



OGIS 7.5' loc 15'
 33° 17' 30" 1.82 4.70 S
 81° 27' 30" 2.04 4.30 W
 sek

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 _____ L.L.S. 247

COMPANY CITIES SERVICE COMPANY
 ADDRESS P.O. BX. 873 CHARLESTON WV 25323
 FARM WALLER C. HARDY JR. ET AL
 MAP TRACT 5 ACRES 500 AC PART OF 9707.19 AC LEASE NO. WV-393
 WELL (FARM) NO. A-29 SERIAL NO. GW 1807
 ELEVATION (SPIRIT LEVEL) 1257.98' SC
 QUADRANGLE CHARLESTON WEST 7 1/2' - 15'
 COUNTY KANAWHA DISTRICT LOUDON
 POINT OF PROVEN ELEVATION GAS WELL NO. 9 - GW 1359 IN HOLLOW
ALONG SHREWBURG FR. ELEV. 877.80
 FILE NO. _____ DRAWING NO. W-20-80
 DATE OCT 24, 1980 SCALE 1" = 1000'

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION
 CHARLESTON
 WELL LOCATION MAP
 FILE NO. 039-3689
 + 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.

DEEPWELL G-4 MFL CAMPBELL CR MALDEN 214



RECEIVED
APR 20 1981

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
Oil and Gas Division

OIL & GAS DIVISION
DEPT. OF MINES

WELL RECORD

Quadrangle Charleston West
Permit No. 47-039-3689

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

Company <u>Cities Service Company</u>	Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Address <u>Box 873, Charleston, WV 25323</u>				
Farm <u>W. C. Hardy, Jr et al</u> Acres <u>500</u>	Size			
Location (waters) <u>Shrewsbury Fork of Davis Creek</u>	20-16			
Well No. <u>"A" #29, GW-1807</u> Elev. <u>1257.98</u>	Cond.			
District <u>London</u> County <u>Kanawha</u>	13-TO-3-7/8"	96'	96'	118 ft. ³ (100 sx)
The surface of tract is owned in fee by <u>W. Va. Dept. of Natural Resources, Attn: John Marra</u>	9 5/8	1889'	1889'	717 ft. ³ (575 sx)
Address <u>State Forrester, 1800 Wash. St. E. Charleston, WV 25305</u>	8 5/8			
Mineral rights are owned by <u>W. C. Hardy, Jr et al</u> Address <u>3100 2nd Ave., Vienna, WV 26105</u>	7			
Drilling Commenced <u>12-20-80</u> 12-20-80 <u>12/20/80</u>	5 1/2			
Drilling Completed <u>3-12-81</u>	4 1/2"		5725'	442 ft. ³ (287 sx)
Initial open flow <u>47,000</u> cu. ft. <u>-</u> bbls.	3			
Final production <u>311,000</u> cu. ft. per day <u>-</u> bbls.	2-3/8"		5039'	
Well open <u>96</u> hrs. before test <u>438#</u> RP.	Liners Used			

Well treatment details: Attach copy of cementing record.
Set cast iron bridge plug at 5120'. Broke down Oriskany w/7000 gal. 15% HCL at 1700# at 6 BPM
Fraced w/6000# 80/100 sand. 24,000# 20/40 sand. Screened out at 4-1/2 PPG at 5000#. Avg. treating pressure 3500# AIR 10 BPM Avg. Sand Conc. 1-1/2 PPG. ISIP 3000# 15 min. 2200# TL&T 858 bbl; broke down Devonian Shale, w/1000 gal. 15% HCL at 2100# at 4 BPM. Fraced with 20,250# 70/40 sand in foam. Screened out at 8 ppg at 3500# Avg. treating pressure 3400# AIR 16 BPM Avg. Sand conc. 6 PPG ISIP 3500# 15 Min. 3350# TL&T 256 bbl. 282 MCF-N2
Coal was encountered at 374 Feet 48 Inches
Fresh water 221', 790' Feet Salt Water 1650' Feet
Producing Sand Oriskany: Devonian Shale Depth 5031-38', 4878-4925'

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Sand and Shale	Grey	Soft	98			Water 221' 3/4" stram
Coal	Dark	Soft	374	378		
Sand	White	Hard		882		
Shale	Grey	Soft	882	920		
Sand	White	Hard	920	960		
Shale	Grey	Soft	960	1315		
Sand	Lt. Grey	Hard	1315	1439		
Sand	White	Hard	1439	1729		
Lime	Grey	Hard	1729	1902		
Sand	Red	Med.	1902	2063		Gas show 2011'
Shale	Grey	Med.	2063	3990		
Shale	Brown	Soft	3990	4110		Gas check 4410'
Shale	Grey	Soft	4110	4657		No show
Shale	Brown	Soft	4657	4730		
Shale	Grey	Soft	4730	4923		Gas check 4935
Lime	Grey	Hard	4923	5281		20/10 thru 1" w/water
Sandy Shale	Grey	Hard	5281			

Log TO 5748
(Dir TO 5770
on log)
McKenzie @ TO

MAY 21 1981



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

RECEIVED

NOV 24 1980

OIL AND GAS WELL PERMIT APPLICATION

OIL & GAS DIVISION
DEPT. OF MINES

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

DATE November 24, 1980

Surface Owner W. Va. Dept. Natural Resources
Attn: John Marra, Asst. State Forrester
Address 1800 Wash. St., East Charleston, WV
Mineral Owner W. C. Hardy, Jr. et al 25305
Address 3100 2nd Ave., Vienna, WV 26105
Coal Owner same
Address _____
Coal Operator NA
Address _____

Company Cities Service Company
Address Box 873, Charleston, WV 25323
Farm W. C. Hardy, Jr. et al 500 Ac Part of 9707.19 Ac
Location (waters) Shrewsbury Fork of Davis Creek
Well No. "A" #29, GW-1807 Elevation 1257.98'
District Loudon County Kanawha
Quadrangle Charleston West 7-1/2

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 8-12-81.

INSPECTOR
TO BE NOTIFIED Martin Nichols
ADDRESS P.O. Box 554, Clendenin, WV 25045
PHONE 548-6993

J. G. Huggins
Deputy Director - Oil & Gas Division
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 April 19 59 by Waller C. Hardy, Jr. et al made to Columbia Carbon (now Cities Service) and recorded on the _____ day of _____ 19____, in Kanawha County, Book 147 Page 374

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 same 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, Cities Service Company
(Sign Name) Paul D. Phillips
Paul D. Phillips Well Operator Reg. Petr. Engineer
Box 873
Street
Charleston
City or Town
W. Va. 25323
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.

47-039-3689 PERMIT NUMBER

"I have read and understand the reclamation requirements as set forth in Chapter 22, Article 4, Section 12-b and will carry out the specified requirements."
Signed by Paul D. Phillips

Survey

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 unk NAME Sam J. Matthews
 ADDRESS _____ ADDRESS Box 873, Charleston, WV 25323
 TELEPHONE _____ TELEPHONE 304-344-8383
 ESTIMATED DEPTH OF COMPLETED WELL: X ROTARY X CABLE TOOLS _____
 PROPOSED GEOLOGICAL FORMATION: 5772
 TYPE OF WELL: OIL _____ GAS X COMB. _____ STORAGE _____ DISPOSAL _____
 RECYCLING _____ WATER FLOOD _____ OTHER _____

TENTATIVE CASING PROGRAM:

CASING AND TUBING SIZE	USED FOR DRILLING	LEFT IN WELL	CEMENT HIT UP OR SACKS - CUBIC FT.
20 - 16			
13 - 16	60	60'	46 sx - 54 cu. ft.
9 - 5/8	1850'	1850'	surface (600 sx)
8 - 5/8			
7			
5 1/2			
4 1/2	5772	5772	650' (147 sx) <i>or as reqd.</i>
3			Perf. Top <i>by rule 15.01</i>
2			Perf. Bottom
Liners			Perf. Top
			Perf. Bottom

APPROXIMATE FRESH WATER DEPTHS 270 FEET SALT WATER 1538 FEET
 APPROXIMATE COAL DEPTHS 278' 339
 IS COAL BEING MINED IN THE AREA? No 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