

TAX MAP 182 PARCEL 58
JUNIOR L. & DORIS CLINE
DB. 297 PG. 624

LATITUDE 37°27'30"
30 00

CODE CARD PLOT

TAX MAP 202 PARCEL 2
KEN BAILEY
DB. 152 PG. 39

TAX MAP 182 PARCEL 59
BONNIE K. EUDGEON
DB. 369 PG. 298

TAX MAP 202 PARCEL 5
MICHEAL S. McGUIRE
DB. 350 PG. 272

STACY CEM.

TAX MAP 202 PARCEL 4
CHILTON & GLENNIS
BLANKENSHIP
DB. 355 PG. 552
D-35 ACRES
C-70 ACRES

TAX MAP 182 PARCEL 63
BLANKENSHIP, CHILTON &
GLENNIS
DB. 155 PG. 479

N-163,756.2507
E-1,733,712.477

N59°32'50"E
94.05'

PROPOSED
OSWALD A-7

S0°37'28"E
312.95'

TAX MAP 202 PARCEL 3
BAILY, PATTERSON, JEROME
DB. 126 PG. 456

TAX MAP 202 PARCEL 23
LUTHER D. GRIFFITH
DB. 232 PG. 242

TAX MAP 202 PARCEL 16
* UNKNOWN

NOTE:
* ALL PROPERTY DATA
ACQUIRED FROM TAX RECORDS
AT THE ASSESSORS OFFICE.
SURVEY BEARINGS BASED ON
MAGNETIC OF SURVEY PERFORMED
5/10/85.

VIRGINIA CREWS COAL CO.
SURVEY COORDINATES
N-160,838.4200
E-1,735,606.230

REF "A"
12" OAK

N32°59'05"W
3,478.51'

STA. 82

REF "B"
4" OAK

LONGITUDE 81°55'00"

3.695
0.04W

FILE NO. _____
DRAWING NO. _____
SCALE 1"=1000'
MINIMUM DEGREE OF
ACCURACY 1:2500
PROVEN SOURCE OF
ELEVATION KNOB ELEV. 1805' APPROX.
3000' SE OF LOCATION

I THE UNDERSIGNED, HEREBY CERTIFY
THAT THIS PLAT IS CORRECT TO THE
BEST OF MY KNOWLEDGE AND BELIEF AND
SHOWS ALL THE INFORMATION REQUIRED
BY LAW AND THE REGULATIONS ISSUED
AND PRESCRIBED BY THE DEPARTMENT OF
MINES.
(SIGNED) Frederick G. Kell
R. P. E. 6999 L. L. S.

PLACE SEAL HERE

(+) DENOTES LOCATION OF
WELL ON UNITED STATES
TOPOGRAPHIC MAPS
FORM IV-6
(8-78)



Department of Mines
Oil & Gas Division

DATE MAY 10 19 85
OPERATOR'S WELL NO. OSWALD A-7
API WELL NO.
47 - 047 - 0935
STATE COUNTY PERMIT

WELL TYPE: OIL ___ GAS LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS", PRODUCTION STORAGE ___ DEEP ___ SHALLOW
LOCATION: ELEVATION 1908.7' WATER SHED TRAP FORK
DISTRICT SANDY RIVER COUNTY McDOWELL
QUADRANGLE PANTHER 951 Page 061 NW1
SURFACE OWNER BLANKENSHIP, CHILTON & GLENNIS ACREAGE D-35 C-70
OIL & GAS ROYALTY OWNER ENID WEST OSWALD, ETAL. LEASE ACREAGE 4152.55 ACS.
LEASE NO. 233

PROPOSED WORK: DRILL CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR
STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW
FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
TARGET FORMATION Devonian Brown Shale 169 ESTIMATED DEPTH 5,850'
WELL OPERATOR Cities Service Oil and Gas Corp. DESIGNATED AGENT Paul Phillips
ADDRESS PO Box 873 ADDRESS PO Box 873
Charleston, WV 25323 Charleston, WV 25323 DPD - Dev sh
Up Dev - Rhinod
Charleston, WV

JUL 15 1985



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Rec - 8/15/86
FERC.

Date January 29, 1986
Operator's
Well No. Oswald "A" #7
Farm _____
API No. 47 - 047 - 0935

State of West Virginia
DEPARTMENT OF ENERGY
Oil and Gas Division

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

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

LOCATION: Elevation: 1908.7' Watershed Trap Fork
District: Sandy River County McDowell Quadrangle Panther
6 530

COMPANY Cities Service Oil & Gas Corporation 009700

ADDRESS P. O. Box 873, Charleston, WV 25323

SIGNATURED AGENT Paul D. Phillips

ADDRESS P. O. Box 873, Charleston, WV 25323

SURFACE OWNER Glennis Blankenship

ADDRESS Box 47, Panther, WV 24872

GENERAL RIGHTS OWNER See Attached Sheet

ADDRESS See Attached Sheet

REGULATORY AND GAS INSPECTOR FOR THIS WORK Rodney

. Dillon ADDRESS P.O. Box 7, Williamstown, WV
26187

PERMIT ISSUED July 8, 1985

DRILLING COMMENCED August 31, 1985

DRILLING COMPLETED September 13, 1985

IF APPLICABLE: PLUGGING OF DRY HOLE ON
CONTINUOUS PROGRESSION FROM DRILLING OR
REWORKING. VERBAL PERMISSION OBTAINED
N/A

Casing Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.	29' Set @ 36' KB	29' Set @ 36' KB	18 cu. ft. Cement to Surface
13-10"			
9 5/8			
8 5/8	2021' set @ 2027' KB	2021' set @ 2027' KB	885 cu. ft. Cmt to Surf
7			
5 1/2			
4 1/2	6376' set @ 6380' KB	6376' set @ 6380' KB	666 cu. ft. Top of cmt 3570' KB
3 Tubing 2-3/8	N/A	204 jts set @ 6326'	N/A
Liners used			

GEOLOGICAL TARGET FORMATION Onondaga L.S. Depth 6366 feet

Depth of completed well 6381' feet. Rotary x / Cable Tools _____

Water strata depth: Fresh 420 feet; Salt _____ feet

Coal seam depths: 140'-145' & 240'-247' Is coal being mined in the area? No

6364'-6180', 5599'-4748', 5855'-5656',
4488'-4504'

OPEN FLOW DATA

Producing formation Devonian Shale & Berea Sand Pay zone depth _____ feet

Gas: Initial open flow _____ Mcf/d Oil: Initial open flow _____ Bbl/d

Final open flow 287 Mcf/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ hours

Static rock pressure 340 psig (surface measurement) after 19 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 Oil: Final open flow _____ Bbl/d

Time of open flow between initial and final tests _____ hours FEB 23 1987

Static rock pressure _____ psig (surface measurement) after _____ hours shut in

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

1. Perforate Devonian Shale @ 6180'-6364' (21 shots). Broke down shale w/500 gals 15% HCL acid. Frac w/6500# 20/40 sand and 385 MCF of N₂; AIR 76 bbl/min, max pressure 4900 psi. ISIP 2000 psi, 30 min. SI pressure 1750² psi. Frac shale @ 6180'-6364' with 18,500# 20/40 sand, 466 MCF N₂, 1/2 pint tracer sand. Max rate 95 BPM, max pressure 5400 psi. ISIP 3130 psi, 15 min. SIP 2200 psi.
2. Perforate Devonian Shale @ 5656'-5855' (25 shots). Pump 1000 gals 15% HCL acid, frac with 50,000# 20/40 sand, 803 MCF N₂, 1-1/2 pint tracer sand, max inj rate 98 BPM, max pres. 4540'. ISIP 1720 psi, 15 SIP 1500 psi.

*SEE ATTACHED SHEET FOR NUMBERS 3 AND 4.] ?

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Sand			10	39	
Sand and Shale			39	140	
Coal			140	145	
Sand and Shale			145	240	
Coal			240	247	
Sand and Shale			247	356	
Sand with some Shale			356	540	
Sand and Shale			540	977	
Sand with some Shale			977	1120	
Sand and Shale			1120	1480	
Salt Sand			1480	1727	
Shale			1727	1750	
Shale and Sand			1750	1829	
Shale			1829	1844	
Sand and Shale			1844	1936	
Salt Sand			1936	2050	
Sand and Siltstone			2050	2080	
Sand			2080	2220	
Sand and Siltstone			2220	2240	
Shale and Siltstone			2240	2258	
Shale			2258	2474	
Shale and Sand			2474	2481	
Salt Sand			2481	2528	
Salt Sand with Some Siltstone			2528	2570	
Salt Sand			2570	2586	
Salt Sand with Some Siltstone			2586	2610	
Salt Sand			2610	2660	
Salt Sand and Siltstone			2660	2690	
Salt Sand			2690	2730	
Salt Sand and Shale			2730	2736	
Shale			2736	2772	
Siltstone			2772	2820	
Siltstone and Sand			2820	2850	
Sand			2850	2874	
Sand and Shale			2874	2898	
Sand			2898	2918	
Sand and Shale			2918	2960	

FW @ 420' - 1/4" Stream

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*CONTINUED ON ATTACHED SHEET

(Attach separate sheets as necessary)

Cities Service Oil and Gas Corporation
Well Operator

By: Paul P. Phillips Region Operations Manager

Date: 2/4/86

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 coal, encountered in the drilling of a well."

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

3. Perforate Devonian Shale @ 4748'-5599' (21 shots). Broke down shale with 1,250 gallons 15% HCL acid. Total sand 45,620# 20/40, 2 pints tracer sand max rate 104 BPM, max pressure 4650, ISIP 1480 psi, 15 min. SIP 900 psi.
4. Perforate Berea 4488'-4504' (32 holes), 1500 gal. 15% HCL acid. Total sand 40,000#, 476.6 MCF of N₂, 1 pint tracer sand, max rate 28 BPM, max pressure 2060 psi, ISIP 1320 psi, 15 min. SIP 1060 psi.

Good order to top of L. Huron

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
Shale			2960	3060	
2nd Maxon			3060	3100	
Shale and Sand			3100	3118	
Shale			3118	3269	
3rd Maxon			3269	3312	
Shale and Sandstone			3312	3337	
Little Lime			3337	3378	
Shale, Sandstone, Lime			3378	3384	
Big Lime			3384	3860	
Shale			3860	4070	
Shale and Sand			4070	4084	
Shale			4084	4486	
Berea Sand			4486	4512	Gas @ 4509', 10.5 MCF/D.
Devonian Shale			4512	6366	Gas @ 5660', 15 MCF/D.
Onondaga Lime			6366'	6381	

404 4512
 813 5512
 822 5912
 825 6062
 830 6262

6381
 -4512
 1869 expl. ft.

(Attach separate sheets as necessary)

Cities Service Oil and Gas Corporation
 Well Operator

By: Paul P. Phillips, Region Operations Manager

Date: 2/4/84

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 coal, encountered in the drilling of a well."

FEB 23 1987



1) Date: May 31, 19 85
 2) Operator's Well No. Oswald "A" #7,
 3) API Well No. 47 047-0935
 State WV County McDowell Permit

RECEIVED
 JUN 11 1985

RECEIVED
 JUN 17 1985

**OIL & GAS DIVISION
 DEPT. OF MINES**

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

**OIL & GAS DIVISION
 DEPT. OF MINES**

- 4) WELL TYPE: A Oil / Gas X /
 B (If "Gas", Production X / Underground storage / Deep X /)
- 5) LOCATION: Elevation: 1908.7' Watershed: Trap Fork
 District: Sandy River County: McDowell Quadrangle: Panther
- 6) WELL OPERATOR Cities Service Oil & Gas Corp. (1097) DESIGNATED AGENT Paul D. Phillips
 Address P. O. Box 873 Address P. O. Box 873
Charleston, WV 25323 9800 Charleston, WV 25323
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name Arthur St. Clair
 Address P. O. Box 157
Brenton, WV 24818
- 9) DRILLING CONTRACTOR: Name Smith Drilling Co., Inc.
 Address P. O. Box 150
Lawrenceville, IL 62439
- 10) PROPOSED WELL WORK: Drill X / Drill deeper / Redrill / Stimulate X /
 Plug off old formation / Perforate new formation /
 Other physical change in well (specify)
- 11) GEOLOGICAL TARGET FORMATION, Devonian Shale (441)
- 12) Estimated depth of completed well, 5850 feet
- 13) Approximate trata depths: Fresh, 603, 663, 904 feet; salt, feet.
- 14) Approximate coal seam depths: 887, 1135, 1800, 1851 Is coal being mined in the area? Yes X / No

15) 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	Left in well		
Conductor	16"	H-40	65#	X		30'	30'	10 cu ft	Kind:
Fresh water									
Coal									Sizes:
Surface	8 5/8"	K-55	24#	X		1920'	1920'	600 cu ft	
Production	4 1/2"	K-55	10.5#	X		5850'	5850'	565 cu ft	Depths set
Tubing	2 3/8"	J-55	4.6#	X		5850'	5850'		
Liners									Perforations:
									Top Bottom

**OFFICE USE ONLY
 DRILLING PERMIT**

Permit number 47-047-0935

Date July 8 19 85

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 July 8, 1987 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing:	Fee:
186	ALB	MM	MW	93136

Margaret J. Hass
 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