

CARBON FUEL COMPANY LEASE

P/O 8,406 ACRES ±

WELL NO. WV 508282R

PENN VIRGINIA OPERATING COMPANY, LLC
P/O 8,406 AC.

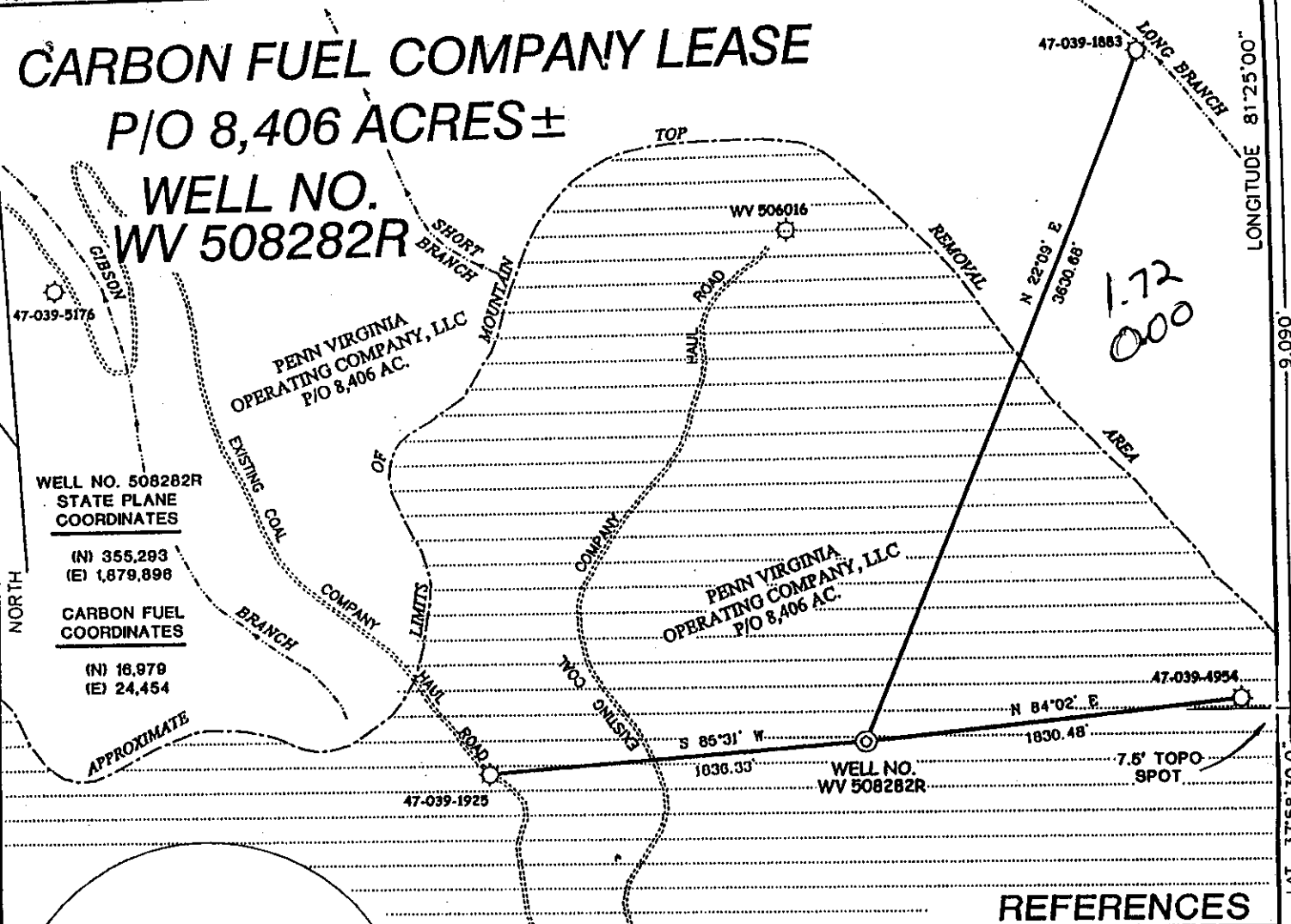
PENN VIRGINIA OPERATING COMPANY, LLC
P/O 8,406 AC.

WELL NO. 508282R STATE PLANE COORDINATES

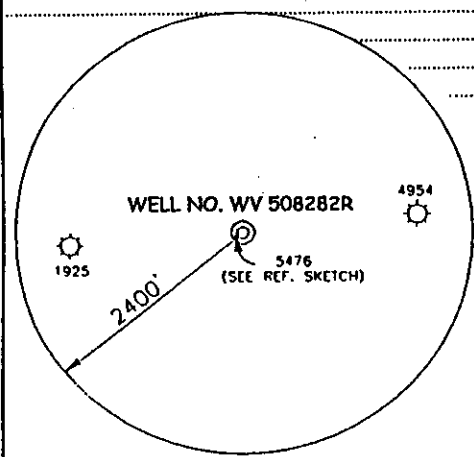
(N) 355,293
(E) 1,879,898

CARBON FUEL COORDINATES

(N) 18,979
(E) 24,454

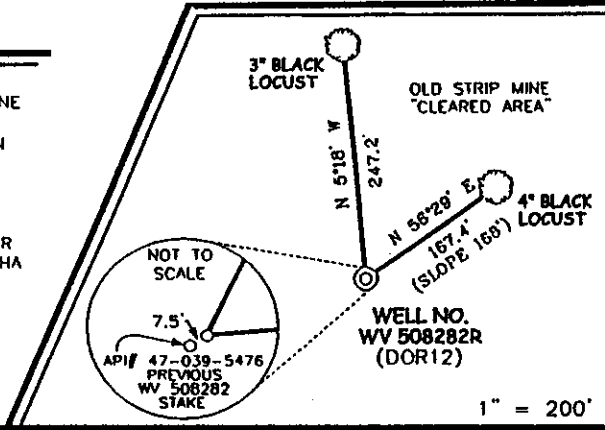


REFERENCES



NOTES ON SURVEY

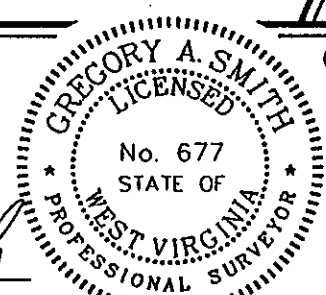
1. TIES TO WELLS ARE BASED ON STATE PLANE GRID NORTH WV SOUTH ZONE NAD '27.
2. TIES TO REFERENCES ARE BASED ON MAGNETIC NORTH 3-25-02.
3. LEASE BOUNDARY DOES NOT FALL WITHIN THE SCOPE OF THIS PLAT.
4. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF KANAWHA COUNTY IN DECEMBER, 2001.
5. WELL LAT./LONG. ESTABLISHED BY DGPS(SUBMETER MAPPING GRADE).



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 DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 677

Gregory A. Smith



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

DATE MARCH 26, 20 02
 OPERATORS WELL NO. WV 508282R
 API WELL NO. 47-39-05487
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 3851P508282R (121-49) & (111-51)
 PROVEN SOURCE OF ELEVATION CARBON FUEL CONTROL POINT #8483 ELEV. 1493.6' SCALE 1" = 800'

STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS



WELL TYPE : OIL GAS LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION :
 ELEVATION: 2,443' WATERSHED SHORT BRANCH OF FIFTEENMILE FORK
 DISTRICT CABIN CREEK COUNTY KANAWHA QUADRANGLE DOROTHY 7.5'
 SURFACE OWNER PENN VIRGINIA OPERATING COMPANY, LLC ACREAGE 8,406
 ROYALTY OWNER PENN VIRGINIA OIL & GAS CORP. LEASE ACREAGE 8,406

PROPOSED WORK :
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER
 PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION DEVONIAN SHALE
 ESTIMATED DEPTH 2470' / 360'

WELL OPERATOR EQUITABLE PRODUCTION COMPANY DESIGNATED AGENT STEPHEN G. PERDUE
 ADDRESS P.O. BOX 2347, CHARLESTON, WV 25328 ADDRESS P.O. BOX 2347, CHARLESTON, WV 25328

COUNTY NAME KAN PERMIT 5487

6-6 262

APR 19 2002

**EQUITABLE PRODUCTION COMPANY
WR-35 COMPLETION REPORT - Attachment
Well Treatment Summary**

Well: WV-508282R-Carbon Fuel

API# 47-039-05487

Date	05/06/02	05/06/02	05/06/02	05/06/02		
Type Frac Acid, N ₂ , Foam, Water	N ₂	85 Q	85:80:75 Q	Acid W/N ₂		
Zone Treated	Gordon Berea	Lower Weir	Upper Weir	Big Lime		
# Perfs From - To:	30 3992' - 4275'	41 3718' - 3738'	29 3640' - 3654'	50 3288' - 3552'		
BD Pressure @ psi	2770	760	900	1200		
ATP psi	2998	1792	1877	1864		
Avg. Rate, B=B/M, S= SCF/M	61,400 S	32 B (foam)	32 B (foam)	24 B (foam)		
Max. Treat Press psi	3520	1830	2000	2200		
ISIP psi	2760	0	0	690		
Frac Gradient	.76	.43	.43	.66		
10 min S-l Pressure	1190			1250		
Material Volume						
Sand-sks		586	505			
Water-bbl		286.8	259.2	184.2		
SCF N ₂	660,700	650,400	405,300	354,000		
Acid-gal	400 gal 15%	500 gal 15.6%	500 gal 15.6%	7000 gal 15.6%		
NOTES:						

TOP	BOTTOM	FORMATION	REMARKS
		Coal	Open mine 430'-440'; 775'-780'; 860'-864'; 885'-890'; 988'-992'; 1016'-1020'
		LOWER	GT @ 2782' & 3126' = NS
3050'	3216'	MAXTON	
3139'	3222'	LITTLE LIME	
3234'	3553'	BIG LIME	GT @ 3314' = odor
3570'	3592'	BIG INJUN	GT @ 3502' = odor
3636'	3678'	UPPER WEIR	GT @ 3628' = 59 mcf/d
3698'	3790'	LOWER WEIR	GT @ 3817' = 103 mcf/d
4022'	4050'	SUNBURY	
4050'	4091'	BEREA	GT @ 4129' = 157 mcf/d
4261'	4279'	GORDON	GT @ 4224' = 157 mcf/d
	4360'	TD	

