

□ Frac - 10/27/87

- NEW LOCATION
- RECONDITION
- DRILL DEEPER
- ABANDONMENT

CERTIFICATE
 "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 paragraph 6 of 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

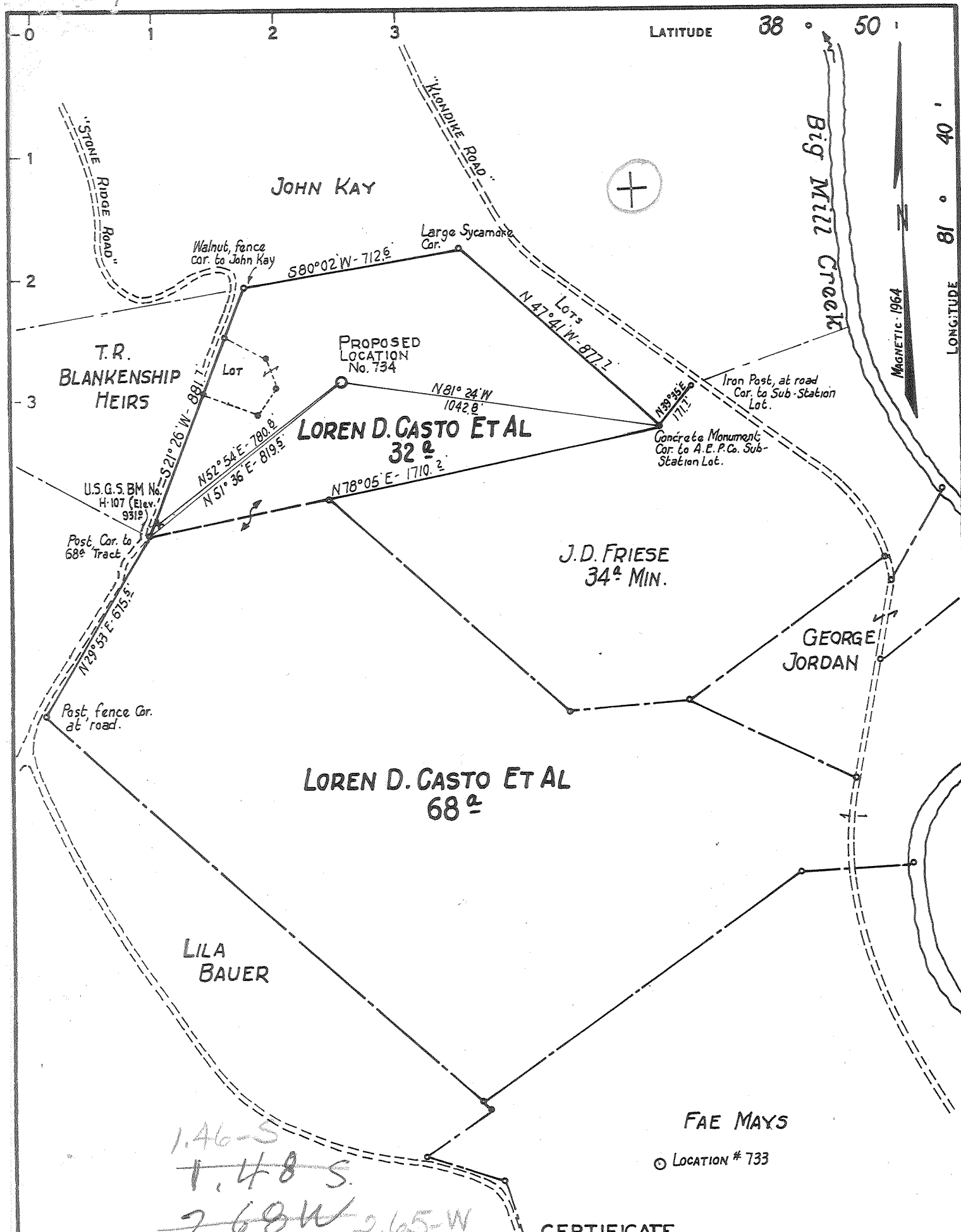
(SURVEY 8-21-64 W.S.G. N.B.#92 P. 72)

Signed *W.S. Kowalski*
 SURVEYOR

COMPANY	CAMBERLEY CORP.		
ADDRESS	P.O. 1550 DOVER ST. LAKEWOOD, COLO, 80215		
FARM	LOREN D. CASTO ET AL		
MAP	OV 25	ACRES	90
		LEASE NO.	2403
WELL (FARM) NO.	1	SERIAL NO.	734
ELEVATION (SPIRIT LEVEL)	843.0'		578
QUADRANGLE	RIPLEY S.W. 112 Ripley 7.5 3		
COUNTY	JACKSON	DISTRICT	RIPLEY
POINT OF PROVEN ELEVATION	U.S.G.S. BM No. H-107 (Elev. 931.0')		
FILE NO.		DRAWING NO.	
DATE	SEPT. 8, 1964		
		SCALE	1" = 400'

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION
CHARLESTON
WELL LOCATION MAP
FILE NO. JAC-1077-Frac.
NOV 2 1967
+ 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.

owwo DEEP WELL Elk-Poca (192) 6-6 South



1.46-S
~~1.48 S.~~
~~2.68 W~~ 2.65-W

CERTIFICATE

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Minimum degree of accuracy is one part in 200

Signed W. S. Emery
 SURVEYOR

- NEW LOCATION
- RECONDITION
- DRILL DEEPER
- ABANDONMENT

9 NC (H-5)

COMPANY	COMMONWEALTH GAS CORPORATION		
ADDRESS	P.O. BOX 1433 CHARLESTON, W.VA.		
FARM	LOREN D. CASTO ET AL		
MAP	OV 25	ACRES	90
		LEASE NO.	2403
WELL (FARM) NO.	1	SERIAL NO.	734
ELEVATION (SPIRIT LEVEL)	843.0'		
QUADRANGLE	RIPLEY-S.W.		
COUNTY	JACKSON	DISTRICT	RIPLEY
POINT OF PROVEN ELEVATION	U.S.G.S. BM No. H-107 (Elev. 931.0')		
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STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION
CHARLESTON
WELL LOCATION MAP
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- DENOTES ONE INCH SPACES ON BORDER LINE OF ORIGINAL TRACING.

No samples to be taken (192) Deep Well



IV-35
(Rev 8-81)

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FEB 22 1988

State of West Virginia
Department of Mines
Oil and Gas Division

Date February 9, 1988
Operator's
Well No. #1 Loren D. Casto
Farm Loren D. Casto, et.al.
API No. 47 - 035 - 1077-Frac

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

WELL OPERATOR'S REPORT
OF

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil ___ / Gas XX / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production ___ / Underground Storage ___ / Deep ___ / Shallow x /)

LOCATION: Elevation: 843 Watershed Mill Creek
District: Ripley County Jackson Quadrangle Ripley 7.5

COMPANY CAMBERLEY CORPORATION
ADDRESS 1550 Dover St., Lakewood, Colo. 80215
DESIGNATED AGENT Arthur C. Youse
ADDRESS P.O. BOX 1134, Charleston, W.Va. 25324
SURFACE OWNER Loren D. & O.E. Casto
ADDRESS Rt. 2, Box 55, Ripley, W.Va. 25271
MINERAL RIGHTS OWNER Same as above
ADDRESS _____
OIL AND GAS INSPECTOR FOR THIS WORK Jerry
Tephabock ADDRESS Ripley, West Virginia
PERMIT ISSUED October 27, 1987
DRILLING COMMENCED Recompletion : 11/12/87
DRILLING COMPLETED Finished: 12/18/87
IF APPLICABLE: PLUGGING OF DRY HOLE ON
CONTINUOUS PROGRESSION FROM DRILLING OR
REWORKING. VERBAL PERMISSION OBTAINED
ON _____

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size <u>20-16' Cond.</u>	19	19	
<u>13-10"</u>	842		
<u>9 5/8</u>	1230		
<u>8 5/8</u>	2160	2160	12 sax
<u>7</u>			
<u>5 1/2</u>			
<u>4 1/2</u>	5046	5046	424 ft.
<u>3</u>			
<u>2</u>		4101	
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Brown Shale Depth 4655 feet
Depth of completed well 4655' feet Rotary ___ / Cable Tools XXXX
Water strata depth: Fresh ___ feet; Salt ___ feet
Coal seam depths: _____ Is coal being mined in the area? ___

OPEN FLOW DATA

Producing formation Brown Shale Pay zone depth 3724-4255 feet
Gas: Initial open flow Show Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow 152 Mcf/d Final open flow ___ Bbl/d
Time of open flow between initial and final tests 4 hours
Static rock pressure 1095 psig (surface measurement) after 17 days shut in
(If applicable due to multiple completion--)
Second producing formation _____ Pay zone depth _____ feet
Gas: Initial open flow _____ Mcf/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ Mcf/d Oil: Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ hours
Static rock pressure _____ psig (surface measurement) after _____ hours shut in

(Continue on reverse side)
FEB 29 1988

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

6 ft. down
 Pulled 2" tubing and set wireline bridge plug in 4½" casing at 4655'. Perforated six holes at 3500 feet for squeeze. Cemented 4½" casing from 3500 to 1828' with 249 sacks of 50/50 Pozmix. Perforated 4½" casing 4105 to 4125' with 20 shots. Nowsco loaded hole with foam and broke down formation at 2200 PSI. Frac job broke through cement around 4½" casing. A total of 22,300 # of sand and 306,000 SCF of nitrogen were injected into formation before breakthrough. Flowed well back. 12/1/87 ran 130 joints of 2" tubing totaling 4101.55 ft. Shut well in at 3 PM 12/1/87 for pressure buildup. Put well into production on December 18, 1987.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
SEE ORIGINAL WELL RECORD WHICH IS ATTACHED.					

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DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

(Attach separate sheets as necessary)

CAMBERLEY CORPORATION

Well Operator

By: Arthur C. Youse Arthur C. Youse, Agent

Date: February 9, 1988

Note: Regulation 2.02(i) provides as follows:
 "The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including coal, encountered in the drilling of a well."



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION 18

Rotary
Spudder
Cable Tools
Storage

Quadrangle Ripley S. W.

Permit No. Jac. 1077

WELL RECORD

Oil or Gas Well Gas
(KIND)

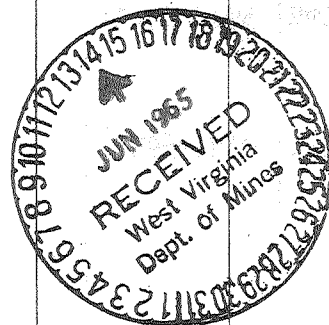
Company COMMONWEALTH GAS CORPORATION
Address P. O. Box 1433, Charleston, West Va.
Owner Loren D. Casto et al Acres 90
Location (waters) Big Mill Creek
Well No. 734 Elev. 843.0
District Ripley County Jackson
The surface of tract is owned in fee by Loren D. Casto
Address Ripley, W. Va.
Mineral rights are owned by Same
Address _____
Drilling commenced September 17, 1964
Drilling completed March 24, 1965
Date Shot _____ From _____ To _____
With _____
Open Flow _____ /10ths Water in _____ Inch
_____ /10ths Merc. in _____ Inch
Volume 1,400,000 Cu. Ft.
Rock Pressure 1550 lbs. 65 hrs.
Oil _____ bbls., 1st 24 hrs.
WELL ACIDIZED _____
WELL FRACTURED March 19, 1965 with 18,270 gal. water and 30,000 lbs. sand

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			Kind of Packer
16	19'1"	19'1"	
13	842'		
10	1230'4"		Size of
8 3/4	2160'	2160'	
6 3/4			Depth set
5 3/16			
2 1/4	5045'11"	5045'11"	Perf. top
2			Perf. bottom
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED _____ SIZE _____ No. Ft. _____ Date _____
12 bags cement behind 8" casing. 250 bags cement behind 4" casing
COAL WAS ENCOUNTERED AT _____ FEET _____ INCHES
_____ FEET _____ INCHES
_____ FEET _____ INCHES
_____ FEET _____ INCHES

RESULT AFTER TREATMENT 1,400,000 cu. ft.
ROCK PRESSURE AFTER TREATMENT 1550 - 65 hrs.
Fresh Water 340, 378-85, 856, 877 Feet Salt Water 1465-1470 Feet 1765-1785

Formation	Color	Hard or ft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Surface			0	10			
Red mud			10	20			
Blue mud			20	28			
Red mud			28	39			
Blue mud			39	55			
Red mud			55	68			
Blue mud			68	80			
Red rock			80	93			
Blue mud			93	105			
Red rock			105	148			
Blue mud			148	164			
Red rock			164	190			
Blue slate			190	200			
Red rock			200	238			
Blue slate			238	253			
Red rock			253	275			
Blue slate			275	320			
Blue sand			320	388	Water	340	1/3 bailer per hr
Blue slate			388	400	Water	378-385	2-2/3 bailers in 1-1/2 hrs.
Red rock			400	420			
Blue slate			420	456			
Blue sand			456	465			
Blue slate			465	511			
Sand			511	527			
Blue slate			527	545			
Red rock			545	555			
Sand			555	560			
Blue slate			560	720			
Blue and white sand			720	805			



Formation	Color	Hard or Soft	Top 18	Bottom	Oil, Gas or Water	Depth Found	Remarks
Blue slate			805	818			
Red rock			818	832			
Blue gritty slate			832	850			
Sand			850	877	Water	856-877	1/2 bailer per
Red rock			877	903			
Blue slate			903	915			
Blue sand			915	965			
Blue slate			965	1010			
Red rock			1010	1040			
Blue slate			1040	1100			
Red & yellow rock			1100	1120			
Sand			1120	1156			
Blue slate			1156	1208			
Pinkrock			1208	1228			
Shell			1228	1236			
Slate			1236	1260			
Sand			1260	1300			
Soft slate			1300	1360			
Broken sand			1360	1430			
Black slate			1430	1445			
Sand			1445	1482	Water	1465-1470	1/2 bailer per
Slate			1482	1490			
Sand			1490	1540			
Black slate			1540	1759			
<u>SALT SAND</u>			1759	1851	Water	1765-1785	Hole full
Slate			1851	1892			
<u>MAXTON SAND</u>	Salt Sand?		1892	1925			
<u>BIG LIME</u>			1925	2025		1937	S.L.M.
White slate	Irgus?		2025	2090			
Blue slate & gritty shells			2090	2485		2160	S.L.M.
Brown Shale			2485	2500			
<u>MEHEA SAND</u>			2500	2515	Gas	2500-2507	Show
Slate & shells			2515	3100	Gas	3087-3089	Show
White slate			3100	3715			
<u>BROWN SHALE</u>	-441		3715	3785			
White slate			3785	3990			
<u>BROWN SHALE</u>			3990	4090			
White slate & Lime shell			4090	4220	Gas	4107-4123	60,000
<u>BROWN SHALE</u>			4220	4233		4140	S.L.M.
White slate & shell			4233	4653	Gas	4165	Show
<u>BROWN SHALE</u>			4653	4758	Gas	4723	Show
White slate			4758	4775			
<u>COFFEE SHALE</u>			4775	4895			
<u>CORNIFEROUS LIME</u>	-443		4895	4990			
<u>CRISKANY SAND</u>			4990	5010	Gas	5001-5005	239,000 cu. ft.
Lime - HELBERBERG			5010	5046			
TOTAL DEPTH				5046	485		
					FINAL GAUGE: 1,400,000 cu. ft. after frac		
Note: Fishing job on this well done by Ray Brothers with rotary rig.							
					4895	4990	5010
					843	843	
					4052	4147	

Date June 11, 1965

APPROVED COMMONWEALTH GAS CORPORATION, Owner

By W. O. Smith
(Title Land & Eng. Dept.)

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OCT 26 1987



1) Date: SEPT. 21, 1987, 19__
2) Operator's # 1 Well No. O.E. CASTO
3) API Well No. 47 - 035 - 1077 - FRAC
State County Permit

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY, OIL AND GAS DIVISION

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

APPLICATION FOR A WELL WORK PERMIT

- 4) WELL TYPE: A Oil / Gas XXX /
B (If "Gas", Production XXX / Underground storage / Deep / Shallow XXX /)
- 5) LOCATION: Elevation: 843 Watershed: BIG MILL CREEK
District: RIPLEY 3 County: JACKSON 035 Quadrangle: RIPLEY 577
- 6) WELL OPERATOR CAMBERLEY CORP CODE: 8325 7) DESIGNATED AGENT ARTHUR C. YOUSE
Address 1550 DOWER STREET Address P.O. BOX 1134
LAKEWOOD, COLO. 80215 CHARLESTON, W.VA. 25324
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED 9) ~~DRILLING~~ CONTRACTOR: SERVICE
Name JERRY TERPABOCK Name POOL WELL SERVICE CO.
Address RIPLEY, W.VA. Address RIPLEY, W.VA.
372-6805 372-4353
- 10) PROPOSED WELL WORK: Drill / Drill deeper / Redrill / Stimulate XXX /
Plug off old formation XXX / Perforate new formation XXX /
Other physical change in well (specify)
- 11) GEOLOGICAL TARGET FORMATION, DEVONIAN BROWN SHALE
- 12) Estimated depth of completed well, 4300 feet
- 13) Approximate trata depths: Fresh, 370' & 877' feet; salt, 1465 & 1765 feet.
- 14) Approximate coal seam depths: NONE REPORTED Is coal being mined in the area? Yes / No XXX /
- 15) 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	Left in well		Kinds	Sizes
Conductor	16"					19	19			
Fresh water	13"					842	—			
Coal	10"					1230	—			
Intermediate	8"					2160	2160	12 SAX		
Production	4 1/2"						5046	50 SAX		Depths set
Tubing										
Liners										Perforations:
										Top Bottom

OFFICE USE ONLY
DRILLING PERMIT

Permit number 47-035-1077-FRAC

October 27 19 87
Date

This permit covering the well operator and well location shown below is evidence of permission granted to drill in accordance with the pertinent legal requirements subject to the conditions contained herein and on the reverse hereof. Notification must be given to the District Oil and Gas Inspector, (Refer to No. 8) Prior to the construction of roads, locations and pits for any permitted work. In addition, the well operator or his contractor shall notify the proper district oil and gas inspector 24 hours before actual permitted work has commenced.)

The permitted work is as described in the Notice and Application, plat, and reclamation plan, subject to any modifications and conditions specified on the reverse hereof.

Permit expires October 27, 1989 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <input checked="" type="checkbox"/>	Agent: <input checked="" type="checkbox"/>	Flat: <input checked="" type="checkbox"/>	Casing: <input checked="" type="checkbox"/>	Fee: <u>235</u>	WBOP: <input checked="" type="checkbox"/>	S&F: <input checked="" type="checkbox"/>	Other: <input checked="" type="checkbox"/>
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NOTE: Keep one copy of this permit posted at the drilling location.

[Signature]
Director, Division of Oil and Gas

File

See the reverse side of the APPLICANT'S COPY for instructions to the well operator.