

CGIS	LOC:
75'	15'
38°07'30"	81°40'
0.40S	1.53W
3.20S	

PP Frac- 12/7/84

- 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

Signed *T.S. Slattery* R.P.E.# 269

COMPANY Cohet Oil & Gas Co. W. Va.  
 ADDRESS P.O. BOX 628 CHARLESTON, W. VA. 25322  
 FARM R.L. BURFORD ETAL  
 MAP \_\_\_\_\_ ACRES 264.33 (UNIT) LEASE NO. \_\_\_\_\_  
 WELL (FARM) NO. 1 SERIAL NO. \_\_\_\_\_  
 ELEVATION (SPIRIT LEVEL) 828.45  
 QUADRANGLE CHARLESTON N.W. Pocatalico (SS)  
 COUNTY KANAWHA DISTRICT UNION  
 POINT OF PROVEN ELEVATION U.S.G.S. DATUM - ROAD INTERSECTION  
AS SHOWN ABOVE AND ON POCATALICO 1:2400 QUADRANGLE  
 FILE NO. \_\_\_\_\_ DRAWING NO. \_\_\_\_\_  
 DATE MARCH 11, 1968 SCALE 1" = 660'

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION  
 CHARLESTON  
 WELL LOCATION MAP  
 DEC 31 1984  
 FILE NO. KAN-2234-PP-Frac

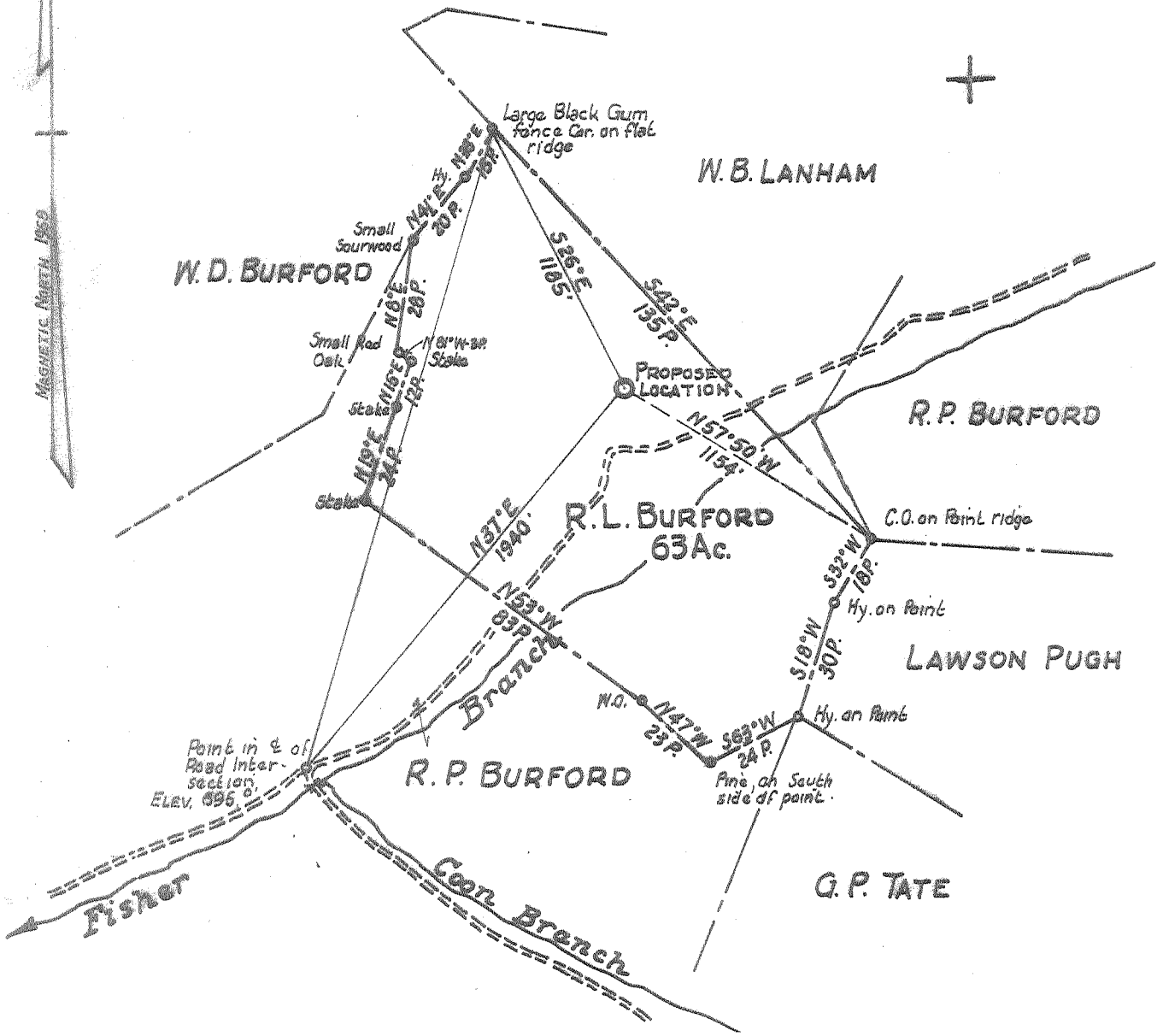
+ DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS. SCALE 1 TO 62,500. LATITUDE AND LONGITUDE LINES BEING REPRESENTED BY BORDER LINES AS SHOWN.  
 - DENOTES ONE INCH SPACES ON BORDER LINE OF ORIGINAL TRACING.

DWWO DEEP WELL 6.6 Rocky Fork (312) 220 2234 PP-Frac

LATITUDE 38 ° 30 '

LONGITUDE 81 ° 40 '

3.205  
1.53WC



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Minimum degree of accuracy is one part in 200

Signed T.S. Slattery R.P.E. 269

- NEW LOCATION
- RECONDITION
- DRILL DEEPER
- ABANDONMENT

COMPANY APPALACHIAN EXPLORATION & DEVELOPMENT CO.  
 ADDRESS P.O. BOX 628 CHARLESTON, W.VA.  
 FARM R.L. BURFORD ETAL  
 MAP 63-1104 (UNIT) ACRES 63.33 LEASE NO. \_\_\_\_\_  
 WELL (FARM) NO. 1 SERIAL NO. \_\_\_\_\_  
 ELEVATION (SPIRIT LEVEL) 828.45  
 QUADRANGLE CHARLESTON N.W.  
 COUNTY KANAWHA DISTRICT UNION  
 POINT OF PROVEN ELEVATION U.S.G.S. DATUM - ROAD INTERSECTION  
As Shown Above and on Pocatoligo 1:2400 Quadrangle  
 FILE NO. \_\_\_\_\_ DRAWING NO. \_\_\_\_\_  
 DATE MARCH 11, 1968 SCALE 1" = 660'

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION  
 CHARLESTON  
**WELL LOCATION MAP**  
 FILE NO. KAN-2234

+ 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.



STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
OIL AND GAS DIVISION 4

Rotary   
Spudder   
Cable Tools   
Storage

Location Charleston

Well No. Kanawha-2234

WELL RECORD

Oil or Gas Well Gas  
(KIND)

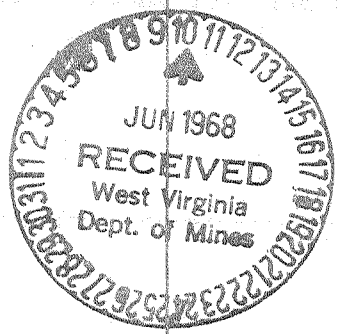
Company Appalachian Exploration & Development, Inc. Casing and Tubing  
Address P.O. Box 628, Charleston, W.Va. 25322  
Operator R. L. Burford Acres 264.33 Size  
Location (waters) Fisher Branch 843k 16  
Well No. 1 Elev. 828.45 G 13-3/8  
District Union County Kanawha 10  
The surface of tract is owned in fee by R. L. Burford ~~xxxx~~ 9-5/8  
Box 45 Address Charleston, W.Va. ~~xxxx~~ 7  
Mineral rights are owned by Same as above. 5 3/16  
Address 4 1/2  
Drilling commenced April 4, 1968 3  
Drilling completed April 22, 1968 2  
Date Shot None From To  
Liners Used

Open Flow /10ths Water in Inch  
/10ths Merc. in Inch  
Volume 800,000 natural Cu. Ft.  
Block Pressure 1640 lbs. 48 hrs.  
None bbls., 1st 24 hrs.

WELL ACIDIZED (DETAILS)  
WELL FRACTURED (DETAILS) 732 barrels of water with 25,000 lbs. of sand. Maximum pressure - 900 lbs.

RESULT AFTER TREATMENT (Initial open Flow or bbls.) 3.0 million cubic feet. 3,000 MCF  
BLOCK PRESSURE AFTER TREATMENT 1640 HOURS 48  
Fresh Water Feet Salt Water Feet  
Producing Sand Newburg Depth 5660'

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Shale & Sand	White	Hard	0	110	Damp		
and		Hard	110	155			
Shale		Soft	155	180			
Shale & Sand		Hard	180	230			
and & Shale		Soft	230	253			
and		Hard	253	430			
and & Shale		Soft	430	1025			
and		Soft	1025	1570			
and & Shale		Soft	1570	1640			
lime Big Lime		Hard	1640	1800			
and	Soft	1800	1835	} Big Injun 1800-1857			
and & Shale	Soft	1835	2000				
Shale	Soft	2000	2295				
and - <u>Barren</u>	Soft	2295	2305				
Shale	Soft	2305	4810				
lime	Hard	4810	4915	} Onondaga Oriskany			
and	Hard	4915	4940				
lime & Dolomite	Hard	4940	5651	} Core #1 5651-55 (Went on fluid at 5651')			
Dolomite	Hard	5651	5655				
Sandstone	} <u>Newburg</u>	Soft	5655	5666	} Core #2 5655-5675		
Sandstone & Dolomite		Soft	5666	5669			
Sandstone		Soft	5669	5671			
Sandy Dolomite		Hard	5671	5675			



JUN 18 1968



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IV-35 (Rev 8-81)

OIL & GAS DIVISION DEPT. OF MINES State of West Virginia Department of Mines Oil and Gas Division

Date February 20, 1985 Operator's Well No. #1 Farm R. L. Burford API No. 47 - 039 - 2234

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 XX / Underground Storage / Deep / Shallow XX /)

LOCATION: Elevation: 828.45' Watershed Fisher Branch District: Union County Kanawha Quadrangle Pocatalico

COMPANY Cabot Oil & Gas Corporation of WV ADDRESS Box 628, Charleston, WV 25322 DESIGNATED AGENT Robert E. Horrell ADDRESS Box 628, Charleston, WV 25322 SURFACE OWNER Martha Burford ADDRESS Route 4, Box 45, Charleston, WV 25312 MINERAL RIGHTS OWNER See Attached List ADDRESS OIL AND GAS INSPECTOR FOR THIS WORK Russell Beall ADDRESS Box 160, Philippi, WV 26416 PERMIT ISSUED 12/7/84 WORKOVER DRILLING COMMENCED 12/26/84 WORKOVER DRILLING COMPLETED 1/19/84 IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Table with 4 columns: Casing & Tubing, Used in Drilling, Left in Well, Cement fill up Cu. ft. Rows include sizes 20-16 Cond., 13-10", 9 5/8, 8 5/8, 7 Squeezed, 5 1/2, 4 1/2, 3 -1/2, 2 Pulled, 1-1/2 w/seating nipple.

ension 4138'

GEOLOGICAL TARGET FORMATION Oriskany Shale Depth 4894-4920 3972-4054 feet Depth of completed well PBTD 4960 feet Rotary / Cable Tools Water strata depth: Fresh feet; Salt feet Coal seam depths: Is coal being mined in the area?

OPEN FLOW DATA

Producing formation Huron Shale Pay zone depth 3972-4054 feet Gas: Initial open flow - - Mcf/d Oil: Initial open flow - - Bbl/d 4 hr. Final open flow 127 Mcf/d Final open flow - - Bbl/d Time of open flow between initial and final tests - - hours Static rock pressure 570 psig (surface measurement) after - - hours shut in (If applicable due to multiple completion--)

178 127 905 MCF POP

Second producing formation Oriskany Pay zone depth 4894-4920 feet Gas: Initial open flow - - Mcf/d Oil: Initial open flow - - Bbl/d 4 hr. Final open flow 778 Mcf/d Oil: Final open flow - - Bbl/d Time of open flow between initial and final tests - - hours Static rock pressure 1100 psig (surface measurement) after - - hours shut in

(Continue on reverse side)

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

Move in, R/U Pool Well Service. Pulled 5647' 2-3/8" tbg. Set Baker Model S bridge plug @ 4960'.  
 Dumped 2 sks cal-seal. Perf squeeze perfs @ 4300'. R/U Howco squeeze w/75 sks Class A, 3% CaCl<sub>2</sub>,  
 1/4# flocele w/1% CFR2 & 90 sks 50/50 poz, 10% salt w/3/4 of 1% CFR2. RIH w/2-7/8" tbg & drl  
 string and drilled out cement to TD 4954'. Perf to squeeze @ 3700'. Squeezed w/75 sks 50/50  
 poz w/10% salt, 3/4 of 1% CFR2. Ran GR, Bond logs 3699-2450'. TOC 2642'. Drilled out cement.  
 R/U McCullough, perf Oriskany 4894-4920' (13 holes). RIH w/2-7/8" EUE tbg w/Howco 7" RTTS pkr.  
 R/U Howco, dumped 250 gals 15% HCL. Pumped 250 gals 15% HCL down tbg, loaded hole w/H<sub>2</sub>O & broke  
 down perfs @ 1000 psi. Treated w/670 bbls cross link gel, 345 sks 20/40 sand @ 2#/gal & 36,000  
 SCF N<sub>2</sub> @ 1000 SCF/min. ATP 4779 psi. AIR 10.6 bpm. ISIP 3970 psi. 15 min 3200 psi. Shut in  
 3 hrs & opened thru 2". POOH w/2-7/8" EUE tbg & RTTS pkr from 4835'. R/U McCullough. Perf Shale  
 w/select fire 3972-4054' (15 holes). Run 2-7/8" EUE tbg w/Howco BP & RTTS pkr. RU Dowell.  
 Load hole w/N<sub>2</sub> & broke down Shale @ 3100 psi. Avg. N<sub>2</sub> rate 20,000 SCF/min. ATP 2700 psi. ISIP  
 400, 15 min 1275 psi. Released thru 1" choke. POOH w/2-7/8". Ran 135 jts 3-1/2" w/7" Parmaco  
 tension pkr 4138.25'. Set pkr @ 4138.25 GL. Ran 144 jts 1-1/2" tbg w/seating nipple &  
 perf jt. Set @ 4879.90 GL, seating nipple set @ 4849' GL.

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 ATTACHED ORIGINAL WELL RECORD					
from el log					
Buckley			2272		
Genea			2288		
Genea			2298		
Huron			3510		
Jawa			4074		
Arqda					
Lowest			4502		
ashagna			4652		
ddx			4766		
lavellus			4784		
Handog			4804		

(Attach separate sheets as necessary)

CABOT OIL & GAS CORPORATION OF WEST VIRGINIA

Well Operator

By: Robert E. Howell

Date: February 20, 1985

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  
 those encountered in the drilling of a well."

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NOV 19 1984



1) Date: November 14, 19 84  
 2) Operator's Well No. R.L. Burford #1  
 3) API Well No. 47 - 039 - 2234 - PP -  
 State 47 County 039 Permit FRA C

STATE OF WEST VIRGINIA  
 OIL & GAS DIVISION DEPARTMENT OF MINES, OIL AND GAS DIVISION  
 DEPT. OF MINES APPLICATION FOR A WELL WORK PERMIT

- 4) WELL TYPE: A Oil        / Gas X /  
 B (If "Gas", Production        / Underground storage        / Deep        / Shallow X /)
- 5) LOCATION: Elevation: 828.45' Watershed: Fisher Branch  
 District: Union County: Kanawha Quadrangle: Pocatalico
- 6) WELL OPERATOR Cabot Oil & Gas Corp. of WV 7) DESIGNATED AGENT Robert E. Horrell  
 Address P.O. Box 628 Address P.O. Box 628  
Charleston, WV 25322 8150 Charleston, WV 25322
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED 9) DRILLING CONTRACTOR:  
 Name Russell Reall RODNEY DILLON Name UNKNOWN  
 Address P.O. Box 160 Address         
Phillippi, WV 26416 866-4608
- 10) PROPOSED WELL WORK: Drill        / Drill deeper        / Redrill        / Stimulate X /  
 Plug off old formation X / Perforate new formation X /  
 Other physical change in well (specify) Plug back Newburg
- 11) GEOLOGICAL TARGET FORMATION, Huron Shale & Oriskany
- 12) Estimated depth of completed well, 5100 feet  
 13) Approximate trata depths: Fresh, N/R feet; salt,        feet.  
 14) Approximate coal seam depths: N/R Is coal being mined in the area? Yes        / No X
- 15) CASING AND TUBING PROGRAM WORKOVER

CASING OR TUBING TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per ft.	New	Used		
Conductor	13	H-40	48			200 sks.	Kinds
Fresh water							
Coal	9-5/8"	H-40	32			480 sks.	Sizes
Intermediate							
Production	7"	N-80	23			200 sks.	Depths set
Tubing	2"		TO BE PULLED				
Liners							Perforations:
	2"		4.6		X	4900'	Top Bottom
	1-1/2"		2.75	X		4050'	On packer

1. Set cast iron bridge plug @ 5100' and dump 2 sks. cal seal.  
 2. Squeeze cement 7" casing 4200'-3600'.

OFFICE USE ONLY  
 DRILLING PERMIT

Permit number 47-039-2234-PP-FRAC

December 7, 19 84  
 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 December 7, 1986 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing	Fee
30	M17	MW	MW	014122

*Margaret J. Hesse*  
 Administrator, Office of Oil and Gas

NOTE: Keep one copy of this permit posted at the drilling location.

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

File