Section	5654-64';	5610-50'	- Ran 3 1/2" tubing on Baker Full Bore Packer set at 5584' and shut in for pressure on Chert formation only (Oriskany sealed off)					
					13 hours 635#; 18 hours 825#; 45 hours 1525#; 82 hours 1950#; 104 hours 1990# - opened at 104 hours to fracture.					
10-6-58	- Pumped in 12 barrels water to fill hole up to perforations. Pumped in 2,000 gallons mud acid. Pressure started at 3200# - broke to 1100#. Pumped 500 gallons mud acid at 1100#. Shut down for 10 minutes-pumped 500 gallons at 2100#. Shut down 10 minutes-pumped 500 gallons at 900#. Started clean water and tergitol at 3300#. Started sand at 1/2#/gal. After water was on bottom, gradually increased to 1#/gal. Started perf balls when 3,000 gallons in hole. Pressure increased to 3800# at end of frac. Used 12,000 gallons water. Pumping time 16 minutes Injection rate 750 gpm. Flushed with 75 barrels water and Tergitol-time 4 minutes. Pressure started at 3800#-maximum 4000#. Injection rate 487 gallons per minute. Used 174 perf balls - 10,000# 20-40 Sand, 1500# 10-30 sand to tail in with. After 10 minutes 1150# - 45 minutes 870#. Opened well and well started to clean self. Before fracturing gas gauged 38 MCF - after fracturing Chert gas gauged 984 MCF.									
10-12-58	- Perforated Oriskany Sand with 322 bullets. Before perforating Chert gas gauged 984 MCF. Perforated: 5901-18' gas gauged 50/10 W 2" - 298 MCF; 5831-66' gas gauged 30/10 W 7" - 2,338 MCF. 5752-60' gas gauged 64/10 W 7" - 3,415 MCF; 5790-5828' gas gauged 80/10 W 7" - 4,268 MCF. Shut in 2 hours and 40 minutes - 1425#.									
10-14-58	- Ran tubing - preparing to fracture Oriskany. Set Baker full bore packer at 5682'. Oriskany gas gauged inside tubing 7# thru 3" - 4,156 MCF. Chert gas on braden head 7/10 M 3" - 926 MCF.									
Oriskany pickups:			2 min	3	5	10	15	30	60	
			350	450	675	1075	1350	1475	1475	- 16 hours 1490#.
Chert gas 7" casing			6 min.	15	30					
			60	120	275					- 15 1/2 Hours 1205#.
10-15-58	Fractured the Oriskany. Pumped in 2,000 gallons mud acid. Loaded tubing with kerosene. Displaced 12 bbls. MCA with 2 pumps at 2530# - waited 5 minutes displaced 25 bbls. at 1450#; waited 5 minutes displaced 15 bbls. at 1500#. Broke down using 8 pumps - time 3 1/2 minutes. Max. pressure 3900#. Injection rate 14.3 bpm. Started gel and sand 1/2# sand/gal. increased to 3/4# when gel was on bottom. Pressure started at 3,000#-in 4 minutes broke to 2500#. Increased to 3,000# at end of gel. Started perf balls when 4,000 gallons gel in. Frac time 11 min. Used 6500# 20-40 sand. Tailed in with 1200# 10-30 sand. Used 345 perf balls. Flushed with 80 barrels kerosene. Pressure started at 3,000# - dropped to 2500# - went to 3900# in 4 minutes. 3900# final pressure. Flush injection rate 13.3 bpm. 30 minutes after frac ended well was on vacuum. Shut in. Final open flow on Oriskany gas 65# thru 3" spring gauge -									
										16,324,000 cu. ft.
Final open flow on Chert gas 7/10 M 3"										926,000 cu. ft.
Total gas										17,250,000 cu. ft.
<u>Casing Record</u>										
9-4-58	10 3/4" set at 1240'DLM - Cemented with 250 sacks.									
9-15-58	7" set at 5964' Landing Flange - guide shoe on bottom - differential collar between 1st and 2nd jts. with 5 centralizers - cemented with 235 sacks.									
Cable tools	0 to 344'									
Rotary tools	344 to Total depth.									

Date October 31, 19 58

APPROVED Columbian Carbon Company, Owner

By R. B. Anderson, General Manager
(Title)

4268
984
3284

RECEIVED
WV Division of Environmental Protection
JUN 0 1 94

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas

Well Operator's Report of Well Work

Farm name: MONONGAHELA NAT'L FOREST Operator Well No.: GLADY #7461

LOCATION: Elevation: 3,387.04 Quadrangle: WILDELL

District: GREENBANK County: POCAHONTAS
Latitude: 12075 Feet South of 38 Deg. 42Min. 30 Sec.
Longitude 2200 Feet West of 79 Deg. 45 Min. 0 Sec.

Company: COLUMBIA GAS TRANSMISSION
1700 MacCORKLE AVENUE S.E.
CHARLESTON, WV 25314-0000

Agent: ROBERT C. WEIDNER

Inspector: CRAIG DUCKWORTH
Permit Issued: 07/09/93
Well work Commenced: 07/23/93
Well work Completed: 09/20/93
Verbal Plugging _____
Permission granted on: _____
Rotary Cable Rig _____
Total Depth (feet) _____
Fresh water depths (ft) _____
Salt water depths (ft) _____
Is coal being mined in area (Y/N)? _____
Coal Depths (ft): _____

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Size The wellhead and top joint of 7" casing were replaced. The casing and wellhead were hydrostatically tested. The well was cleaned out to the original total depth.			
The tubing (siphon string) was replaced Pulled existing 2-3/8" 5957'.			
Ran new 2-3/8" 4.7 lb./ft. J-55 EUE tbg. 5771'			
The well was acidized to remove mud damage and placed back in service.			

OPEN FLOW DATA

~~Producing~~ STORAGE formation Chert-Oriskany Pay zone depth (ft) _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/
 Final open flow _____ MCF/d Final open flow _____ Bbl/
 Time of open flow between initial and final tests _____ Hour
 Static rock Pressure _____ psig (surface pressure) after _____ Hour

Second producing formation _____ Pay zone depth (ft) _____

Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/
 Final open flow _____ MCF/d Final open flow _____ Bbl/
 Time of open flow between initial and final tests _____ Hour
 Static rock Pressure _____ psig (surface pressure) after _____ Hour

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: (1). DETAILS OF PERFORATE INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

For: COLUMBIA GAS TRANSMISSION CORP.
By: Robert C. Weidner
Date: MAY 31 1994

JUN 3 1994

Well acidized by Halliburton 9/14/93.
Treated w/4000 gals. 20% FE Acid
Additives: 4 gal. HAI-65 12 gal. HC-2
pump pressure 800 psig
5610'-5927'

17462

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WV Division of Environmental Protection
FORM WW-2B

JUN 23 1995

075-0011-F
Issued 07/09/93

Express Page 1 of 1
07/09/95

STATE OF WEST VIRGINIA

DEPARTMENT OF ENERGY, DIVISION OF OIL AND GAS

Office of Oil & Gas WELL WORK PERMIT APPLICATION

- 1) Well Operator: COLUMBIA GAS TRANSMISSION CORPORATION 10450 (2) 679
- 2) Operator's Well Number: 7461 (Glady Storage) ~~API # 57-018-000123~~ Elevation: 3387.04'
- 4) Well type: (a) Oil / or Gas X/ (existing well)
(b) If Gas: Production / Underground Storage X/
Deep X/ Shallow /
- 5) Proposed Target Formation(s): Chert 463
- 6) Proposed Total Depth: 5980 feet
- 7) Approximate fresh water strata depths: 239'-310'
- 8) Approximate salt water depths: unknown
- 9) Approximate coal seam depths: unknown
- 10) Does land contain coal seams tributary to active mine? Yes / No X/
- 11) Proposed Well Work: Remove existing wellhead and tubing. Install new wellhead and tubing (after cleanout to TD) Acidize to remove mud damage.
- 12)

CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS		FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft.	For drilling	
Conductor	13-3/8"		48 lb./ft.	31' 11"	Left in well 31' 11"
Fresh Water	10-3/4"		32 lb./ft.	1265' 3"	1265' 3"
Coal				<i>Existing</i>	<i>OK</i>
Intermediate					
Production	7"	J-55?	23 lb./ft.	5964'	5964'
Tubing	2-3/8"	J-55	4.7 lb./ft.	5987'	
Liners					

PACKERS : Kind none
Sizes
Depths set

For Division of Oil and Gas Use Only

Fee(s) paid: Well Work Permit Reclamation Fund WPCP

Plat WW-9 WW-2B Bond *Jurich Blanket* Agent
(Type)

1/402

00273795
12

RECEIVED
JUN 23 1993

- 1) Date: June 14, 1993
- 2) Operator's well number Well 7461
- 3) API Well No: 47 - 075 - 00011 - FRAC
State - County - Permit

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

NOTICE AND APPLICATION FOR A WELL WORK PERMIT

- 4) Surface Owner(s) to be served:
 - (a) Name U.S. Forest Service
Address Monongahela National Forest
P. O. Box 1548, Elkins, WV 26241
 - (b) Name _____
Address _____
 - (c) Name _____
Address _____
- 5) (a) Coal Operator:
 - Name _____
Address _____
 - (b) Coal Owner(s) with Declaration
Name U.S. Dept. of Interior, Bureau of Land Mg
Address P.O. Box 631
Milwaukee, WI 53201-0631
 - Name _____
Address _____
 - (c) Coal Lessee with Declaration
Name _____
Address _____
- 6) Inspector Phillip Tracy
Address Rt. 2, Box 37-A
Montrose, WV 26283
Telephone (304) - 636-8798

*1 of lease
is on
CASSIANS
C/O AS WV.*

TO THE PERSON(S) NAMED ABOVE TAKE NOTICE THAT:

_____ Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas OR
x Included is the information required by Chapter 22B, Article 1, Section 8(d) of the Code of West Virginia (see page 2)

I certify that as required under Chapter 22B of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through _____ on the above named parties, by:
_____ Personal Service (Affidavit attached)
x _____ Certified Mail (Postmarked postal receipt attached)
_____ Publication (Notice of Publication attached)

I have read and understand Chapter 22B and 38 CSR 11-18, and I agree to the terms and conditions of any permit issued under this application. I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator COLUMBIA GAS TRANSMISSION CORP.
By: [Signature]
Its: DIRECTOR, DRILLING & MAINTENANCE
Address P. O. BOX 1273
CHARLESTON, WV 25325-1273
Telephone 304-357-2459

Subscribed and sworn before me this 21 day of June, 1993

Watson T. Terry, Jr. Notary Public
My commission expires May 16, 2000

