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15-Mar-89
API # 47- 45-01119

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

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY Well Operator's Report of Well Work

Farm name: McDONALD, W.W. LAND CO. Operator Well No.: A-19, GW-1983

LOCATION: Elevation: 800.00 Quadrangle: MALLORY

District: TRIADELPHIA County: LOGAN
Latitude: 11700 Feet South of 37 Deg. 45Min. 0 Sec.
Longitude 9850 Feet West of 81 Deg. 50 Min. 0 Sec.

Company: OXY USA, INC.
P. O. BOX 873
CHARLESTON, WV 25323-0873

Agent: DELBERT G. OLIVER

Inspector: TIM BENNETT
Permit Issued: 03/24/88
Well work Commenced: 06/17/88
Well work Completed: 01/25/89
Verbal Plugging: N/A
Permission granted on: N/A
Rotary X Cable _____ Rig
Total Depth (feet) 4975
Fresh water depths (ft) 95'

Salt water depths (ft) _____

Is coal being mined in area (Y/N)? N
Coal Depths (ft): _____

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
20"	21'	21'	Surface
13.375"	284'	284'	Surface
7.0"	2099'	2099'	616 cu ft
4.5"		4950'	255 cu ft
2.375"		4787'	N/A

OPEN FLOW DATA

Rhinestreet, Berea,

Producing formation Lower Huron, Upper Devonian Pay zone depth (ft) 4890
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 20 Hours
Static rock Pressure 480 psig (surface pressure) after 14 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 _____ psig (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, Appalachian Project Manager
For: OXY USA, INC.

By: Delbert G. Oliver
Date: 3-22-88

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Details of Perforated Intervals, Fracturing or Stimulating, Physical Change, Etc:

Rhinestreet: Perforated 4890-4746 (49 Holes).
 Frac'd W/50,000# Sand, 113 BLW, 606 MCFN₂.

Lower Huron: Perforated 3968-4360 (67 Holes).
 Frac'd W/50,000# Sand, 150 BLW, 341 MCFN₂.

Upper Devonian: Perforated 3026-3247 (50 Holes).
 Frac'd W/42,000# Sand, 95 LBW, 373 MCFN₂.

Berea: Perforated 2895-2901 (25 Holes).
 Frac'd W/22,000# Sand, 48 BLW, 181 MCFN₂.

WELL LOG

<u>FORMATION</u>	<u>TOP (FT)</u>	<u>BOTTOM (FT)</u>
SAND	0	83
COAL	83	86
SAND	86	162
COAL	162	169
SAND	170	360
SILTSTONE	360	375
SAND	375	495
SILTSTONE	495	630
SAND	630	766
SILTSTONE	766	788
SAND	788	1184
SILTSTONE	1184	1356
SAND	1356	1376
SILTSTONE	1376	1493
SAND	1493	1600
SILTSTONE	1600	1652
SAND	1652	1792
SILTSTONE	1792	1968
LITTLE LIME	1968	2015
BIG LIME	2015	2274
SILTSTONE	2274	2406
WEIR	2406	2520
SHALE	2520	2858
SUNBURY	2858	2878
BEREA	2878	2905
DEVONIAN SHALE	2905	3932
LOWER HURON	3932	4366
JAVA	4366	4693
RHINESTREET	4693	4957
MARCELLUS	4957	4978
ONONDAGA	4978	4987

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 DEPARTMENT OF ENERGY

6760

045-1119

Issued 3/24/88
Expired 3/24/90

FORM WW-2B

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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, 454
- 2) Operator's Well Number: McDonald Land Co. A-19, GW-1983 3) Elevation: 800.0
- 4) Well type: (a) Oil / or Gas /
(b) If Gas: Production / Underground Storage /
Deep / Shallow /
- 5) Proposed Target Formation(s): ⁴⁴¹ Devonian Shale
- 6) Proposed Total Depth: 4960 feet
- 7) Approximate fresh water strata depths: 50, 131 OK.
- 8) Approximate salt water depths: 835, 990, 1086 OK
- 9) Approximate coal seam depths: 66 possible 1145'-1147'
From Logan 446, 579, 736
- 10) Does land contain coal seams tributary to active mine? Yes / No /
- 11) Proposed Well Work: DEVONIAN SHALE DRILLING WELL.

CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft.	For drilling	Left in well	Fill-up (cu. ft.)
Conductor	16	H-40	52	80	80	Surface
Fresh Water	9-5/8	J-55	32	250	250	Surface
Coal						380SR18-11.3
Intermediate	7	J-55	23	2040	2040	380SR18-11.22 Surface
Production	4-1/2	J-55	11.6	4960	4960	380SR18-11.1 320 cu ft
Tubing	2-3/8	NUE	4.6	4960	4960	
Liners						

PACKERS : Kind _____
Sizes _____
Depths set _____

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DEPARTMENT OF ENERGY

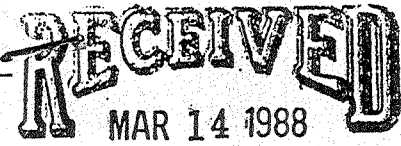
For Division of Oil and Gas Use Only

6760 30055

Fee(s) paid: Well Work Permit Reclamation Fund WPCP

Plat WW-9 WW-2B Bond 50 Blanket Agent

(Type)



1) Date: March 4, 1988
2) Operator's well number McDonald Land Co. A-19, GW-1983
3) API Well No: 47 - 045 - 1119
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 W.W. McDonald Land Co.
Address P. O. Box 1706
Logan, WV 25601, Attn: Ed Wood, Pres.
 - (b) Name _____
Address _____
 - (c) Name _____
Address _____
- 5) (a) Coal Operator:
 - Name N/A
Address _____
 - (b) Coal Owner(s) with Declaration
Name W.W. McDonald Land Co.
Address P. O. Box 1706
Logan, WV 25601, Attn: Ed Wood, President
 - Name _____
Address _____
 - (c) Coal Lessee with Declaration
Name N/A
Address _____
- 6) Inspector Arthur St. Clair
Address P. O. Box 468
Brenton, WV 24818
Telephone (304) - 723-6277

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 xx 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 4 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 4 day of March, 1988

Donald J. Bay
My commission expires June 1, 1989
Notary Public