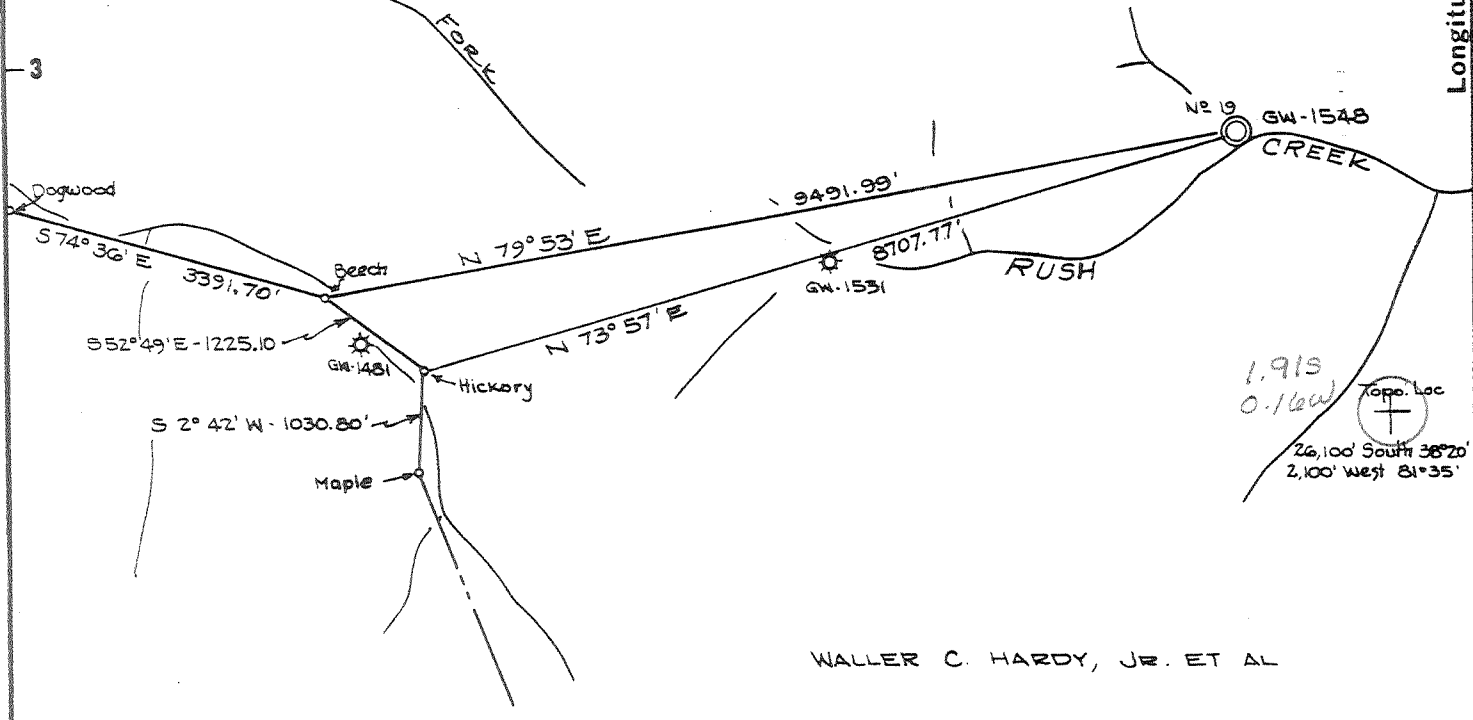


Latitude 38° 20'

Longitude 81° 35'

WALLER C. HARDY, JR. ET AL  
1-11-47-00834 9707.19 AC  
(BROOKS McCABE SURF.)



WALLER C. HARDY, JR. ET AL

WALLER C. HARDY, JR. ET AL  
(KAN. STATE FOR.)  
SURF.

NOTE - "UE" 681" - 66' N & RUSH CREEK RD - AT O.L.O. PIPE CROSSING E-BASE OF 2' SYCAMORE TREE SPIKE NAIL.

THE ACCURACY OF THIS SURVEY IS WITHIN THE LIMITS PRESCRIBED BY THE OIL AND GAS DIVISION OF THE DEPARTMENT OF MINES.

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.

PARTIAL PLUG FRACTURE - 7/3/75

New Location    
Drill Deeper    
Abandonment  4-9-80

Company CITIES SERVICE OIL COMPANY  
 Address Box 873, CHARLESTON, W.VA.  
 Farm WALLER C. HARDY, JR. ET AL  
 Tract \_\_\_\_\_ Acres 9707.19 Lease No. 1-11-47-00834  
 Well (Farm) No. 19 Serial No. GW-1548  
 Elevation (Spirit Level) 688.96'  
 Quadrangle CHARLESTON 8 S500 W041  
 County KANAWHA District LOUDON  
 Engineer Wendell S Moore  
 Engineer's Registration No. 2113  
 File No. \_\_\_\_\_ Drawing No. W-14-65  
 Date 31 MARCH 65 Scale 1" = 2000'

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

AUG 08 1981

WELL LOCATION MAP

FILE NO. KAN-2041-P-FRAC-PP

+ Denotes location of well on United States Topographic Maps, scale 1 to 62500 latitude and longitude lines being represented by border lines as shown.

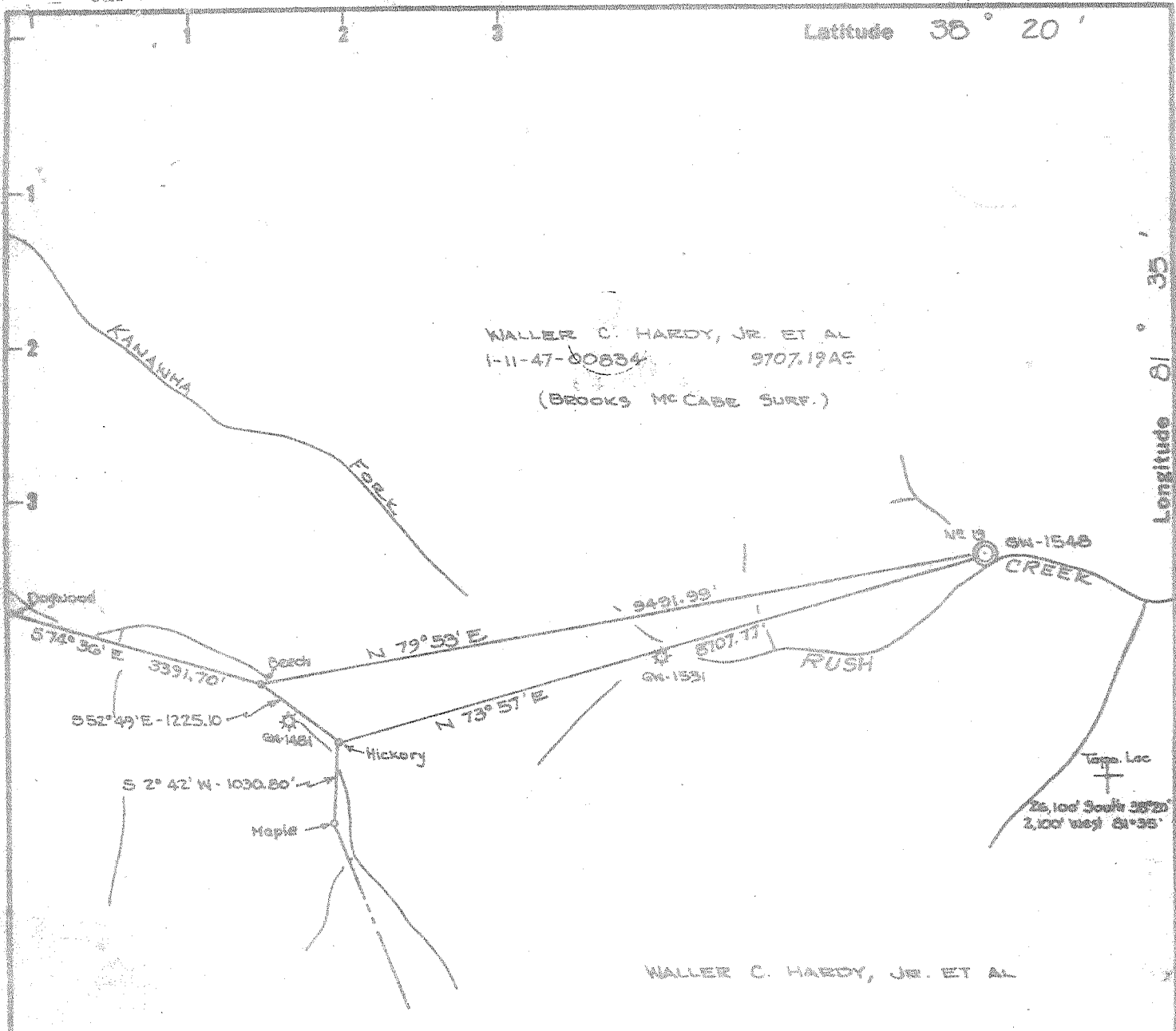
- Denotes one inch spaces on border line of original tracing.

47-039

1295' B...

DEEP WELL - ORIG

WALLER C. HARDY, JR. ET AL  
1-11-47-00834 9707.19AE  
(BROOKS McCABE SURF.)



WALLER C. HARDY, JR. ET AL

WALLER C. HARDY, JR. ET AL  
(KAN. STATE FOR.)  
SURF.

NOTE - "UE" 681 - 66' N & RUSH CREEK RD - AT O.L.O.  
PIPE CROSSING E- BASE OF 2' SYCAMORE TREE  
SPIKE NAIL.

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PARTIAL PLUG FRACTURE - 7/3/75  
New Location   
Drill Deeper   
Abandonment  4-9-80

Company	CITIES SERVICE OIL COMPANY
Address	BOX 873, CHARLESTON, W. VA.
Farm	WALLER C. HARDY, JR. ET AL
Tract	Acres 9707.19 Lease No. 1-11-47-00834
Well (Farm) No.	19 Serial No. GW-1548
Elevation (Spirit Level)	688.96'
Quadrangle	CHARLESTON 8 5500 W041
County	KANAWHA District LOUDON
Engineer	Wendell S. Moore
Engineer's Registration No.	2113
File No.	Drawing No. W-14-65
Date	31 MARCH 65 Scale 1" = 2000'

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

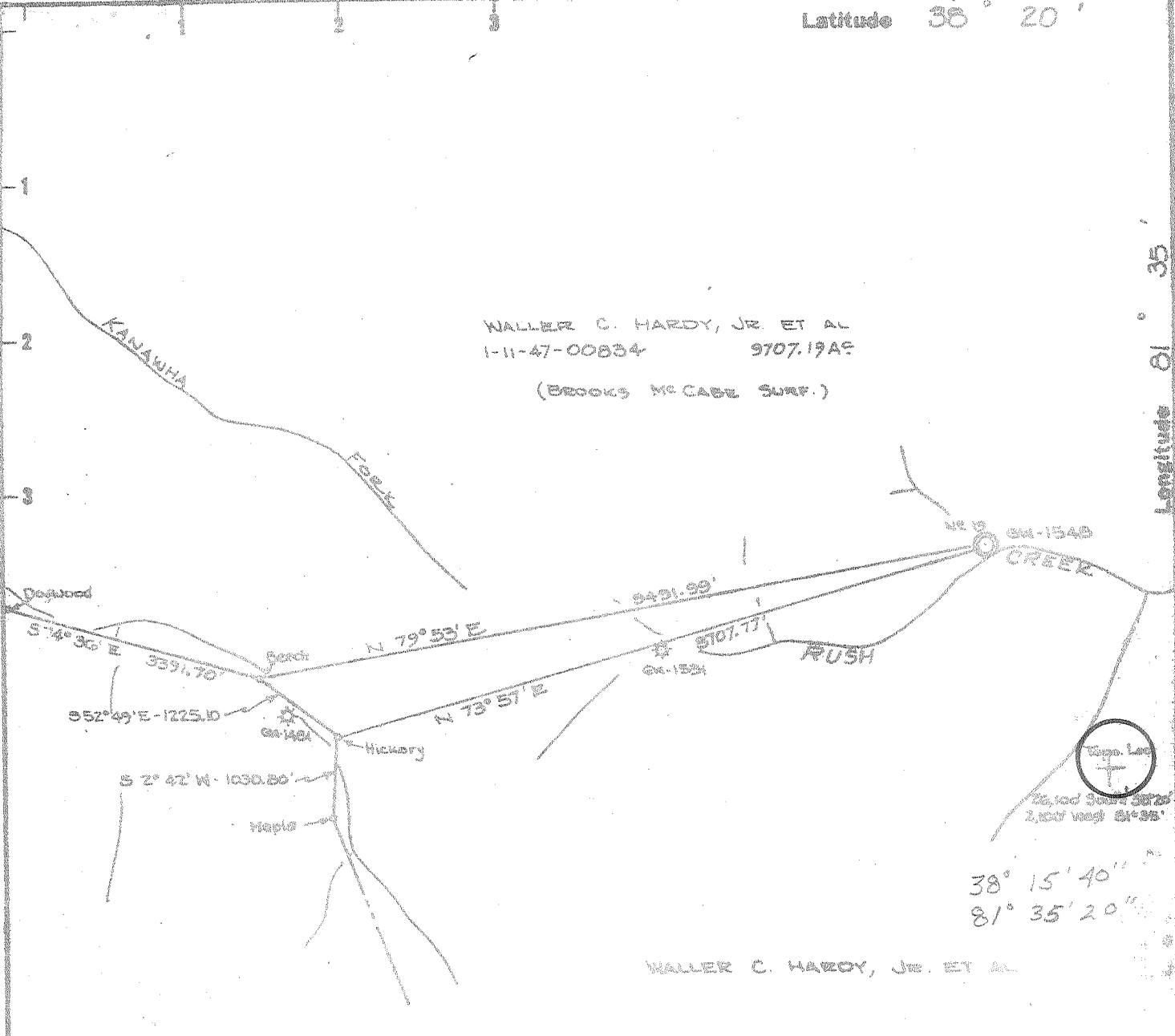
WELL LOCATION MAP  
FILE NO. KAN-2041-P-FRAC

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- Denotes one inch spaces on border line of original tracing.

47-039  
NOV 6 1964

1085' Box 4100



WALLER C. HARDY, JR. ET AL  
 1-11-47-00834 9707.19AC  
 (Brooks McCABE SURF.)

WALLER C. HARDY, JR. ET AL  
 (KAN. STATE FORE.)  
 SURF.

WALLER C. HARDY, JR. ET AL

NOTE - "UE" 681' - 68' N E RUSH CREEK RD - AT O.L.O.  
 PIPE CROSSING E-BASE OF 2' SYCAMORE TREE  
 SPIKE NAIL.

THE ACCURACY OF THIS SURVEY IS WITHIN THE LIMITS PRESCRIBED  
 BY THE OIL AND GAS DIVISION OF THE DEPARTMENT OF MINES.

PARTIAL PLUG  
 FRACTURE - 7/3/75  
 New Location   
 Drill Deeper   
 Abandonment  4-9-50

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 (3) AND  
 21. AND GAS SECTION OF THE MINING LAWS OF WEST VIRGINIA.

Company CITIES SERVICE OIL COMPANY  
 Address Box 879, CHARLESTON, W.VA.  
 Farm WALLER C. HARDY, JR. ET AL  
 Tract \_\_\_\_\_ Acres 5702.19 Lease No. 1-11-47-00834  
 Well (Farm) No. 19 Serial No. GW-154A  
 Elevation (Spirit Level) 688.96'  
 Quadrangle CHARLESTON S. 5500 W.041  
 County KANAWHA District LOUDON SC  
 Engineer Wendell S. Moore  
 Engineer's Registration No. 2113  
 File No. \_\_\_\_\_ Drawing No. W-14-63  
 Date 31 MARCH 65 Scale 1" = 2000'

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

WELL LOCATION MAP  
 FILE NO. KAN-2091-P

⊕ Denotes location of well on United States  
 Topographic Maps, scale 1 to 62500 (at  
 latitude and longitude lines being represented  
 by border lines as shown.

→ Denotes one inch spaces on border line  
 of original tracing.

47-035

1085' 1319' 2150'

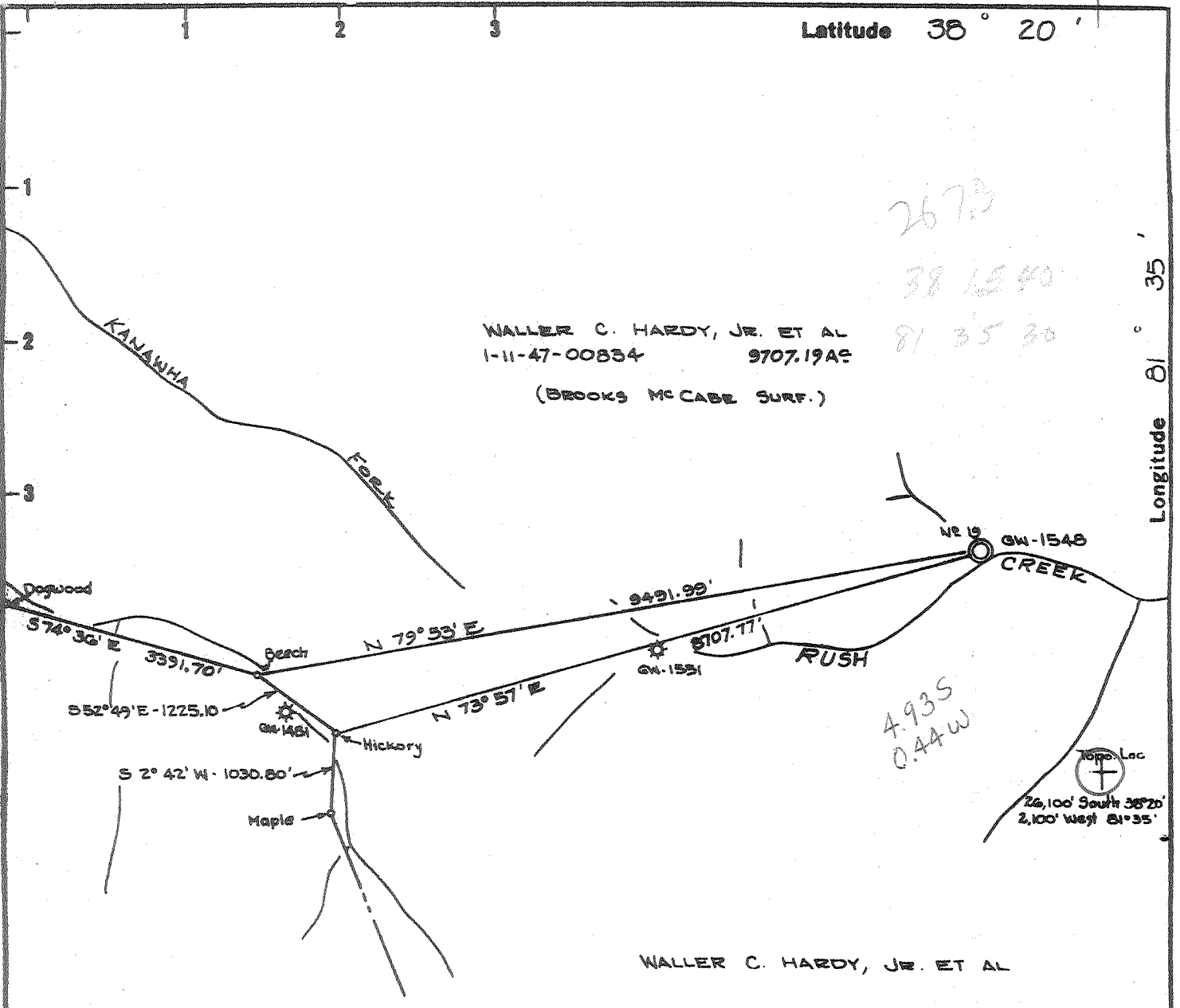
MAY 15 1980

Latitude 38° 20'

Longitude 81° 35'

2673  
38 15 40  
81 35 30

WALLER C. HARDY, JR. ET AL  
1-11-47-00834 9707.19A2  
(BROOKS McCABE SURF.)



WALLER C. HARDY, JR. ET AL

WALLER C. HARDY, JR. ET AL  
(KAN. STATE FOR.)  
SURF.

NOTE - "UE" 681 - 66' N @ RUSH CREEK RD - AT O.L.O.  
PIPE CROSSING E- BASE OF 2' SYCAMORE TREE.  
SPIKE NAIL.

THE ACCURACY OF THIS SURVEY IS WITHIN THE LIMITS PRESCRIBED  
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OIL AND GAS SECTION OF THE MINING LAWS OF WEST VIRGINIA.

PARTIAL PLUG  
FRACTURE - 7/3/75  
~~Now Location~~   
Drill Deeper   
Abandonment

Company CITIES SERVICE OIL COMPANY  
Address BOX 873, CHARLESTON, W.VA.  
Farm WALLER C. HARDY, JR. ET AL  
Tract \_\_\_\_\_ Acres 9707.19 Lease No. 1-11-47-00834  
Well (Farm) No. 19 Serial No. GW-1548  
Elevation (Spirit Level) 688.96' SC  
Quadrangle CHARLESTON S 5500 W 041 15'  
County KANAWHA District LOUDON  
Engineer Wendell S Moore  
Engineer's Registration No. 2113  
File No. \_\_\_\_\_ Drawing No. W-14-65  
Date 31 MARCH 65 Scale 1" = 2000'

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

WELL LOCATION MAP  
FILE NO. KAN-2041-PP-FRAC

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of original tracing.

47-039

60 1000' Big Logan  
01000 Kanawha Forest (3005)

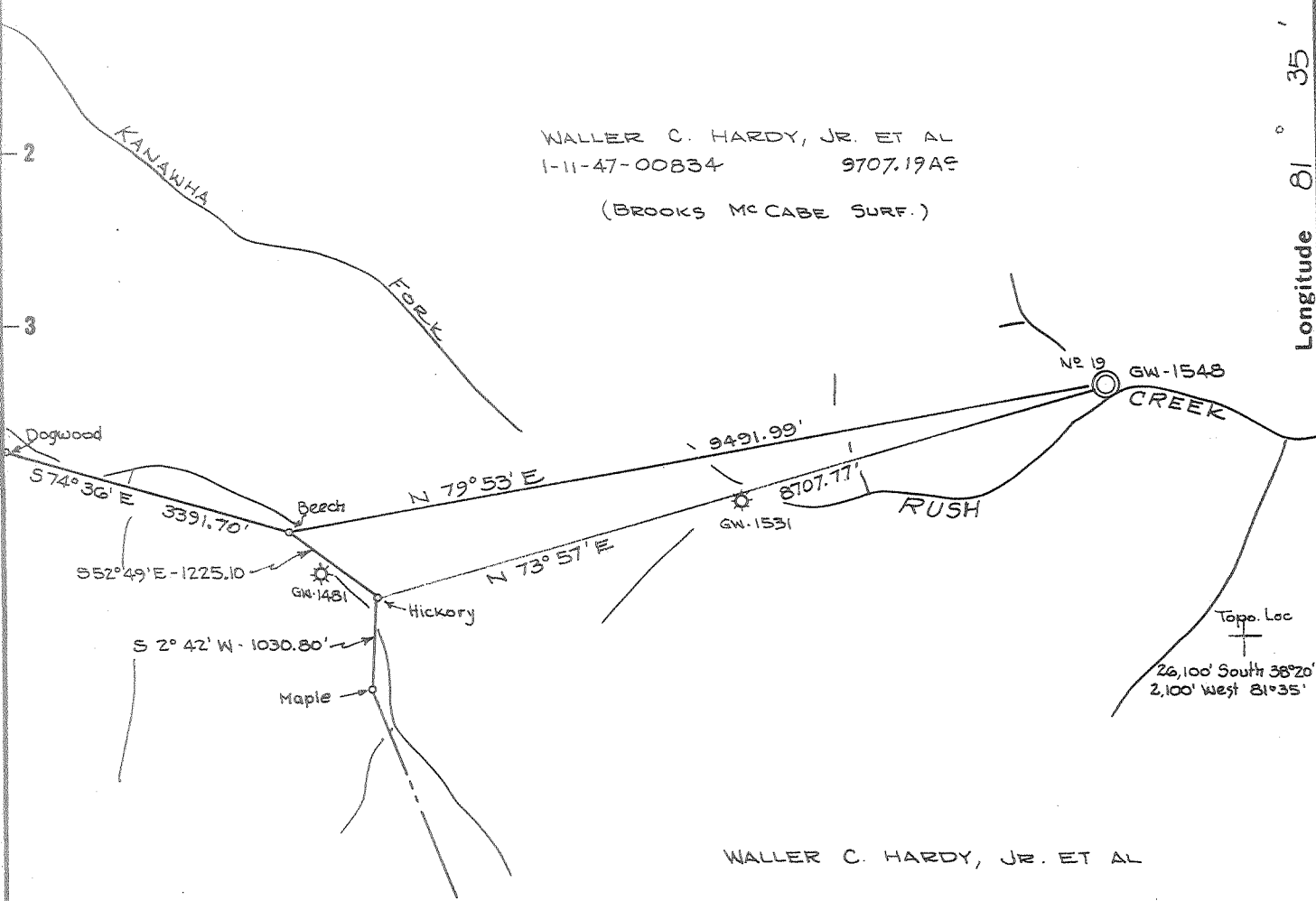
Deep Well

JUL 21 1975

Latitude 38° 20'

Longitude 81° 35'

WALLER C. HARDY, JR. ET AL  
1-11-47-00834 9707.19A±  
(BROOKS McCABE SURF.)



WALLER C. HARDY, JR. ET AL

WALLER C. HARDY, JR. ET AL  
(KAN. STATE FOR.)  
SURF.

5.08<sup>2</sup>  
0.45<sup>3</sup> W  
B 5E (J-5-2)

NOTE - "UE" G81" - 66' N E RUSH CREEK RD - AT O.L.O.  
PIPE CROSSING E- BASE OF 2' SYCAMORE TREE  
SPIKE NAIL.

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OIL AND GAS SECTION OF THE MINING LAWS OF WEST VIRGINIA.

New Location   
Drill Deeper   
Abandonment

Company CITIES SERVICE OIL COMPANY  
 Address Box 873, CHARLESTON, W.VA.  
 Farm WALLER C. HARDY, JR. ET AL  
 Tract \_\_\_\_\_ Acres 9707.19 Lease No. 1-11-47-00834  
 Well (Farm) No. 19 Serial No. GW-1548  
 Elevation (Spirit Level) 688.96'  
 Quadrangle CHARLESTON 8 5500 W041  
 County KANAWHA District LOUDON  
 Engineer Wendell S Moore  
 Engineer's Registration No. 2113  
 File No. \_\_\_\_\_ Drawing No. W-14-65  
 Date 31 MARCH 65 Scale 1" = 2000'

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

WELL LOCATION MAP  
FILE NO. KAN-2041

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of original tracing.

Samples 700-1800'  
4200-5220' 16-H 6-6 305 Deep Well

FORM IV-35  
(Obverse)

Operator's  
Well No. #19, GW-1548

[08-78]

WELL OPERATOR'S REPORT  
OF

APT Well No. 47 - 039 2041  
State County Per

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil  / Gas  / Liquid Injection  / Waste Disposal   
(If "Gas", Production  / Underground storage  / Deep  / Shallow )

LOCATION: Elevation: 701 KB Watershed: Rush Creek  
District: Loudon County: Kanawha Quadrangle: Charleston

WELL OPERATOR Cities Service Company  
Address Box 873  
Charleston, WV 25323

DESIGNATED AGENT Sam J. Matthews  
Address Box 873  
Charleston, WV 25323

PERMITTED WORK: Drill  / Convert  / Drill deeper  / Redrill  / Fracture or stimulate   
Plug off old formation  / Perforate new formation   
Other physical change in well (specify)

**OIL & GAS DIVISION**  
**DEPT. OF MINES**  
Martin Nichols  
APR 1 1980

PERMIT ISSUED ON 7-3-, 19 75

(IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED)

**OIL & GAS DIVISION**  
**DEPT. OF MINES**  
Martin Nichols  
Address P. O. Box 554  
Clendenin, WV 25045

GEOLOGICAL TARGET FORMATION: Plugged back from Newburg to Big Injun Depth PBD 1288 feet  
Depth of completed well: 1288 feet Rotary  / Cable Tools   
Water strata depth: Fresh, 20 feet; salt, 304 feet.  
Coal seam depths: none Is coal being mined in the area?   
Work was commenced 3-25-, 19 76, and completed 11-4, 19 76

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	20	drive pipe				37	37	Kinds
Fresh water	13-3/8	H-40	48			287	287	40 sx
Coal								Sizes
Intermediate	9-5/8	H-40	32.3			1294	1294	100 sx
Production	7	J-55	23		B	1292	1292	320 sx
Tubing	2-3/8	J-55	4.6		Grade		1255	Depth set
Liners								Perforations:
								Top Bottom

OPEN FLOW DATA

Producing formation Big Injun Pay zone depth 1231-1255 feet  
Gas: Initial open flow, 0 Mcf/d Oil: Initial open flow,      Bbl/d  
Final open flow, 9.6 Mcf/d Final open flow,      Bbl/d  
Time of open flow between initial and final tests, 312 hours  
Static rock pressure, 270 psig (surface measurement) after 24 hours 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 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

APR 1 1980

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

Perforated the Big Injun 1231-1255' (25 shots) with 4" Omega Hollow Jet.  
 Fraced the Big Injun with 5000# 80-100 sand and 5870# of 20-40 sand.  
 Screened out at 3500 psi. Washed out sand and continued frac the next  
 day by pumping 23 bbl. of gel water pad and 8100# of 20-40 sand.  
 Total volume 634 bbl.

WELL LOG

FORMATION	Color	Hard or Soft	Top Feet	Bottom Feet	Remarks Including indication of all fresh and salt water, coal, oil and gas
Clay and Sand			0	45	F. Water 20'
Sand			45	90	
Shale and Sand			90	100	S. Water 304'
Sand			100	120	
Shale			120	140	
Sand with Shale			140	185	
Sand			185	550	
Shale			550	570	
Sand and Shale			570	680	
Sand			680	730	
Sand and Shale			730	750	
Sand			750	930	
Shale			930	960	PBD 1288'
White Sand			960	990	
Lime			990	1193	
Big Injun Sand			1195	1225	
Sandy Shale			1225	1294	

(Attach separate sheets to complete as necessary.)

Cities Service Company

Well Operator

By   
 Sam J. Matthews

Its Region Production Manager

NOTE: Regulation 2.02(1) provides as follows:

"The term 'log' or 'well log' shall mean a systematic, detailed geological record of all formations, including coal, encountered in the well."



STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
OIL AND GAS DIVISION 12

Rotary   
Spudder   
Cable Tools   
Storage

Quadrangle **Chas. 8 SW**  
Permit No. **Kan-2041**

**WELL RECORD**

Oil or Gas Well **Gas**  
(KIND)

Company **Cities Service Oil Co.**  
Address **P. O. Box 873, Chas. W. Va. 25323**  
Farm **W. C. Hardy, Jr., et al** Acres **9707.19**  
Location (waters) **Rush Creek**  
Well No. **19 - GW-1548** Elev. **688.96'**  
District **Loudon** County **Kanawha**  
The surface of tract is owned in fee by **B. F. McCabe**  
**Box 1692** Address **Charleston, W. Va.**  
Mineral rights are owned by **W. C. Hardy, Jr., et al**  
**5100 2nd Avenue** Address **Vienna, W. Va.**  
Drilling commenced **4-28-65**  
Drilling completed **5-25-65**  
Date Shot **not shot** From To  
With

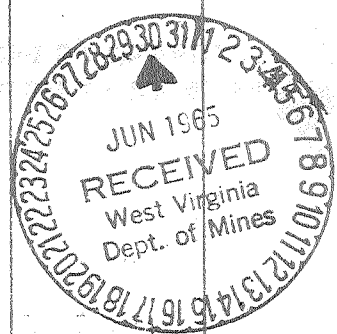
Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
<del>13 3/8" 48#</del>	37'	37'	Kind of Packer
<del>13 3/8" 48#</del>	290'	290'	<b>none</b>
<del>11 5/8" 32#</del>	1293'	1293'	Size of
8 3/4"			Depth set
<del>7 1/2" 26#</del>	4592'	445'	
<del>11 5/8" 32#</del>	5239'	5239'	
4 1/2"			Perf. top
3"			Perf. bottom
<del>3 3/8" 4.7#</del>	5178'	5178'	Perf. top
Liners Used w/ <b>Baker Model "F"</b>			Perf. bottom
<b>seating nipple in bottom</b>			

Open Flow /10ths Water in Inch  
/10ths Merc. in Inch  
Volume **show** Cu. Ft.  
Rock Pressure lbs. hrs.  
Oil bbls. 1st 24 hrs.  
WELL ACIDIZED (DETAILS) **not acidized**  
WELL FRACTURED (DETAILS) **see attached sheet**

Attach copy of cementing record.  
CASING CEMENTED SIZE No. Ft. Date  
Amount of cement used (bags)  
Name of Service Co. **see reverse side**  
COAL WAS ENCOUNTERED AT **none** FEET INCHES  
FEET INCHES FEET INCHES  
FEET INCHES FEET INCHES

RESULT AFTER TREATMENT (Initial open Flow or bbls.) **128/10 M. 3" = 3,960 MCF (Newburg)**  
ROCK PRESSURE AFTER TREATMENT **144 hours 2050/HOURS**  
Fresh Water **20'** Feet Salt Water **304'** Feet  
Producing Sand: **Newburg** Depth **5152-5172' (Schlumberger meas)**

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Clay & Sand			0	45	F. Water	20'	
Sand			45	90			
Shale and Sand			90	100			
Sand			100	120			
Shale			120	140			
Sand with Shale			140	185			
Sand - <del>Salt</del>			185	550	<b>N. water</b>	304'	
Shale			550	570			
Sand & Shale			570	680			
Sand			680	730			
Shale and Sand			730	750			
Sand			750	930			
Shale			930	960			
White Sand - <del>Marble</del>			960	990			
Lime - <del>Biglime</del>			990	1195			
Sand - <del>Biglime</del>			1195	1225			
Sandy Shale			1225	1294			
Shale and Sand			1294	2400			
Shale and Shells			2400	4360			
Lime - <del>Onondaga</del>			4360	4465			
Oriskany Sand			4465	4480			
Sandy Lime			4480	4550			
Lime			4550	5157	Gas	4570-4850'	
Newburg Sand			5157	5178		4580?	
Lime			5178	5220			
Total depth				5220'			<b>DL M-5221' Schlumberger Meas.</b>





Formation	Color	Hard or Soft	Top / 2	Bottom	Oil, Gas or Water	Depth Found	Remarks
<b>Schlumberger Log shows:</b>							
Big Lime			985	1217			
Big Lajun			1217	1265			
Berea			1679	1683			Temperature Log showed gas:
Corniferous Lime			4356	4462		5153-56'	
Oriakany			4462	4473		5165-68'	
Newburg Sand			5152	5172			

**CASING RECORD**

5-1-65 Set and cemented 13-3/8" 48# H-40 casing at 287'. Cemented with 40 sacks and 3% Calcium Chloride. Pumped plug to 279'. Cemented by Dowell.

5-5-65 Set and cemented 9-5/8" 32. 30# H-40 casing with guide shoe at 1294' Schlumberger Measurement. Cemented with 100 sacks regular cement with 3% Calcium Chloride. Pumped plug to 1276' Landing Flange Meas. Centralizers at 1261', 1196' and 1133'. Cemented by Dowell.

5-10-65 Ran 7" casing with Guide Shoe at 4550' Rotary Meas. Baker float insert at 4,517'. Centralizers at 4517', 4452' and 4388'. R/L Nipple with beveled coupling at 4,105'. Ran 34 sacks Aquagel and 250# Gelflake in 200 bbls. water ahead of 40 sacks of regular cement. Mixed 3% with Calcium Chloride. Displaced with 179 bbls. water. Good circulation. Cemented by Dowell. Unscrewed 7" at R/L nipple and pulled later.

5-27-65 Ran 4-1/2" casing with Baker Whirler Guide Shoe at 5220' Rotary Meas. = 5221' Schlumberger Measurement. Baker Flexflow Fillup Collar Insert at 5,205'. Centralizers at 5218', 5170', 5145', 5070' and 5020'. 21 Baker Hinge Lok Wall Scratchers on 12" centers from 5218' to 4966'. Ran 10 bbls. CW-7 ahead of 25 sacks Litepos Cement and 150 gallons Cealment mixed 3% Calcium Chloride. Displaced to insert with water at 1200# pressure by Dowell.

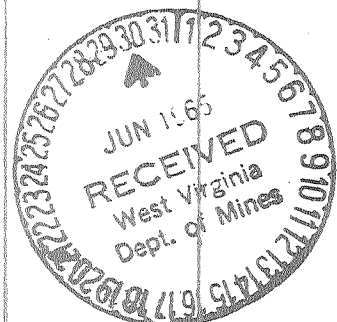
SEE ADDITIONAL INFORMATION ON ATTACHED SHEET.

Date \_\_\_\_\_, 19\_\_

APPROVED \_\_\_\_\_, Owner

By \_\_\_\_\_ (Title)

Formation	Color	Hard or Soft	Top 12A	Bottom	Oil, Gas or Water	Depth Found	Remarks
Additional information on GW-1548, W. C. Hardy, Jr., et al #19							
5-5-65	Ran Schlumberger Logs thru Big Injun: Gamma Ray, Laterlog, Caliper and Density. Drillers' T. D. 1294' - Schlumberger T. D. 1293'.						
5-22-65	Depth 5,145' - started coring Newburg Sand - Core #1 5145-5183' - recovered 38'.						
5-22-65	Ran Schlumberger Logs thru Newburg Sand: Gamma Ray, Caliper, S. P., Density and Induction. T. D. 5221' - Newburg Sand by Electric Logs 5152-5172'.						
5-26-65	Drill Stem Test #1 5160-5220' Drill Stem Test #2 5151-5220'						
5-31-65	Ran McCullough Bond Log. Good bonding thru Newburg Sand. Perforated Lower Newburg at 5,166' Schlumberger Measurement with McCullough Triple Notch Shot.						
6-1-65	<p>Fractured the Newburg Sand</p> <p>Fraced Newburg Sand with 500 gallons MCA, 1,000 gallons 15% acid. Broke down at 2,500#. Injected 618 bbls. water with 3,000# sand. Maximum sand concentration 1/2#/gallon. Maximum pressure 4,800#. Average pressure 4,721#. Average injection rate 10.1 bbls/minute. Shut in pressure 4,400#. Gas wet - gauging 3,160 MCF.</p>						
6-15-65	<p>Moved in and rigged up Simpson Well Servicing Rig. Rigged up and ran McCullough Radio Active Survey Tool to log radioactive material put in during fracturing treatment of Newburg Sand. Hole too radio active - could not determine anything from Log. Ran Baker Model "E" Retainer at 5,161' - shut off gas. Put 2,000' water in hole and perforated Upper Newburg 5153-56' 4 shots/foot.</p>						
6-22-65	Final open flow 128/10 M. 3" = 3,960 MCF - Water averaged 54 gallons/hour last four hours.						



Date JUNE 29, 1965

APPROVED Cities Service Oil Company, Owner

By L. D. Todd, District Sup't  
(Title)

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

RECEIVED

OCT 19 1983

OIL & GAS DIVISION  
DEPT. OF MINES

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE MADE IN TRIPPLICATE, ONE COPY MAILED TO THE DEPARTMENT, ONE COPY TO BE RETAINED BY THE WELL OPERATOR AND THE THIRD COPY (AND EXTRA COPIES IF REQUIRED) SHOULD BE MAILED TO EACH COAL OPERATOR AT THEIR RESPECTIVE ADDRESSES.

Brooks F. McCabe & Jane M. McCabe  
surface  
P. O. Box 1692, Charleston, WV 25326  
ADDRESS  
M. C. Hardy, Jr. & Charlotte Hardy  
surface  
5100 2nd Avenue, Vienna, WV  
ADDRESS  
Frank A. Hardy & Katherine Hardy  
LEASE OR PROPERTY OWNER  
Ruper Route, Lewisburg, WV  
ADDRESS

Cities Service Oil & Gas Corporation  
NAME OF WELL OPERATOR  
P. O. Box 873, Charleston, WV 25323  
COMPLETE ADDRESS  
October 7 19 83  
WELL AND LOCATION  
Loudon District  
Kanawha County  
Well No. 19-GW-1548  
W.C. Hardy, Jr., et al Farm

STATE INSPECTOR SUPERVISING PLUGGING... Craig Duckworth

AFFIDAVIT

STATE OF WEST VIRGINIA,

County of Jackson } SS:

*Craig B. Duckworth* and *Martin D. Upstater*  
being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by Cities Service Oil & Gas Corporation well operator, and participated in the work of plugging and filling the above well, that said work was commenced on the 3rd day of October, 19 83, and that the well was plugged and filled in the following manner:

SAND OR ZONE RECORD	FILLING MATERIAL	PLUGS USED	CASING	
			CSG PULLED	CSG LEFT IN
FORMATION	Gelled hole with 8% gel	SIZE & KIND		
Big Injun	13.9 sacks 1255'-1180'	cement		
Surface plug	9.3 sacks 50'-surface	cement		
Cellar	10 sacks 8' cellar to GL	cement		
	cmt. used 33.2 sacks gel used 9 sacks			
		7"-23# J-55	0	1292'
		9-5/8" 32.3# H-40	0	1294'
		13-3/8" 48# H-40	0	287'
		20" Drive pipe	0	37'
COAL SEAMS				
(NAME)		DESCRIPTION OF MONUMENT		
(NAME)		5' X 5" casing erected as prescribed by law.		
(NAME)				
(NAME)				

and that the work of plugging and filling said well was completed on the 4 day of October, 19 83

And further deponents saith not.

Sworn to and subscribed before me this 4 day of OCT, 19 83.

My commission expires:

June 11, 1989

*Craig B. Duckworth*  
*Martin D. Upstater*  
*James G. Bay*  
Notary Public  
Permit No. 47-039-2041PP-P

KAN. 2041-PP-P



STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES

RECEIVED

OCT 27 1980

Oil and Gas Division

OIL AND GAS WELL PERMIT APPLICATION OIL & GAS DIVISION  
DEPT. OF MINES

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

DATE October 24, 1980

Surface Owner Brooks F. McCabe & Jane M. McCabe Company Cities Service Company  
Address P. O. Box 1692, Charleston, WV 25326 Address Box 873, Charleston, WV 25323  
Mineral Owner W. C. Hardy, Jr. et al & Charlotte Hardy Farm Waller C. Hardy, Jr. et al Acres 9707.19  
Address 5100 2nd Ave., Vienna, WV 26101 Location (waters) Rush Creek  
Coal Owner Brooks F. McCabe & Jane M. McCabe Well No. #19, GW-1548 Elevation 688.96  
Address P. O. Box 1692, Charleston, WV 25326 District Loudon County Kanawha  
O&G Owner Frank A. Hardy & Katherine Hardy Quadrangle Charleston  
Address Rupert Route, Lewisburg, WV 24901

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 Fracturing. This permit shall expire if operations have not commenced by 6-29-81.

INSPECTOR  
TO BE NOTIFIED Martin Nichols  
ADDRESS Clendenin, WV 25045  
PHONE 548-6993

[Signature]  
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 22, 1959 by Waller C. Hardy, Jr. et al made to Cities Service Oil (formerly Col. Carbon Co.) and recorded on the \_\_\_\_\_ day of \_\_\_\_\_ 19\_\_\_\_, in \_\_\_\_\_ County, Book 147 Page 374

X NEW WELL        DRILL DEEPER        REDRILL X ~~FRAC~~ ~~BACK~~ ~~OR~~ ~~STIMULATE~~  
X 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

Very truly yours, Cities Service Company

(Sign Name) [Signature]  
Well Operator

Address Box 873 Street  
of Charleston City or Town  
Well Operator 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.

47-039-2041-P -FRAC 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 \_\_\_\_\_

BLANKET BOND

THIS IS AN ESTIMATE ONLY  
 ACTUAL INFORMATION WILL BE SUBMITTED ON OG-10 UPON COMPLETION  
 Plug Back to Big Lime

PROPOSED WORK ORDER TO \_\_\_\_\_ DRILL \_\_\_\_\_ DEEPEN  FRACTURE-STIMULATE  
 DRILLING CONTRACTOR: (If Known) \_\_\_\_\_ RESPONSIBLE AGENT: \_\_\_\_\_  
 NAME Unknown \_\_\_\_\_ NAME Cities Service Company \_\_\_\_\_  
 ADDRESS \_\_\_\_\_ ADDRESS P.O. Box 873, Charleston, WV 25323 \_\_\_\_\_  
 TELEPHONE \_\_\_\_\_ TELEPHONE \_\_\_\_\_  
 ESTIMATED DEPTH OF COMPLETED WELL: 1220' \_\_\_\_\_ ROTARY \_\_\_\_\_ CABLE TOOLS  \_\_\_\_\_  
 PROPOSED GEOLOGICAL FORMATION: Big Lime \_\_\_\_\_  
 TYPE OF WELL: OIL \_\_\_\_\_ GAS  COMB. \_\_\_\_\_ STORAGE \_\_\_\_\_ DISPOSAL \_\_\_\_\_  
 RECYCLING \_\_\_\_\_ WATER FLOOD \_\_\_\_\_ OTHER \_\_\_\_\_

TENTATIVE CASING PROGRAM:

CASING AND TUBING SIZE	USED FOR DRILLING	LEFT IN WELL	CEMENT FILL UP OR SACKS - CUBIC FT.
<del>20</del>	37'	37'	None
<del>13</del> 3/8"	290'	290'	40 sacks
9 - 5/8	1294'	1294'	100 sacks
<del>8</del> 5/8 7"	4550'	445	40 sacks
7 Plug Back to Big Lime	1292	1292'	320 sacks
5 1/2			
1 1/2 Salvaged prior to plug back	5220'	500'	25 sacks
			Perf. Top 1231
-3/8"	1255	1255	Perf. Bottom 1255
Liners			Perf. Top 5153
			Perf. Bottom 5156

APPROXIMATE FRESH WATER DEPTHS 20' FEET \_\_\_\_\_ SALT WATER 304' FEET \_\_\_\_\_  
 APPROXIMATE COAL DEPTHS none \_\_\_\_\_  
 IS COAL BEING MINED IN THE AREA? none BY WHOM? N/A

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



STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES

RECEIVED  
JUL 3 1975  
OIL & GAS DIVISION  
DEPT. OF MINES

Oil and Gas Division

OIL AND GAS WELL PERMIT APPLICATION

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

DATE July 2, 1975

Surface Owner Brooks F. McCabe & Jane H. McCabe

Company Cities Service Oil Company

Address P. O. Box 1692, Charleston, W. Va.

Address Box 873, Charleston, W. Va. 25323

Mineral Owner W. C. Hardy, Jr., et al & Charlotte

Farm Waller C. Hardy, Jr., et al Acres 9707.19

Address 5100 2nd Ave., Vienna, W. Va.

Location (waters) Dash Creek

Coal Owner Brooks F. McCabe & Jane H. McCabe

Well No. 19, CR-1543 Elevation 688.96

Address P O Box 1692, Charleston, W. Va.

District London County Lincoln

Coal Operator Frank A. Hardy & Katherine Hardy

Quadrangle Charleston

Address Mount Hope, Lewisburg, W. Va.

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 Fracturing. This permit shall expire if operations have not commenced by 11-3-75.

*Robert H. [Signature]*

Deputy Director - Oil & Gas Division

INSPECTOR TO BE NOTIFIED Martin Nichols

GENTLEMEN:

PH: 548-6993 ADDRESS Clendenin, W. Va.

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~~ lease dated April 22 1959 by Waller C. Hardy, Jr., et al made to Cities Service Oil Co. (formerly Col. Carbon Co.) and recorded on the        day of        19      , in        County, Book 167 Page 374

       NEW WELL        DRILL DEEPER        REDRILL X 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        day        before, or on the same day with the mailing or delivery of this copy to the Department of Mines at Charleston, West Virginia.

Very truly yours, CITIES SERVICE OIL COMPANY

(Sign Name) [Signature]  
Well Operator Wm J. Matthews  
Regional Prod. Manager

PLEASE SUBMIT COPIES OF ALL GEOPHYSICAL LOGS DIRECTLY TO:

West Virginia Geological and Economic Survey Well Operator  
P O. Box 879  
Morgantown, W. Va. 26505  
AC 304-296-4461

Address of Well Operator  
Box 873 Street  
Charleston City or Town  
West Virginia 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.

BLANKET *[Signature]*

WV-2041-PP-FRAC. PERMIT NUMBER

**THIS IS AN ESTIMATE ONLY**  
**ACTUAL INFORMATION WILL BE SUBMITTED ON OG-10 UPON COMPLETION**

PROPOSED WORK ORDER TO \_\_\_\_\_ DRILL \_\_\_\_\_ DEEPEN  FRACTURE-STIMULATE  
 DRILLING CONTRACTOR: (If Known) RESPONSIBLE AGENT:  
 NAME unknown NAME Cities Service Oil Company  
 ADDRESS \_\_\_\_\_ ADDRESS P. O. Box 873, Charleston, W. Va.  
 TELEPHONE \_\_\_\_\_ TELEPHONE \_\_\_\_\_  
 ESTIMATED DEPTH OF COMPLETED WELL: 1295' ROTARY \_\_\_\_\_ CABLE TOOLS \_\_\_\_\_  
 PROPOSED GEOLOGICAL FORMATION: Big Injun  
 TYPE OF WELL: OIL \_\_\_\_\_ GAS  COMB. \_\_\_\_\_ STORAGE \_\_\_\_\_ DISPOSAL \_\_\_\_\_  
 RECYCLING \_\_\_\_\_ WATER FLOOD \_\_\_\_\_ OTHER \_\_\_\_\_

TENTATIVE CASING PROGRAM:

CASING AND TUBING SIZE	USED FOR DRILLING	LEFT IN WELL	CEMENT FILL UP OR SACKS - CUBIC FT.
20 - 16	37'	37'	None
13 - <del>10</del> 3/8"	290'	290'	40 sacks
9 - 5/8	1294'	1294'	100 sacks
8 - 5/8			
7	4350'	445'	40 sacks
5 1/2			
4 1/2	3220'	500'	25 sacks
3			Perf. Top 5153
2 - 3/8"	5178'	1270'	Perf. Bottom 5156
Liners			Perf. Top
			Perf. Bottom

APPROXIMATE FRESH WATER DEPTHS 20' FEET SALT WATER 304' FEET  
 APPROXIMATE COAL DEPTHS None  
 IS COAL BEING MINED IN THE AREA? None BY WHOM? N/A

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:

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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.

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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