



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, August 27, 2025
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

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

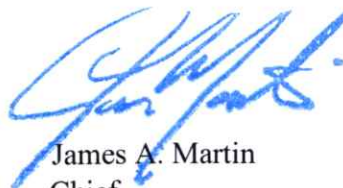
Re: Permit Modification Approval for J Osborn 200
47-033-06115-00-00

Extended Lateral

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 200
Farm Name: Judy M Osborn (LE) (Judy M Osborn Irrevocable Trust)
U.S. WELL NUMBER: 47-033-06115-00-00
Horizontal 6A New Drill
Date Modification Issued: 8/27/2025

Promoting a healthy environment.

08/29/2025

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

1) Well Operator: <u>Arsenal Resources</u>	494519412	Harrison	Simpson	Rosemont
	Operator ID	County	District	Quadrangle

2) Operator's Well Number: 200 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 ☒ Oil ☐ Underground Storage ☐
Other ☐
(b) If Gas Shallow ☒ Deep ☐
Horizontal ☒

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale, Top 7,130ft, Base 7,230 ft, Anticipated Thickness 100 ft, Associated Pressure 0.5 psi/ft

8) Proposed Total Vertical Depth: 7,220 ft

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 25,500 ft

11) Proposed Horizontal Leg Length: 16,533 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 ☒

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

ck# 7,500.00
ck# 0000204290

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Jeff A Propat

8-5-2025

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	94	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	25,500	25,500	TOC @ 1,350
Tubing							
Liners							

Jeff A Propat 8-5-2025

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							
Liners							

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Kind:				
Sizes:				
Depths Set:				

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 1,450'; there will be no centralizers from 1,450' 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 1,350' (+/- 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.

Well Location Plat

Page 4 Cross Section

Arsenal Resources
Applicant / Well Operator Name

DEP ID#

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

Well #
200



WELL PLAN

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

DEP
Use
Only

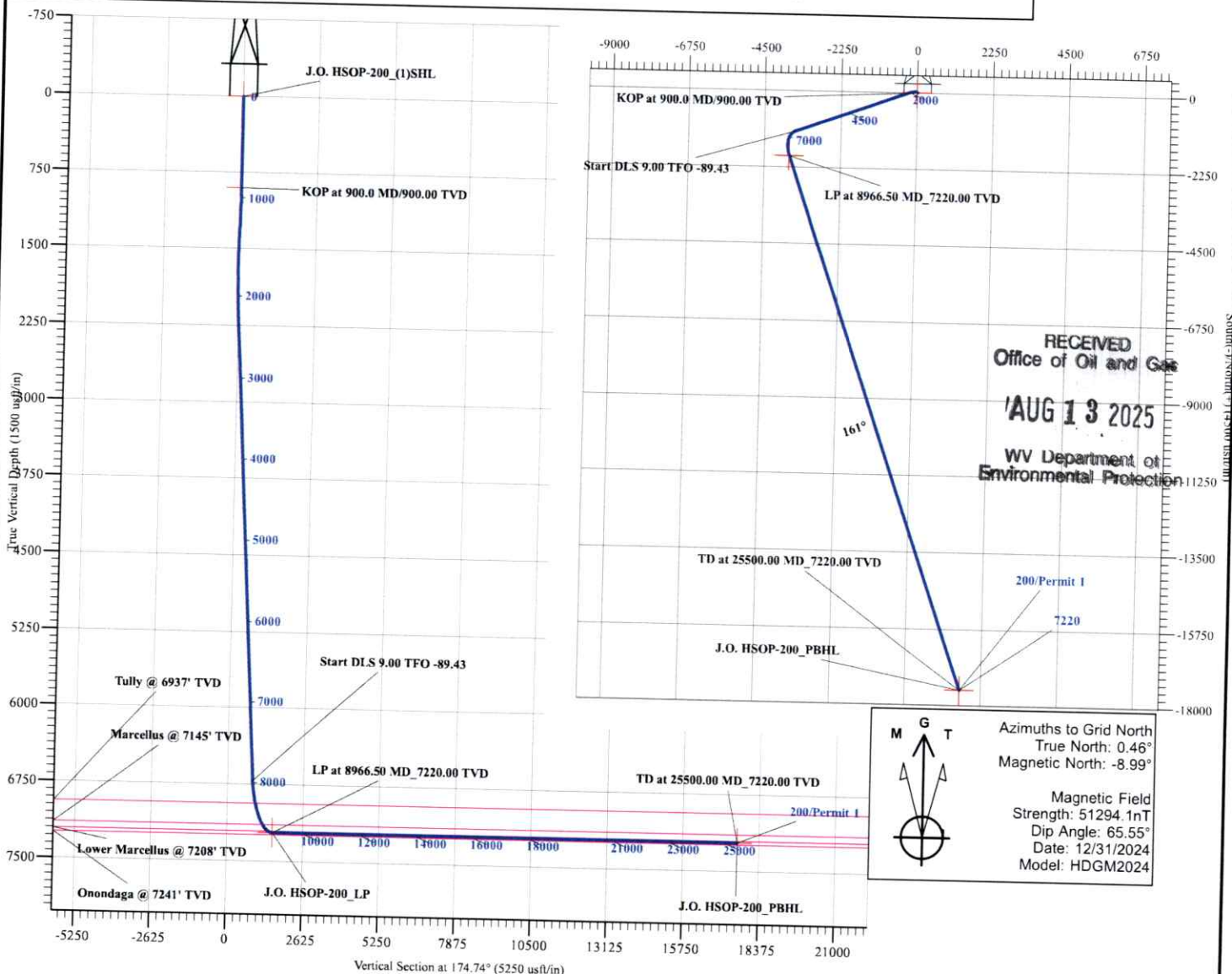
Permit #

NOTES:

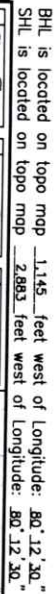
Name	TVD	Latitude	Longitude	TMD
J.O. HSOP-200_(1)SHL	0.00	39.266498	-80.218260	0.00
J.O. HSOP-200_KOP	900.00	39.266498	-80.218260	900.00
J.O. HSOP-200_LP	7220.00	39.261140	-80.231497	8966.50
J.O. HSOP-200_PBHL	7220.00	39.218338	-80.212056	25500.00

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	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/900.00 TVD
1300.00	8.00	330.00	1298.70	24.14	-13.94	2.00	330.00	-25.32	
2217.30	37.39	250.29	2146.46	-15.91	-318.54	4.00	-90.31	-13.39	
7971.36	37.39	250.29	6718.05	-1194.60	-3607.98	0.00	0.00	858.50	Start DLS 9.00 TFO -89.43
8966.50	90.00	161.01	7220.00	-1921.40	-3763.53	9.00	-89.43	1567.96	LP at 8966.50 MD_7220.00 TVD
25500.00	90.00	161.01	7220.00-17554.69	1617.62	0.00	0.00	0.00	17629.06	TD at 25500.00 MD_7220.00 TVD



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- - TOPO MAP POINT
- - WELL
- - ALL ARE POINTS UNLESS OTHERWISE NOTED.
- - MINERAL TRACT BOUNDARY
- - SURFACE OWNERS (SEE TABLE)
- - PARCEL LINES
- - WELL REFERENCE
- - PROPOSED HORIZONTAL WELL
- - ROAD
- - STREAM LINE

WELLS WITHIN 2400'

- - EXISTING WELLS
- - PLUGGED WELLS
- - ABANDONED WELLS

THRASHER

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

SEE PAGE 3 FOR INSET DUE TO PARCEL SIZE

SEE PAGE 4 FOR SURFACE OWNERS TABLE

DATE: AUGUST 7, 2025

OPERATOR'S WELL #: J OSBORN HSOP 16 200

API WELL #:	47	033	06115
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STATE	COUNTY	PERMIT
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WELL OPERATOR ARSENAL RESOURCES

Address 6031 WALLACE ROAD EXTENSION, SUITE 200

City WEXFORD State PA Zip Code 15090



STATE OF WEST VIRGINIA
DIVISION OF
ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FILE #: J OSBORN HSOP 16 200

DRAWING #: J OSBORN HSOP 16 200

SCALE: $1" = 2000'$

DESIGNATED AGENT ERIC MORRIS

Address 633 WEST MAIN ST.

City	BRIDGEPORT	State	WV	Zip Code	26330
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08/29/2025

J OSBORN HSOP 16 200

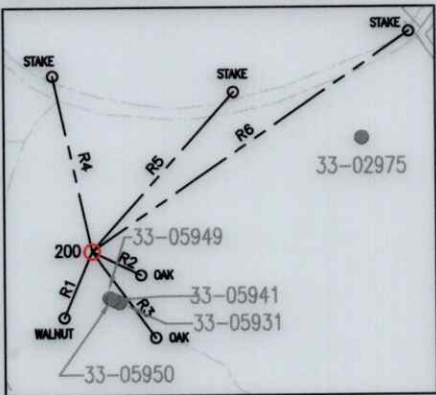
Area of Review Report - J Osborn Pad, 200 Lateral, Harrison County, WV

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
Carolyn Harron 40	033-05426	NA	Cancelled	39.263556	-80.223861	NA	NA	NA
Virginia Guckes 37	033-03578	Diversified Production, LLC	Existing	39.266235	-80.225491	4552	Benson	NA
George T Faris 10	033-01969	Diversified Production, LLC	Existing	39.264762	-80.229982	4449	Benson	Big Injun, Thirty-foot, Upper Speechley
Faris Heirs 9	033-01115	Diversified Production, LLC	Existing	39.259749	-80.231996	4441	Benson	Big Injun
G T Faris Etc 4	033-00234	Diversified Production, LLC	Existing	39.257505	-80.229048	2414	Fifth	Gordon
Haris Heirs/J Varner 6	033-00516	NA	Plugged	39.249801	-80.227912	2671	Fifth	Big Injun, Gantz
Sedan et al 1	033-00438	NA	Plugged	39.223968	-80.213545	2563	Fifth	NA
John J/C L Pastis 2	033-03882	NA	Plugged	39.22121	-80.215035	NA	NA	NA
M Reed 2	033-01233	NA	Plugged	39.217125	-80.212161	4530	Benson	Balltown

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BHL is located on topo map 11,523 feet south of Latitude: 39°15'00"
SHL is located on topo map 9,144 feet south of Latitude: 39°17'30"

BHL is located on topo map 1.145 feet west of Longitude: 80°12'30."
SHL is located on topo map 2.883 feet west of Longitude: 80°12'30."



REFERENCE DETAIL
SCALE 1" = 800'

J OSBORN HSOP 16 200		
SURFACE HOLE LOCATION (SHL)		
UTM 17-NAD83 (M)	NAD83, WV NORTH (FT)	NAD83, GEOGRAPHIC
NORTHING: 4346642.057	NORTHING: 279992.657	LAT-(N) 39.266498
EASTING: 567437.973	EASTING: 1765143.777	LONG-(W) 80.218260
LANDING POINT LOCATION (LPL)		
UTM 17-NAD83 (M):	NAD83, WV NORTH (FT)	NAD83, GEOGRAPHIC
NORTHING: 4346037.698	NORTHING: 278071.577	LAT-(N) 39.261141
EASTING: 566301.032	EASTING: 1761380.052	LONG-(W) 80.231498
BOTTOM HOLE LOCATION (BHL)		
UTM 17-NAD83 (M):	NAD83, WV NORTH (FT)	NAD83, GEOGRAPHIC
NORTHING: 4341302.147	NORTHING: 262438.615	LAT-(N) 39.218340
EASTING: 568019.611	EASTING: 1766760.994	LONG-(W) 80.212057

LINE	BEARING	DISTANCE
R1	S 22°53'36" W	301.95'
R2	S 63°33'58" E	227.60'
R3	S 36°00'48" E	448.89'
R4	N 12°26'55" W	746.13'
R5	N 41°56'04" E	885.85'
R6	N 55°36'18" E	1605.75'

- 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'.

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

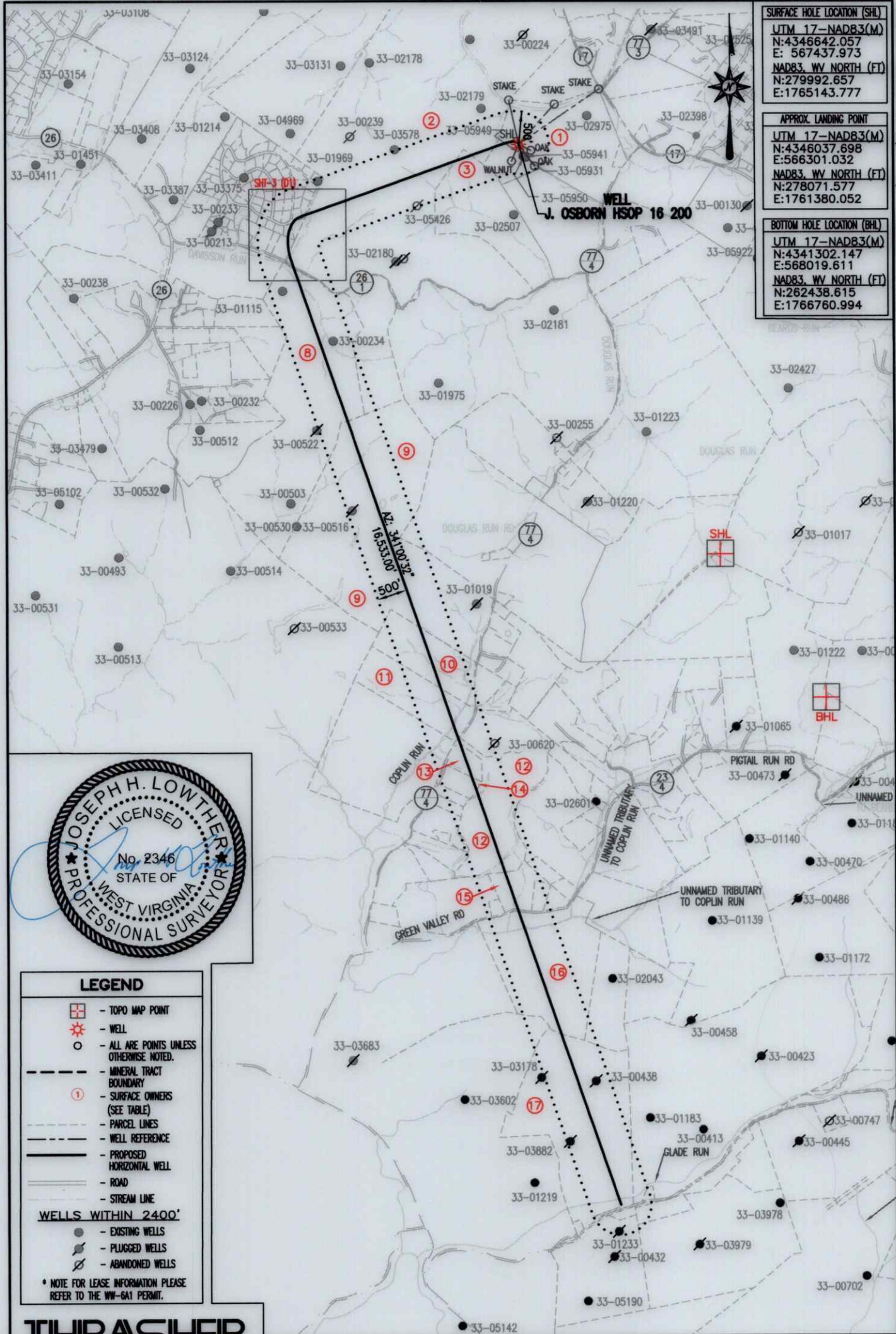
SEE PAGES 2-3 FOR PLAT

SEE PAGE 4 FOR SURFACE OWNER TABLE



FILE #: J OSBORN HSOP 16 200	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.		
DRAWING #: J OSBORN HSOP 16 200	Signed:		
SCALE: AS SHOWN	R.P.E.: L.L.S.: P.S. No. 2346		
MINIMUM DEGREE OF ACCURACY: 1/2500	DATE: AUGUST 7, 2025		
PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'	OPERATOR'S WELL #: J OSBORN HSOP 16 200		
(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP	API WELL #: 47 033 06115		
OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25304	STATE COUNTY PERMIT		
Well Type: ☐ Oil ☐ Waste Disposal ☒ Production ☐ Deep ☒ Gas ☐ Liquid Injection ☐ Storage ☒ Shallow	WATERSHED: SIMPSON CREEK ELEVATION: 1164.03'±		
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):		08/29/2025	
TARGET FORMATION: MARCELLUS	ESTIMATED DEPTH: 7220'± TMD / 25,500'± TMD		
WELL OPERATOR ARSENAL RESOURCES	DESIGNATED AGENT ERIC MORRIS		
Address 6031 WALLACE ROAD EXTENSION, SUITE 200	Address 633 WEST MAIN ST.		
City WEXFORD State PA Zip Code 15090	City BRIDGEPORT State WV Zip Code 26330		

BHL is located on topo map 11,523 feet south of Latitude: 39°15'00"
SHL is located on topo map 9,144 feet south of Latitude: 39°17'30"



SURFACE HOLE LOCATION (SHL)	
UTM 17-NAD83(M)	N:4346642.057
	E: 567437.973
NAD83, WV NORTH (FT)	N:279992.657
	E:1765143.777
APPROX. LANDING POINT	
UTM 17-NAD83(M)	N:4346037.698
	E:566301.032
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	E:1761380.052
BOTTOM HOLE LOCATION (BHL)	
UTM 17-NAD83(M)	N:4341302.147
	E:568019.611
NAD83, WV NORTH (FT)	N:262438.615
	E:1766760.994

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SHL is located on topo map 2,883 feet west of Longitude: 80°12'30"



- LEGEND**
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- * NOTE FOR LEASE INFORMATION PLEASE REFER TO THE WV-6A1 PERMIT.

THRASHER

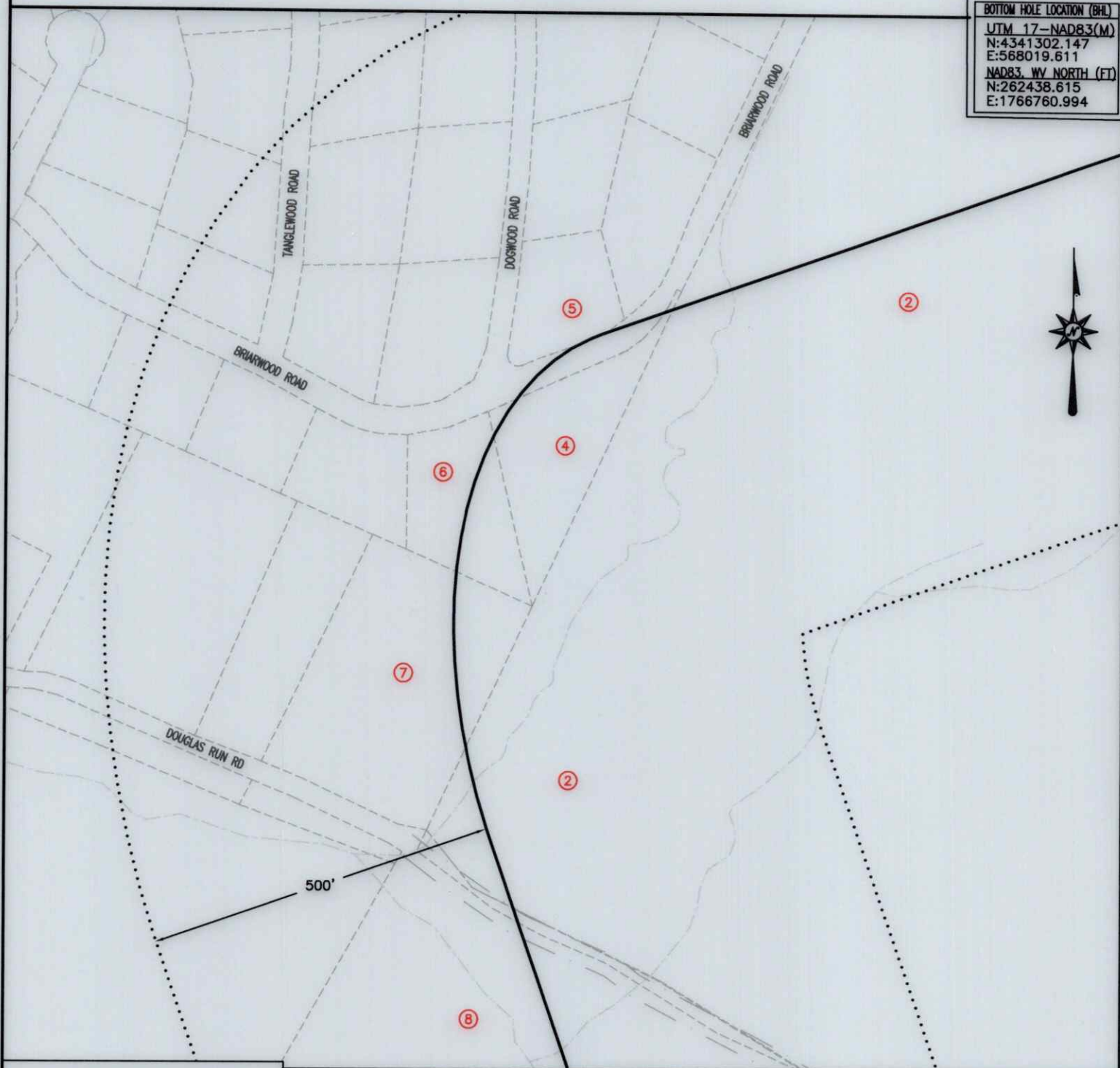
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BRIDGEPORT, WV 26330
PHONE 304-624-4108

SEE PAGE 3 FOR INSET DUE TO PARCEL SIZE
SEE PAGE 4 FOR SURFACE OWNERS TABLE

08/29/2025

DATE: AUGUST 7, 2025		FILE #: J OSBORN HSOP 16 200
OPERATOR'S WELL #: J OSBORN HSOP 16 200		DRAWING #: J OSBORN HSOP 16 200
API WELL #: 47 033 06115		SCALE: 1" = 2000'
STATE COUNTY PERMIT	STATE OF WEST VIRGINIA DIVISION OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS	DESIGNATED AGENT ERIC MORRIS
WELL OPERATOR ARSENAL RESOURCES	Address 633 WEST MAIN ST.	City BRIDGEPORT State WV Zip Code 26330
Address 6031 WALLACE ROAD EXTENSION, SUITE 200		
City WEXFORD State PA Zip Code 15090		

SURFACE HOLE LOCATION (SHL)
<u>UTM 17-NAD83(M)</u>
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<u>NAD83, WY NORTH (FT)</u>
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E:568019.611
<u>NAD83, WY NORTH (FT)</u>
N:262438.615
E:1766760.994



SHT-3 (D1)
SCALE 1" = 200'

-  - TOPO MAP POINT
 - WELL
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 - MINERAL TRACT BOUNDARY
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* NOTE FOR LEASE INFORMATION PLEASE REFER TO THE WW-6A1 PERMIT.

THRASHER

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

08/29/2025



AUGUST 7, 2025

J OSBORN HSOP 16 200			
NO	OWNER'S NAME	API WELL #	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
4	ADLINGTON RODNEY LYNN & ALLISON LYNN	16-2423-0052	0.91
ROAD	BRIARWOOD ROAD	N/A	N/A
5	BIFANO CHRISTOPHER P & CHERYL	16-2423-0048	0.52
ROAD	BRIARWOOD ROAD	N/A	N/A
4	ADLINGTON RODNEY LYNN & ALLISON LYNN	16-2423-0052	0.91
6	BUSH THOMAS E III & CYNTHIA J	16-2423-0051	0.71
7	MICHEL THOMAS H & JONALEE A	15-0330-0024-0002	2.20
2	HARRON CAROLYN S	15-0330-0003	355.02
ROAD	DOUGLAS RUN	N/A	N/A
8	PHILLIPS JAMES P & COURTNEY L	15-0330-0024-0000	162.91
9	PHILLIPS JAMES P & COURTNEY	15-0350-0002-0000	158.49
10	ROLLINS JOHN C	15-0350-0010-0000	28.74
11	ROLLINS JOHN C	15-0350-0011-0000	29.52
ROAD	COPLIN RUN ROAD	N/A	N/A
12	FLESHER NICHOLAS A & MEGHAN A	15-0350-0022-0000	44.00
13	MCKINNEY PAUL SCOTT	15-0350-0022-0003	4.61
14	BEDNAR DANIEL S & MITZI D	15-0350-0022-0004	4.08
12	FLESHER NICHOLAS A & MEGHAN A	15-0350-0022-0000	44.00
15	ROBINSON JOHN E & SHAREN K	15-0370-0006-0006	13.22
ROAD	COPLIN RUN ROAD	N/A	N/A
16	TUCKER MARY M ETAL	15-0370-0008-0000	67.45
17	KIRK JOEL C	15-0370-0020-0000	104.85

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

DATE: <u>AUGUST 7, 2025</u>		FILE #: <u>J OSBORN HSOP 16 200</u>
OPERATOR'S WELL #: <u>J OSBORN HSOP 16 200</u>		DRAWING #: <u>J OSBORN HSOP 16 200</u>
API WELL #: <u>47</u> <u>033</u> <u>06115</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 200</u>		Address <u>633 WEST MAIN ST.</u>
City <u>WEST VIRGINIA</u> State <u>PA</u> Zip Code <u>15000</u>		City <u>BRIDGEPORT</u> State <u>WV</u> Zip Code <u>26330</u>

Attachment to WW-6A1, J OSBORN HSOP 200

Letter Designation/ Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
1 (00003704) 15-330-5	Gobel Osborn and Audrey Osborn, his wife and Judy Nicholson and Gary Nicholson, her husband	Petroleum Development Corporation	12.5+%	1074/420	72.000
	Petroleum Development Corporation	PDC Mountaineer, LLC		1440/364	
	PDC Mountaineer, LLC	River Ridge Energy, LLC		59/1263	
1 (00003703) 15-330-5	J Earl Teter et al	Petro-Lewis Corporation	12.5+%	1062/405	116.500
	Petro-Lewis Corporation	Partnership Properties Co		1072/213	
	Partnership Properties Co	Eastern American Energy Corp		1124/449	
	Eastern American Energy Corp	Petroleum Development Corporation		1134/83	
	Petroleum Development Corporation	PDC Mountaineer, LLC		1440/364	
	PDC Mountaineer, LLC	River Ridge Energy, LLC		59/1263	
2, 4, 5, 6, 7, 8, 9 (00008352) 15-330-3, 16-2423-52, 16- 2423-48, 16-2423-51, 15-330- 24.2, 15-330-24, 15-350-2	George T. Faris et al	Delaware Gas Company	12.5+%	820/128	1529.000
	Delaware Gas Company	Creslenn Oil Company		897/279	
	Creslenn Oil Company	Deminex Oil Corporation		see Delaware Secretary of State site for name change documents	
	Deminex Oil Corporation	Deminex U.S. Oil Company		see Delaware Secretary of State site for name change documents	

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	Deminex U.S. Oil Company	Southwest Exploration And Acquisition Company		see Delaware Secretary of State site for name change documents	
	Southwest Exploration And Acquisition Company	Southwest Royalties Inc		see Delaware Secretary of State site for name change documents	
	Southwest Royalties Inc	HG Energy II Appalachia		1605/194	
	HG Energy II Appalachia	Mar Key, LLC		1611/595	
3 (0008233) 15-330-4	Charles Thomas Davis ET UX	NRM Petroleum Corporation	12.5+%	1097/75	46.000
	NRM PETROLEUM CORPORATION	NRM 80-2 LTD		1159/9	
	NRM 80-2 LTD	NRM OPERATING COMPANY		1165/229	
	NRM OPERATING COMPANY ET AL	EASTERN AMERICAN ENERGY CORPORATION		1216/558	
	EASTERN AMERICAN ENERGY CORPORATION	ENERGY CORPORATION OF AMERICA		1441/1003	
	ENERGY CORPORATION OF AMERICA	GREYLOCK PRODUCTION LLC		1603/1121	
	GREYLOCK PRODUCTION LLC	MAR KEY LLC		1607/0855	
3 (00008232) 15-330-4	G Lester Douglas	NRM PRODUCTION CORPORATION	12.5+%	1097/77	46.000
	NRM PETROLEUM CORPORATION	NRM 80-2 LTD		1159/9	
	NRM 80-2 LTD	NRM OPERATING COMPANY		1165/229	
	NRM OPERATING COMPANY ET AL	EASTERN AMERICAN ENERGY CORPORATION		1216/558	
	EASTERN AMERICAN ENERGY CORPORATION	ENERGY CORPORATION OF AMERICA		1441/1003	

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Letter Designation/ Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
	ENERGY CORPORATION OF AMERICA	GREYLOCK PRODUCTION LLC		1603/1121	
	GREYLOCK PRODUCTION LLC	MAR KEY LLC		1607/0855	
ROAD	Briarwood Road	N/A	N/A	N/A	N/A
ROAD	Douglas Run	N/A	N/A	N/A	N/A
10, 11 47-033-15-350-10 47-033-15-350-11	Suzanne M Hornor	MAR KEY LLC	12.5+%	1606/366	57.13
10, 11 47-033-15-350-10 47-033-15-350-11	Irrevocable Trust of W David Teter	MAR KEY LLC	12.5+%	1629/166	57.13
ROAD	Coplin Run Road	N/A	N/A	N/A	N/A
12, 13, 14, 15 - 15-350-22, 22.3, 22.4 15- 370-6.6	Ralph McDonald et ux	MAR KEY LLC	12.5+%	1611/621	394.460
12, 13, 14, 15	Tracy H. McDonald	MAR KEY LLC	12.5+%	1615/768	394.460
12, 13, 14, 15	Gloria Glover McDonald Life Estate	MAR KEY LLC	12.5+%	1615/778	394.460
12, 13, 14, 15	Alma L Carson	MAR KEY LLC	12.5+%	1615/748	394.460
12, 13, 14, 15	Kevin L McDonald	MAR KEY LLC	12.5+%	1611/631	394.460
12, 13, 14, 15	M Ruth Cutlip	MAR KEY LLC	12.5+%	1615/758	394.460
16 (00008897) 15-370-8	CHARLES W CLEVINGER IRREVOCABLE TRUST	MAR KEY LLC	12.5+%	1723/813	228.600
17 (00009465) 15-370-20	JOEL C KIRK	MAR KEY LLC	12.5+%	1800/990	104.540

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