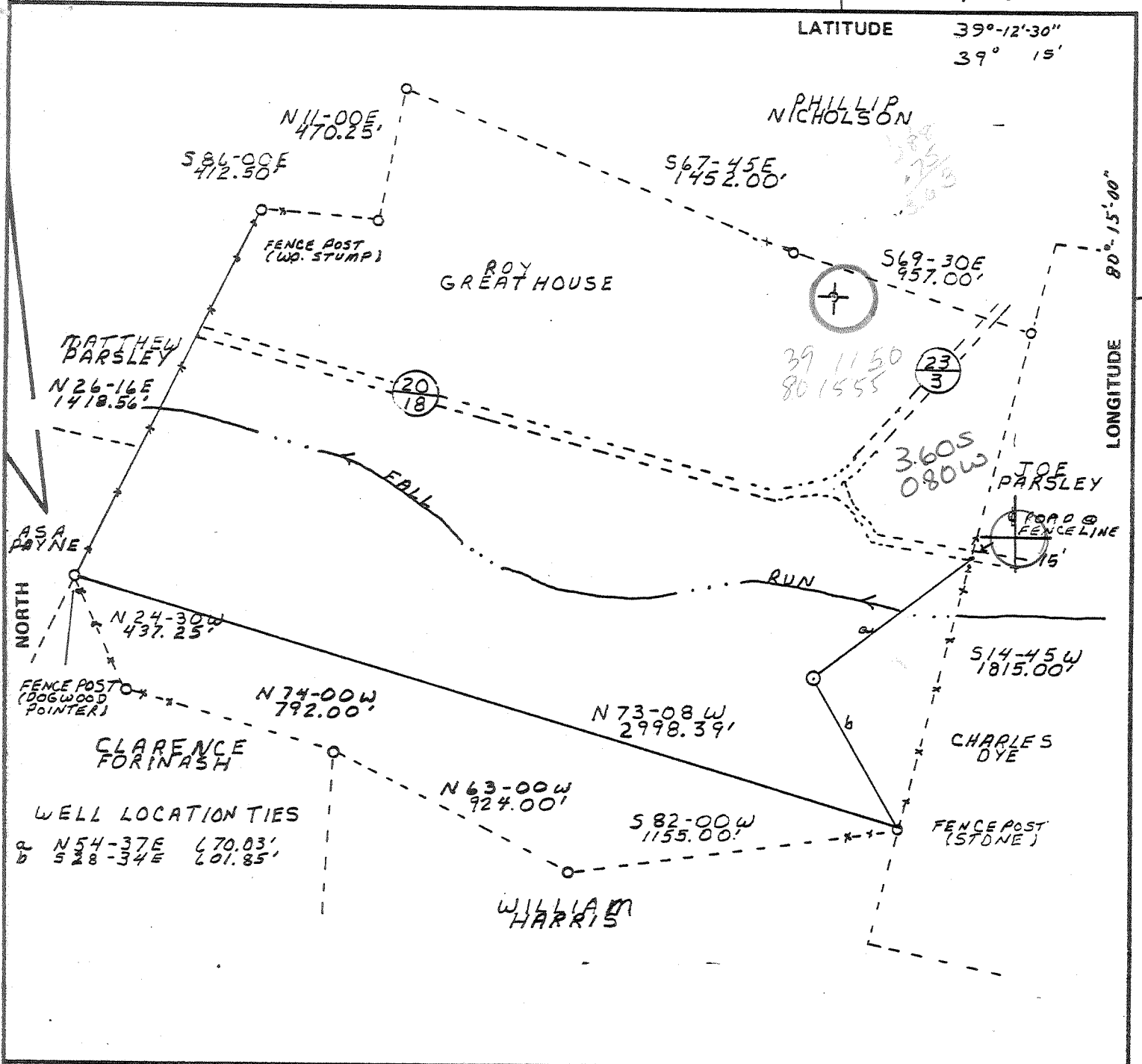


LATITUDE 39°-12'-30"
39° 15'

LONGITUDE 80°-15'-00"



FILE NO. _____
DRAWING NO. _____
SCALE 1" = 500'
MINIMUM DEGREE OF ACCURACY 1 PART IN 200
PROVEN SOURCE OF ELEVATION B.M. @ JCT OF CA RTS. 20/18 & 23/3

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) Burl Smith
R.P.E. 6988 L.L.S. _____
SMITH ENG'G CO. BUCK HANNON W.V.

PLACE SEAL HERE

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



DATE MAY 14, 1981
OPERATOR'S WELL NO. 1
API WELL NO. 47-033-2613
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 X STORAGE ___ DEEP ___ SHALLOW ___
LOCATION: ELEVATION 1150' WATER SHED FALL RUN
DISTRICT ELK COUNTY HARRISON
QUADRANGLE MOUNT CLARE NE Weston
SURFACE OWNER ROY GREAT HOUSE ACREAGE 141
OIL & GAS ROYALTY OWNER ROY GREAT HOUSE LEASE ACREAGE 141
LEASE NO. _____
PROPOSED WORK: DRILL X 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 Benson ESTIMATED DEPTH 4800'
WELL OPERATOR PETROLEUM DEV. CORP. DESIGNATED AGENT PETROLEUM DEV. CORP.
ADDRESS 103 E. MAIN ST. BRIDGEPORT WV 26330 ADDRESS 103 E. MAIN ST. BRIDGEPORT, WV 26330

JUN 4 1981



IV-35
(Rev 8-81)

RECEIVED

AUG 16 1982

OIL AND GAS DIVISION
WV DEPARTMENT OF MINES

State of West Virginia
Department of Mines
Oil and Gas Division

Date _____
Operator's _____
Well No. ONE (1)
Farm ROY GREATHOUSE
API No. 47 - 033 - 2613

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 ___)

LOCATION: Elevation: 1150' Watershed _____
District: ELK County HARRISON Quadrangle MOUNT CLARE

COMPANY PETROLEUM DEVELOPMENT CORPORATION
ADDRESS P.O. BOX 26 BRIDGEPORT WV 26330
DESIGNATED AGENT _____
ADDRESS _____
SURFACE OWNER ROY GREATHOUSE ESTATE % UNION NAT. BANK
ADDRESS P.O. BOX 2330 CLARKSBURG WV
MINERAL RIGHTS OWNER SAME AS ABOVE
ADDRESS _____
OIL AND GAS INSPECTOR FOR THIS WORK _____
ADDRESS _____
PERMIT ISSUED 5/19/81
DRILLING COMMENCED 6/10/81
DRILLING COMPLETED 6/16/81

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	40'	40'	circulate
9 5/8			
8 5/8	736'	736'	circulate
7			
5 1/2			
4 1/2	1532'	1532'	132 sks
3			
2			
Liners used			

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

GEOLOGICAL TARGET FORMATION BENSON Depth 4282 feet

Depth of completed well 4505 feet Rotary X / Cable Tools _____

Water strata depth: Fresh 221', 49 feet; Salt _____ feet

Coal seam depths: 221, 536, 542 Is coal being mined in the area? NO

OPEN FLOW DATA

Producing formation BIG INJUN Pay zone depth 1386-1434 feet

Gas: Initial open flow 1858 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 700 psig (surface measurement) after 24 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)

AUG 23 1982

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

BIG INJUN 80 tons CO₂ 250 bbl H₂O 30,000 = 20/40. 1000 gal. acid MCA
3/4 lb. sand/gal.

CO₂ FRAC

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
K.B. - G.L.			0	10'	
Sand, shale			10'	221'	1/2" stream of H ₂ O @ 221'
Coal			221'	225'	
Sand, shale, red rock			225'	536'	1 1/2" stream of H ₂ O @ 492'
Coal			536'	540'	
Shale			540'	542'	
Coal			542'	547'	
Sand, shale, red rock			547'	1295'	
Big Lime			1295'	1355'	
Big Injun			1355'	1482'	
Sand, shale			1482'	1746'	
Gantz			1746'	1804'	
Sand, shale			1804'	1817'	
50 Ft.			1817'	1878'	
Sand, shale			1878'	1902'	
30 Ft.			1902'	1947'	
Sand, shale			1947'	1970'	
Gordon Stray/Gordon			1970'	2078'	Gas check @ 2059' - NO SHOW
Sand, shale			2078'	2110'	
4Th			2110'	2155'	
Sand, shale			2155'	2254'	
5TH			2254'	2296'	
Sand, shale			2296'	2732'	Gas check @ 2403' 2/10 H ₂ O = 1/2"
Upper Speechley			2732'	2772'	
Sand, shale			2772'	2901'	
Speechley			2901'	2914'	
Sand, shale			2914'	3078'	
Balltown			3078'	3162'	
Sand, shale			3162'	3386'	
Bradford			3386'	3406'	
Sand, shale			3406'	3956'	
Riley			3956'	4095'	
Sand, shale			4095'	4282'	
Benson			4282'	4333'	
Sand, shale			4333'	4505' TD	Gas check @ TD 15/10 H ₂ O = 1"

(Attach separate sheets as necessary)

PETROLEUM DEVELOPMENT CORPORATION P.O. BOX 26 BRIDGEPORT

Well Operator

By:

Date:

John Mitchell

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."



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES

Oil and Gas Division

RECEIVED

MAY 20 1981

OIL & GAS DIVISION
DEPT. OF MINES

OIL AND GAS WELL PERMIT APPLICATION

TO THE DEPARTMENT OF MINES,
Charleston, W. Va.

DATE May 19, 1981

Surface Owner Roy Greathouse Estate

Company Petroleum Development Corporation

Address %Union National Bank

Address P.O. Box 26 Bridgeport, WV 26330

Mineral Owner P. O. Box 2330

Farm Roy Greathouse Acres 141

Address Clarksburg, WV 26301

Location (waters) Fall Run

Mineral- Same as above

Well No. 1 (One) Elevation 1150'

Coal Owner Same as above

District Elk County Harrison

Coal Address Same as above

Coal Operator _____

Quadrangle Mount Clare

Address _____

THIS PERMIT MUST BE POSTED AT THE WELL SITE

All provisions being in accordance with Chapter 22, of the W. Va. Code, the location is hereby approved for Drilling. This permit shall expire if operations have not commenced by 1-22-82

INSPECTOR

TO BE NOTIFIED Stephen Casey

ADDRESS Rt. 2 Box 232-D Jane Lew, WV 26378

PHONE 884-7470

John B. Mitchell
Deputy Director - Oil & Gas Division

GENTLEMEN:

The undersigned well operator is entitled to drill upon the above named farm or tract of land for oil and gas, having fee title thereto, (or as the case may be) under grant or lease dated June 19th 1978 by Roy Greathouse made to Petroleum Development and recorded on the 14th day of July 1978, in Harrison County, Book 1068 Page 822

XX NEW WELL _____ DRILL DEEPER _____ REDRILL _____ FRACTURE OR STIMULATE
_____ OIL AND GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1969.

The enclosed plat was prepared by a registered engineer or licensed land surveyor and all coal owners and/or operators have been notified as of the above date.

The above named coal owners and/or operator are hereby notified that any objection they wish to make, or are required to make by Section 3 of the Code, must be received by, or filed with the Department of Mines within ten (10) days. *

Copies of this notice and the enclosed plat were mailed by registered mail, or delivered to the above named coal operators or coal owners at their above shown respective address _____ day _____ before, or on the same day with the mailing or delivery of this copy to the Department of Mines at Charleston, West Virginia.

PLEASE SUBMIT COPIES OF ALL
GEOPHYSICAL LOGS DIRECTLY TO:

WEST VIRGINIA GEOLOGICAL AND
ECONOMIC SURVEY
P. O. BOX 879
MORGANTOWN, WEST VIRGINIA 26505
AC-304 - 292-6331

Very truly yours,

(Sign Name) John B. Mitchell
Well Operator
Petroleum Development Corporation

Address
of
Well Operator

P. O. Box 26
Street
Bridgeport
City or Town
West Virginia 26330
State

*SECTION 3. . . . If no objections are filed or found by the Department of Mines, within said period of ten days from the receipt of notice and plat by the department of mines, to said proposed location, the department shall forthwith issue to the well operator a permit reciting the filing of such plat, that no objections have been made by the coal operators or found thereto by the department and that the same is approved and the well operator authorized to proceed.

BLANKET BOND

47-033-2613 _____ PERMIT NUMBER

"I have read and understand the reclamation requirements as set forth in Chapter 22, Article 4, Section 12(b) and will carry out the specified requirements."

Signed by _____

G. Sw.

THIS IS AN ESTIMATE ONLY
ACTUAL INFORMATION WILL BE SUBMITTED ON OG-10 UPON COMPLETION

PROPOSED WORK ORDER TO XX DRILL _____ DEEPEN _____ FRACTURE-STIMULATE _____
 DRILLING CONTRACTOR: (If Known) _____ RESPONSIBLE AGENT: _____
 NAME Unknown _____ NAME Petroleum Development Corporation _____
 ADDRESS _____ ADDRESS P. O. Box 26 Bridgeport, WV _____
 TELEPHONE _____ TELEPHONE (304) 842-6256 _____
 ESTIMATED DEPTH OF COMPLETED WELL: 4800' _____ ROTARY XX _____ CABLE TOOLS _____
 PROPOSED GEOLOGICAL FORMATION: Benson _____
 TYPE OF WELL: OIL _____ GAS XX _____ COMB. _____ STORAGE _____ DISPOSAL _____
 RECYCLING _____ WATER FLOOD _____ OTHER _____

TENTATIVE CASING PROGRAM:

CASING AND TUBING SIZE	USED FOR DRILLING	FEET IN WELL	CEMENT III UP OR SACKS - CUBIC FT.
11 3/4	20	20	Surface
5 8	1100	1100	Cement to surface
5 8	4900	4900	400 sax
			Perf. Top
			Perf. Bottom
			Perf. Top
			Perf. Bottom

APPROXIMATE FRESH WATER DEPTHS 40 FEET _____ SALT WATER _____ FEET _____
 APPROXIMATE COAL DEPTHS N/A _____
 IS COAL BEING MINED IN THE AREA? NO _____ BY WHOM? _____

TO DRILL: _____
 SUBMIT FIVE (5) COPIES OF OG - 1, \$100.00 PERMIT FEE, PERFORMANCE BOND AND PERMANENT COPY OF PLAN.

TO DRILL DEEPER OR REDRILL: _____
 SUBMIT FIVE (5) COPIES OF OG - 1, SHOWING ORIGINAL PERMIT NUMBER AND PERFORMANCE BOND. ON WELLS DRILLED PRIOR TO 1929, A PERMANENT COPY OF THE PLAN AND THE ORIGINAL WELL RECORD MUST ALSO BE SUBMITTED.

TO FRACTURE - STIMULATE: _____
 OIL AND/OR GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1929, FIVE (5) COPIES OG - 1, PERFORMANCE BOND, PERMANENT PLAN AND ORIGINAL WELL RECORD.

OIL AND/OR GAS WELL ORIGINALLY DRILLED ON AND/OR AFTER JUNE 5, 1929, FIVE COPIES OG - 1, SHOWING ORIGINAL PERMIT NUMBER, AND PERFORMANCE BOND.

Required forms must be filed within ninety (90) days of completion for bond release. Inspector to be notified twenty-four (24) hours in advance.

The following waiver must be completed by the coal operator if the permit is to be issued within ten days of receipt of permit.

WAIVER: I, the undersigned, Agent for _____ Coal Company, Owner or Operator of the coal under this lease have examined and place on our mine maps this proposed well location.

We the _____ Coal Company have no objections to said well being drilled at this location, provided the operator has complied with all rules and regulations in Articles 1, 5, and 7, Chapter 22 of the West Virginia Code.

 Coal Company

Official Title