WR-35 Rev (5-01)

DATE: 4/23/2010
API # :47- 007-02590

GS

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

Farm name: Nicholson, Freeman J. Operator Well No.: Nicholson #1
LOCATION:
Elevation: 944' Quadrangle: Burnsville
District: Salt Lick County: Braxton
Latitude: 3600 Feet South of 38 Deg. 86 Min 51.2 Sec.
Longitude 3300 Feet West of 80 Deg. 67 Min. 83.8 Sec.
Company: Ramsey Associated Petroleum, Inc.

		Casing & Tubing	Used in drilling	Left in well	Cement fill Up. Cu. Ft.
Address:	P.O. Box 90	9 5/8"		42.7'	
	Glenville, WV 26351	7"		934.8	Surface
Agent:	Leon Ramsey				
Inspector:	Dave Gilbert	4 ½"		5052'	4000'
Date Permit Issued:	8/14/08				
Date Well Work Commenced:	9/06/08				
Date Well Work Completed:	9/28/08				
Verbal Plugging:					
Date Permission granted on:					
Rotary X Cable	Rig				
Total Depth (feet):	5084'				
Fresh Water Depth (ft.):	80'				
Salt Water Depth (ft.):	N/A				
Is coal being mined in area (N/Y)?	N				
Coal Depths (ft.):					

OPENFLOWDATA

Producing formation Elk-Benson Pay zone depth (ft) 4998' – 4418'
Gas: Initial open flow MCF/d Oil: Initial open flow 0 Bbl/d
Final open flow MCF/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests 24 Hours
Static rock Pressure psig (surface pressure) after 24 Hours

Second producing formation Balltown-Speechly Pay zone depth (ft) 4048' – 2918'
Gas: Initial open flow MCF/d Oil: Initial open flow 0 Bbl/d
Final open flow MCF/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests 24 Hours
Static rock Pressure psig (surface pressure) after 24 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.

Signed: _____

By: LEON RAMSEY Date: 4/23/2010

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SUMMARY OF PROCEDURES AND ESTIMATED FORMATION TOPS FOR
RAMSEY ASSOCIATED PETROLEUM, INC.

Well# Nicholson #1
Lease Name: Nicholson
API# 47-007-02590
Longitude 80' 40' 00
Latitude 38' 52' 30'
Burnsville 7.5' Quadrangle
Elevation 944'
SALT LICK DISTRICT
BRAXTON COUNTY, WEST VIRGINIA

ZONE	DEPTH	GAS CHECK	REMARKS
MAXTON	1538' – 1579'		
3RD SAND	1579' – 1623'		
LITTLE LIME	1701' – 1726'		
BIG LIME	1800' – 1866'		
INJUN	1866' – 1940'		
GORDON	2384' – 2396'		
SPEECHLY	3039' – 3029'		
BALLTOWN	3422' – 3711'		
BENSON	4512' – 4534'		
ELK	4698' – 5006'		

Total Depth 5084'

Perforations & Fracture Treatment
Well Name: Nicholson #1
API # 47-007-2590
T.D. _5052 of 9.50 # 4 ½"

1st Stage- ___Elk_____ (from _4998'___' to _4625'_') Date:__9/26/08_____
900,000 scf N2 Time:_4:30 am_____
500 gal. 15% HCL
with Clay and Iron Stabilizer For:__Meeks_____
_____25____ perforations w/ __11__perforation balls
1, 2, 3 ppg @25-30 BBl per min

1st Baffle @ 4540'=3.00

2nd Stage- __Benson_____ (from _4538_' to _4418___') Date:_9/26/08_____
__60_QF __400__sks 20/40 Time:__6:30 am____
500 gal. 15% HCL For:_Halliburton____
with Clay and Iron Stabilizer
__20____ perforations w/ __11_____perforation balls
1, 2, 3 ppg @25-30 BBl per min

2nd Baffle @ 4084'=3.31"

3rd Stage- _Balltown____ (from __4048_' to _3663_')
900,000 scf N2
500 gal. 15% HCL
with Clay and Iron Stabilizer
____30_____ perforations w/ _15____perforation balls
1, 2, 3 ppg @25-30 BBl per min

3rd Baffle @3526'=3.56"

4th Stage- _Speechly____ (from _3295_' to _2918___')
_60__QF _400_sks 20/40
500 gal. 15% HCL
with Clay and Iron Stabilizer
__37___ perforations w/ _20__perforation balls
1, 2, 3 ppg @25-30 BBl per min

WR-35 Rev (5-01)

DATE: 7/15/2010
API # :047-007-02596

GS

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

Farm name: Blake, George and Pearl
Operator Well No.: Blake #1
LOCATION:
Elevation: 924'
Quadrangle: Burnsville
District: Salt Lick
County: Braxton
Latitude: 470 Feet South of 38 Deg. 45 Min 00 Sec.
Longitude 2180 Feet West of 80 Deg. 37 Min. 30 Sec.
Company: Ramsey Associated Petroleum, Inc.

		Casing & Tubing	Used in drilling	Left in well	Cement fill Up. Cu. Ft.
Address:	P.O. Box 90	7"		760	SURFACE + 25%
	Glenville, WV 26351	4 ½"		4724	3500'
Agent:	Leon Ramsey				
Inspector:	Craig Duckworth				
Date Permit Issued: 11/20/08					
Date Well Work Commenced:	12/09/08				
Date Well Work Completed:	7/30/09				
Verbal Plugging:					
Date Permission granted on:					
Rotary X Cable	Rig				
Total Depth (feet):	5010'				
Fresh Water Depth (ft.):					
Salt Water Depth (ft.):					
Is coal being mined in area (N/Y)?	N				
Coal Depths (ft.):					

OPENFLOWDATA

Producing formation ELK-BENSON Pay zone depth (ft) 4648' – 4247'
Gas: Initial open flow No Test MCF/d Oil: Initial open flow 0 Bbl/d
Final open flow No Test MCF/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure psig (surface pressure) after Hours

Second producing formation BALLTOWN-SPEECHLY Pay zone depth (ft) 3783' – 3157'
Gas: Initial open flow No Test MCF/d Oil: Initial open flow 0 Bbl/d
Final open flow No Test MCF/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure psig (surface pressure) after Hours

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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.

Signed: _____

By: LEON RAMSEY Date: 7/15/2010

SUMMARY OF PROCEDURES AND ESTIMATED FORMATION TOPS FOR
RAMSEY ASSOCIATED PETROLEUM, INC.

Well# Blake #1
Lease Name: Blake
API# 47-007-2596
Longitude 80'37'30'
Latitude 38'45'00'
Burnsville 7.5' Quadrangle
Elevation 924'
SALT LICK DISTRICT
BRAXTON COUNTY, WEST VIRGINIA

ZONE	DEPTH	GAS CHECK	REMARKS
LITTLE LIME	1465'-1495'		
BIG LIME	1612'-1667'		
BIG INJUN	1667'-1755'		
5TH SAND	2387'-2460'		
SPEECHLEY	2916'-3141'		
BALLTOWN	3396'-3814'		
BENSON	4233'-4261'		
ELK	4418'-4877'		

TOTAL DEPTH **5010**

Perforations & Fracture Treatment
Well Name: BLAKE 1
API # 47- 007-02596
T.D. 4724' of 9.50 # 4 ½"

1st Stage- ELK-BENSON (from 4684 ' to 4247 ')
60 QF 400 sks 20/40
500 gal. 15% HCL
with Clay and Iron Stabilizer
16 perforations w/ 6 perforation balls
1, 2, 3 ppg @25-30 BBl per min

2nd Stage- BALLTOWN-SPEECHLY (from 3783 ' to 3157 ')
60 QF 300 sks 20/40
500 gal. 15% HCL
with Clay and Iron Stabilizer
16 perforations w/ 4 perforation balls
1, 2, 3 ppg @25-30 BBl per min

WR-35 Rev (5-01)

DATE: 7/15/2010
API # : 047-007-02597

GS

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

Farm name: Blake, George and Pearl
Operator Well No.: Blake #2

LOCATION:
Elevation: 1161
Quadrangle: Burnsville
District: Salt Lick
County: Braxton
Latitude: 180 Feet South of 38 Deg. 45 Min 00 Sec.
Longitude 3560 Feet West of 80 Deg. 37 Min. 30 Sec.
Company: Ramsey Associated Petroleum, Inc.

	Casing & Tubing	Used in drilling	Left in well	Cement fill Up. Cu. Ft.
Address: P.O. Box 90	7"		768	TO SURFACE + 25%
Glenville, WV 26351	4 ½"		4593	3000'
Agent: Leon Ramsey				
Inspector: Craig Duckworth				
Date Permit Issued: 6/14/05				
Date Well Work Commenced: 12/20/08				
Date Well Work Completed: 7/19/09				
Verbal Plugging:				
Date Permission granted on:				
Rotary X Cable Rig				
Total Depth (feet): 5000'				
Fresh Water Depth (ft.):				
Salt Water Depth (ft.):				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.):				

OPENFLOWDATA

Producing formation BENSON-BALLTOWN Pay zone depth (ft) 4502' – 3836'
Gas: Initial open flow No Test MCF/d Oil: Initial open flow 0 Bbl/d
Final open flow No Test MCF/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure psig (surface pressure) after Hours

Second producing formation SPEECHLY-5TH SAND Pay zone depth (ft) 3972' - 2342
Gas: Initial open flow No Test MCF/d Oil: Initial open flow 0 Bbl/d
Final open flow No Test MCF/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure psig (surface pressure) after Hours

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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.

Signed: _____

By: LEON RAMSEY Date: 7/15/2010

SUMMARY OF PROCEDURES AND ESTIMATED FORMATION TOPS FOR
RAMSEY ASSOCIATED PETROLEUM, INC.

Well# Blake #2
Lease Name: Blake
API# 47-007-2597
Longitude 80'37'30
Latitude 38'45'00
Burnsville 7.5' Quadrangle
Elevation 1161'
SALT LICK DISTRICT
BRAXTON COUNTY, WEST VIRGINIA

ZONE	DEPTH	GAS CHECK	REMARKS
LITTLE LIME	1617'-1651'		
BIG LIME	1847'-1916'		
BIG INJUN	1855'-1949'		
5TH SAND	2338'-2385'		
SPEECHLEY	2801'-3453'		
BALLTOWN	3531'-4050'		
BENSON	4291'-4302'		
ELK	4502'-4789'		
TOTAL DEPTH	**5000'**		

Perforations & Fracture Treatment
Well Name: BLAKE 2
API # 47- 007-02597
T.D. 4593' of 9.50 # 4 ½"

1st Stage- BENSON-BALLTOWN (from 4502 ' to 3836 ')
60 QF 400 sks 20/40
500 gal. 15% HCL
with Clay and Iron Stabilizer
18 perforations w/ 6 perforation balls
1, 2, 3 ppg @25-30 BBl per min

2nd Stage- SPEECHLY-5TH SAND (from 3972 ' to 2342 ')
60 QF 350 sks 20/40
500 gal. 15% HCL
with Clay and Iron Stabilizer
16 perforations w/ 4 perforation balls
1, 2, 3 ppg @25-30 BBl per min

WR-35

DATE: 4/22/14
API #: 47-702615

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

Well Operator's Report of Well Work

Farm name: Cayton Operator Well No.: Cayton #1

LOCATION: Elevation: 869' Quadrangle: Orlando

District: Salt Lick County: Braxton
Latitude: 3300 Feet South of 38 Deg. 47 Min. 30 Sec.
Longitude 1800 Feet West of 80 Deg. 35 Min. 00 Sec.

Company: J.C Baker's & Son's INC

	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Address: PO Box 369	8 5/8	800'	800'	250 SKS
Gassaway WV 26624	4 1/2	4235	4235	160 SKS
Agent: Michael C Baker				
Inspector: Joe McCourt				
Date Permit Issued: 1/13/11				
Date Well Work Commenced: 1/30/13				
Date Well Work Completed: 9/9/13				
Verbal Plugging:				
Date Permission granted on:				
Rotary Cable X Rig				
Total Depth (feet): 4305				
Fresh Water Depth (ft.): 120'				
Salt Water Depth (ft.): 1550'				
Is coal being mined in area (N/Y)? NO				
Coal Depths (ft.):				

OPEN FLOW DATA

Producing formation Benson Pay zone depth (ft) 4215
Gas: Initial open flow 10 MCF/d Oil: Initial open flow -0- Bbl/d
Final open flow 40 MCF/d Final open flow -0- Bbl/d
Time of open flow between initial and final tests -0- Hours
Static rock Pressure 1325 psig (surface pressure) after 24 Hours

4th 5th Sand
Second producing formation Ball Town Pay zone depth (ft) 2200-3200
Gas: Initial open flow 5 MCF/d Oil: Initial open flow -0- Bbl/d
Final open flow 20 MCF/d Final open flow -0- Bbl/d
Time of open flow between initial and final tests -0- Hours
Static rock Pressure 1325 psig (surface pressure) after 24 Hours

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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.

Signed: Randall Riffle
By: Randall Riffle
Date: 4/22/14

7-02615

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

4th 5th Sand & Balltown - Top 2200, Bottom 2743
20 shot's

Benson - top 4220, Bottom 4214
12 shot's

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Clay	0	15	
Red Rock	15	30	water 50'
Lime & slate	30	100	
Lime sand shale	100	500	
Sand	500	550	
Slate/Lime	550	800	
Sand	800	850	
Lime	850	1035	
Sand	1035	1070	
Lime	1070	1230	
Sand	1230	1380	
Lime	1380	1400	
Red Rock & Lime	1400	1485	1485' show water
Slate	1485	1510	
Little Lime	1510	1535	
Slate	1535	1545	1550 show salt water.
Blue monday Sand	1545	1615	
Big Lime	1615	1695	
Sand	1695	1795	
Lime Gritty	1795	2050	

(Attach separate sheets as necessary)

Rumbell Riffle
Well Operator

By: Randall Riffle

Date: 4/22/14

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."

7-02615

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

Page # 2

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Sand	2050	2060	Show gas
Lime slate	2060	2130	
Sand	2130	2175	Reduced Hole 2246
Lime slate	2175	2265	
Red Lime	2265	2275	
Lime gritty	2275	2300	
Slate	2300	2410	
Lime gritty	2410	3200	
Lime slate	3200	4215	
Benson	4215	4235	Show gas
Lime	4235	T.D. 4305	

(Attach separate sheets as necessary)

Randall Riffle
Well Operator

By: Randall Riffle

Date: 4/22/14

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."

Final Report

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: 4-23-2014
API #: 47-009-00122

Farm name: State of WV DNR B BRK 8H Operator Well No.: 834580

LOCATION: Elevation: 1199' Quadrangle: Steubenville East, WV.

District: Cross Creek County: Brooke
Latitude: 2270' Feet South of 40 Deg. 22 Min. 30 Sec.
Longitude 7470' Feet West of 80 Deg. 32 Min. 30 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address: P.O. Box 18496	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Oklahoma City, OK 73154-0496	13 3/8"	389'	389'	434 Cu. Ft.
Agent: Eric Gillespie	9 5/8"	1439'	1439'	651 Cu. Ft.
Inspector: Bill Hendershot	5 1/2"	10617'	10617'	2548 Cu. Ft.
Date Permit Issued: 1-18-2012				
Date Well Work Commenced: 6-20-2012				
Date Well Work Completed: 9-17-2012				
Verbal Plugging:				
Date Permission granted on:				
Rotary ✓ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 5713'				
Total Measured Depth (ft): 10617'				
Fresh Water Depth (ft.): 80',300'				
Salt Water Depth (ft.): 1210'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 654'				
Void(s) encountered (N/Y) Depth(s) N				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) 6,050'-10,452'
Gas: Initial open flow 1,032* MCF/d Oil: Initial open flow 186 Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests 168 Hours
Static rock Pressure 3,713* psig (surface pressure) after 168 Hours *Calculated

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

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APR 24 2014
WV Department of
Environmental Protection

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.

Marlene Williams 4-23-2014
Signature Date

9-00122

Were core samples taken? Yes_____ No X

Were cuttings caught during drilling? Yes X No_____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list GR, neutron, density, and resistivity

Open hole logs run from 0-1461' MD; LWD GR from 4676-10668' MD.

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:

See attached

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

Formations Encountered: Top Depth / Bottom Depth

Surface:

See attached

9-00122

PERFORATION RECORD ATTACHMENT

Well Number and Name: 834580 State of WV DNR B BRK 8H

PERFORATION RECORD			STIMULATION RECORD							
	Interval Perforated					*Fluid*		*Propping Agent*		Average
Date	From	To	Date	Interval Treated		Type	Amount	Type	Amount	Injection
9/7/2012	10,046	10,452	9/7/2012	10,046	10,452	Slk wtr	11,710	Sand	606,440	80
9/7/2012	9,546	9,963	9/8/2012	9,546	9,963	Slk wtr	10,929	Sand	598,640	79.3
9/8/2012	9,047	9,463	9/10/2012	9,047	9,463	Slk wtr	14,721	Sand	662,075	78.3
9/15/2012	8,547	8,963	9/15/2012	8,547	8,963	Slk wtr	10,857	Sand	599,580	79.7
9/15/2012	8,048	8,464	9/15/2012	8,048	8,464	Slk wtr	10,837	Sand	600,991	79.9
9/15/2012	7,548	7,965	9/16/2012	7,548	7,965	Slk wtr	10,999	Sand	603,440	79.4
9/16/2012	7,049	7,465	9/16/2012	7,049	7,465	Slk wtr	11,383	Sand	601,620	79.8
9/16/2012	6,549	6,965	9/16/2012	6,549	6,965	Slk wtr	10,685	Sand	600,360	80
9/17/2012	6,050	6,466	9/17/2012	6,050	6,466	Slk wtr	10,630	Sand	601,420	79.2

9-00122

LATERAL WELLBORE (no vertical pilot hole associated with this well)

Maximum TVD of wellbore: 5713 ft TVD @ 10617 ft MD

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SS/LS/SH	0	0	420	420
SHALE	420	420	480	480
SS/LS/SH	480	480	654	654
KITTANING COAL	654	654	660	660
SHALE	660	660	720	720
SS	720	720	840	840
SHALE	840	840	990	990
SS	990	990	1080	1080
BIG LIME	1080	1080	1135	1135
BIG INJUN (SS)	1135	1135	1368	1368
SHALE	1368	1368	5526	5441
GENESEO (SH)	5526	5441	5554	5458
TULLY (LS)	5554	5458	5653	5513
HAMILTON (SH)	5653	5513	5841	5590
MARCELLUS (SH)	5841	5590		
TD OF LATERAL			10617	5713

9-00122

HALLIBURTON | Sperry Drilling

End of Well Report for Chesapeake

Rig:	Nomac 37
Well Name:	State of WV DNR B BRK 8H
Field Name:	Steubenville East
Country:	USA
Job Number:	NE-XX-0009586548
Job Start Date:	16-Jul-12
API Number:	47-009-00122

9.00122

HALLIBURTON | Sperry Drilling

Directional Survey Data

Tie-in

4500.00	0.85	356.19	4499.74	36.99 N	0.94 E	

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
4648.00	0.96	24.40	4,647.72	39.21 N	1.38 E	-34.64	0.31
4680.00	0.91	28.32	4,679.72	39.68 N	1.61 E	-34.96	0.25
4711.00	0.86	29.09	4,710.71	40.10 N	1.84 E	-35.24	0.16
4743.00	0.78	36.06	4,742.71	40.49 N	2.09 E	-35.48	0.40
4805.00	6.35	143.22	4,804.59	38.08 N	4.39 E	-32.30	10.68
4836.00	8.90	145.25	4,835.31	34.74 N	6.78 E	-28.25	8.29
4900.00	8.68	145.07	4,898.56	26.71 N	12.37 E	-18.59	0.36
4964.00	7.73	140.22	4,961.90	19.45 N	17.89 E	-9.64	1.83
4996.00	7.60	140.57	4,993.62	16.16 N	20.61 E	-5.49	0.43
5027.00	9.55	152.04	5,024.27	12.30 N	23.12 E	-0.92	8.34
5059.00	12.82	161.40	5,055.66	6.59 N	25.50 E	5.25	11.65
5091.00	15.92	161.41	5,086.66	0.93 S	28.03 E	13.13	9.70
5123.00	18.85	156.56	5,117.19	9.84 S	31.48 E	22.65	10.19
5155.00	21.42	155.82	5,147.24	19.91 S	35.93 E	33.65	8.09
5186.00	24.75	155.73	5,175.75	31.00 S	40.92 E	45.80	10.74
5218.00	28.18	155.43	5,204.39	43.98 S	46.82 E	60.06	10.73
5250.00	31.52	154.82	5,232.14	58.43 S	53.52 E	75.98	10.47
5281.00	33.34	155.52	5,258.31	73.52 S	60.50 E	92.60	6.00
5313.00	35.51	155.36	5,284.70	89.97 S	68.02 E	110.68	6.78
5345.00	37.52	155.36	5,310.42	107.28 S	75.96 E	129.72	6.27
5376.00	39.85	154.88	5,334.61	124.85 S	84.12 E	149.09	7.59
5408.00	41.96	155.09	5,358.80	143.84 S	92.98 E	170.04	6.59
5439.00	43.81	155.96	5,381.51	163.04 S	101.71 E	191.13	6.27
5471.00	45.80	156.67	5,404.22	183.69 S	110.77 E	213.66	6.41
5503.00	48.42	157.27	5,425.99	205.27 S	119.93 E	237.07	8.31
5534.00	50.81	157.63	5,446.08	227.07 S	128.99 E	260.64	7.76
5565.00	53.51	157.43	5,465.09	249.69 S	138.35 E	285.07	8.73
5597.00	56.04	157.30	5,483.55	273.82 S	148.41 E	311.16	7.91
5629.00	58.20	156.31	5,500.92	298.52 S	158.99 E	338.00	7.21
5660.00	59.99	155.66	5,516.84	322.81 S	169.82 E	364.58	6.07
5692.00	62.26	155.14	5,532.29	348.29 S	181.48 E	392.60	7.21
5724.00	64.47	154.85	5,546.64	374.21 S	193.57 E	421.19	6.96
5755.00	66.49	155.03	5,559.50	399.76 S	205.52 E	449.39	6.54
5787.00	68.50	155.94	5,571.75	426.65 S	217.78 E	478.94	6.79
5819.00	70.34	156.06	5,583.00	454.02 S	229.97 E	508.88	5.76
5850.00	72.20	155.91	5,592.96	480.83 S	241.92 E	538.22	6.04
5882.00	75.02	156.60	5,601.98	508.93 S	254.27 E	568.89	9.06
5914.00	77.34	157.15	5,609.62	537.51 S	266.48 E	599.93	7.43
5945.00	78.76	157.07	5,616.04	565.45 S	278.27 E	630.21	4.57
5977.00	81.24	156.87	5,621.60	594.45 S	290.60 E	661.68	7.78
6009.00	83.95	156.93	5,625.72	623.63 S	303.05 E	693.37	8.48
6041.00	84.52	157.13	5,628.94	652.95 S	315.48 E	725.16	1.88

9.00122

HALLIBURTON | Sperry Drilling

Directional Survey Data

Measured Depth (ft)	Inclination (deg)	Direction (deg)	Vertical Depth (ft)	Latitude (ft)	Departure (ft)	Vertical Section (ft)	Dogleg (°/100')
6072.00	86.10	156.71	5,631.48	681.37 S	327.59 E	756.02	5.27
6104.00	87.31	155.93	5,633.31	710.62 S	340.42 E	787.93	4.50
6167.00	89.06	155.78	5,635.31	768.08 S	366.18 E	850.87	2.78
6293.00	89.43	154.83	5,636.97	882.54 S	418.82 E	976.82	0.81
6420.00	89.93	153.29	5,637.68	996.74 S	474.37 E	1103.82	1.28
6546.00	90.07	153.32	5,637.68	1,109.31 S	530.98 E	1229.81	0.11
6672.00	88.79	154.20	5,638.94	1,222.31 S	586.69 E	1355.80	1.23
6799.00	87.21	154.09	5,643.37	1,336.52 S	642.05 E	1482.71	1.25
6925.00	87.78	154.43	5,648.87	1,449.91 S	696.72 E	1608.59	0.53
7052.00	89.33	155.41	5,652.07	1,564.89 S	750.53 E	1735.53	1.44
7177.00	88.59	153.25	5,654.34	1,677.53 S	804.67 E	1860.50	1.83
7304.00	89.23	151.25	5,656.76	1,789.90 S	863.79 E	1987.41	1.65
7428.00	88.12	152.28	5,659.63	1,899.11 S	922.44 E	2111.28	1.22
7555.00	88.39	154.13	5,663.50	2,012.42 S	979.66 E	2238.20	1.47
7683.00	86.61	154.54	5,669.08	2,127.68 S	1,035.03 E	2366.07	1.43
7809.00	86.71	154.48	5,676.43	2,241.22 S	1,089.16 E	2491.85	0.10
7935.00	87.95	153.74	5,682.29	2,354.45 S	1,144.11 E	2617.71	1.15
8062.00	88.39	153.83	5,686.35	2,468.33 S	1,200.18 E	2744.65	0.35
8188.00	89.26	154.17	5,688.93	2,581.56 S	1,255.40 E	2870.62	0.74
8314.00	90.34	153.14	5,689.38	2,694.47 S	1,311.31 E	2996.61	1.19
8439.00	90.17	152.56	5,688.83	2,805.69 S	1,368.35 E	3121.59	0.48
8565.00	90.27	152.80	5,688.35	2,917.63 S	1,426.18 E	3247.55	0.20
8690.00	90.20	153.36	5,687.83	3,029.08 S	1,482.78 E	3372.53	0.45
8815.00	90.84	154.12	5,686.70	3,141.18 S	1,538.09 E	3497.53	0.80
8939.00	90.07	154.79	5,685.72	3,253.05 S	1,591.55 E	3621.52	0.82
9065.00	89.73	155.33	5,685.94	3,367.30 S	1,644.69 E	3747.49	0.51
9191.00	89.23	154.78	5,687.09	3,481.54 S	1,697.82 E	3873.47	0.59
9317.00	89.03	154.43	5,689.01	3,595.35 S	1,751.86 E	3999.44	0.32
9441.00	88.55	154.72	5,691.63	3,707.32 S	1,805.08 E	4123.41	0.45
9567.00	87.98	153.37	5,695.44	3,820.55 S	1,860.20 E	4249.35	1.16
9692.00	88.52	153.21	5,699.25	3,932.16 S	1,916.36 E	4374.28	0.45
9816.00	88.69	153.62	5,702.27	4,043.02 S	1,971.84 E	4498.24	0.35
9941.00	89.16	154.34	5,704.61	4,155.32 S	2,026.67 E	4623.21	0.69
10065.00	88.89	154.73	5,706.71	4,267.26 S	2,079.97 E	4747.19	0.39
10189.00	89.06	154.93	5,708.93	4,379.47 S	2,132.70 E	4871.16	0.21
10314.00	89.40	154.96	5,710.61	4,492.70 S	2,185.63 E	4996.13	0.27
10439.00	89.09	153.04	5,712.26	4,605.04 S	2,240.41 E	5121.11	1.56
10565.00	89.36	152.65	5,713.95	4,717.14 S	2,297.91 E	5247.07	0.38
10617.00	89.36	152.65	5,714.53	4,763.33 S	2,321.80 E	5299.06	0.01

9-00122

DIRECTIONAL SURVEY DATA NOTES

- Calculation based on minimum curvature method.
- Survey coordinates relative to well system reference point.
- TVD values given relative to drilling measurement point.
- Vertical section relative to well head.
- Vertical section is computed along a direction of 154.00 degrees (Grid)
- A total correction of -8.15 deg from Magnetic north to Grid north has been applied
- Horizontal displacement is relative to the well head.
- Horizontal displacement (closure) at 10,617.00 feet is 5,299.06 feet along 154.01 degrees (Grid)

WARRANTY

HALLIBURTON ENERGY SERVICES, INC. WILL USE ITS BEST EFFORTS TO FURNISH CUSTOMERS WITH ACCURATE INFORMATION AND INTERPRETATIONS THAT ARE PART OF, AND INCIDENT TO, THE SERVICES PROVIDED. HOWEVER, HALLIBURTON ENERGY SERVICES, INC. CANNOT AND DOES NOT WARRANT THE ACCURACY OR CORRECTNESS OF SUCH INFORMATION AND INTERPRETATIONS. UNDER NO CIRCUMSTANCES SHOULD ANY SUCH INFORMATION OR INTERPRETATION BE RELIED UPON AS THE SOLE BASIS FOR ANY DRILLING, COMPLETION, PRODUCTION, OR FINANCIAL DECISION OR ANY PROCEDURE INVOLVING ANY RISK TO THE SAFETY OF ANY DRILLING VENTURE, DRILLING RIG OR ITS CREW OR ANY THIRD PARTY. THE CUSTOMER HAS FULL RESPONSIBILITY FOR ALL DRILLING, COMPLETION, AND PRODUCTION OPERATION. HALLIBURTON ENERGY SERVICES, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE SERVICES RENDERED. IN NO EVENT WILL HALLIBURTON ENERGY SERVICES, INC. SERVICES BE LIABLE FOR FAILURE TO OBTAIN ANY PARTICULAR RESULTS OR FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OF ANY INFORMATION OR INTERPRETATION PROVIDED BY HALLIBURTON ENERGY SERVICES, INC.

Hydraulic Fracturing Fluid Product Component Information Disclosure

9.00122

Fracture Date:	9/7/2012
State:	WEST VIRGINIA
County:	BROOKE
API Number:	4700900122
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	STATE OF WV DNR B BRK 8H
Longitude:	-80.527963
Latitude:	40.340808
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	5,713
Total Water Volume (gal)*:	4,448,430

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Environmental Protection

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by Mass)**	Maximum Ingredient Concentration in HF Fluid (% by Mass)**	Comments
Fresh Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00%	80.25433%	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00%	6.26047%	
EC6486A	NALCO	Scale Inhibitor	Ethylene Glycol	000107-21-1	30.00%	0.00150%	
EC6110A	NALCO	Anti-Bacterial Agent	Ethanol	000064-17-5	5.00%	0.00135%	
			Glutaraldehyde	000111-30-8	60.00%	0.01622%	
			Quaternary Ammonium Compounds	NA	10.00%	0.00270%	
Northern White Sand	SCHLUMBERGER	Proppant - Natural	Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00%	8.91337%	
100 Mesh Sand	SCHLUMBERGER	Proppant - Natural	Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00%	3.75565%	
Acid, Hydrochloric 15pct	SCHLUMBERGER	Acid	Hydrogen Chloride	007647-01-0	15.00%	0.10335%	
			Water	007732-18-5	85.00%	0.58566%	
J580	SCHLUMBERGER	Gelling Agent	Carbohydrate polymer	NA	100.00%	0.04063%	
J218	SCHLUMBERGER	Breaker	Ammonium Persulfate	007727-54-0	100.00%	0.00227%	

J610	SCHLUMBERGER	Cross Linker	Aliphatic polyol	NA	30.00%	0.00178%	
			Potassium Hydroxide	001310-58-3	15.00%	0.00089%	
B315	SCHLUMBERGER	Friction Reducer	Aliphatic alcohol polyglycol ether	NA	2.00%	0.00067%	
			Petroleum Distillate Hydrotreated Light	064742-47-8	30.00%	0.01333%	
L058	SCHLUMBERGER	Iron Control Agent	Sodium Erythorbate	006381-77-7	100.00%	0.00048%	
J475	SCHLUMBERGER	Breaker	Ammonium Persulfate	007727-54-0	100.00%	0.00032%	
A264	SCHLUMBERGER	Corrosion Inhibitor	Aliphatic acid	NA	30.00%	0.00032%	
			Aliphatic alcohols, ethoxylated # 1	NA	30.00%	0.00032%	
			Methanol (Methyl Alcohol)	000067-56-1	40.00%	0.00042%	
			Propargyl Alcohol (2-Propynol)	000107-19-7	10.00%	0.00011%	

9.00122

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

"Additional Ingredients Not Listed on MSDS" component information were obtained directly from the supplier. As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of this information should be directed to the supplier who provided it.

FINAL REPORT

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: 4-23-2014
API #: 47-009-00134

Farm name: State of WV DNR B BRK 3H Operator Well No.: 835460

LOCATION: Elevation: 1180 Quadrangle: Steubenville East, WV

District: Cross Creek County: Brooke
Latitude: 7810' Feet South of 40 Deg. 22 Min. 30 Sec.
Longitude 12480' Feet West of 80 Deg. 30 Min. 00 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address: P.O. Box 18496	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Oklahoma City, OK 73154-0496	20"	125'	125'	465 Cu. Ft.
Agent: Eric Gillespie	13 3/8"	313'	313'	336 Cu. Ft.
Inspector: Bill Hendershot	9 5/8"	1510'	1510'	696 Cu. Ft.
Date Permit Issued: 6-27-2012	5 1/2"	11677'	11677'	2936 Cu. Ft.
Date Well Work Commenced: 7-1-2012				
Date Well Work Completed: 9-17-2012				
Verbal Plugging:				
Date Permission granted on:				
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 5630'				
Total Measured Depth (ft): 11681'				
Fresh Water Depth (ft.): 193'				
Salt Water Depth (ft.): 1210'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 654'				
Void(s) encountered (N/Y) Depth(s) N				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) 5,900'-11,495'
Gas: Initial open flow 1,126* MCF/d Oil: Initial open flow 180 Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests 24 Hours
Static rock Pressure 3,660* psig (surface pressure) after 24 Hours *Calculated

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

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APR 24 2014
WV Department of Environmental Protection

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.

Marlene Williams 4-23-2014
Signature Date

9-00134

Were core samples taken? Yes_____ No X

Were cuttings caught during drilling? Yes X No_____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list LWD GR from 4906-11681' MD.

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:

See attached

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

Formations Encountered: Top Depth / Bottom Depth

Surface:

See attached

9-00134

PERFORATION RECORD ATTACHMENT

Well Number and Name: 835460 State of WV DNR B BRK 3H

PERFORATION RECORD			STIMULATION RECORD							
	Interval Perforated					*Fluid*		*Propping Agent*		Average
Date	From	To	Date	Interval Treated		Type	Amount	Type	Amount	Injection
9/6/2012	11,053	11,495	9/6/2012	11,053	11,495	Slk wtr	12,576	Sand	701,180	79.9
9/7/2012	10,537	10,980	9/8/2012	10,537	10,980	Slk wtr	11,620	Sand	698,400	77
9/8/2012	10,022	10,464	9/8/2012	10,022	10,464	Slk wtr	12,001	Sand	704,860	80.1
9/8/2012	9,507	9,949	9/8/2012	9,507	9,949	Slk wtr	11,850	Sand	704,520	79.7
9/9/2012	8,992	9,433	9/9/2012	8,992	9,433	Slk wtr	12,146	Sand	703,040	79.9
9/10/2012	8,476	8,918	9/10/2012	8,476	8,918	Slk wtr	12,741	Sand	701,040	79.9
9/10/2012	7,942	8,395	9/11/2012	7,942	8,395	Slk wtr	11,990	Sand	699,900	79.7
9/11/2012	7,444	7,887	9/11/2012	7,444	7,887	Slk wtr	12,119	Sand	701,060	79.8
9/11/2012	6,931	7,373	9/12/2012	6,931	7,373	Slk wtr	11,647	Sand	701,880	78.4
9/12/2012	6,415	6,857	9/13/2012	6,415	6,857	Slk wtr	11,787	Sand	701,660	79.8
9/14/2012	5,900	6,342	9/17/2012	5,900	6,342	Slk wtr	11,435	Sand	691,600	80

9-00134

LATERAL WELLBORE (no vertical pilot hole associated with this well)

Maximum TVD of wellbore: 5630 ft TVD @ 6257 ft MD

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
SS/LS/SH	0	0	420	420
SHALE	420	420	480	480
SS/LS/SH	480	480	654	654
KITTANING COAL	654	654	660	660
SHALE	660	660	720	720
SS	720	720	840	840
SHALE	840	840	990	990
SS	990	990	1080	1080
BIG LIME	1080	1080	1135	1135
BIG INJUN (SS)	1135	1135	1368	1368
SHALE	1368	1368	5528	5463
GENESEO (SH)	5528	5463	5555	5480
TULLY (LS)	5555	5480	5653	5534
HAMILTON (SH)	5653	5534	5838	5600
MARCELLUS (SH)	5838	5600		
TD OF LATERAL			11681	5580

HALLIBURTON

9-00134

DIRECTIONAL SURVEY REPORT

Chesapeake Appalachia, LLC
State of WV DNR B BRK 3H
Marcellus
Brooke County, West Virginia WV
USA
NE-XX-0009586880

Measured Depth (feet)	Inclination (degrees)	Direction (degrees)	Vertical Depth (feet)	Latitude (feet)	Departure (feet)	Vertical Section (feet)	Dogleg (deg/100ft)
4914.00	0.70	27.05	4910.04	14.84 S	34.93 W	-1.57	TIE-IN
4932.00	0.95	41.95	4928.04	14.63 S	34.78 W	-1.43	1.80
4963.00	0.77	43.93	4959.03	14.29 S	34.46 W	-1.22	0.57
4995.00	0.94	34.16	4991.03	13.92 S	34.17 W	-0.98	0.68
5027.00	2.41	0.36	5023.02	13.03 S	34.02 W	-0.20	5.34
5059.00	5.70	351.72	5054.93	10.79 S	34.24 W	1.98	10.43
5090.00	8.56	349.60	5085.69	6.99 S	34.88 W	5.76	9.26
5122.00	11.40	349.67	5117.20	1.54 S	35.88 W	11.21	8.89
5154.00	13.75	348.30	5148.43	5.30 N	37.22 W	18.08	7.38
5186.00	15.84	342.49	5179.37	13.19 N	39.30 W	26.20	8.02
5218.00	18.73	339.05	5209.92	22.15 N	42.45 W	35.70	9.57
5249.00	21.66	338.48	5239.02	32.12 N	46.33 W	46.40	9.48
5281.00	24.78	339.34	5268.42	43.90 N	50.87 W	59.01	9.80
5312.00	27.70	340.94	5296.22	56.79 N	55.51 W	72.72	9.69
5344.00	30.49	341.44	5324.18	71.52 N	60.52 W	88.27	8.75
5376.00	33.92	341.75	5351.26	87.70 N	65.91 W	105.30	10.74
5407.00	37.59	342.71	5376.41	104.94 N	71.43 W	123.39	11.97
5438.00	41.25	343.26	5400.35	123.77 N	77.18 W	143.03	11.87
5470.00	44.72	345.34	5423.76	144.77 N	83.08 W	164.76	11.70
5501.00	47.54	345.14	5445.24	166.37 N	88.77 W	186.99	9.12
5532.00	49.81	345.34	5465.71	188.89 N	94.70 W	210.15	7.33
5564.00	52.26	344.36	5485.83	212.90 N	101.20 W	234.91	8.02
5595.00	55.63	342.92	5504.08	236.94 N	108.27 W	259.90	11.52
5627.00	59.08	342.34	5521.33	262.65 N	116.31 W	286.80	10.89
5659.00	61.97	341.77	5537.08	289.15 N	124.90 W	314.62	9.15
5690.00	64.24	342.09	5551.10	315.43 N	133.47 W	342.24	7.39
5722.00	67.28	342.49	5564.23	343.23 N	142.34 W	371.37	9.56
5754.00	70.58	343.01	5575.74	371.74 N	151.20 W	401.18	10.40
5786.00	72.72	342.71	5585.81	400.76 N	160.15 W	431.49	6.74
5817.00	73.68	342.62	5594.77	429.09 N	168.99 W	461.12	3.13
5848.00	75.15	341.94	5603.10	457.53 N	178.08 W	490.94	5.19
5879.00	78.10	341.96	5610.27	486.20 N	187.43 W	521.06	9.53
5911.00	81.40	341.32	5615.96	516.09 N	197.35 W	552.52	10.50
5943.00	84.32	342.06	5619.94	546.23 N	207.32 W	584.25	9.39
6006.00	87.62	341.66	5624.37	605.94 N	226.89 W	647.02	5.27
6130.00	88.52	339.56	5628.55	722.83 N	268.02 W	770.91	1.84
6257.00	89.70	339.58	5630.52	841.83 N	312.34 W	897.89	0.92
6384.00	90.57	337.56	5630.22	960.04 N	358.73 W	1024.87	1.73
6510.00	91.51	337.72	5627.93	1076.55 N	406.66 W	1150.80	0.75
6637.00	89.56	338.03	5626.73	1194.18 N	454.49 W	1277.74	1.55
6763.00	90.07	338.50	5627.14	1311.23 N	501.15 W	1403.72	0.55
6891.00	91.17	340.12	5625.75	1430.96 N	546.37 W	1531.70	1.53
7017.00	91.75	339.75	5622.54	1549.27 N	589.58 W	1657.66	0.54
7143.00	91.41	340.33	5619.06	1667.66 N	632.57 W	1783.60	0.53
7270.00	89.97	340.59	5617.54	1787.33 N	675.04 W	1910.56	1.16
7396.00	90.84	340.82	5616.65	1906.25 N	716.67 W	2036.52	0.72
7522.00	89.66	340.61	5616.11	2025.18 N	758.27 W	2162.48	0.95
7648.00	90.07	339.24	5616.40	2143.53 N	801.52 W	2288.47	1.14
7775.00	90.87	339.23	5615.36	2262.27 N	846.55 W	2415.47	0.63
7900.00	91.34	339.76	5612.95	2379.33 N	890.33 W	2540.44	0.57
8026.00	89.60	338.89	5611.92	2497.21 N	934.80 W	2666.43	1.54
8152.00	88.76	338.43	5613.72	2614.55 N	980.65 W	2792.41	0.76
8277.00	89.70	338.48	5615.41	2730.81 N	1026.55 W	2917.38	0.75
8404.00	90.50	338.73	5615.19	2849.06 N	1072.87 W	3044.37	0.67

8530.00	91.11	338.89	5613.42	2966.53 N	1118.41 W	3170.35	0.49
8656.00	90.00	336.20	5612.20	3082.95 N	1166.53 W	3296.27	2.31
8782.00	89.73	338.31	5612.50	3199.15 N	1215.25 W	3422.17	1.69
8908.00	90.07	339.97	5612.72	3316.88 N	1260.11 W	3548.17	1.35
9032.00	90.43	339.56	5612.17	3433.23 N	1302.99 W	3672.16	0.45
9158.00	90.57	340.76	5611.07	3551.75 N	1345.75 W	3798.14	0.96
9284.00	92.28	340.82	5607.93	3670.69 N	1387.19 W	3924.06	1.35
9408.00	92.69	340.73	5602.56	3787.66 N	1427.99 W	4047.91	0.34
9534.00	91.21	338.40	5598.27	3905.65 N	1471.96 W	4173.82	2.18
9658.00	91.85	338.71	5594.97	4021.03 N	1517.27 W	4297.76	0.57
9782.00	90.54	337.94	5592.39	4136.23 N	1563.06 W	4421.71	1.22
9909.00	90.30	337.02	5591.45	4253.54 N	1611.71 W	4548.64	0.75
10034.00	90.34	338.18	5590.75	4369.10 N	1659.35 W	4673.58	0.93
10156.00	90.47	338.72	5589.90	4482.57 N	1704.16 W	4795.56	0.46
10280.00	90.03	340.01	5589.35	4598.61 N	1747.86 W	4919.56	1.10
10405.00	91.95	342.37	5587.19	4716.90 N	1788.15 W	5044.46	2.43
10530.00	88.96	341.00	5586.20	4835.55 N	1827.43 W	5169.33	2.63
10654.00	89.19	340.95	5588.21	4952.76 N	1867.85 W	5293.27	0.19
10780.00	90.07	340.76	5589.02	5071.79 N	1909.17 W	5419.22	0.71
10905.00	89.93	339.24	5589.02	5189.24 N	1951.92 W	5544.21	1.22
11028.00	91.28	339.75	5587.72	5304.44 N	1995.00 W	5667.20	1.17
11153.00	93.06	339.77	5582.99	5421.64 N	2038.21 W	5792.10	1.43
11277.00	89.40	337.52	5580.33	5537.07 N	2083.34 W	5916.03	3.47
11401.00	89.83	337.56	5581.16	5651.66 N	2130.71 W	6039.97	0.35
11524.00	90.24	337.27	5581.09	5765.23 N	2177.95 W	6162.90	0.41
11634.00	90.17	337.23	5580.71	5866.67 N	2220.48 W	6272.82	0.07
11681.00	90.17	337.23	5580.57	5910.01 N	2238.67 W	6319.79	0.01

9-00134

CALCULATION BASED ON MINIMUM CURVATURE METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 339.35 DEGREES (GRID)
A TOTAL CORRECTION OF -8.15 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.
HORIZONTAL DISPLACEMENT(CLOSURE) AT 11681.00 FEET
IS 6319.80 FEET ALONG 339.25 DEGREES (GRID)

WELL ASSUMED VERTICAL AT WELLHEAD
SURVEYS FROM 100' MD TO 4900' MD PROVIDED BY GYRO
SURVEYS FROM 4932' MD TO 11634' MD PROVIDED BY SPERRY DRILLING MWD
SURVEY AT 10634' MD HAS BEEN PROJECTED TO TD AT 10681' MD
SPERRY PERSONNEL: T. Russell, J. Growall

Date Printed:30 July 2012

Hydraulic Fracturing Fluid Product Component Information Disclosure

9-00134

Fracture Date:	9/6/2012
State:	WEST VIRGINIA
County:	BROOKE
API Number:	4700900134
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	STATE OF WV DNR B BRK 3H
Longitude:	-80.527968
Latitude:	40.340769
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	5,630
Total Water Volume (gal)*:	5,677,728

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Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by Mass)**	Maximum Ingredient Concentration in HF Fluid (% by Mass)**	Comments
Fresh Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00%	77.20093%	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid	Water	007732-18-5	100.00%	8.24251%	
EC6486A	NALCO	Scale Inhibitor	Ethylene Glycol	000107-21-1	30.00%	0.00158%	
EC6110A	NALCO	Anti-Bacterial Agent	Ethanol	000064-17-5	5.00%	0.00138%	
			Glutaraldehyde	000111-30-8	60.00%	0.01657%	
			Quaternary Ammonium Compounds	NA	10.00%	0.00276%	
Northern White Sand	SCHLUMBERGER	Proppant - Natural	Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00%	9.61910%	
100 Mesh Sand	SCHLUMBERGER	Proppant - Natural	Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00%	4.15560%	
Acid, Hydrochloric 15pct	SCHLUMBERGER	Acid	Hydrogen Chloride	007647-01-0	15.00%	0.09688%	
			Water	007732-18-5	85.00%	0.54898%	
J580	SCHLUMBERGER	Gelling Agent	Carbohydrate polymer	NA	100.00%	0.04776%	
J610	SCHLUMBERGER	Cross Linker	Aliphatic polyol	NA	30.00%	0.00412%	

			Potassium Hydroxide	001310-58-3	15.00%	0.00206%	
J218	SCHLUMBERGER	Breaker	Ammonium Persulfate	007727-54-0	100.00%	0.00179%	
J475	SCHLUMBERGER	Breaker	Ammonium Persulfate	007727-54-0	100.00%	0.00099%	
B315	SCHLUMBERGER	Friction Reducer	Aliphatic alcohol polyglycol ether	NA	2.00%	0.00056%	
			Petroleum Distillate Hydrotreated Light	064742-47-8	30.00%	0.01121%	
L058	SCHLUMBERGER	Iron Control Agent	Sodium Erythorbate	006381-77-7	100.00%	0.00048%	
A264	SCHLUMBERGER	Corrosion Inhibitor	Aliphatic acid	NA	30.00%	0.00030%	
			Aliphatic alcohols, ethoxylated # 1	NA	30.00%	0.00030%	
			Methanol (Methyl Alcohol)	000067-56-1	40.00%	0.00040%	
			Propargyl Alcohol (2-Propynol)	000107-19-7	10.00%	0.00010%	

9-00134

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

"Additional Ingredients Not Listed on MSDS" component information were obtained directly from the supplier. As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of this information should be directed to the supplier who provided it.

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: 9-18-13
API #: 47-170-5969

Farm name: Carrie Jane Moore Operator Well No.: Schulburg 1HD

LOCATION: Elevation: 878' Quadrangle: Center Point 7.5'

District: McClellan County: Doddridge
Latitude: 10,000 Feet South of 39 Deg. 27 Min. 30 Sec.
Longitude 5,040 Feet West of 80 Deg. 37 Min. 30 Sec.

Company: Jay-Bee Oil & Gas, Inc.

Address: 3570 Shields Hill Rd.	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Cairo, WV 26337				
Agent: Randy Broda	16"	30'	30'	CTS
Inspector: Doug Newlon				
Date Permit Issued: 8/9/2010	11 3/4"	203'	203'	CTS
Date Well Work Commenced: 5/10/2011				
Date Well Work Completed: 9/30/2011	8 5/8"	1923'	1923'	CTS
Verbal Plugging:				
Date Permission granted on:	5 1/2"	11195'	11195'	CTS
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 6,960'				
Total Measured Depth (ft): 11,308'				
Fresh Water Depth (ft.): 725'				
Salt Water Depth (ft.): 1310'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): N/A				
Void(s) encountered (N/Y) Depth(s) N				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) See Attached
Gas: Initial open flow 4m MCF/d Oil: Initial open flow ____ Bbl/d
Final open flow 3.5m MCF/d Final open flow ____ Bbl/d
Time of open flow between initial and final tests ____ Hours
Static rock Pressure 3000 psig (surface pressure) after 36 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

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SEP 19 2013
Office of Oil and Gas
WV Dept. of Environmental Protection

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 Date 9-18-13

17-05969

Were core samples taken? Yes_____ No X

Were cuttings caught during drilling? Yes X No_____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list mud logs

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:

Perforations: 7,406' - 11,174' MD (888 holes)

Frac'd with 39,000 gals 15% acid iron check, 105,931 bbls of water,

9,740 sks 80/100 sand, 9,359 sks 30/50 sand, 1,768 20/40 sand for a total of 20,867 sks of sand.

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

Formations Encountered: Top Depth / Bottom Depth

Surface:

See Attached.

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Office of Oil and Gas
WV Dept. of Environmental Protection

JAY BEE OIL & GAS INC.	Schulberg 1HD	
	PERMIT #	47-170-5969
	ELEVATION	878
FORMATION	**TVD TOP**	**TVD BOTTOM**
SHALE	6353	6836
UPPER Marcellus	6836	6852
PARCELL LME	6852	6887
SHALE	6887	6932
MARCELLUS	6932	

17-05969

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SEP 19 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

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: 9-18-13
API #: 47-170-5970

Farm name: Carrie Jane Moore Operator Well No.: Schulburg 1HF

LOCATION: Elevation: 878' Quadrangle: Center Point 7.5'

District: McClellan County: Doddridge
Latitude: 10,000 Feet South of 39 Deg. 27 Min. 30 Sec.
Longitude 5,010 Feet West of 80 Deg. 37 Min. 30 Sec.

Company: Jay-Bee Oil & Gas, Inc.

Address: 3570 Shields Hill Rd.	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Cairo, WV 26337				
Agent: Randy Broda	16"	30'	30'	CTS
Inspector: Doug Newlon				
Date Permit Issued: 8/9/2010	11 3/4"	209'	209'	CTS
Date Well Work Commenced: 5/2/2011				
Date Well Work Completed: 9/26/2011	8 5/8"	2186'	2186'	CTS
Verbal Plugging:				
Date Permission granted on:	5 1/2"	12030'	12030'	CTS
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7,005'				
Total Measured Depth (ft): 12,089'				
Fresh Water Depth (ft.): 16'				
Salt Water Depth (ft.): 1058'				
Is coal being mined in area (N/Y)? 660'-663'				
Coal Depths (ft.): N/A				
Void(s) encountered (N/Y) Depth(s) N				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) See Attached
Gas: Initial open flow 5m MCF/d Oil: Initial open flow ____ Bbl/d
Final open flow 4.5m MCF/d Final open flow ____ Bbl/d
Time of open flow between initial and final tests ____ Hours
Static rock Pressure 3250 psig (surface pressure) after 36 Hours

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WV Dept. of Environmental Protection

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 Date 9-18-13

17-05970

Were core samples taken? Yes_____ No X

Were cuttings caught during drilling? Yes X No_____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list mud logs

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:

Perforations: 7,210' - 11,990' MD (1032 holes)

Frac'd with 45,000 gals 15% acid iron check, 124,527 bbls of water,

11,087 sks 80/100 sand, 11,225 sks 30/50 sand, 2,404 20/40 sand for a total of 24,716 sks of sand.

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

Formations Encountered: Top Depth / Bottom Depth

Surface:

See Attached.

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Office of Oil and Gas
WV Dept. of Environmental Protection

JAY BEE OIL & GAS INC.	Schulberg 1HF	
	PERMIT #	47-170-5970
	ELEVATION	878
FORMATION	**TVD TOP**	**TVD BOTTOM**
SHALE	6353	6836
UPPER Marcellus	6836	6852
PARCELL LME	6852	6887
SHALE	6887	6932
MARCELLUS	6932	

17-05970

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SEP 19 2013

Office of Oil and Gas
WV Dept. of Environmental Protection

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: 9-18-13
API #: 47-170-6030

Farm name: Jay-Bee Oil & Gas, Inc. Operator Well No.: Horner 1HB

LOCATION: Elevation: 1,299' Quadrangle: Folsom 7.5'

District: McClellan County: Doddridge
Latitude: 13,330' Feet South of 39 Deg. 27 Min. 30 Sec.
Longitude 9,050 Feet West of 80 Deg. 35 Min. 00 Sec.

Company: Jay-Bee Oil & Gas, Inc.

Address: 3570 Shields Hill Rd.	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Cairo, WV 26337				
Agent: Randy Broda	16"	30'	30'	CTS
Inspector: Joe Taylor				
Date Permit Issued: 5/5/2011	11 3/4"	336'	336'	CTS
Date Well Work Commenced: 1/25/2012				
Date Well Work Completed: 8/20/2012	8 5/8"	2500'	2500'	CTS
Verbal Plugging:				
Date Permission granted on:	5 1/2"	10,636'	10,636'	CTS
Rotary ☑ Cable ☐ Rig ☐				
Total Vertical Depth (ft): 7,400'				
Total Measured Depth (ft): 10,754'				
Fresh Water Depth (ft.): n/a				
Salt Water Depth (ft.): 1830'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 1230', 1590'				
Void(s) encountered (N/Y) Depth(s) n/a				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)
Producing formation Marcellus Pay zone depth (ft) See Attached
Gas: Initial open flow ____ MCF/d Oil: Initial open flow ____ Bbl/d
Final open flow 3M MCF/d Final open flow ____ Bbl/d
Time of open flow between initial and final tests ____ Hours
Static rock Pressure 2100 psig (surface pressure) after 24 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

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Office of Oil and Gas
WV Dept. of Environmental Protection

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

9-18-13
Date

Were core samples taken? Yes_____ No X

Were cuttings caught during drilling? Yes X No_____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list Mud logs

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:

Perforations: 7,698' - 10,590' MD (660 holes)

Frac'd with 18,000 gals 15% acid iron check, 72,000 bbls of water,

7,200 sks 80/100 sand, 7,200 sks 30/50 sand, 1,800 sks 20/40 sand for a total of 16,200 sks of sand.

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

Formations Encountered: Top Depth / Bottom Depth

Surface:

See Attached.

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Office of Oil and Gas
WV Dept. of Environmental Protection

JAY BEE OIL & GAS INC.	**Horner 1HB**	
	PERMIT #	47-017-06030
	ELEVATION	1307
FORMATION	**TVD TOP**	**TVD BOTTOM**
SHALE		7252
UPPER Marcellus	7252	7283
PARCELL LiME	7283	7318
SHALE	7318	7378
MARCELLUS	7378	

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Office of Oil and Gas
WV Dept. of Environmental Protection

WR-35 Rev (5-01)

DATE: 7/15/2010
API # : 47-021-5572

GS

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

Farm name: Gum, Ernest Kemp, Jr. Operator Well No.: Garrett #3
LOCATION:
Elevation: 1120' Quadrangle: Auburn 7.5'
District: Troy County: Gilmer
Latitude: 1580' Feet South of 39 Deg. 07 Min 89 Sec. 01
Longitude 2980' Feet West of 80 Deg. 80 Min. 24 Sec. 6.7
Company: Ramsey Associated Petroleum, Inc.

		Casing & Tubing	Used in drilling	Left in well	Cement fill Up. Cu. Ft.
Address: P.O. Box 90					
Glenville, WV 26351		9"		124'	
Agent: Leon Ramsey		7"		721'	Surface + 25%
Inspector: David Gilbert		4 ½ "		3898'	3000'
Date Permit Issued:	04/23/08				
Date Well Work Commenced:	12/02/08				
Date Well Work Completed:	07/12/09				
Verbal Plugging:					
Date Permission granted on:					
Rotary X Cable	Rig				
Total Depth (feet):	4990'				
Fresh Water Depth (ft.):	75'				
Salt Water Depth (ft.):	1604				
Is coal being mined in area (N/Y)?	N				
Coal Depths (ft.):					

OPENFLOWDATA

Producing formation BALLTOWN-SPEECHLY Pay zone depth (ft)
Gas: Initial open flow No test MCF/d Oil: Initial open flow 0 Bbl/d
Final open flow No test MCF/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure psig (surface pressure) after Hours

Second producing formation BALLTOWN-SPEECHLY Pay zone depth (ft)
Gas: Initial open flow No test MCF/d Oil: Initial open flow 0 Bbl/d
Final open flow No test MCF/d Final open flow 0 Bbl/d
Time of open flow between initial and final tests Hours
Static rock Pressure psig (surface pressure) after 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.

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Environmental Protection

Signed: _____

By: LEON RAMSEY Date: 7/15/2010

SUMMARY OF PROCEDURES AND ESTIMATED FORMATION TOPS FOR
RAMSEY ASSOCIATED PETROLEUM, INC.
GARRETT #3

Lease Name: Garrett heirs
API# 47-021-5572
Gilmer 7.5' Quadrangle
Elevation 1120'
TROY DISTRICT
GILMER COUNTY, WEST VIRGINIA

ZONE	DEPTH	GAS CHECK	REMARKS
LITTLE LIME	1969'-1986'		
BIG LIME	1986'-2102'		
BIG INJUN	2102'-2149'		
SPEECHLEY	3319'-3630'		
BALLTOWN	4172'-3789'		
BENSON	4478' – 4459'		
ELK	4657' – 4886'		
TOTAL DEPTH	**4990'**		

Perforations & Fracture Treatment
Well Name:_____GARRETT 3_____
API # 47-___021-05572_____
T.D. _____3690'_____of 9.50 # 4 ½"

1st Stage- _____BALLTOWN_____ (from ____3879____' to ___3602_____')
_60___QF ___400___sks 20/40
500 gal. 15% HCL
with Clay and Iron Stabilizer
_____16_____ perforations w/ ___4_____perforation balls
1, 2, 3 ppg @25-30 BBl per min

2nd Stage- ____SPEECHLY____ (from ____3512____' to ___3327__')
_60___QF___300___sks 20/40
500 gal. 15% HCL
with Clay and Iron Stabilizer
_____14_____ perforations w/ ___4_____perforation balls
1, 2, 3 ppg @25-30 BBl per min