

CARBON FUEL COMPANY LEASE

8,406 ACRES ±

WELL NO. WV 508307R

PENN VIRGINIA OPERATING COMPANY, LLC
8,406 AC.

PATRICIA A. FORD ET AL
2,954.59 AC (SURFACE)

LEASE DESC. CALL
S 18° W 13,365'

LEASE DESC. CALL
S 32° W 9,652.5'

PENN VIRGINIA OPERATING COMPANY, LLC
47-039-3637

PATRICIA A. FORD ET AL
1,637.149 AC ± (SURFACE)
KANAWHIA VALLEY DANK LEASE
5,626 AC ±

T-RAIL (FOUND)

WELL NO. WV 508307R STATE PLANE COORDINATES

(N) 351,538
(E) 1,870,889

CARBON FUEL COORDINATES

(N) 13,176
(E) 16,287

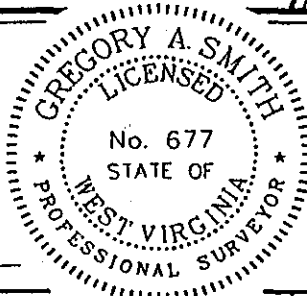
NOTES ON SURVEY

1. TIES TO WELLS, CORNERS AND REFERENCES ARE BASED ON STATE PLANE GRID NORTH WV SOUTH ZONE NAD '27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM LEASE BOOK 140 AT PAGE 465 ALONG WITH MAPS AND INFORMATION PROVIDED BY GARY PERSINGER OF PENN VIRGINIA OPERATING CO., LLC.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF RALEIGH COUNTY IN DECEMBER, 2001.
4. 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 JULY 22, 20 02
 OPERATORS WELL NO. WV 508307R
 API WELL NO. 47-081-1267
 STATE COUNTY PERMIT

REVISED

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 3851P508307R (121-04) & (127-22)
 PROVEN SOURCE OF ELEVATION ELK RUN COAL CO. CONTROL PT. LE1 ELEV. = 1,403.70' SCALE 1" = 2000'

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 1,765' WATERSHED LAUREL BRANCH OF CLEAR FORK
 DISTRICT CLEAR FORK COUNTY RALEIGH QUADRANGLE DOROTHY 7.5'

SURFACE OWNER PENN VIRGINIA OPERATING COMPANY, LLC ACREAGE 8,406

ROYALTY OWNER PENN VIRGINIA OIL & GAS CORPORATION LEASE ACREAGE 8,406

PROPOSED WORK : LEASE NO. 009965

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 6,480'

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

AUG 2 2002

LONGITUDE 81°25'00"

098.2'

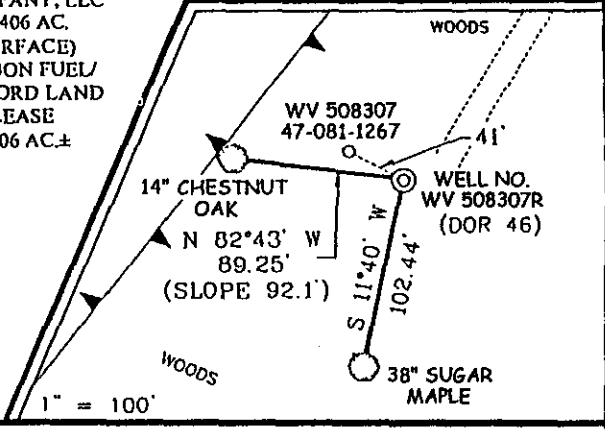
LAT. 37°57'52.4"

COUNTY NAME RAL

PERMIT 1267 REV.

2.44
1.74

REFERENCES



CARBON FUEL COMPANY LEASE 8,406 ACRES ± WELL NO. WV 508307

LEASE DESC. CALL
S 18° W 13.365'

PENN VIRGINIA
OPERATING
COMPANY, LLC
8,406 AC.

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2,954.59 AC.
(SURFACE)

LEASE DESC. CALL
S 32° W 9,652.5'

PENN VIRGINIA
OPERATING
COMPANY, LLC
47-039-3637

PATRICIA A. FORD ET AL
1,637.149 AC.± (SURFACE)
KANAWHA VALLEY BANK
LEASE
5,626 AC.±

T-RAIL
(FOUND)

70 ACRES
TCT.

WELL NO. WV 508307
STATE PLANE
COORDINATES

(N) 351,544
(E) 1,870,840

CARBON FUEL
COORDINATES

(N) 13,195
(E) 15,211

NOTES ON SURVEY

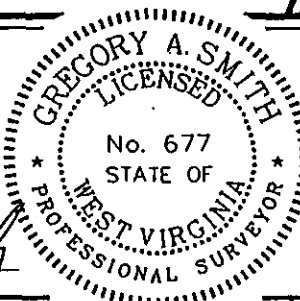
1. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV SOUTH ZONE NAD '27.
2. TIES TO REFERENCES ARE BASED ON MAGNETIC NORTH 2-18-02.
3. LEASE BOUNDARY SHOWN HEREON TAKEN FROM A LEASE BOOK 140 AT PAGE 465 ALONG WITH MAPS AND INFORMATION PROVIDED BY GARY PERSINGER OF PENN VIRGINIA OPERATING CO., LLC.
4. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF RALEIGH COUNTY IN DECEMBER 2001.
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P.S.
677

Gregory A. Smith



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

DATE MARCH 6 . 20 02

OPERATORS WELL NO. WV 508307

API WELL NO. 47-81-01267
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 3851P508307 (121-04)
PROVEN SOURCE OF ELEVATION ELK RUN COAL CO. CONTROL PT. LE1 ELEV. = 1,403.70'
SCALE 1" = 2000'

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 1,752' WATERSHED LAUREL BRANCH OF CLEAR FORK
DISTRICT CLEAR FORK COUNTY RALEIGH QUADRANGLE DOROTHY 7.5'

SURFACE OWNER PENN VIRGINIA OPERATING COMPANY, LLC ACREAGE 8,406
ROYALTY OWNER PENN VIRGINIA OIL & GAS CORPORATION 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 6,470' ~~6,600'~~

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

LONGITUDE 81°25'00"

058.1

LAT. 37°57'52.5"

COUNTY NAME

PERMIT

1267

6-6 262

APR 5 2002

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

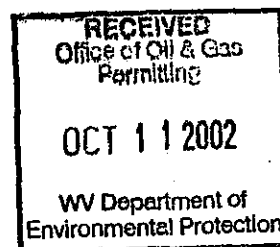
Well: WV-508307-Carbon Fuel

API# 47-081-01267

Date	08/01/02	08/01/02	08/01/02			
Type/Frac	N ₂	N ₂	Variable Q			
Acid, N ₂ , Foam, Water			Foam			
Zone Treated	Lower Shale	Upper Shale Gordon Berea	Weir			
# Perfs	60	40	20			
From - To:	4297' - 5298'	3436'-4181'	3052' - 3084'			
BD Pressure @ psi	3000	2290	850			
ATP psi	2511	2165	1805			
Avg. Rate, B=B/M, S= SCF/M	51,803 S	51,179	24 B (foam)			
Max. Treat Press psi	2550	2290	1900			
ISIP psi	1780	1680	260			
Frac Gradient	.44	.51	.52			
10 min S-I Pressure	1700	1360	1150			
Material Volume						
Sand-sks			507			
Water-bbl			207			
SCF N ₂	1,055,123	781,326	419,934			
Acid-gal	750 gal 7 ½%	600 gal 7 ½%	500 gal 15%			
NOTES:						

TOP BOTTOM FORMATION REMARKS

		Coal	310'-312'; 360'-363'; 410'-417' Water @ 40', 450', 1130'
2483'	2524'	Lower Maxton	GT @ 2503' = NS
2546'	2618'	Little Lime	GT @ 2599' = odor
2636'	2892'	Big Lime	GT @ 2787' = odor
2964'	2988'	Big Injun	GT @ 2942' = odor
3040'	3048'	Upper Weir	GT @ 3132' = odor
3052'	3104'	Middle Weir	GT @ 3258' = NS
3170'	3184'	Lower Weir	GT @ 3479' = NS
3416'	3434'	Sunbury	GT @ 3826' = NS
3434'	3477'	Berea	GT @ 3920' = NS
3730'	3747'	Gordon	GT @ 4204' = NS
4633'		Lower Huron	GT @ 4505 = odor
4660'	4746'	Lower Huron	GT @ 4819' = odor
		Siltstone	
	5380'	TD	GT @ 5100' = odor



State of West Virginia
Division of Environmental Protection
Section of Oil and Gas

Reviewed APF

Well Operator's Report of Well Work

Farm Name: Penn Virginia Operating

Operator Well No.: 508307

LOCATION: Elevation: 1752'

Quadrangle: Dorothy

District: Clear Fork

County: Raleigh

Latitude: 12,850	Feet South of	38	Deg.	0	0
Longitude: 9210	Feet West of	81	Deg.	25	0

Company: Equitable Production Company
P.O. Box 2347, 1710 Pennsylvania Avenue
Charleston, WV 25328

Agent: Stephen G. Perdue

Inspector: Ofie Helmick

Permit Issued: 4/1/2002

Well work commenced: 07/19/02

Well work completed: 08/07/02

Verbal Plugging

Permission granted on:

Rotary Rig Cable Rig

Total Depth 5380 feet

Fresh water depths (ft) 40'; 450'

Salt water depths (ft) 1130'

Is coal being mined in area?

Coal Depths (ft): 310'-312'; 360'-363'; 410'-417'

Casing & Tubing Size	Used In Drilling	Left in Well	Cement Fill Up Cu. Ft.
13 3/8"	32'	32'	grouted
9 5/8"	825'	825'	492.25 ft³
7"	2428'	2428'	528.8 ft³
4 1/2"	5342'	5342'	441.44 ft³
2 3/8"		5219'	

OPEN FLOW DATA

Producing formation Lower Shale; Upper Shale / Gordon / Berea; Weir

Pay Zone Depth (ft):

See Attach for details

Gas: Initial open flow 0 MCF/d

Oil: Initial open flow Bbl/d

Final open flow: 1216 MCF/d

Final open flow: Hours

Time of open flow between initial and final tests

Static rock pressure 772 psig (surface pressure) after 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: Hours

Time of open flow between initial and final tests

Static rock pressure psig (surface pressure) after Hours

RECEIVED
Office of Oil & Gas
Permitting
OCT 11 2002
WV Department of
Environmental Protection

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.

Kathy L. Inouye
For: Equitable Production Company

By: Robert A. Davis
Date: 10/7/02

OCT 25 2002

RAE 1267