

*Jamie*  
4/22/91

LATITUDE 39-20-00

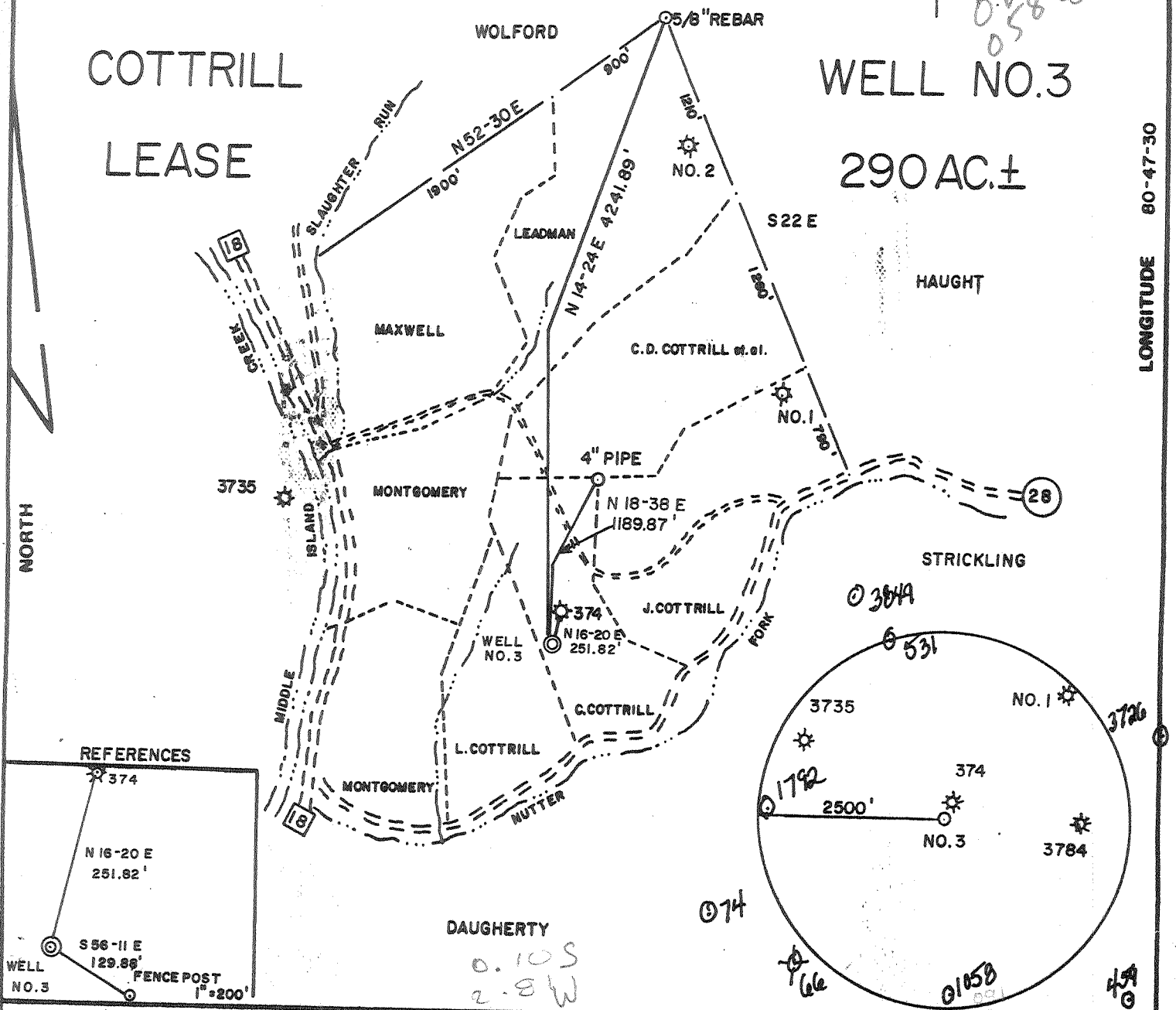
0.10 S  
0.58 W

COTTRILL  
LEASE

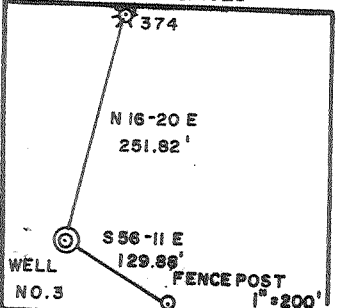
WELL NO.3

290 AC.±

LONGITUDE 80-47-30

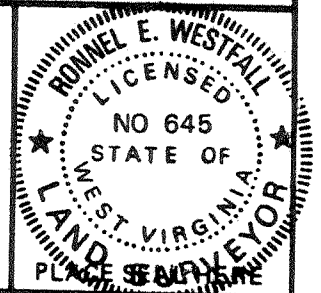


REFERENCES



FILE NO. \_\_\_\_\_  
DRAWING NO. \_\_\_\_\_  
SCALE 1"=1000'  
MINIMUM DEGREE OF ACCURACY 1/200  
PROVEN SOURCE OF ELEVATION JUNCT. OF ROADS ELEV. 765'

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) *Ronnel E. Westfall*  
R.P.E. \_\_\_\_\_ L.L.S. 645



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



DATE FEB. 10, 19 91  
OPERATOR'S WELL NO. COTTRILL NO. 3  
API WELL NO. 47-017-3882  
STATE COUNTY PERMIT

STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
OIL AND GAS DIVISION

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
(IF "GAS,") PRODUCTION \_\_\_ STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X  
LOCATION: ELEVATION 910' WATER SHED NUTTER FORK  
DISTRICT WEST UNION 8 COUNTY DODDRIDGE  
QUADRANGLE WEST UNION 7.5' *disk*  
SURFACE OWNER CHARLES COTTRILL JR. ACREAGE 24.5 of 290  
OIL & GAS ROYALTY OWNER MARY WELCH ADMIX. LEASE ACREAGE 290  
LEASE NO. \_\_\_\_\_  
PROPOSED WORK: DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_

PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_  
TARGET FORMATION ALEXANDER ESTIMATED DEPTH 5400'  
WELL OPERATOR TERM ENERGY CORP. DESIGNATED AGENT JEAN FREELAND  
ADDRESS 713 E MAIN ST. 886 ADDRESS 713 E MAIN ST.  
HARRISVILLE, WV 26362 HARRISVILLE, WV 26362

APR 8 1991

6-6 Wilbur (092)

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

Well Operator's Report of Well Work

Farm name: COTRILL CHARLES Operator Well No.: COTRILL 3

LOCATION: Elevation: 910.00 Quadrangle: WEST UNION

District: WESTUNION County: DODDRIDGE  
Latitude: 600 Feet South of 39 Deg. 20Min. 0 Sec.  
Longitude 3080 Feet West of 80 Deg. 47 Min. 30 Sec.

Company: TERM ENERGY CORP.  
713 EAST MAIN STREET  
HARRISVILLE, WV 26362-0000

Agent: JEAN FREELAND

Inspector: MIKE UNDERWOOD  
Permit Issued: 04/01/91  
Well work Commenced: 06/20/91  
Well work Completed: 07/02/91  
Verbal Plugging  
Permission granted on:  
Rotary xx Cable \_\_\_\_\_ Rig  
Total Depth (feet) 5253'  
Fresh water depths (ft) 79'

Salt water depths (ft) None

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.
11 3/4"	17'	0	0
8 5/8"	996.65'	996.65'	308
4 1/2"	5219.85'	5219.85'	312.5

OPEN FLOW DATA

Producing formation Alexander Pay zone depth (ft) 5108' - 5141'  
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

COMINGLED PRODUCTION

Second producing formation Benson & Benson Stray Pay zone depth (ft) 4751' - 4813.5'  
Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
Final open flow 550 MCF/d Final open flow 0 Bbl/d  
Time of open flow between initial and final tests \_\_\_\_\_ Hours  
Static rock Pressure 1125 psig (surface pressure) after 12 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.

For: TERM ENERGY CORP.  
By: Jean Freeland Agent  
Date: 7/6/91

SEP 16 1991

COTTRILL #3

7/1/91

PERFORATED ALEXANDER	5108 - 5141;	14 HOLES .39
BENSON	4810.5-4813.5;	10 HOLES .39
BENSON STRAY	4751 - 4752;	2 HOLES .39

TWO STAGE ENERGIZED WATER FRAC

- ALEXANDER: MAX TR PRESS 2700; AVG RATE 25; AVG PRESS 2602;  
50,000# 20/40; 5,000# 80/100; MAX CONC 4;  
TOTAL ACID 500 GAL; ISIP 1750; 5 MIN SIP 1420;  
TOTAL NITROGEN 90,000 SCF TOTAL FLUIDS; 685 BBLs
- BENSON & BENSON STRAY: MAX TR PRESS 2580; AVG RATE 20.2; AVG PRESS 2455;  
40,000# 20/40; 10,000# 80/100; MAX CONC 4;  
TOTAL ACID 500 GAL; ISIP 2000; 5 MIN SIP 1400;  
10 MIN SIP 1380; TOTAL NITROGEN 88,000 SCF; TOTAL  
FLUIDS 592 BBLs

<u>WELL LOG</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>WATER</u>
SAND, SHALE & RR	0	1769	79' - 1/2" STREAM
LITTLE LIME	1769	1785	
BIG LIME	1785	1875	
BIG INJUN	1875	1953	
SAND & SHALE	1953	5253	

<u>GEOPHYSICAL LOG</u>	<u>TOP</u>	<u>BOTTOM</u>
BIG LIME	1786	1864
BIG INJUN	1864	1956
WEIR	2104	2207
BEREA	2310	2314
GORDON	2514	2568
WARREN	3177	3264
SPEECHLY	3300	3818
BALLTOWN	4133	4289
BRADFORD	4350	4428
BENSON	4810	4814
ALEXANDER	5060	5146

2202/

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

Issued 04/01/91  
Expires 04/01/93

- 1) Well Operator: TERM Energy Corporation 49105(8) 670
- 2) Operator's Well Number: Cottrill #3 3) Elevation: 910'
- 4) Well type: (a) Oil    / or Gas X /  
(b) If Gas: Production X / Underground Storage    /  
Deep    / Shallow X /
- 5) Proposed Target Formation(s): Alexander 430
- 6) Proposed Total Depth: 5400 feet
- 7) Approximate fresh water strata depths: 140'
- 8) Approximate salt water depths: 1250'
- 9) Approximate coal seam depths: None
- 10) Does land contain coal seams tributary to active mine? Yes    / No X /
- 11) Proposed Well Work: Drill & Stimulate New Well
- 12)

CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft.	For drilling	Left in well	Fill-up (cu. ft.)
Conductor	11 3/4"	J-55	42#	17'	0	a.k. M.U.
Fresh Water	8 5/8"	J-55	20#	1010'	1010'	CTS
Coal						38CSA 11.3
Intermediate						38CSA 11.2
Production	4 1/2"	J-55	11.6 10.5	84 5166	84 5166	38CSA 11.1 250
Tubing						<b>RECEIVED</b> Division of Energy
Liners						

MAR 15 91

PACKERS : Kind \_\_\_\_\_  
Sizes \_\_\_\_\_  
Depths set \_\_\_\_\_

Permitting  
Oil and Gas Section

For Division of Oil and Gas Use Only

Fee(s) paid:  Well Work Permit  Reclamation Fund  WPCP  
 Plat  WW-9  WW-2B  Bond Blanket Letter  Agent  
 (Type)

1800  
#3

1) Date: March 7, 1991  
2) Operator's well number  
Cottrill #3  
3) API Well No: 47 - 017 - 3882  
State - County - Permit

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

NOTICE AND APPLICATION FOR A WELL WORK PERMIT

RECEIVED  
Division of Energy

MAR 15 91

Permitting  
Oil and Gas Section

4) Surface Owner(s) to be served:  
(a) Name Charles Cottrill, Jr.  
Address Star Route  
West Union, WV 26456  
(b) Name \_\_\_\_\_  
Address \_\_\_\_\_  
(c) Name \_\_\_\_\_  
Address \_\_\_\_\_

5) (a) Coal Operator:  
Name \_\_\_\_\_  
Address \_\_\_\_\_

(b) Coal Owner(s) with Declaration  
Name \_\_\_\_\_  
Address \_\_\_\_\_

Name \_\_\_\_\_  
Address \_\_\_\_\_

6) Inspector Mike Underwood  
Address Rt. 2 Box 135  
Salem, WV 26426  
Telephone (304)- 782-1043

(c) Coal Lessee with Declaration  
Name \_\_\_\_\_  
Address \_\_\_\_\_

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 \_\_\_\_\_ 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.

OFFICIAL SEAL  
Notary Public, State of West Virginia  
CARLEEN K. TINGLER  
RT. 3, BOX 35  
SMITHVILLE, WV 25178  
My Commission Expires March 7, 2000

Well Operator TERM Energy Corporation  
By: [Signature]  
Its: \_\_\_\_\_  
Address 713 E. Main St.  
Harrisville, WV 26362  
Telephone 304-643-4500

Subscribed and sworn before me this 7th day of March, 1991

My commission expires March 7, 2000 Carleen K Tingler Notary Public