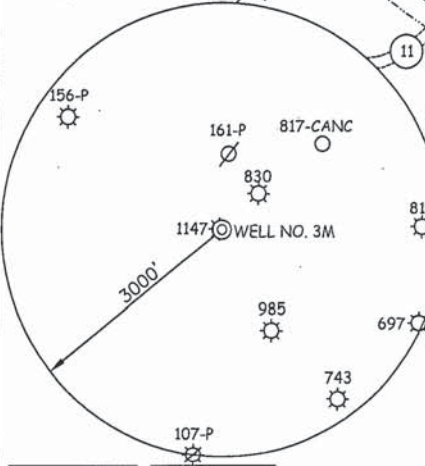


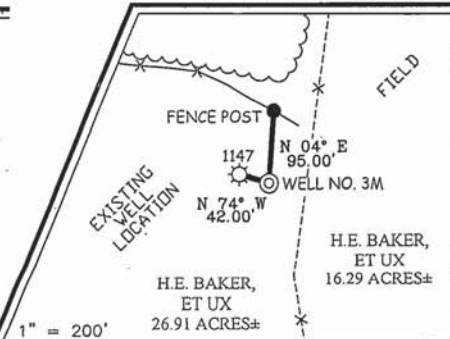
WELL NO. 3M  
STATE PLANE  
COORDINATES(NAD '27)  
(N) 299,041  
(E) 1,827,591



**NOTES ON SURVEY**

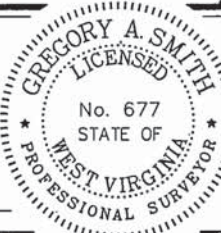
1. TIES TO WELLS AND CORNERS ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD '27.
2. TIES TO REFERENCES ARE BASED ON MAGNETIC NORTH 08/14/09.
3. LEASE BOUNDARY SHOWN HEREON TAKEN FROM A WELL PLAT DATED AUGUST 13, 1992 FOR A.P.I. NO. 47-091-0830 AS PREPARED BY DAVID L. JACKSON.
4. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF TAYLOR COUNTY IN JULY, 2008.
5. WELL LAT./LONG. ESTABLISHED BY DGPS(SUBMETER MAPPING GRADE).

**REFERENCES**



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 AUGUST 17, 20 09  
OPERATORS WELL NO. H. BAKER NO. 3M  
API  
WELL NO. 47 — WAD  
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 6612P3 (286-09)  
PROVEN SOURCE OF ELEVATION DGPS (SUBMETER MAPPING GRADE) SCALE 1" = 400'

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 1,290' WATERSHED LOST RUN  
DISTRICT BOOTH'S CREEK COUNTY TAYLOR QUADRANGLE GRAFTON 7.5'

SURFACE OWNER HARRY E. BAKER, ET UX ACREAGE 26.91±  
ROYALTY OWNER HARRY E. BAKER, ET UX LEASE ACREAGE 49.75±  
PROPOSED WORK: LEASE NO. 435300

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 MARCELLUS  
ESTIMATED DEPTH 8,050'

WELL OPERATOR PETROLEUM DEVELOPMENT CORP. DESIGNATED AGENT ALAN H. SMITH  
ADDRESS 120 GENESIS BOULEVARD ADDRESS 120 GENESIS BOULEVARD  
BRIDGEPORT, WV 26330 BRIDGEPORT, WV 26330

COUNTY NAME  
PERMIT

WR-35  
Rev (9-11)

State of West Virginia  
Department of Environmental Protection  
Office of Oil and Gas  
Well Operator's Report of Well Work

DATE: 02/04/2013  
API #: 47-091-01160

Farm name: Baker, Harry E. Operator Well No.: H Baker 3M

LOCATION: Elevation: 1,290' Quadrangle: Grafton 7.5'

District: Booths Creek County: Taylor  
Latitude: 5,030 Feet South of 39 Deg. 20 Min. 00 Sec.  
Longitude 7,380 Feet West of 80 Deg. 05 Min. 00 Sec.

Company: Petroleum Development Corporation

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
<u>120 Genesis Boulevard</u> <u>Bridgeport, WV 26330</u>	<u>16"</u>	<u>32'</u>		
Agent: <u>Bob Williamson</u>	<u>11 3/4"</u>	<u>415'</u>	<u>415'</u>	<u>308</u>
Inspector: <u>Joe McCourt</u>	<u>8 5/8"</u>	<u>2016'</u>	<u>2016'</u>	<u>666</u>
Date Permit Issued: <u>09/04/2009</u>	<u>5 1/2"</u>	<u>7840'</u>	<u>7840'</u>	<u>1097</u>
Date Well Work Commenced: <u>09/14/2009</u>				
Date Well Work Completed: <u>10/29/2009</u>	<u>2 3/8"</u>		<u>7676'</u>	
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): <u>7894'</u>				
Total Measured Depth (ft): <u>7894'</u>				
Fresh Water Depth (ft.): <u>125', 375'</u>				
Salt Water Depth (ft.): <u>N/A</u>				
Is coal being mined in area (N/Y)? <u>N</u>				
Coal Depths (ft.): <u>250'</u>				
Void(s) encountered (N/Y) Depth(s) <u>N</u>				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 7750'  
Gas: Initial open flow NT MCF/d Oil: Initial open flow ----- Bbl/d  
Final open flow 350 MCF/d Final open flow ----- Bbl/d  
Time of open flow between initial and final tests ----- Hours  
Static rock Pressure 1200 psig (surface pressure) after 48 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 ----- Bbl/d  
Time of open flow between initial and final tests ----- Hours  
Static rock Pressure ----- psig (surface pressure) after ----- Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.

  
Signature

02/07/2013  
Date

Were core samples taken? Yes \_\_\_\_\_ No XX

Were cuttings caught during drilling? Yes XX No \_\_\_\_\_

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Mud Log from 5850'- TD. Schlumberger  
Dens/Neu/GR/Cal/PE from 70' - 7875' & Dens/Neu/LaterLog/GR/Cal from 2036' - 7875'. Schlum. Comp Sonic/GR/Cal from 2036'-7875'. Holwell CBL/GR log from 1700' -7810'.

**NOTE: IN THE AREA BELOW 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 THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.**

Perforated Intervals, Fracturing, or Stimulating:

10/26/2009: MIRU Holwell & run CBL/GR from 7810' - 1700' with cmt top @ 1970'. Perf Marcellus from 7765-85, 7741-56, & 7688-98. Frac'd the Marcellus perms as a single stage The job was a slickwater frac with 3899 sks of 100 mesh and 5522 sks of 40/70 mesh white sands. The clean volume pumped was 21,985 bbl. The breakdown pressure was 4453 psi, with an initial ISIP of 3892 psi (FG=0.94). The well treated at an average rate of 88.5 bpm with an average treating pressure of 5627 psi.

The final pressures were as follows: ISIP, 4158 psi. 5 min shut-in, 3381 psi. 10 min shut-in, 3302 psi. 15 min shut-in, 3271 psi.

Plug Back Details Including Plug Type and Depth(s):

Formations Encountered: Surface:	Top Depth		/	Bottom Depth		
Little Lime	1436	1448	Tully	7456	7520	
Big Lime	1474	1588	Marcellus	7698	7794	Gas
Injun	1590	1650	Onondaga	7794	7806	
Gantz	1876	1956	Huntersville	7806	7894	MD-TD
50 Foot	2006	2050				
30 Foot	2052	2076				
Gordon	2167	2173				
4th Sand	2420	2500				
5th Sand	2530	2578				
Balltown	2900	3163				
Riley	3718	4220				
Benson	4505	4552				
Elks	4745	5535				
Sycamore	6774	6882	Gas			
Geneseo	7446	7456	Gas			



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**west virginia** department of environmental protection

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Office of Oil and Gas  
601 57th Street SE  
Charleston, WV 25304  
(304) 926-0450  
(304) 926-0452 fax

Joe Manchin III, Governor  
Randy C. Huffman, Cabinet Secretary  
[www.wvdep.org](http://www.wvdep.org)

September 04, 2009

**WELL WORK PERMIT**

**New Well**

This permit, API Well Number: 47-9101160, issued to PETROLEUM DEVELOPMENT CORPORATION, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, well operators report of well work, is to be submitted to this office within 90 days of completion of drilling, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin  
Chief

Operator's Well No: H BAKER 3M  
Farm Name: BAKER, HARRY E.  
**API Well Number: 47-9101160**  
**Permit Type: New Well**  
Date Issued: 09/04/2009

**Promoting a healthy environment.**



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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street, SE Charleston, WV 25304  
(304)926-0499, Ext 1656

Joe Manchin III, Governor  
Randy C. Huffman, Cabinet Secretary  
[www.wvdep.org](http://www.wvdep.org)

September 4, 2009

Department of Environmental Protection  
Office of Oil and Gas  
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-091-01160

COMPANY: Petroleum Development Corporation

FARM: H Baker #3M

COUNTY Taylor DISTRICT: Booths Creek QUAD: Grafton

The application for the above company is APPROVED FOR ORISKANY.  
*Marcellus completion*

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners; N/A
2. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells, well name, and the name and address of the operator; NONE
3. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

Cindy Raines  
Executive Assistant



west virginia department of environmental protection

Oil and Gas Conservation Commission  
601.57<sup>th</sup> Street, SE Charleston, WV 25304  
(304)926-0499, Ext 1656

Joe Manchin III, Governor  
Randy C. Huffman, Cabinet Secretary  
www.wvdep.org

September 4, 2009

Department of Environmental Protection  
Office of Oil and Gas  
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-091-01147

COMPANY: Petroleum Development Corporation

FARM: H Baker #2

COUNTY Taylor DISTRICT: Booths Creek QUAD: Grafton

The application for the above company is WITHDRAWN FOR THE ORISKANY.

*Withdrawn due to drilling problems, well to be completed in a shallow zone, PDC wishes to drill H Baker 3 wells which is within 3,000' of H Baker #2 therefore OGCC is withdrawing deep well approval for H Baker #2*

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners; N/A
2. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells, well name, and the name and address of the operator; NONE
3. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

Cindy Raines  
Executive Assistant

WR-35  
-Rev (5-01)

DATE 8-31-2009

API #: 47-091-01147

File with API

47-091-01160

State of West Virginia  
Department of Environmental Protection  
Office of Oil and Gas

Well Operator's Report of Well Work

Farm name: Baker, Harry E.  
LOCATION Elevation: 1290'

Operator Well No.: H Baker 2  
Quadrangle: Grafton

District: Booths Creek County: Taylor  
Latitude: 7,420 Feet of South 39 Deg. 20 Min. 00 Sec.  
Longitude: 5,020 Feet of West 80 Deg. 05 Min. 00 Sec.

Company: Petroleum Development Corporation

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: 120 Genesis Boulevard	11-3/4"	44'	44'	
Bridgeport, WV 26330	8-5/8"	1264'	1264'	355 sks.
Agent: Alan H. Smith	4-1/2"	5020'	5020'	510 sks.
Inspector: Bryan Harris				
Date Permit Issued: 6/9/2009				
Date Well Work Commenced: 07/27/2009				
Date Well Work Completed				
Verbal Plugging: Plug back				
Date Permission granted on:				
Rotary X Cable Rig				
Total Depth (feet): 6400' plug back				
Fresh Water Depth (ft.): 125,375'				
Salt Water Depth (ft.): N/A				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 250'				

Target formation to be Elk/Benson and shallower.

Drillers TD 7434'  
Fish from 6850' to 7434'  
120' void from 6730' to 6850'  
330' cement plug from 6400' to 6730'  
Cement to top from 6400' to 5020'  
5020' of 4-1/2" casing

91-01147  
 Keep with  
 91-01160

H. Baker #2  
 47-091-1147

FORMATION	WELL LOG		REMARKS: FRESH & SALT WATER, COAL, OIL & GAS
	TOP FEET	BOTTOM FEET	
		0	
sand, shale, RR	0	1314	
Little Lime	1314	1329	
sand, shale	1329	1374	
Big Lime	1374	1506	
sand, shale	1506	1560	
Keener	1560	1595	
sand, shale	1595	1605	
Big Injun	1605	1660	
sand, shale	1660	1715	
Weir	1715	1735	
sand, shale	1735	1935	
Gantz	1935	1945	
sand, shale	1945	1990	
50 ft	1990	1990	
sand, shale	1990	2060	
30 ft	2060	2075	
sand, shale	2075	2150	
Gordon	2150	2165	
sand, shale	2165	2430	
4th	2430	2475	
sand, shale	2475	2520	
5th	2520	2560	
sand, shale	2560	2615	
Bayard	2615	2625	
sand, shale	2625	2685	
Elizabeth	2685	2705	
sand, shale	2705	2900	
Speechley	2900	3265	
sand, shale	3265	3350	
Balltown	3350	3680	
sand, shale	3680	3700	
Bradford	3700	3780	
sand, shale	3780	3975	
Riley	3975	4070	
sand, shale	4070	4170	
Benson	4170	4220	
sand, shale	4220	4820	
Elk	4820	4850	
sand, shale	4850	7434	Drillers TD
		4951	Logger TD



91-01160

Form: WW - 2B

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WELL WORK PERMIT APPLICATION

1) Well Operator Petroleum Development Corp.      308153      Taylor      Booths Creek      Grafton  
Operator ID      County      District      Quadrant

2) Operators Well Number: Harry Baker #3M      3) Elevation: 1,290'

4) Well Type: (a) Oil \_\_\_\_\_ or Gas X  
 (b) If Gas: Production X / Underground Storage \_\_\_\_\_  
 Deep X / Shallow \_\_\_\_\_

5) Proposed Target Formation(s): Oriskany

6) Proposed Total Depth: 8,050  
 7) Approximate fresh water strata depths: 125, 375  
 8) Approximate salt water depths: None Reported

9) Approximate coal seam depths: 250'

10) Does land contain coal seams tributary to active mine? No

11) Describe proposed well work Drill and 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	16"	H-40	42#	40'	40'	-
Fresh Water	11 3/4"	H-40	32#	425'	425'	CTS
Coal						
Intermediate	8 5/8"	H-40	20/24#	2,000'	2,000'	CTS
Production	5 1/2"	N-80	17#	7,850'	7,850'	275 SKS
Tubing						
Liners						

Packers: Kind  
 Sizes

Depths Set

B.O.H.  
 8-19-9

91-01160

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**WELL WORK PERMIT APPLICATION**

1) Well Operator Petroleum Development Corp. 308153 Taylor Booths Creek Grafton 7.5'  
 Operator ID County District Quadrangle

2) Operator's Well Number: H. Baker #3M 3) Elevation: 1290'

4) Well Type: (a) Oil \_\_\_\_\_ or Gas X  
 (b) If Gas: Production X / X Underground Storage \_\_\_\_\_  
 Deep X / \_\_\_\_\_ Shallow \_\_\_\_\_

5) Proposed Target Formation(s): Marcellus

6) Proposed Total Depth: 8050 Feet

7) Approximate fresh water strata depths: 125, 375'

8) Approximate salt water depths: None

9) Approximate coal seam depths: 250'

10) Does land contain coal seams tributary to active mine? No

11) Describe proposed well work To Drill and Stimulate a New Well

**RECEIVED**  
 Office of Oil & Gas  
 AUG 25 2009

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	16"	H-40	42#	40'	40'	
Fresh Water	11 3/4"	H-40	32#	425'	425'	CTS
Coal						
Intermediate	8 5/8"	H-40	20/24#	2000'	2000'	CTS
Production	5 1/2"	N-80	17#	7950'	7850'	275 SKS
Tubing						
Liners						

Packers: Kind \_\_\_\_\_  
 Sizes \_\_\_\_\_  
 Depths Set \_\_\_\_\_

**RECEIVED**  
 Office of Oil & Gas  
 AUG 25 2009

B.O.H.  
 8-19-09 **RECEIVED**  
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 AUG 25 2009

# 141911  
 \$906

WV Department of Environmental Protection

WV Department of Environmental Protection