

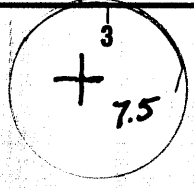
2/18/88

8950

Latitude 37° 45' 37° 42' 30"

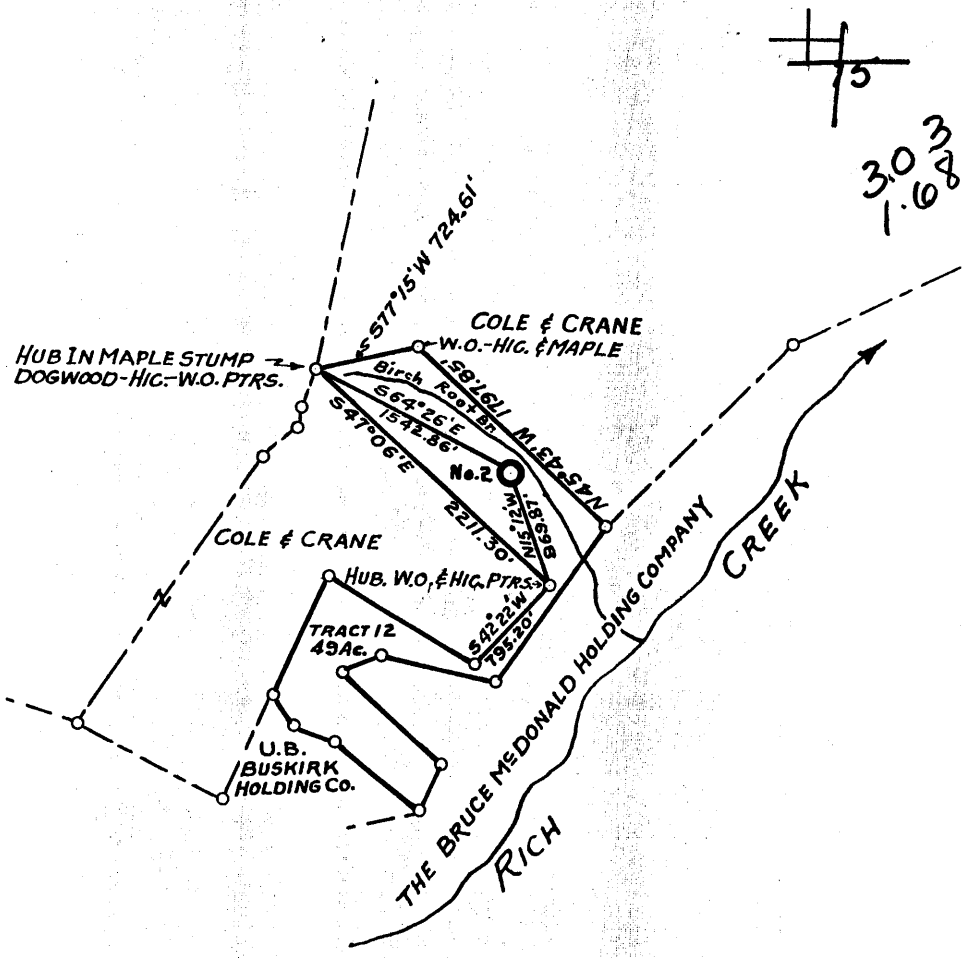
750

Longitude 81° 55'



0.155
1.68W

303
1.68



TRACTS CONSOLIDATED

COLE & CRANE	217.00 Ac
THE U.B. BUSKIRK HOLDING COMPANY	95.00 "
THE BRUCE McDONALD HOLDING COMPANY et al	217.00 "
	<u>529.00 Ac</u>

conversion to Brine Disposal - 2-26-75
 New Location...
 Drill Deeper..... - 2/23/88
 Abandonment.....

Company Cities Service Oil Company
 (COLUMBIAN CARBON COMPANY) 169

Address BOX 873 CHARLESTON W.VA.

Farm COLE & CRANE et al CONSOLIDATION
 49Ac.

Tract 12 PART OF Acres 529.00 Lease No. WU-139

Well (Farm) No. 2 Serial No. GW-119B

Elevation (Spirit Level) 1391.39' MAN 7.5 456
 nw 0491

Quadrangle GILBERT S-300 W-186

County LOGAN District TRIADELPHIA 3

Engineer R. B. Anderson

Engineer's Registration No. 2074

File No. _____ Drawing No. W-12-53

Date NOV. 25 1953 Scale 1" = 1320'

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

WELL LOCATION MAP

FILE NO. LOG-379-DD-X

Cancelled

+ 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. MAR 18 1988

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

47045

0W000 - 6-6 Magnolia (abs)
 NEEP 11x11 5395' - New State

LOG-379 DD

2/18/88

8950

Latitude 37° 45'
37° 42' 30"

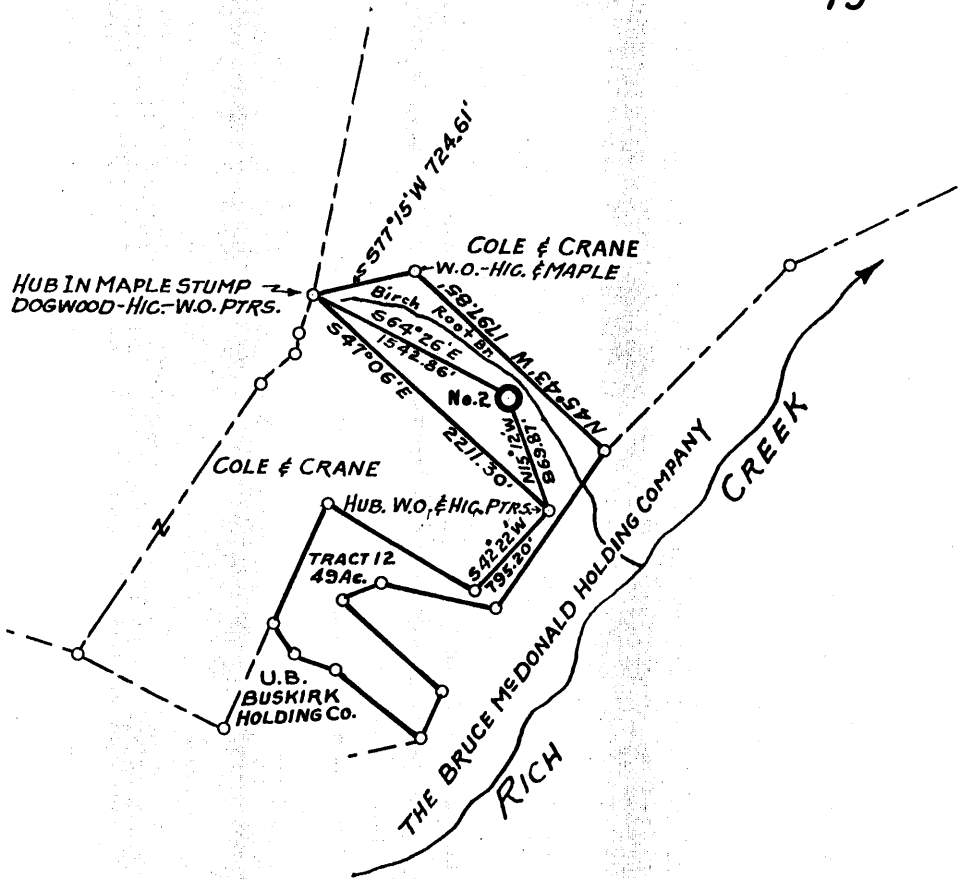
750

Longitude 81° 55'



0.155
169W

+ 2.945
151.82W



TRACTS CONSOLIDATED

COLE & CRANE	217.00Ac
THE U.B. BUSKIRK HOLDING COMPANY	95.00 "
THE BRUCE McDONALD HOLDING COMPANY et al	217.00 "
	529.00Ac

Conversion to Brine Disposal - 2-26-75
 New Location...
 Drill Deeper... - 2/23/88
 Abandonment...

Company Cities Service Oil Company
 (COLUMBIAN CARBON COMPANY)
 Address BOX 873 CHARLESTON W.VA.
 et al
 Farm COLE & CRANE CONSOLIDATION
 49Ac.
 Tract 12 PART OF Acres 529.00 Lease No. WU-139
 Well (Farm) No. 2 Serial No. GW-1198
 Elevation (Spirit Level) 1391.39' MAN 7.5
 Quadrangle GILBERT S-300 W-186
 County LOGAN District TRIADELPHIA
 Engineer R. D. Anderson
 Engineer's Registration No. 2074
 File No. _____ Drawing No. W-12-53
 Date NOV. 25 1953 Scale 1" = 1320'

169

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

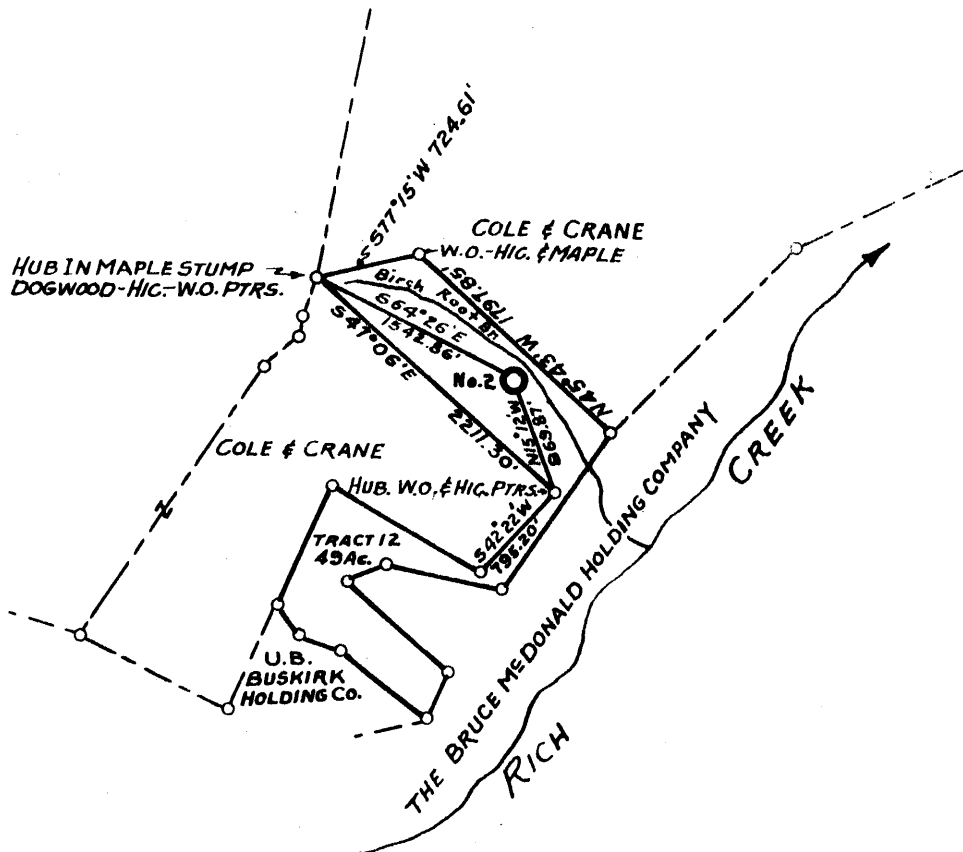
WELL LOCATION MAP
 FILE NO. LOG-379-DD

+ 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. FEB 29 1968

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47045

5395' Arid. Shaln



TRACTS CONSOLIDATED

COLE & CRANE	217.00 Ac
THE U.B. BUSKIRK HOLDING COMPANY	95.00 "
THE BRUCE McDONALD HOLDING COMPANY et al	217.00 "
	<u>529.00 Ac</u>

Conversion to Brine Disposal - 2-26-75
 New Location
 Drill Deeper
 Abandonment

Company Cities Service Oil Company
 (COLUMBIAN CARBON COMPANY)
 Address BOX 873 CHARLESTON W.VA.
 Farm COLE & CRANE CONSOLIDATION
 49 Ac.
 Tract 12 PART OF Acres 529.00 Lease No. WU-139
 Well (Farm) No. 2 Serial No. GW-1198
 Elevation (Spirit Level) 1391.39' NW
 Quadrangle GILBERT S-300 W-186
 County LOGAN District TRIADDELPHIA
 Engineer R. D. [Signature]
 Engineer's Registration No. 2074
 File No. _____ Drawing No. W-12-53
 Date NOV. 25 1953 Scale 1" = 1320'

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

WELL LOCATION MAP
 FILE NO. LOG-379

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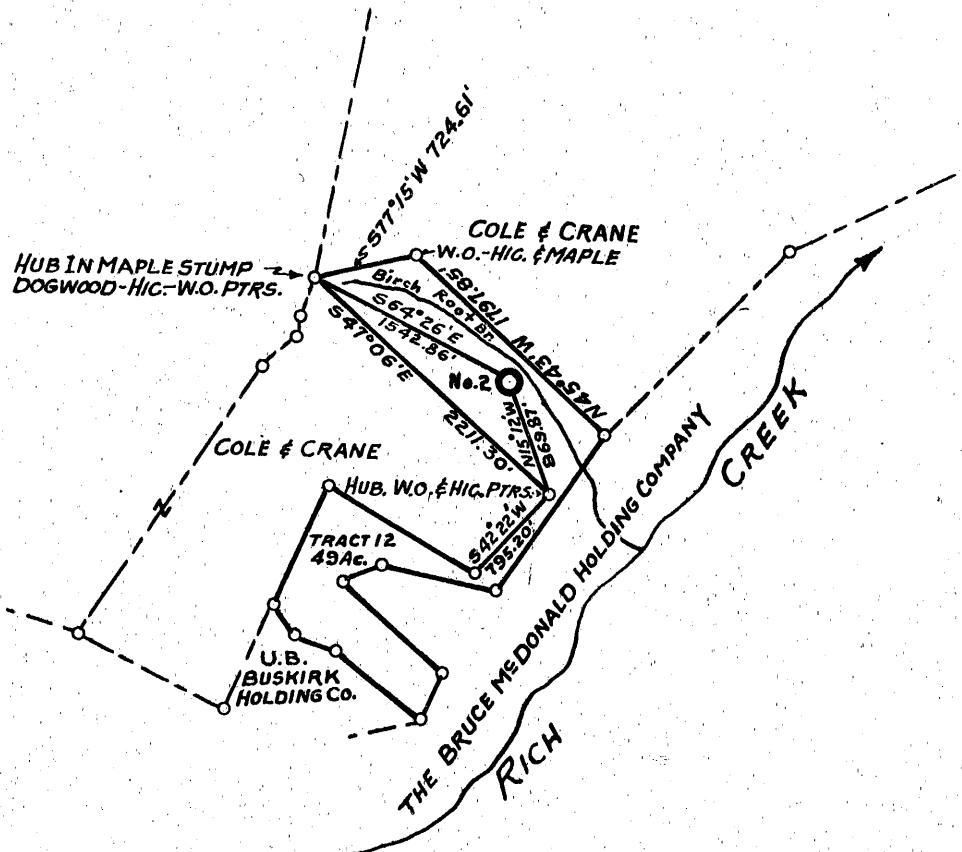
- Denotes one inch spaces on border line of original tracing.

47045

Latitude 37° 45'

Longitude 81° 55'

2945
1182 W



TRACTS CONSOLIDATED

COLE & CRANE	217.00Ac
THE U.B. BUSKIRK HOLDING COMPANY	95.00 "
THE BRUCE McDONALD HOLDING COMPANY et al	217.00 "
	529.00Ac

- New Location...
- Drill Deeper.....
- Abandonment.....

Company COLUMBIAN CARBON COMPANY

Address BOX 873 CHARLESTON W.VA.

Farm COLE & CRANE^{et al} CONSOLIDATION

Tract 12 PART OF Acres 49Ac. Lease No. WU-139

Well (Farm) No. 2 Serial No. GW-1198

Elevation (Spirit Level) 1391.39'

Quadrangle GILBERT S-300 W-186 NW

County LOGAN District TRIADELPHIA

Engineer R. D. Anderson

Engineer's Registration No. 2074

File No. _____ Drawing No. W-12-53

Date NOV. 25 1953 Scale 1" = 1320'

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

WELL LOCATION MAP

FILE NO. LOG-379

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

6-0 265



- 1) Date: March 4, 1988
- 2) Operator's Well No. Cole Crane Consol. A-2, GW1198
- 3) API Well No. 47 - 045 - 0379 - X
State County Permit

RECEIVED
MAR 07 1988

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

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY
APPLICATION FOR A PERMIT TO PLUG AND ABANDON A WELL

- 4) WELL TYPE: A Oil _____ / Gas _____ / Liquid injection X / Waste disposal _____
B (If "Gas", Production _____ / Underground storage _____ / Deep _____ / Shallow _____)
- 5) LOCATION: Elevation: 1391.39 / Watershed: Rich Creek
District: Triadelphia / County: Logan / Quadrangle: Man 7.5
- 6) WELL OPERATOR Cities Service / CODE 9800
Address P. O. Box 873
Charleston, WV 25323
- 7) DESIGNATED AGENT Paul D. Phillips
Address P. O. Box 873
Charleston, WV 25323
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED
Name Mr. Arthur St. Clair
Address P. O. Box 468
Brenton, WV 24818
- 9) PLUGGING CONTRACTOR
Name NA
Address _____

10) WORK ORDER: The work order for the manner of plugging this well is as follows:

Per attached procedure

Squeezing Disposal Zone before DD. Converting well back to a producer...

OFFICE USE ONLY

PLUGGING PERMIT

Permit number 47-045--0379-X Date March 18 1988

This permit covering the well operator and well location shown below is evidence of permission granted to plug 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 24 hours before actual permitted work has commenced.)

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

Permit expires March 18, 1990 unless plugging is commenced prior to that date and prosecuted with due diligence.

Boat:	Agent:	Plat:	Casing:	WPCP:	OTHER:

Director, Division of Oil & Gas

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

File

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

6770

CITIES SERVICE OIL & GAS CORPORATION

INTEROFFICE LETTER

March 3, 1988

RECEIVED
MAR 07 1988

To: Paul D. Phillips
From: Randy Ellis
Subject: Drilling Procedure
Cole Crane Consol. A-2
Logan County, WV

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

- 045-0379-X

Well Data:

Spud/Completion Date: 2-8-54/6-2-54
Elevation: 1391'
Current TD: 2807'
Casing: 10-3/4", 32# @ 554' w/ 11 sx Gel
7", 23# @ 2557' w/ 20 sx Gel
Producing Formation: Big Lime SWD Well

Procedure:

- 1) MIRU service rig and 2500' of 2-3/8", 4.7#, J55, EUE tubing.
- 2) RU wireline. RIH with 6-1/4" GR and JB to 2540'. Run caliper log strip below 7" casing shoe to locate gauge hole. RIH with CIBP and set in gauge hole near 7" casing shoe. Load hole with 100 bbls of water. RIH with dump bailer and spot 1 sx Calseal on top of CIBP. Run bond log strip across bottom 4 jts of 7" casing. RIH and perforate 4-1/2" squeeze holes in shoe joint. RD wireline.
- 3) RIH with cement retainer on 2-3/8" tubing and set 50' above squeeze holes. Install stripper rubber. RU squeeze manifold. Sting into retainer and place 500 psi on casing/tubing annulus. Establish injection rate down tubing.
Note: Maximum injection pressure is 2300 psi with 500 psi on annulus or 1800 psi if pressure cannot be maintained on annulus.
- 4) Squeeze 7" shoe with 50 sx Cl A cement containing 2% CaCl.
Note: Spot cement to within 250' of retainer before performing squeeze.
Sting out of retainer and reverse circulate hole clean.
POOH. RDMO service rig.

045-0379-X

Drilling Procedure
Cole Crane Consol. A-2
Page 2

RECEIVED
MAR 07 1988

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

- 5) MIRU rotary rig and mud logging unit. NU 2000# WP BOP's and rotating head.
- 6) RIH with 6-1/4" bit on DT's to top of cement retainer. Blow hole dry. DO cement retainer and cement to top of CIBP with foam. Unload foam from hole with air. If hole blows a mist, repeat squeeze procedure. If hole blows dry, DO CIBP with foam. CO well to TD of 2807'. Blow hole dry.
- 7) Drill 6-1/4" hole to proposed TD of 5395' or 25' into Onondaga Lime. Catch samples at 10' intervals and gauge all significant gas shows. Take deviation surveys every 500'.
- 8) Upon reaching TD, blow hole 1/2 hour or until hole blows clean. POOH laying down DP and DC's.
- 9) RU electric loggers. Run GR-FDC-SNP-DIL, Temperature, Differential Temperature, Acoustic and Caliper logs from TD to 7" casing at 2557'. Run GR log to surface.
- 10) If logs indicate sufficient potential pay, RU to run casing. Run 4-1/2", 11.6 ppf, K55 casing with GS, latch down insert and centralizers on the 1st and 2nd jts and every 8th jt thereafter to the 7" casing shoe. Run a 20' shoe jt and 1 or 2 20' marker jts in the casing string.
- 11) Hang 4-1/2" casing in casing head. Establish circulation with air. RU cementers. Cement 4-1/2" casing with foamed cement as per attached schedule. Displace cement with latch down plug and fresh water. Bump plug with 500 psi. Release rig pending completion.

RE/pam

Attachment

cc: Jim Gonders
Del Oliver
Bryan Humphries
Ed Chesny
Blaine Minney
Bill Copley
Well File

COLE CRANE CONSOL. A-2

State of West Virginia
DEPARTMENT OF ENERGY
Division of Oil and Gas

Well Operator's Report of Well Work

Farm name: McDONALD, W. W. LAND CO. Operator Well No.: A-2, GW-1198

RECEIVED
JUN 06 1989

Elevation: 1391.39 Quadrangle: MAN

District: TRIADELPHIA

County: LOGAN

Latitude: 750 Feet South of 37 Deg. 42Min. 30 Sec.

Longitude: 8950 Feet West of 81 Deg. 55 Min. 0 Sec.

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

Company: CITIES SERVICE OIL & GAS CORP.

P. O. BOX 873

CHARLESTON, WV

Agent: PAUL D. PHILLIPS

Inspector: ARTHUR ST. CLAIR

Permit Issued: 03/18/88

Well work Commenced: 3-31-88

Well work Completed: 5-2-89

Verbal Plugging

Permission granted on:

Rotary Cable Ris

Total Depth (feet) 5460'

Fresh water depths (ft) 132'

Salt water depths (ft) 1396'; 1495'

Is coal being mined in area (Y/N)? N

Coal Depths (ft): 81'; 127'; 613'

Size	Used in	Left	Cement
			Fill Up
	Tubins	Drillins	in Well
			Cu. Ft.
13-3/8"	40'	40'	
10-3/4"	554'	554'	11 sx Aquagel
7"	2557'	2557'	125 sx Cement
4-1/2"	5422'	5422'	TOC 2000'
2-3/8"		4828'	

OPEN FLOW DATA

Producing formation Weir, Berea, Devonian Shale Pay zone depth (ft) 2968-4826'

Gas: Initial open flow 231 MCF/d Oil: Initial open flow _____ Bbl/d

Final open flow 193 MCF/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests 4 Hours

Static rock Pressure 581 psis (surface pressure) after 240 Hours

Second producing formation _____ Pay zone depth (ft) _____

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 _____ psis (surface pressure) after _____ Hours

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED 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.

Delbert G. Oliver

For: CITIES SERVICE OIL & GAS CORP.

By: Delbert G. Oliver

Date: 6-2-89

JUN 16 1989

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

Lower Huron (4474-4826') Perforated with 71 holes. Fracture stimulated with 50,000# sand.
 Upper Devonian (3566-3896') Perforated with 71 holes. Fracture stimulated with 50,000# sand.
 Berea (3443-3451' - 17 holes); Weir (3036-3038' - 3 holes; 3030' - 2 holes; 2978-2981' - 4 holes; 2968-2971' - 4 holes); Fracture stimulated with 50,000# sand.

WELL LOG

<u>FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>
Little Lime	2532	2548
Pencil Cave	2548	2567
Big Lime	2567	2814
Siltstone	2814	2960
Weir	2960	3083
Shale	3083	3402
Sunbury	3402	3432
Berea	3432	3447
Devonian Shale	3447	4468
Lower Huron	4468	4834
Jaya	4834	5120
Rhinestreet	5120	5418
Marcellus	5418	5436
Onondaga	5436	

RECEIVED
 JUN 06 1989

DIVISION OF OIL & GAS
 DEPARTMENT OF ENERGY

5460 - new TD
 2807 - old TD
 2653 - new ftg

6770



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION 3

Quadrangle GILBERT

Permit No. 100-379

WELL RECORD

Oil or Gas Well GAS

Company COLUMBIAN CARBON COMPANY
Address Box 873, Charleston 23, W. Va.
Farm Cole & Crane Consolidation Acres 929
Location (waters) Rich Creek
Well No. 2 (G-1198) Elev. 1391.39'
District Triadelphia County Logan

The surface of tract is owned in fee by Cole & Crane R/E Tr.
815 Transportation Bldg. Cincinnati, Ohio
Address "Same"

Mineral rights are owned by _____

Drilling commenced 2-8-54 Address _____

Drilling completed 6-2-54

Date Shot not shot From _____ To _____

With see acidizing record on reverse side

Open Flow 40 /10ths Water in _____ Inch

Volume 2,210,000 /10ths Merc. in _____ Inch

Rock Pressure 610 lbs. 24 hrs.

Oil _____ bbls., 1st 24 hrs.

Fresh water 132' feet _____ feet

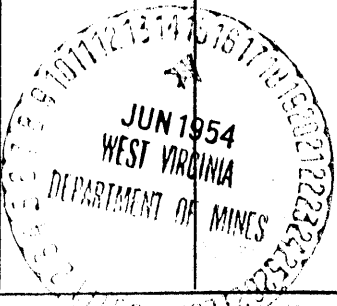
Salt water 1396' 1495' feet _____ feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16	14'	Pulled	Oilwell Comb.
13	40'	40'	Kind of Packer
13	554'10"	554'10"	Wall & Anchor
10	1858'9"	Fulled	Size of <u>1 1/2 x 7</u>
8 1/4	2557'10"	2557'10"	Depth set <u>2744'</u>
6 3/8	2820'7"	2820'7"	Perf. top _____
3			Perf. bottom _____
2			Perf. top _____
			Perf. bottom _____

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

COAL WAS ENCOUNTERED AT _____ FEET _____ INCHES
81 FEET 24 INCHES
127 FEET 24 INCHES 613 FEET 24 INCHES
FEET INCHES FEET INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Sand & gravel			0	11			
Sand			21	27			
Slate			27	39			
Sand			39	53			
Slate			53	81			
Coal			81	83			
Sand			83	127			
Coal			127	129			
Sand			129	160	F. Water	132'	hole full
Slate			160	183			
Sand			183	224			
Slate			224	320			
Sand			320	402			
Slate			402	492			
Sand			492	550			
Slate & Shells	550'DLM-550'SLM		550	590			
Sand			590	613			
Coal			613	615			
Slate & Shells			615	713			
Sand			713	782			
Slate & Shells			782	820			
Sand			820	851			
Slate & Shells			851	903			
Sand			903	1158			
Slate & Shells			1158	1194			
Sand			1194	1225			
Slate & Shells			1225	1250			
Sand			1250	1807	S. Water	1396'	1-10" blr/hr
Red Rock			1807	1814'DLM	S. Water	1495'	Hole Full
				1844'SLM			
Shells			1834'DLM				
	1836'DLM-1846'SLM		1844'SLM	1849			
Slate			1849	1859			
Red Rock			1859	1869			
Slate & Shells			1869	1971			
Hard Lims			1971	1980			
Slate & Shells			1980	2070			
Red Rock			2070	2100			
Slate & Shells			2100	2126			

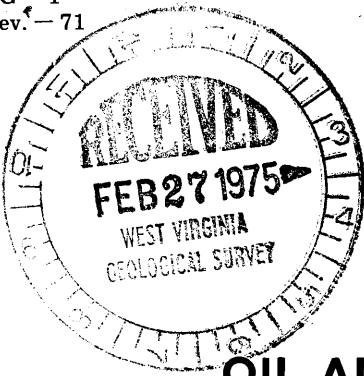


Formation	Color	Hard or Soft	Top 3	Bottom	Oil, Gas or Water	Depth Found	Remarks
Red Rock			2125	2180			
Slate & Shells			2180	2267			
Lime			2267	2330			
Sand			2330	2363			
Slate & Shells			2363	2522			
Pencil Cave			2522	2532			
Lime	2532'DLM-2536'SLM		2532	2805			
Red Injun			2805	2807			
TOTAL DEPTH - - - - -				2807'	Gas Fays 2797'	15/10 W. 7" 23#	- 1,654 Mcf
CASING RECORD							
2-18-54	10-3/4" casing ran at 550'DLM-550'SLM. Ran 11 bags of aquagel. No returns. Columbian Carbon Company Crew						
4-22-54	8-5/8" casing ran at 1836'DLM-1846'SLM. ran 24 sacks aquagel. Good returns. Columbian Carbon Company Crew.						
5-21-54	7" casing ran at 2532'DLM-2536'SLM. Ran 20 sacks of aquagel. Columbian Carbon Company Crew.						
ACIDIZING REC. RD							
6-7-54	24 hour pressure before acidizing 610%. Acidized with 1500 gallons of acid displaced with 27 1/2 barrels of water with Tergitol. First 450 gallons of acid went in at 250#; 450-1000 gallons in at 0#; 1000-1150 in at 650#; 1150-1200 gallons in at 0#; 1200-1300 gallons in at 600#; 1300-1500 gallons in at 0# - displacing water in at 0#. Swabbed four (4) times - well cleaned itself. Before acidizing gas gauged 1,400 Mcf. 3 hours after acidizing gas gauged 80/10 W. 3" 3,130 Mcf.						
6-8-54	Re-acidized with 2500 gallons of acid, 2 barrels of oil and 2200 gallons water with Tergitol. 0-150 gallons acid went in at 250#; 150-350 gallons went in at 100#; 350-2500 gallons in at 0#. Shut in 6-9-54. Final open flow 10/10 W. 3" 2214 Mcf 24 hour pressure 543#.						

Date June 11, 19 54

APPROVED Columbian Carbon Company, Owner

By G. L. Van Botton, Vice President
(Title)



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

RECEIVED

FEB 25 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 February 24, 1975

Surface Owner Bruce McDonald Holding & Millard
Address McDonald Hairs P. O. Box 296

Company Cities Service Oil Company
Address Box 873, Charleston, W. Va.

Mineral Owner Same
Address _____

Farm Cole & Crane et al Acres 529 ac.
(Consolidation)
Location (waters) Birch Root Branch of Rich Creek

Coal Owner Powellton Coal Company
Address Hallory, W. Va.

Well No. 2 Elevation 1391.39'
District Triadelphia County Logan

Coal Operator _____
Address _____

Quadrangle Map (1" = 2000')

CONVERSION TO BRINE DISPOSAL
THIS PERMIT MUST BE POSTED AT THE WELL SITE

INSPECTOR TO BE NOTIFIED Kenneth
Barboursville PH: 736-4885
W. Va.

All provisions being in accordance with Chapter 22,
of the W. Va. Code, the location is hereby approved
for Conversion. This permit shall expire if
operations have not commenced by 6-26-75

Robert L. Todd
Deputy Director - Oil & Gas Division

GENTLEMEN:

The undersigned well operator is entitled to ~~drill~~ **convert said well on** the above named farm or tract of land ~~production brine~~ **production brine** having fee title thereto, (or as the case may be) under grant or lease dated June 1 19 75 by Bruce McDonald Holding & Millard made to Cities Service Oil Company and recorded on the _____ day of _____ 19____, in _____ County, Book _____ Page _____

NEW WELL _____ DRILL DEEPER _____ REDRILL _____ FRACTURE OR STIMULATE
OIL AND GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1969.

Convert for Disposal of Production Brine.

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
Martinsburg, W. Va. 26508
AG 304-296-4461

Address
of
Well Operator

Very truly yours, **CITIES SERVICE OIL COMPANY**
(Sign Name) Sam J. Matthews
Well Operator Sam J. Matthews
Fred. Reg. Manager
P. O. 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.

BLANKET BOND

Log-379 PERMIT NUMBER
47-045

Summary

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

~~XXXXXXXX~~ WORK ORDER TO Production Brine Well DRILL _____ DEEPEN _____ FRACTURE-STIMULATE _____
 DRILLING CONTRACTOR: (If Known) _____ RESPONSIBLE AGENT: _____
 NAME N/A _____ NAME Sam J. Matthews _____
 ADDRESS _____ ADDRESS Box 873, Charleston, W. Va. 25323 _____
 TELEPHONE _____ TELEPHONE 344-8383 _____
~~XXXXXXXX~~ DEPTH OF COMPLETED WELL: 2807' _____ ROTARY _____ CABLE TOOLS _____
~~XXXXXXXX~~ GEOLOGICAL FORMATION: Big Lime _____
 TYPE OF WELL: OIL _____ GAS _____ COMB. _____ STORAGE _____ DISPOSAL XX _____
 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			
13 - 10 4 3/8		40'	
xxxx 10-3/4" 3 3/8		554'-10"	Run 11 bags of aquagel-no returns
8 - 5/8			
7" 2 3/8		2557'-9"	Run 20 sx of aquagel
5 1/2			
4 1/2			
3-1/2"		2820'-7"	Perf. Top
2			Perf. Bottom
Liners			Perf. Top
			Perf. Bottom

~~XXXXXXXX~~ FRESH WATER DEPTHS 132 FEET _____ SALT WATER 1396'; 1496' FEET _____
~~XXXXXXXX~~ COAL DEPTHS (127'-129'); (613-615') _____
 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

issue 2/23/88

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY, DIVISION OF OIL AND GAS
WELL WORK PERMIT APPLICATION

- 1) Well Operator: ¹⁶⁹ Cities Service Oil and Gas Corporation 9800, 3, 456
- 2) Operator's Well Number: Cole Crane Consol. A-2, GW-1198 3) Elevation: 1391.39
- 4) Well type: (a) Oil / or Gas /
(b) If Gas: Production / Underground Storage /
Deep / Shallow /
- 5) Proposed Target Formation(s): Devonian Shale 441
- 6) Proposed Total Depth: 5395 feet
- 7) Approximate fresh water strata depths: 132'
- 8) Approximate salt water depths: 1396', 1495'
- 9) Approximate coal seam depths: 81', 127', 613'
- 10) Does land contain coal seams tributary to active mine? Yes / No /
- 11) Proposed Well Work: DEEPENING THROUGH DEVONIAN SHALE
- 12) *NEW TUBULARS
**THIS TUBING AND PACKER CASING AND TUBING PROGRAM
WILL BE PULLED

RECEIVED
FEB 16 1988

TYPE	SPECIFICATIONS		FOOTAGE INTERVALS		DIVISION OF OIL & GAS DEPARTMENT OF ENERGY	
	Size	Grade	Weight per ft.	For drilling	Left in well	Fill-up (cu. ft.)
Conductor	13-3/8"		48	40	40	
Fresh Water	10-3/4"		32	554	554	11 sx Aquagel
Coal	8-5/8"		24	1859	Pulled	
Intermediate	7"		23	2557	2557	20 sx Aquagel
* Production	4-1/2"	K55	11.6	5395	5395	350 cu ft
* Tubing	2-3/8"	J55	4.7	5395	5395	
** TUBING Drills	3-1/2"		7	2820		

PACKERS : Kind Oilwell Anchor Pkr Midget BH Pkr
Sizes 3-1/2" X 7" w/ R/L nipple on top Pkr 10-3/4" X 13-3/8"
Depths set 2744' 550'

For Division of Oil and Gas Use Only

6663 22100
 5 | Fee(s) paid: [Signature] Well Work Permit [Signature] Reclamation Fund [Signature] WPCP
 [Signature] | Plat [Signature] WW-9 [Signature] WW-2B | [Signature] Bond 50. Blanket | [Signature] Agent
 (Type)

RECEIVED
FEB 16 1988

- 1) Date: February 8, 1988
- 2) Operator's well number
Cole Crane Consol. A-2, GW-1198
- 3) API Well No: 47 - 045 - 0379-DD
State - County - Permit

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

NOTICE AND APPLICATION FOR A WELL WORK PERMIT

- 4) Surface Owner(s) to be served:
 - (a) Name Bruce McDonald Holding Co.
Address Ed Wood, Pres., P.O. Box 1706
Logan, WV 25601
 - (b) Name _____
Address _____
 - (c) Name _____
Address _____
- 5) (a) Coal Operator:
 - Name Powellton Coal Co.
Address Box 8
Mallory, WV 25634
 - (b) Coal Owner(s) with Declaration
Name N/A
Address _____
 - Name _____
Address _____
 - (c) Coal Lessee with Declaration
Name N/A
Address _____
- 6) Inspector Mr. Arthur St. Clair
Address P. O. Box 468
Brenton, WV 24818
Telephone (304)- 732-6227

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
 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 3 on the above named parties, by:
 Personal Service (Affidavit attached)
 _____ 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 Cities Service Oil and Gas Corporation
 By: Paul D. Phillips
 Its: Operations Manager
 Address P. O. Box 873
Charleston, WV 25323
 Telephone (304) 344-8383

Subscribed and sworn before me this 4th day of February, 1988
Charles S. Starnburg Commissioner Notary Public
 My commission expires April 19, 1989