

pm

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

API 47 - 095 - 02176 County TYLER District ELLSWORTH
Quad PORTER FALLS Pad Name BALL Field/Pool Name MARCELLUS
Farm name BALL, ROBERT D. & SHERRY A. Well Number BALL 2H
Operator (as registered with the OOG) STATOIL USA ONSHORE PROPERTIES INC.
Address 2103 CITYWEST BLVD., STE 800 City HOUSTON State TX Zip 77042

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4372959.48' Easting 520979.06'
Landing Point of Curve Northing 4373227.28' Easting 521258.66'
Bottom Hole Northing 4374990.51' Easting 520757.61'

Elevation (ft) 1169 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
Surface - Drill Water; Intermediate - KCl/Polymer; Production - Cyberdrill

Date permit issued 04/21/2014 Date drilling commenced 03/05/2015 Date drilling ceased 03/26/15
Date completion activities began 06/30/15 Date completion activities ceased 07/15/15
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 763' Estimated Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2150' Estimated Void(s) encountered (Y/N) depths N
Coal depth(s) ft N Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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DEC 03 2015
Reviewed by: DMH

01/08/2016

API 47- 095 - 02176 Farm name BALL, ROBERT D. & SHERRY A. Well number BALL 2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24	20	120	NEW	94#		
Surface	17 1/2"	13 3/8	463	NEW	J-55; 54.5#		Y
Coal							
Intermediate 1	12 1/4"	9 5/8	2619'	NEW	J-55; 36#		Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2	13637	NEW	P-110; 20#		Y
Tubing	45/8"	2 3/8	6528'	NEW	L-80		
Packer type and depth set		VersaSet Packer set at 6523'					

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	CLASS A	190	15.8	2.31		SURFACE	> 8HRS
Coal							
Intermediate 1	CLASS A	460	15.8	2.31		SURFACE	> 8HRS
Intermediate 2							
Intermediate 3							
Production	CLASS A	2396	13.5	1.29		SURFACE	> 8HRS
Tubing							

Drillers TD (ft) 13,571 Loggers TD (ft) 13,571
 Deepest formation penetrated Macellus Plug back to (ft) n/a
 Plug back procedure _____

Kick off depth (ft) _____

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Surface: 1 Centralizer with stop collar 10 ft above floatshoe. One single bow every joint to 100ft below surface.
 Intermediate: 1 centralizer with stop collar 10 ft above float shoe. 1 centralizer with stop collar 10 ft above float collar. 1 centralizer every joint for the first 15 joints. One centralizer every 3 joints to 100 ft below surface.
 Production: 1 centralizer w/ stop collar 10ft above shoe 1 centralizer 10ft above float collar. 1 centralizer every joint (floating) until KOP. 1 centralizer every 3 joints (floating) until 200ft inside intermediate shoe. 1 centralizer 50ft below mandrel hanger.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

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Environmental Protection
01/08/2016

API 47-095 - 02176

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	06/30/15	13428	13255	48	MARCELLUS
2	06/30/15	13190	13010	48	MARCELLUS
3	07/01/15	12936	12760	48	MARCELLUS
4	07/01/15	12690	12510	48	MARCELLUS
5	07/02/15	12440	12260	48	MARCELLUS
6	07/02/15	1210	12010	48	MARCELLUS
7	07/03/15	11940	11760	48	MARCELLUS
8	07/03/15	11690	11512	48	MARCELLUS
9	07/04/15	11440	11260	48	MARCELLUS
10	07/04/15	11190	11010	48	MARCELLUS
11	07/04/15	10964	10760	48	MARCELLUS
12	07/05/15	10690	10510	48	MARCELLUS
13	07/05/15	10440	10260	48	MARCELLUS
14	07/06/15	10185	10012	48	MARCELLUS
15	07/06/15	9940	9760	48	MARCELLUS
16	07/07/15	9690	9510	48	MARCELLUS

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	06/30/15	75.3	7245	7104	4591	387300	7878	
2	06/30/15	75	7479	8320	5131	387300	7663	
3	07/01/15	68.7	7801	7831	5206	387300	10413	
4	07/01/15	75.4	7106	6528	5496	387300	7818	
5	07/02/15	75	7066	8004	5706	387300	7765	
6	07/02/15	75.5	6978	7340	5387	387300	7718	
7	07/03/15	67.8	7707	7450	4920	387300	9899	
8	07/03/15	75.5	7141	7528	4999	387300	7699	
9	07/04/15	74.2	7141	7262	4833	387300	8227	
10	07/04/15	65.3	7622	7484	4450	387300	8800	
11	07/04/15	74.3	7622	7391	4666	387300	7622	
12	07/05/15	74.9	6989	7435	4677	387300	7828	
13	07/05/15	74	6747	6748	4870	387300	7535	
14	07/06/15	69.1	6875	7115	4596	387300	10797	Gas
15	07/06/15	75.5	6430	6581	5375	387300	7628	
16	07/07/15	75.7	6883	7921	4612	387300	7473	

Please insert additional pages as applicable.

West Virginia Department of Environmental Protection

01/08/2016

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
Marcellus	6924	TVD	7520 MD
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs
 OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY
 Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
Big Injun	2254	2370	2270	2389	Sandstone
Weir	2531	2555	2552	2576	Sandstone/Siltstone
Berea	2714	2720	2736	2743	Sandstone
Gordon	2939		2962		Sandstone
Warren	3644	3687	3667	3710	Sandstone
Java	5149		5172		Shale/Silty Shale
West River	6755		7055		Limestone
Geneseo	6830		7234		Gray Shale
Tully	6862		7318		Limestone
Marcellus	6927		7520		Shale, Gas

Please insert additional pages as applicable.

Drilling Contractor Orion Drilling
 Address _____ City _____ State _____ Zip _____
 Logging Company HALLIBURTON
 Address _____ City _____ State _____ Zip _____
 Cementing Company HALLIBURTON
 Address _____ City _____ State _____ Zip _____
 Stimulating Company PRODUCERS SERVICE CORP
 Address 109 S. GRAHAM STREET City ZANESVILLE State OH Zip 43701

Please insert additional pages as applicable.

Completed by Bekki Winfree Telephone 713-240-9015
 Signature *Bekki Winfree* Title Sr. Regulatory Advisor Date 12/01/15

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry
 RECEIVED
 Office of Oil and Gas
 WV Department of Environmental Protection
 01/08/2016

1733.8' LATITUDE 39° 32' 30"

MINERAL OWNERSHIP

UNIT 1 MARY MAXINE WELCH 2-17-42 69.5 AC
UNIT 2 ALLEN SMITH ET. AL. TM 2-17-14, 3, 14, 4, 14, 9, 15, P/O 2-12-26, 71.75 AC
UNIT 3 JON AND MARY BLOYD ET AL. TM 2-17-40, P/O 2-17-19, 147 AC
UNIT 4 DXY USA, INC. ET AL. TM 2-17-12, 14, 14.1, 14.2, 14.5, 14.6, 14.7, 14.8, 14.10, P/O 2-17-19, 93.5 AC
UNIT 5 SHIBEN ESTATES, INC. TM 2-12-27, 28, 29 & 2-17-18.1, 69.5 AC
UNIT 6 FLOYD E. LEWIS/LIFE ET AL. TM P/O 2-17-18, 60 AC
UNIT 7 S.A. SMITH & C. BURKE MORRIS TRUST ET AL. TM 2-17-41, 40.5 AC
UNIT 8 JOSEPHINE CORRELL ET AL. TM 2-18-11, 33.25 AC
UNIT 9 DXY USA, INC. ET AL. TM 2-17-17, 30.21 AC
UNIT 10 CECIL AND MARGARET LANCASTER TM 2-12-25, 78.17 AC
UNIT 11 GLADYS MAYFIELD BOND, ET AL. P/O TM 2-12-26 24.08 AC

LEGEND

- ⊕ TOPD MAP POINT
- ⊙ EXISTING WELLS
- ⊙ PRE-29 WELLS
- ⊙ PLUGGED WELL
- MINERAL TRACT
- PARCEL LINES
- AS-DRILLED ROAD
- - - PROPOSED WELL
- ROAD
- ~ STREAM

SURFACE LOC.

UTM 17-NAD 83 METERS

N: 4372959.48'
E: 520979.06'

NAD 83
LAT: 39.50600602
LON: -80.75597701

LANDING POINT LOC.

UTM 17-NAD 83 METERS

N: 4373227.28'
E: 521258.66'

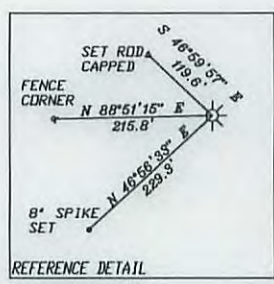
NAD 83
LAT: 39.50841215
LON: -80.75271629

BOTTOM HOLE LOC.

UTM 17-NAD 83 METERS

N: 4374990.51'
E: 520757.61'

NAD 83
LAT: 39.52431191
LON: -80.75848949



- NOTES:
1. THERE ARE NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' OF PROPOSED WELL.
 2. THERE ARE NO EXISTING BUILDINGS WITHIN 625' OF PROPOSED WELL.
 3. PROPOSED WELL IS GREATER THAN 100' FROM PERENNIAL STREAM, WETLAND, POND, RESERVOIR, OR LAKE.
 4. THERE ARE NO NATIVE TROUT STREAMS WITHIN 300' OF PROPOSED WELL.
 5. PROPOSED WELL IS GREATER THAN 1000' FROM SURFACE/GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY.
 6. IT IS NOT THE INTENTION OF THIS PLAT TO REPRESENT SURVEYED LOCATIONS OF THE SURFACE OR MINERAL PARCELS DEPICTED HEREON. THE LOCATION OF THE BOUNDARY LINES, AS SHOWN, ARE BASED ON RECORD DEED DESCRIPTIONS, FIELD EVIDENCE FOUND, AND/OR TAX MAP POSITION, UNLESS OTHERWISE NOTED.

the art of engineering

11283 Emerson Avenue Phone: (304) 464-5305
Parkersburg, West Virginia 26104 Fax: (304) 464-4428

FILE#: 2146001
DRAWING#: 2146001-STA-BALL, DWG
SCALE: 1"=1500'
ACCURACY: 1/2500
ELEVATION: OPUS SOL, NAVD 88
DATE: 10/23/15

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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

SIGNED: *[Signature]* PS# 2141



WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP OPERATOR'S WELL#: **BALL 2H**

GAS LIQUID INJECTION STORAGE SHALLOW API WELL#: 47 095 02176

STATE COUNTY PERMIT

WATERSHED: ELK FORK COUNTY/DISTRICT: TYLER/ELLSWORTH QUADRANGLE: PORTERS FALLS

SURFACE OWNER: ROBERT D. BALL & SHERRY A. BALL ET. AL. ACREAGE: 69.5±

OIL & GAS ROYALTY OWNER: MARY MAXINE WELCH ACREAGE: 693.4±

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE

PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON

PAD ELEVATION: 1169' CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY):

TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD, 6930' MD, 13,800'

WELL OPERATOR STATOIL USA ONSHORE PROPERTIES INC. DESIGNATED AGENT RICHARD PYLES

ADDRESS 2103 CITYWEST BLVD. STE. 800 ADDRESS 803 NASH ROAD

CITY HOUSTON STATE TX ZIP CODE 77042 CITY MIDDLEBOURNE STATE WV ZIP CODE 26149

01/08/2016



Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/30/2015
Job End Date:	7/9/2015
State:	West Virginia
County:	Tyler
API Number:	47-095-02176-00-00
Operator Name:	Statoil USA Onshore Properties Inc.
Well Name and Number:	Ball 2H
Longitude:	-80.75597700
Latitude:	39.50600600
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,930
Total Base Water Volume (gal):	7,402,878
Total Base Non Water Volume:	0



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
Water	Company 1	Carrier/Base Fluid	Water	7732-18-5	100.00000	86.37640	None
Sand (Proppant)	PSC	Proppant	Silica Substrate	NA	100.00000	12.44702	None
PRO GEL 4.0L	Producers Service Corp	Gelling Agent	Distillates (Petroleum), hydrotreated light	64742-47-8	65.00000	0.10221	None
			Guar Gum	9000-30-0	50.00000	0.07862	None
			Nonionic Surfactant	60828-78-6	5.00000	0.00786	None
			Nonionic Surfactant	60828-78-6	5.00000	0.00786	None
			Nonylphenol, Ethoxylate	9016-45-9	5.00000	0.00786	None
Hydrochloric Acid (7.5%)	Producers Service Corp	Acidizing	Hydrochloric Acid	7647-01-0	7.50000	0.06826	None
PRO FR 2000	Producers Service Corp	Friction Reducer	Petroleum Distillate	064742-47-8	24.00000	0.01697	None
MB 7530	Producers Service Corp	Biocide	Tetrahydro-3, 5-dimethyl-2H-1,3,5-thiadiazine-2-thione	533-74-4	24.00000	0.00900	None

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			Sodium Hydroxide	1310-73-2	4.00000	0.00150	None
PROHIB II	Producers Service Corp	Inhibitor					
			Dimethylcocoamine, bis (chloroethyl)ether, diquatery ammonium salt	68607-28-3	60.00000	0.00051	None
			Glycol Ethers	111-76-2	40.00000	0.00034	None
			Ethylene Glycol	107-21-1	40.00000	0.00034	None
			Propargyl Alcohol	107-19-7	30.00000	0.00025	None
			Methanol	67-56-1	30.00000	0.00025	None
			Ethoxylated Nonylphenol	68412-54-4	10.00000	0.00008	None
PRO BREAKER 4	Producers Service Corp	Breaker					
			Sucrose	57-50-1	40.00000	0.00007	None
			Ethylene Glycol	107-21-1	40.00000	0.00007	None
			Sodium Bicarbonate	144-55-8	1.00000	0.00000	None
			Hexamethylenetetramine	100-97-0	1.00000	0.00000	None
			Proprietary Ingredient	Proprietary	1.00000	0.00000	None
			Polyether Polyol	9003-11-6	1.00000	0.00000	None
			Proprietary Ingredient	Proprietary	1.00000	0.00000	None
			Proprietary Ingredient	Proprietary	1.00000	0.00000	None

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* 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%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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Department of

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Reviewed by:
WV Department of Environmental Protection
01/08/2016

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MDW Department of
Environmental Protection

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9	07/04/15	74.2	7141	7262	4833	387300	8227	
10	07/04/15	65.3	7622	7484	4450	387300	8800	
11	07/04/15	74.3	7622	7391	4666	387300	7622	
12	07/05/15	74.9	6989	7435	4677	387300	7828	
13	07/05/15	74	6747	6748	4870	387300	7535	
14	07/06/15	69.1	6875	7115	4596	387300	10797	
15	07/06/15	75.5	6430	6581	5375	387300	7628	
16	07/07/15	75.7	6883	7921	4612	387300	7473	

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Please insert additional pages as applicable.

API 47- 095 - 02176 Farm name BALL, ROBERT D. & SHERRY A. Well number BALL 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
		TVD	MD
Marcellus	6924	7520	
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
Big Injun	2254	2370	2270	2389	Sandstone
Weir	2531	2555	2552	2576	Sandstone/Siltstone
Berea	2714	2720	2736	2743	Sandstone
Gordon	2939		2962		Sandstone
Warren	3644	3687	3667	3710	Sandstone
Java	5149		5172		Shale/Silty Shale
West River	6755		7055		Limestone
Geneseo	6830		7234		Gray Shale
Tully	6862		7318		Limestone
Marcellus	6927		7520		Shale, Gas

Please insert additional pages as applicable.

Drilling Contractor Orion Drilling
Address _____ City _____ State _____ Zip _____

Logging Company HALLIBURTON
Address _____ City _____ State _____ Zip _____

Cementing Company HALLIBURTON
Address _____ City _____ State _____ Zip _____

Stimulating Company PRODUCERS SERVICE CORP
Address 109 S. GRAHAM STREET City ZANESVILLE State OH Zip 43701

Please insert additional pages as applicable.

Completed by Bekki Winfree Telephone 713-240-9015
Signature Bekki Winfree Title Sr. Regulatory Advisor Date 12/01/15

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry 01/08/2016

RECEIVED
Office of Oil and Gas

DEC 03 2015

WV Department of Environmental Protection