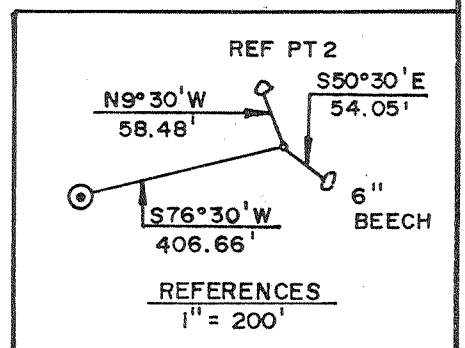


LATITUDE 38°17'30"  
 3000'  
 6800'  
 LONGITUDE 80°57'30"

**NOTES:**

- 1) PROPERTY CORNERS CALC. BY ON GROUND SURVEY TO EXISTING WELL A-25
- 2) ONE KNOWN WELL WITHIN 2400' OF PROPOSED WELL



FILE NO. \_\_\_\_\_  
 DRAWING NO. \_\_\_\_\_  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY 1 IN 2500  
 PROVEN SOURCE OF ELEVATION KNOWN ELEV. OF EXISTING WELL A-25 \_\_\_\_\_

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 ENERGY  
 (SIGNED) Frederick D. Hill  
 R.P.E. 6999 L.L.S. \_\_\_\_\_  
 WOOLPERT CONSULTANTS

PLACE SEAL HERE

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



DATE 7-28-1987  
 OPERATOR'S WELL NO. CITIES SERVICE  
 API WELL NO. OIL CO. FLYNN 28  
 GW-1972  
 47 67 - 0653  
 STATE COUNTY PERMIT

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

WELL TYPE: OIL \_\_\_ GAS  LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
 (IF "GAS,") PRODUCTION  STORAGE \_\_\_ DEEP \_\_\_ SHALLOW \_\_\_  
 LOCATION: ELEVATION 1695.46' WATER SHED PETERS CREEK  
 DISTRICT GRANT 2 COUNTY NICHOLAS  
 QUADRANGLE GILBOA 364 120 S07 Summersville  
 SURFACE OWNER FLYNN COAL & LUMBER CO. ACREAGE 196.4  
 OIL & GAS ROYALTY OWNER FLYNN COAL & LUMBER CO. LEASE ACREAGE 9226.12  
 LEASE NO. WV-411  
 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 ESTIMATED DEPTH 6330'  
 WELL OPERATOR CITIES SERVICE DESIGNATED AGENT PAUL D. PHILLIPS  
 ADDRESS OIL & GAS CORP. 1609 ADDRESS P.O. BOX 873 CHAS. W.V. 25323  
 P.O. BOX 873 CHAS. WV. 25323



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DIVISION OF OIL & GAS  
DEPARTMENT OF ENERGY

State of West Virginia

DEPARTMENT OF ENERGY  
Oil and Gas Division

Date February 8, 1988  
Operator's  
Well No. A-28, GW-1972  
Farm Flynn Coal & Lumber Co.  
API No. 47 - 067 - 0653

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 \_\_\_ / Shallow x /)

LOCATION: Elevation: 1695.46 Watershed Peters Creek  
District: Grant County Nicholas Quadrangle Gilboa

COMPANY Cities Service Oil & Gas Corporation

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

DESIGNATED AGENT Paul D. Phillips

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

SURFACE OWNER Flynn Coal & Lumber Company

ADDRESS 322 Brady Ave., Summersville, WV 26651

MINERAL RIGHTS OWNER Flynn Coal & Lumber Company

ADDRESS 322 Brady Ave., Summersville, WV 26651

OIL AND GAS INSPECTOR FOR THIS WORK Rodney

Dillon ADDRESS P.O. Box 1526, Sophia, WV 25921

PERMIT ISSUED August 17, 1987

DRILLING COMMENCED September 30, 1987

DRILLING COMPLETED October 16, 1987

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

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13- <del>3/8</del> 3/8	30	30	15 sx
9 5/8	767	767	Surface
8 5/8			
7	1815	1815	Surface
5 1/2			
4 1/2	6640	6640	TOC 1340
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Shale/Big Lime Depth 1800-6630 feet

Depth of completed well 6713 feet Rotary x / Cable Tools \_\_\_\_\_

Water strata depth: Fresh 455 feet; Salt 1280 feet

Coal seam depths: 455 (48") 759 (48") Is coal being mined in the area? No

OPEN FLOW DATA

Producing formation Devonian Shale/Big Lime Pay zone depth 1954-6539 feet

Gas: Initial open flow \_\_\_\_\_ Mcf/d Oil: Initial open flow \_\_\_\_\_ Bbl/d

Final open flow 358 Mcf/d Final open flow \_\_\_\_\_ Bbl/d

Time of open flow between initial and final tests \_\_\_\_\_ hours

Static rock pressure 405 psig (surface measurement) after 60 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

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

(Continue on reverse side)

FEB 16 1988

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

Devonian Shale 5410-6539' Frac'd w/ 90,000# 20/50 sd, 882 MSCF N2, TL&T 497, 50 BPM Foam  
 Devonian Shale 4653-4943' Frac'd w/ 90,000# 20/50 sd, 872 MSCF N2, TL&T 490, 60 BPM Foam  
 Devonian Shale 4304-4485' Frac'd w/ 90,000# 20/50 sd, 868 MSCF N2, TL&T 485, 60 BPM Foam  
 Devonian Shale 3415-3785' Frac'd w/ 90,000# 20/50 sd, 874 MSCF N2, TL&T 491, 60 BPM Foam  
 Big Lime 1954-1960' Acidized w/ 8000 gal 15% acid @ 9 BPM, TL&T 120 bbls

2464 & 813

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Surface Sand			0	550	
Sand			550	620	FW @ 455'; Coal @ 455' (48")
Shaley Sand			620	820	Coal @ 759' (48")
Sandy Shale			820	1000	
Sand			1000	1050	
Shale			1150	1280	
Sand			1280	1390	SW @ 1280'
Shale			1390	1580	
Sand			1580	1620	
Sandy Shale			1620	1670	
Sand			1670	1710	
Shaley Sand			1710	1800	
Big Lime			1800	? 2070	
<del>Sunbury Shale?</del> Pocono			2070	? 2570 (Pocono)	
Devonian Shale			? 2570	6630	
<u>Onondaga</u>			6630	6713	
			Top 404	2570	
			813	2070	
			404	2570 - 3800	
			813	3800 - 5100	
			818	5100 - 5700	

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DIVISION OF OIL & GAS  
DEPARTMENT OF ENERGY

6713  
2070  
4643 expl. ftg.

(Attach separate sheets as necessary)

Cities Service Oil and Gas Corporation  
Well Operator

By: Paul D. Phillips, Operations Manager

Date: February 8, 1988

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 ..., encountered in the drilling of a well."

FEB 16 1988



1) Date: July 31, 1987  
 2) Operator's Well No. GW-1972  
Flynn Coal & Lumber A-28  
 3) API Well No. 47 State 067 County -0653 Permit

FORM WW-2(B) FILE COPY  
 (Obverse)  
**RECEIVED**  
 JUL 31 1987

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

- 4) WELL TYPE: A Oil        / Gas X  
 B (If "Gas", Production X / Underground storage        / Deep        / Shallow X)
- 5) LOCATION: Elevation: 1620 Watershed: Peters Creek  
 District: Jefferson County: Nicholas Quadrangle: Gilboa 7.5
- 6) WELL OPERATOR Cities Service CODE: 9800 7) DESIGNATED AGENT Paul D. Phillips  
 Address P. O. Box 873 Address P. O. Box 873  
Charleston, WV 25323 Charleston, WV 25323
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name Rodney Dillon  
 Address P. O. Box 1526  
Sophia, WV 25921
- 9) DRILLING CONTRACTOR: Name N/A  
 Address
- 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, Big Lime
- 12) Estimated depth of completed well, 6330 feet
- 13) Approximate true depths: Fresh, 99 ~~feet~~ 314, 551 feet; salt, 812, 901, 1243 feet.
- 14) Approximate coal seam depths: 106, 138 ~~feet~~ 628 Is coal being mined in the area? Yes        / No X
- 15) CASING AND TUBING PROGRAM From Nic - 381, 427, 487, 497, 566

CASING OR TUBING TYPE	SPECIFICATIONS						FOOTAGE INTERVALS		CEMENT FILLUP OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well			
Conductor	13-3/8	H-40	48	X		40	40	15 sxs	Kinds	
Fresh water	9-5/8	H-40	32	X		<del>660</del>	<del>660</del>	Surface	By <u>38CSR18-11.22</u>	
Coal	7	K-55	23	X		1710	1710	Surface	By <u>38CSR18-11.1</u>	
Intermediate										
Production	4-1/2	K-55	11.6	X		6330	6330	556 cuft	By <u>38CSR18-11.1</u>	
Tubing	2-3/8	J-55	4.6	X		6330	6330			
Lin.									Perforations:	
									Top Bottom	

OFFICE USE ONLY  
 DRILLING PERMIT

Permit number 47-067-0653 Date August 17 19 87

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 August 17, 1989 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <input checked="" type="checkbox"/>	Agent: <input checked="" type="checkbox"/>	Plat: <u>[Signature]</u>	Fee: <u>223</u> <u>22073</u>	<u>[Signature]</u>	<u>[Signature]</u>	Other
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NOTE: Keep one copy of this permit posted at the drilling location.  
John H. Johnston by Margaret J. Hesse  
 Director, Division of Oil and Gas File