



west virginia department of environmental protection

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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Wednesday, April 9, 2025
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ARSENAL RESOURCES LLC
6031 WALLACE RD EXT., SUITE 101
WEXFORD, PA 15090

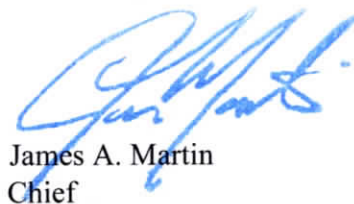
Re: Permit Modification Approval for J Osborn 213
47-033-06086-00-00

Extending to Lateral Landing Point

ARSENAL RESOURCES LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.



James A. Martin
Chief

Operator's Well Number: J Osborn 213
Farm Name: Judy M Osborn (LE) (Judy M Osborn Irrevocable Trust)
U.S. WELL NUMBER: 47-033-06086-00-00
Horizontal 6A New Drill
Date Modification Issued: 4/9/2025

Promoting a healthy environment.

04/11/2025

WW-6B
(04/15)

203824
3/26/25
\$ 7,500

4703306086
API NO. 47- _____
OPERATOR WELL NO. 213
Well Pad Name: J Osborn

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

- 1) Well Operator: Arsenal Resources 494519412 Harrison Simpson Rosemont
Operator ID County District Quadrangle
- 2) Operator's Well Number: 213 Well Pad Name: J Osborn
- 3) Farm Name/Surface Owner: Judy M Osborn (LE) Public Road Access: 77/4 Moss Run (Coplin Run)
- 4) Elevation, current ground: 1164 Elevation, proposed post-construction: 1164
- 5) Well Type (a) Gas X Oil _____ Underground Storage _____
Other _____
(b) If Gas Shallow X Deep _____
Horizontal X
- 6) Existing Pad: Yes or No Yes
- 7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale, Top 7130ft, Base 7230 ft, Anticipated Thickness 100 ft, Associated Pressure 0.5 psi/ft
- 8) Proposed Total Vertical Depth: 7220 ft
- 9) Formation at Total Vertical Depth: Marcellus Shale
- 10) Proposed Total Measured Depth: 7790 ft
- 11) Proposed Horizontal Leg Length: 0 ft
- 12) Approximate Fresh Water Strata Depths: 174', 232', 260', 372', 488', 609', 680'
- 13) Method to Determine Fresh Water Depths: Offsetting well reported water depths (033-5931, 033-05941, 033-5949, 033-5950)
- 14) Approximate Saltwater Depths: None expected
- 15) Approximate Coal Seam Depths: Bakerstown - 226', Brush Creek - 326', U Freeport - 401', L Freeport - 441', U Kittanning - 531', M Kittanning - 596', L Kittanning - 616'
- 16) Approximate Depth to Possible Void (coal mine, karst, other): None Known
- 17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes _____ No X
- (a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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Environmental Protection

Kenny Willett

3/25/25

WW-6B
(04/15)

4703306086
API NO. 47-
OPERATOR WELL NO. 213
Well Pad Name: J Osborn

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	24	New	H-40	102.7	80	80	CTS
Fresh Water	13.375	New	J-55	54.5	800	800	CTS
Coal							
Intermediate	9.625	New	J-55	40	1,500	1,500	CTS
Production	5.5	New	P-110	23	7,790	7,790	TOC @ 1,350
Tubing							
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	24	36			0	Class A/L, 3% CaCl ₂	1.2
Fresh Water	13.375	17.5	0.38	2,730	900	Class A/L, 3% CaCl ₂	1.2
Coal							
Intermediate	9.625	12.25	0.395	3,950	1,500	Class A/L, 3% CaCl ₂	1.29
Production	5.5	8.5-8.75	0.415	14,520	9,500	Class A/L, Poz	1.29/1.34
Tubing					5,000		
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

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Kenny Willett

3/25/25

Page 2 of 3
04/11/2025

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

The well will be started with a conductor rig drilling a 36" hole to Conductor programmed depth then running 24" casing and circulate cement back to surface. The conductor rig will move out and the drilling rig will move in and rig up. The drilling rig will then spud a 17 1/2" hole and drill to fresh water casing (Surface) to the programmed depth, Run 13- 3/8" casing and cement to surface. The rig will continue drilling a 12- 1/4" intermediate hole to the programmed depth, run 9- 5/8" casing and cement to surface. The rig will then continue to drill an 8- 3/4" hole to a designed KOP. We will then start drilling the curve and lateral section to the programmed total measured depth, run 5 1/2" casing and cement according to the program.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

The well will be completed using a plug and perforation method and stimulated with a slickwater and sand slurry. The anticipated maximum rate will be 90 bpm and the maximum pressure will be 11,500 psi.

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21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 17.26

22) Area to be disturbed for well pad only, less access road (acres): 6.63

23) Describe centralizer placement for each casing string:

24"- No centralizers 13 3/8" – one bow spring centralizer on every other joint 9 5/8" – one bow spring centralizer every third joint from TD to surface 5 1/2" – 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 2,700'; there will be no centralizers from 2,700' to surface.

24) Describe all cement additives associated with each cement type:

24" will be circulated to surface. The 13 3/8" casing will be cemented to surface with Class A/L cement and no greater than 3% CaCl₂ (calcium chloride). The 9 5/8" casing will be cemented to surface with Class A/L cement, & no greater than 3% calcium chloride. The 5 1/2" production string will be cemented back to 2,450' (+/- 150' above the casing shoe for the 9 5/8") with Class A/L Poz cement retarded (to extend pumpability) cellophane flaked for fluid loss, Bentonite gel as an extender (increased pumpability and fluid loss), a defoaming agent to decrease cement foaming during mixing to insure the cement is of proper weight to placement and possibly gypsum gas blocking additive to aid in blocking/gas migration (in combination with other additive mentioned here, helps cement achieve a "right angle" set) during the plastic phase of the cement set-up.

25) Proposed borehole conditioning procedures:

Top holes will be drilled with fresh water KOP. At KOP, the wellbore will be loaded with synthetic oil based mud, barite-weighted mud system with such properties as to build a filter-cake on the face of the bore-hole. This will provide lubricity as well as stabilizing the well bore. We will begin rotating the drill string and mud will be circulated upon reaching TD until no further cuttings are observed coming across the shaker screens. Once clean mud is circulated back to surface, we will pull three stands of drill pipe, load the hole, pull three strands and load the hole. The weight indicator on the rig will be monitored for any occurrences of drag and if any are noticed, we will re-run the previous stand of pipe pulled across and circulate 2x bottoms up while watching shakers for signs of cuttings. Once at the base curve, the string will be continuously rotated while pumping 2x bottoms up. We will pull three stands and fill the hole until we reach the vertical section of the well.

*Note: Attach additional sheets as needed.

Kenny Willott

3/25/25

Well Location Plat
Page 4 Cross Section

4703306086

Arsenal Resources
Applicant / Well Operator Name

DEP ID#

J Osborn HSOP 16 Pad
Harrison County, WV
GL 1164' & 27' KB @ 1191.00usft

Well #
213



WELL PLAN

Operator Name: Arsenal Resources
Well/Farm Name: J Osborn HSOP 16 Pad

Permit #

NOTES:

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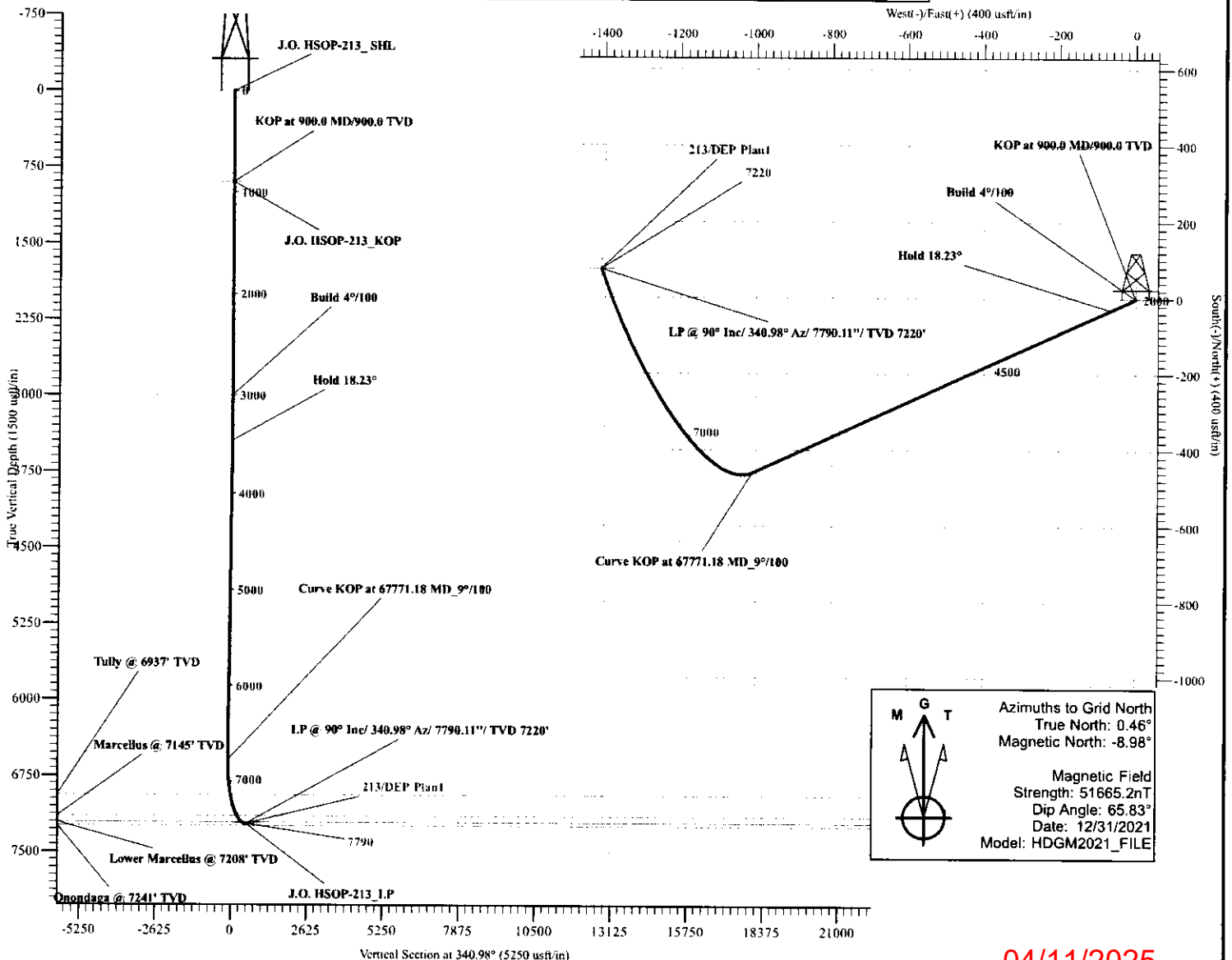
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Name	TVD	Latitude	Longitude	TMD
J.O. HSOP-213_SHL	0.00	39.266445	-80.218117	0.00
J.O. HSOP-213_KOP	900.00	39.266445	-80.218117	6771.18
J.O. HSOP-213_LP	7220.00	39.266621	-80.223099	7790.11

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	KOP at 900.0 MD/900.0 TVD
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	0.00	Build 4°/100
3455.80	18.23	245.52	3448.15	-29.79	-65.45	4.00	245.52	-6.84	Hold 18.23°
6771.18	18.23	245.52	6597.08	-459.58	-1009.50	0.00	0.00	-105.47	Curve KOP at 6771.18 MD_9°/100
7790.11	90.00	340.98	7220.00	75.45	-1410.01	9.00	95.18	530.85	LP @ 90° Inc/ 340.98° Azi/ 7790.11°/ TVD 7220'



04/11/2025

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
See attached				

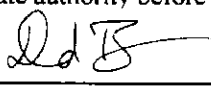
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**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: 
By: Dave Boyer
Its: Director of Geology & Development Planning

Attachment to WW-6A1, J OSBORN HSOP 213

Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
1 (00003703)	J. Earl Teter, Widower; Irvin D. Teter and Vera Teter, his wife	Petro-Lewis Corp.	12.5+%	1062/405	116
	Petro-Lewis Corp.	Partnership Properties Co.		1072/213	
	Partnership Properties Co.	Eastern American Energy Corporation		1124/449	
	Eastern American Energy Corporation	Energy Corporation of America		59/879	
	Energy Corporation of America	Greylock Production, LLC		1603/1121	
	Greylock Production, LLC	Mar Key, LLC		1607/855	
1 (00003704)	Gobel Osborn and Audrey Osborn, his wife and Judy Nicholson and Gary Nicholson, her husband	Petroleum Development Corporation	12.5+%	1074/420	72
	Petroleum Development Corporation	PDC Mountaineer, LLC		1440/364	
	PDC Mountaineer, LLC	River Ridge Energy, LLC		59/1263	
2 (00008352)	George T. Faris and Nell Steele Faris, his wife, Rachel F. Shuttleworth, widow, Florence Faris, single, and Nell Faris Shinn, widow	Delaware Gas Company	12.5+%	820/128	1562
	Delaware Gas Company	Union Carbide Corporation		845/221	
	Union Carbide Corporation	Creslenn Oil Company		897/286 898/258	
	Creslenn Oil Company	Deminex Oil Corporation		Delaware Secretary of State	
	Deminex Oil Corporation	Deminex U.S. Oil Company		Delaware Secretary of State	
	Deminex U.S. Oil Company	Southwest Exploration and Acquisition Company		Delaware Secretary of State	
	Southwest Exploration and Acquisition Company	Southwest Royalties		Delaware Secretary of State	
	Southwest Royalties	HG Energy II Appalachia, LLC		1605/194	
	HG Energy II Appalachia, LLC	Mar Key, LLC		1611/595	

4703306086

Attachment to WW-6A1, J OSBORN HSOP 213

Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
3 (00008233)	Charles Thomas Davis and Deborah A. Davis, husband and wife	NRM Petroleum Corporation	12.5+%	1097/75	47
	NRM Petroleum Corporation	Natural Resources Management Corporation		Unrecorded (WV Secretary of State)	
	Natural Resources Management Corporation	Edisto Resources Corporation		Unrecorded (WV Secretary of State)	
	NRM Operating Company, LP, Edisto Resources, NRM 1984-B Income, Ltd., and NRM 1984-D Income, Ltd.	Eastern American Energy Corporation		1216/558	
	Eastern American Energy Corporation	Energy Corporation of America		1441/1003 (also 59/879)	
	Energy Corporation of America	Greylock Production, LLC		1603/1121	
	Greylock Production, LLC	Mar Key, LLC		1607/855	
3 (00008232)	G. Lester Douglas and Mariellen Douglas, husband and wife	NRM Petroleum Corporation	12.5+%	1097/77	47
	NRM Petroleum Corporation	Natural Resources Management Corporation		Unrecorded (WV Secretary of State)	
	Natural Resources Management Corporation	Edisto Resources Corporation		Unrecorded (WV Secretary of State)	
	NRM Operating Company, LP, Edisto Resources, NRM 1984-B Income, Ltd., and NRM 1984-D Income, Ltd.	Eastern American Energy Corporation		1216/558	
	Eastern American Energy Corporation	Energy Corporation of America		1441/1003 (also 59/879)	
	Energy Corporation of America	Greylock Production, LLC		1603/1121	
	Greylock Production, LLC	Mar Key, LLC		1607/855	

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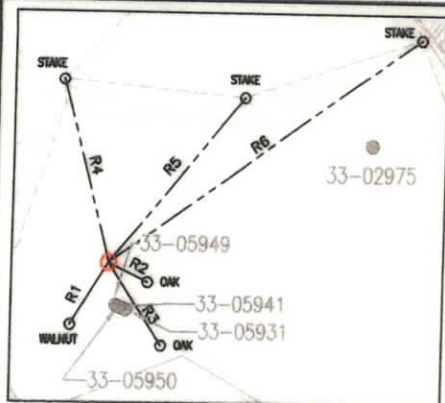
Area of Review Report - J Osborn Pad, 213 to LP, Harrison County, WV

Well Name	API Number	Operator Name / Address	Well Type	Latitude	Longitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
J Osborn HSOP 16 204	033-05931	Arsenal Resources, LLC	Existing	39.265907	-80.217852	24662	Marcellus Shale	NA
J Osborn HSOP 16 203	033-05941	Arsenal Resources, LLC	Existing	39.265924	-80.2179	24873	Marcellus Shale	NA
J Osborn HSOP 16 201	033-05949	Arsenal Resources, LLC	Existing	39.265958	-80.217997	25871	Marcellus Shale	NA
J Osborn HSOP 16 202	033-05950	Arsenal Resources, LLC	Existing	39.265941	-80.217949	25505	Marcellus Shale	NA

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4703306086

BHL is located on topo map 9,089 feet south of Latitude: 39°17'30"
SHL is located on topo map 9,164 feet south of Latitude: 39°17'30"



REFERENCE DETAIL
SCALE 1" = 800'

LINE	BEARING	DISTANCE
R1	S 31°25'37" W	302.82'
R2	S 63°28'24" E	182.59'
R3	S 33°03'50" E	409.67'
R4	N 15°03'12" W	774.95'
R5	N 39°05'51" E	874.61'
R6	N 54°11'19" E	1584.04'

J OSBORN HSOP 16 213		
SURFACE HOLE LOCATION (SHL)		
UTM 17-NAD83 (M):	NAD83, WV NORTH (FT)	NAD83, GEOGRAPHIC
NORTHING: 4346636.238	NORTHING: 279972.886	LAT-(N) 39.266445
EASTING: 567450.391	EASTING: 1765184.207	LONG-(W) 80.218117
BOTTOM HOLE LOCATION (BHL)		
UTM 17-NAD83 (M):	NAD83, WV NORTH (FT)	NAD83, GEOGRAPHIC
NORTHING: 4346652.104	NORTHING: 280048.410	LAT-(N) 39.266621
EASTING: 567020.475	EASTING: 1763774.355	LONG-(W) 80.223098

NOTES:

- There are no water wells or developed springs within 250' of proposed well.
- There are no existing buildings within 625' of proposed well.
- Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
- There are no native trout streams within 300' of proposed well.
- Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
- It is not the purpose or 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.
- Topo Mark Scale is 1"=2000'.

THRASHER

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

SEE PAGE 2 FOR PLAT

SEE PAGE 3 FOR SURFACE OWNER TABLE



FILE #: J OSBORN HSOP 16 213
DRAWING #: J OSBORN HSOP 16 213
SCALE: AS SHOWN
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:

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: MARCH 28, 2025OPERATOR'S WELL #: J OSBORN HSOP 16 213

API WELL #: 47 33 06086
STATE COUNTY PERMIT

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

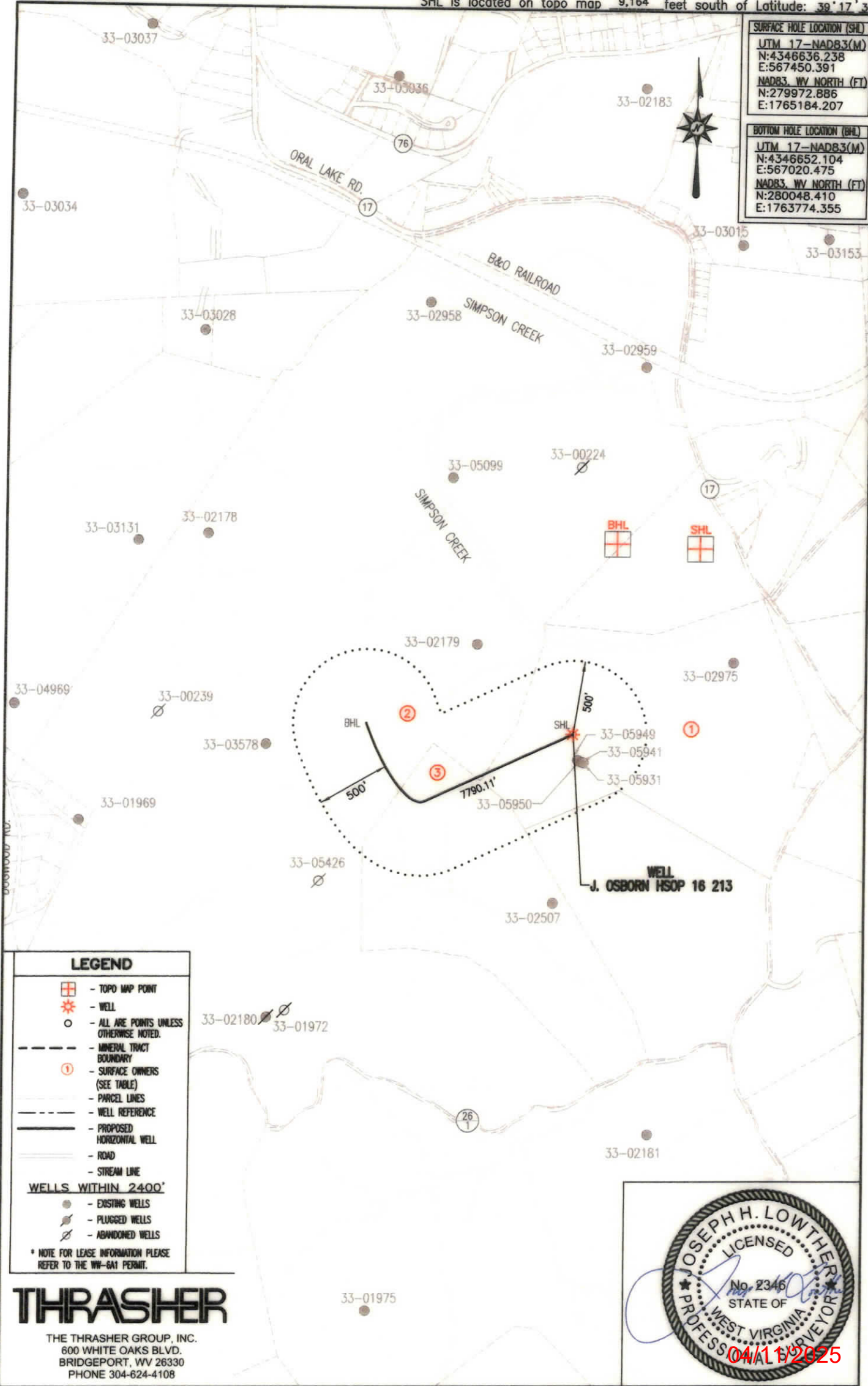
WATERSHED: SIMPSON CREEK ELEVATION: 1163.90'±COUNTY/DISTRICT: HARRISON / SIMPSON QUADRANGLE: ROSEMONT, WV 7.5'SURFACE OWNER: JUDY M OSBORN (LE) (JUDY M OSBORN IRREVOCABLE TRUST) ACREAGE: 70.00±OIL & GAS ROYALTY OWNER: GOBEL OSBORN, ET AL ACREAGE: 1,399.52±

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 7220'±WELL OPERATOR ARSENAL RESOURCESDESIGNATED AGENT ERIC MORRISAddress 6031 WALLACE ROAD EXTENSION, SUITE 101Address 633 WEST MAIN ST.City WEXFORD State PA Zip Code 15090City BRIDGEPORT State WV Zip Code 26330

BHL is located on topo map 9,089 feet south of Latitude: 39°17'30"
SHL is located on topo map 9,164 feet south of Latitude: 39°17'30"

BHL is located on topo map 4,252 feet west of Longitude: 80°12'30"
SHL is located on topo map 2,842 feet west of Longitude: 80°12'30"




DATE: MARCH 28, 2025	 STATE OF WEST VIRGINIA DIVISION OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS	FILE #: J OSBORN HSOP 16 213
OPERATOR'S WELL #: J OSBORN HSOP 16 213		DRAWING #: J OSBORN HSOP 16 213
API WELL #: 47 33 06086 STATE COUNTY PERMIT		SCALE: 1" = 1000'
WELL OPERATOR ARSENAL RESOURCES Address 6031 WALLACE ROAD EXTENSION, SUITE 101 City WEXFORD State PA Zip Code 15090	DESIGNATED AGENT ERIC MORRIS Address 633 WEST MAIN ST. City BRIDGEPORT State WV Zip Code 26330	

J OSBORN WELL 213			
ID	SURFACE OWNER	DIST-TM-PAR	ACREAGE
1	OSBORN JUDY M (LE) (JUDY M OSBORN IRREVOCABLE	15-0330-0005	56.67
2	HARRON CAROLYN S	15-0330-0003	355.02
3	DAVIS CHARLES THOMAS II	15-0330-0004	41.84
2	HARRON CAROLYN S	15-0330-0003	355.02

THRASHER

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

04/11/2025

DATE: <u>MARCH 28, 2025</u>		FILE #: <u>J OSBORN HSOP 16 213</u>
OPERATOR'S WELL #: <u>J OSBORN HSOP 16 213</u>		DRAWING #: <u>J OSBORN HSOP 16 213</u>
API WELL #: <u>47</u> <u>33</u> <u>06086</u>		SCALE: <u>N/A</u>
STATE COUNTY PERMIT		
WELL OPERATOR <u>ARSENAL RESOURCES</u>	STATE OF WEST VIRGINIA DIVISION OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS	DESIGNATED AGENT <u>ERIC MORRIS</u>
Address <u>6031 WALLACE ROAD EXTENSION, SUITE 101</u>		Address <u>633 WEST MAIN ST.</u>
City <u>WEXFORD</u> State <u>PA</u> Zip Code <u>15090</u>		City <u>BRIDGEPORT</u> State <u>WV</u> Zip Code <u>26330</u>