

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

API 47-033-05941 County Harrison District Simpson
Quad Brownton Pad Name J Osborn Field/Pool Name _____
Farm name Judy Osborn Well Number 203
Operator (as registered with the OOG) Arsenal Resources
Address 6031 Wallace Rd Ext, Ste 3000 City Wexford State PA Zip 15090

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4346578.589 Easting 567469.576
Landing Point of Curve Northing 4343444.065 Easting 568313.987
Bottom Hole Northing 4341445.599 Easting 569051.542

Elevation (ft) 1163.3 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)
Synthetic Oil Based

Date permit issued 04/12/2019 Date drilling commenced 05/21/2019 Date drilling ceased 11/22/2021
Date completion activities began 1/10/2022 Date completion activities ceased 5/17/2022
Verbal plugging (Y/N) N Date permission granted NA Granted by NA

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

Freshwater depth(s) ft 174, 232, 260, 372, 488, 609, 680 Open mine(s) (Y/N) depths N
Salt water depth(s) ft none reported Void(s) encountered (Y/N) depths N
Coal depth(s) ft none 226, 326, 401, 441, 531, 596, 616 (depths based on WVGES - not observed) Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

APPROVED

Reviewed by:
Kenneth Kopylov
2-8-23

API 47- 033 - 05941 Farm name Judy Osborn Well number 203

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	30"	24"	100'	New	94	NA	Y
Surface	17 1/2"	13 3/8"	821' GL	New	54.5	NA	Y
Coal	NA	NA	NA	NA	NA	NA	N
Intermediate 1	12 1/4"	9 5/8"	2,539' GL	New	40.0	NA	Y
Intermediate 2	NA	NA	NA	NA	NA	NA	NA
Intermediate 3	NA	NA	NA	NA	NA	NA	NA
Production	8 1/2"	5 1/2"	24,846' GL	New	20.0	NA	Y
Tubing	NA	NA	NA	NA	NA	NA	NA
Packer type and depth set		NA					

Comment Details Cement to surface on Conductor, Surface, Intermediate and Production cement to 450'

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	A	214	15.60	1.21	258.94	Surface	8+
Surface	A	711	15.60	1.2	853.2	Surface	8+
Coal	NA	NA	NA	NA	NA	NA	NA
Intermediate 1	A	845	15.60	1.2	1014	Surface	8+
Intermediate 2	NA	NA	NA	NA	NA	NA	NA
Intermediate 3	NA	NA	NA	NA	NA	NA	NA
Production	A	960/3500	13.80/15.00	1.33/1.3	1,276.8/4,550	450'	8+
Tubing	NA	NA	NA	NA	NA	NA	NA

Drillers TD (ft) 24,846'(GL) Loggers TD (ft) NA

Deepest formation penetrated Marcellus Plug back to (ft) NA

Plug back procedure NA

Kick off depth (ft) 6,510'(GL)

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 24"- No centralizers, 13 3/8" & 9-5/8"- one bow spring centralizer on every other joint, 5.5"- one semi rigid centralizer on every joint from TD of casing to end of curve. Then every other joint to KOP. Every third joint from KOP to 2,400'; there will be no centralizers from 2,400' to surface

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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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>			
<u>Marcellus Shale</u>	<u>7484</u>	<u>TVD</u>	<u>24,873</u>	<u>MD</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

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 24 hrs

OPEN FLOW Gas 18377 mcfpd Oil 0 bpd NGL 0 bpd Water 977 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
Sand/Silt	0	200	0	200	Freshwater @ 174', 232', 260', 372', 488', 609', 680' (All water depths interpreted from CBL - no reports while drilling)
Sand/Silt/Coal	200	300	200	300	Coal not observed while drilling: depths based on WVGES Maps: Bakerstown Coal @ 226' TVD
Sand/Silt/Coal	300	450	300	450	Brush Creek Coal @ 326' TVD, Upper Freeport @ 401' TVD, Lower Freeport @ 441' TVD
Sand/Silt/Coal	450	900	450	900	Upper Kittanning @ 531' TVD, Middle Kittanning @ 596' TVD, Lower Kittanning @ 616' TVD
Sand/Silt/Limestone	900	3023	900	3031	Sandstone, Siltstone, Limestone
Balltown	3023	3107	3031	3115	Sandstone
Elk Siltstone	4653	4678	4703	4728	Siltstone
Burkett	6921	6942	7050	7075	Shale
Tully	6942	6991	7075	7139	Limestone
Mahantango	6991	7157	7139	7434	Shale
Marcellus	7157	7205	7434	7615	Shale
Purcell	7205	7206	7615	7621	Limestone
Lower Marcellus	7206	7239*	7621	24873	Shale - Gas shows through lateral
Onondaga	7239*				*Onondaga not penetrated - top estimated based on 4703305933 thickness

Please insert additional pages as applicable.

Drilling Contractor Helmerich & Payne
Address 1437 South Boulder Ave. City Tulsa State OK Zip 74119

Logging Company NA
Address _____ City _____ State _____ Zip _____

Cementing Company Universal Pressure Pumping
Address 6 Desta Drive, Suite 4400 City Midland State TX Zip 79705

Stimulating Company Stingray - Mammoth Energy Services INC
Address 14201 Caliber Drive Suite 300 City Oklahoma City State OK Zip 73134

Please insert additional pages as applicable.

Completed by Arsenal Resources Telephone _____
Signature [Signature] Title Director of Geology & Development Planning Date 7/21/2022

Claimant Company	Claimant First Name	Claimant Last Name	Claimant Email	Claimant Phone (mm-nnn-nnnn)
Water				
Sand (100 Mesh Proppant)				
Sand (40/70 Proppant)				
Hydrochloric Acid (28%)				
Plexihb 166				
Stimstream SC 398				
Stimstream SC 3 ChemStream	Eric	Fry	eric.fry@chemstream.com	814-706-1426
Clearal 270				
Clearal 270				
Clearal 270				
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Clearal 270				
ChemStream	Eric	Fry	eric.fry@chemstream.com	814-706-1426
Chemstream 9750 Cationic				
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Q	N. D. PARKS ET AL	15-371/7 15-371/7.1 15-370/21



AS-DRILLED LOCATIONS UTM 17-NAD83(M)	
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THRASHER

THE THRASHER GROUP, INC.
 600 WHITE OAKS BLVD.
 BRIDGEPORT, WV 26330
 PHONE 304-624-4108

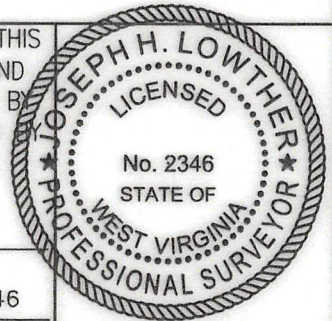
AS DRILLED PLAT

SEE PAGE 2 FOR PLAT DUE TO LENGTH OF LATERAL

FILE #: J OSBORN HSOP 16 203 AS DRILLED
 DRAWING #: J OSBORN HSOP 16 203 AS DRILLED
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

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 ENVIRONMENTAL PROTECTION.

Signed: *Joseph H. Lowther*
 R.P.E.: _____ L.L.S.: P.S. No. 2346



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304



DATE: JANUARY 20, 2022
 OPERATOR'S WELL #: J OSBORN HSOP 16 203 AS DRILLED
 API WELL #: 47 33 5941
 STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: SIMPSON CREEK ELEVATION: 1163.30'±

COUNTY/DISTRICT: HARRISON / SIMPSON QUADRANGLE: ROSEMONT, WV 7.5'

SURFACE OWNER: JUDY M OSBORN (LE) (JUDY M OSBORN IRREVOCABLE TRUST) ACREAGE: 70.00±

OIL & GAS ROYALTY OWNER: GOBEL OSBORN, ET AL ACREAGE: 1,607.99±

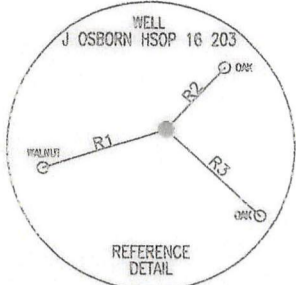
DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): AS DRILLED

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: IVD: 7,478.68'± TMD: 24,873.00'±

WELL OPERATOR ARSENAL RESOURCES DESIGNATED AGENT GARY SHORT
 Address 6031 WALLACE ROAD EXTENSION, SUITE 300 Address 633 WEST MAIN ST.
 City WEXFORD State PA Zip Code 15090 City BRIDGEPORT State WV Zip Code 26330

J OSBORN HSOP 16 203

PAGE 2 OF 2

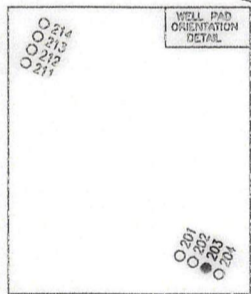


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NOTES:

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R1	S 72°36'39" W	228.12'
R2	N 43°37'20" E	150.12'
R3	S 46°54'51" E	224.15'
R4	N 15°32'40" W	974.20'
R5	N 29°30'21" E	998.47'
R6	N 47°38'00" E	1657.68'

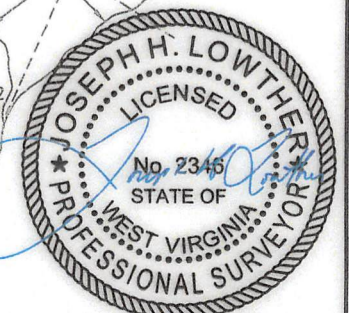


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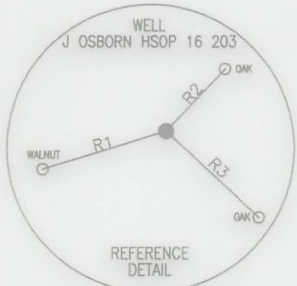
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AS DRILLED PLAT



J OSBORN HSOP 16 203

PAGE 2 OF 2

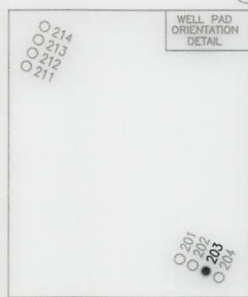


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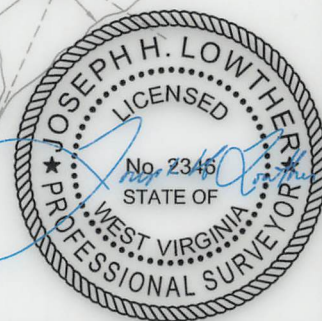


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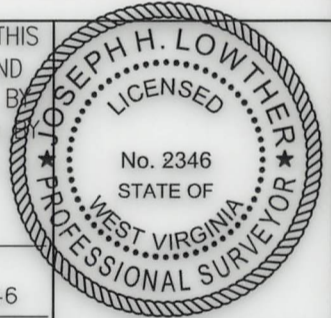
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COUNTY/DISTRICT: HARRISON / SIMPSON QUADRANGLE: ROSEMONT, WV 7.5'

SURFACE OWNER: JUDY M OSBORN (LE) (JUDY M OSBORN IRREVOCABLE TRUST) ACREAGE: 70.00±

OIL & GAS ROYALTY OWNER: GOBEL OSBORN, ET AL ACREAGE: 1,607.99±

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): AS DRILLED

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 7,478.68'± TMD: 24,873.00'±

WELL OPERATOR ARSENAL RESOURCES DESIGNATED AGENT GARY SHORT
 Address 6031 WALLACE ROAD EXTENSION, SUITE 300 Address 633 WEST MAIN ST.
 City WEXFORD State PA Zip Code 15090 City BRIDGEPORT State WV Zip Code 26330