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west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Monday, January 28, 2019  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

AMERICAN PETROLEUM PARTNERS OPERATING, LLC  
4600 J. BARRY COURT SUITE 310

CANONSBURG, PA 15317

Re: Permit Modification Approval for CASTLE BLACK 5UH  
47-051-02044-00-00

Modified Lateral Length for a TMD of 21,052'.

AMERICAN PETROLEUM PARTNERS OPERATING, 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.

A handwritten signature in blue ink, appearing to read 'James A. Martin', is written over a faint circular stamp.

James A. Martin  
Chief

Operator's Well Number: CASTLE BLACK 5UH  
Farm Name: ECO-VRINDABAN INC, DBA GORAKSHYA-SEV  
U.S. WELL NUMBER: 47-051-02044-00-00  
Horizontal 6A New Drill  
Date Modification Issued: January 28, 2019

Promoting a healthy environment.



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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street SE, Charleston, WV 25304  
304-926-0499 Ext 1274

Barry K. Lay, Chairman  
dep.wv.gov

December 12, 2018

Department of Environmental Protection  
Office of Oil and Gas  
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-051-02044

COMPANY: American Petroleum Partners Operating, LLC

FARM: Eco-Vrindaban, Inc. dba Gorakshya-Seva et al Castle Black-5UH


COUNTY: Marshall DISTRICT: Webster QUAD: Majorsville

The deep well review of the application for the above company is **Approved to drill to the Trenton for Point Pleasant completion. Pooling Docket No. 269-261.**

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Comments to Notice of Deviation filed? No
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: \*yes, Docket 269-261 Exception Location Hearing, Castle Black-7UH 47-051-02119; Castle Black-9UH 47-051-02120; Castle Black-10UH 47-051-02121; Winterfell-5UH 47-051-02118; Wintefell-10UH 47-051-02106
4. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

  
Susan Rose  
Administrator

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

1) Well Operator: American Petroleum Partners 494521257 Marshall Webster Majorsville  
Operator ID County District Quadrangle

2) Operator's Well Number: Castle Black-5UH Well Pad Name: Castle Black

3) Farm Name/Surface Owner: Geeta Public Road Access: Big Wheeling Creek Road

4) Elevation, current ground: 1044.00' Elevation, proposed post-construction: 1042.00'

5) Well Type (a) Gas  Oil  Underground Storage

Other

(b) If Gas Shallow  Deep

Horizontal

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Point Pleasant Formation 11,395' / 130' thick / 10,141 or .89 psi per foot / Utica Formation 11,212 150' thick / 10,000 psi or .89 psi per foot.

8) Proposed Total Vertical Depth: 11,595' pilot hole into the Trenton-Plug back, land and TD lateral in Point Pleasant.

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 21,052'

11) Proposed Horizontal Leg Length: 9003'

12) Approximate Fresh Water Strata Depths: 130', 875'

13) Method to Determine Fresh Water Depths: Nearest offset well

14) Approximate Saltwater Depths: Na

15) Approximate Coal Seam Depths: 625', 825'

16) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated. drilling in pillar - Mine maps attached.

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: The Ohio County Mine-Murray American Energy and Consolidation Coal Company  
Depth: 625', 825'  
Seam: Pittsburgh #8  
Owner: Murray American Energy & Consolidation Coal Company

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WV Department of  
Environmental Protection

WW-6B  
(04/15)

API NO. 47-051 02044 MOD  
 OPERATOR WELL NO. 4705802044 Castle Black-5UH  
 Well Pad Name: Castle Black

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	30"	New	LS	81.3#	60'	60'	CTS
Fresh Water	20"	New	J-55	94#	1,025'	1,025'	15.9ppg to sur 521 sz w/30% OH excess
Coal	13 3/8"	New	J-55	54.5#	2,111'	2,111'	15.2ppg to sur 556 sz w/30% OH Excess
Intermediate	9 5/8"	New	HCP-110	40#	10,112'	10,112'	15.4ppg to surf 936 sz w/30% OH excess
Production	5 1/2"	New	HCP-110	23#	21,052'	21,052'	14.8ppg TOC >=200' above 9.625 shoe
Tubing	2 7/8"	New	J-55	6.5#	11,400	11,400'	
Liners							

*ju 8/23/18*

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	30"	36"		300		Type 1	Lead yield 2.38 Tail 521 sz Yield 1.16
Fresh Water	20"	24"	.438	2,110	400	Class A	Lead yield 2.38 Tail 556 sz Yield 1.27
Coal	13 3/8"	17.5"	.380	2,730	688	Class A	Lead Yield 2.38 Tail 556 sz Yield 1.27
Intermediate	9 5/8"	12.38"	.395	7,870	3,166	Class A	Lead Yield 1.28 Tail 936 sz Yield 1.28
Production	5 1/2"	8.75"	.361	14,360	11,000	Class H	Lead Yield 1.27 Tail 4714 sz Yield 1.27
Tubing	2 7/8"	5.14"	.217	10,570	8,000		
Liners							

**PACKERS**

Kind:				
Sizes:				
Depths Set:				

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OCT - 9 2018  
WV Department of  
Environmental Protection

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

Drill the vertical depth (Pilot Hole) into the Trenton at an estimated Total vertical depth of approximately 11,595', plug back above the Point Pleasant by placing two 800' cement plugs to KOP. Drill and land well in the Point Pleasant to drill horizontal leg and TD in the same Point Pleasant formation. Should we encounter a unanticipated void we will install a minimum of 20' of casing below the void but not more than 100' below the void, set a basket and grout to surface.

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

The stimulation will be in multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water, and chemicals. Our maximum pressure is not to exceed 10,000 lbs.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 9.48 acres

22) Area to be disturbed for well pad only, less access road (acres): 8.46 acres

23) Describe centralizer placement for each casing string:

Conductor- No centralizers used. Freshwater/Surface- Bow Spring centralizers every 3 joints to 100' from surface. 1st Intermediate - Bow Spring centralizers every 3 joints to 100' from surface. 2nd Intermediate - Bow Spring centralizers every 3 joints to 100' from surface. Production - Rigid bow springs every third joint from KOP to TOC. Rigid every joint to KOP.

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

Type 1 to Surface. Surface/Freshwater - 15.6 Class A +2% CaCl, 30% OH Excess Yield =1.18. 1st Intermediate - 15.6 ppg Class A +2% CaCl, 0.25 Lost Circ. 30% Yield =1.27. 2nd Intermediate- 2 Stage cement job with 15.4 ppg Class A lead + additives (antisetling, antifoam, fluid loss retarder, salt, viscosifer) & 15.4 Class A tail with additives (antisetling, antifoam, fluid loss retarder, salt, dispersant or 12.0 Class A lead + additives (+/-5% dispersant, 10% light weight additive, 75% fluid loss additive, and 1.15% fluid loss additive, Yield=1.28) 15.4 ppg Class A Tail + additives (+/- fluid loss additive, & .5% light weight additive, Yield 1.28), 0.125#/SK lost circ 30% excess to Surface. Production- 12.5ppg Class H Lead +additives and 14.8 ppg Class H Tail + additives (antifoam, antisetling, extender,dispersant) 15%excess TOC>=200' above 9.625" shoe.

25) Proposed borehole conditioning procedures:

Conductor - The hole is drilled w/ air and casing is run on air. Apart from insuring hole is clean via air circulation at TD, there are no other conditioning procedures. Freshwater/Surface- The hole is drilled w/air or Freshwater based mud and casing is run on air. Once casing is at setting depth, fill with KCl water circulate a minimum of one hole volume prior to pumping cement. First Intermediate- Drilled on Air. Once casing is at a setting depth, circulate a minimum of one hole volume prior to pumping cement. Second Intermediate - Drilled on air. Fill with salt saturated water once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement. Production- drilled on +/- 14.8ppg SOBMs. Once at TD, circulate at max allowable pump rate for at least 6x bottoms up. Once on bottom with casing, circulate minimum of one hole volume prior to pumping cement.

\*Note: Attach additional sheets as needed.





**DRILLING WELL PLAN**

**Castle Black-5UH  
Utica Shale Horizontal  
Marshall Co, WV**

**Horizontal Well Plan with Cemented Long String Completion**

HOLE	RIG	CASING	GEOLOGY	Top TVD	MD	MUD	CEMENT	DIRECTIONAL	LOGS	BITS	COMMENTS
36"	Conductor Rig	30" 81.3# LS				AIR	To Surface	N/A	N/A		Stabilize surface fill/soil
			<b>Conductor</b>	60	60						
			Sewickley Coal	625							
24"	Top-Hole	20" 94# J-55 BTC	Pittsburgh Coal	825		AIR	15.6ppg to surface 521sx w/ 30% OH excess	20" Air Hammer Totco at TD	CBL Log Cased hole NPHI, GR at Pilot TD in Pilot Well only	Carbide hammer bit	Protect fresh groundwater
			Surf. Casing	1025	1025						
			Big Lime	1695	1811						
17.5"	Top-Hole	13-3/8" 54.5# J-55 BTC	Greenbrier Group	1762		AIR	15.2ppg to surface 556sx w/ 30% OH excess	Center Rock 15" Air Hammer Gyro above Coal, (Mine Approval) Totco at TD		Hammer bit w/ diamond gage Test casing to 800psi	
			Big Injun	1811							
			<b>Int. Casing</b>	2111	2111						
12.375" 12.25"	Horizontal Rig	9-5/8" 43.5# HCP 110 BTC	Tully LS	6386		AIR	15.4ppg to surface 936sx w/ 30% OH excess	12" Air Hammer Totco every 400ft	MWD surveys Mud Logger - 90 ft samples	Hammer bit w/ full face diamond Test casing to 1000psi	PU cleanout assembly, dress plug, displace to 12.0ppg SOBM, PU Curve BHA, time drill / KO cement plug. Expect Seepage in curve
			Hamilton	6415							
			Cherry Valley	6524							
			Marcellus Shale	6526							
			Onondaga Ls	6560							
			Oriskany Sandstone	6789							
			Salina Group	7373							
			Vernon Shale	8128							
			Lockport Dolomite	8345							
			Clinton Group	9060							
			Medina Group	9132							
Queenston Shale	9312	10112									
8.5" Curve/Lateral	Horizontal Rig	5-1/2" 23# HCP-110 BPN	Utica Shale	11212		+/- 14.5 ppg SOB	14.8ppg TOC >= 200' Above 9,625 shoes 4003sx w/ 15% OH excess	6.75" PDM & MWD 2.38" ADJ Bend (10" Build DLS)	MWD Surveys Mud Logger - 30 ft samples (Curve) 90 ft samples (Lateral)	PDC 5 - 25 WOB 100 - 120 RPM 450 - 500 GPM	Geosteering
			Point Pleasant Formation	11395							
			Curve LP								
			<b>TARGET</b>								
8.5 Hole - Cemented Long String 5-1/2" 23# HCP-110 BPN											
8.5" Pilot	HZT Rig	Isolation/Sidetrack Cement Plugs	Trenton Limestone			+/- 14.5 ppg SOB	17.5ppg Class H from TD to 200' above KOP (2) 800' balanced plugs w/ 2.375" tubing	8" Air Hammer Totco every 400ft	OH logs, as directed by APP Operations Dir. Surveys TD to shoe	Hammer bit w/ full face diamond	
			Pilot Hole TD	11595							
Lateral Targets	Landing Point 11395 TVD 12049 MD	90.5 degrees	9003 ft Lateral Length	90.5 Inc 325 Az	Total Depth 11395 TVD 21052 TD						

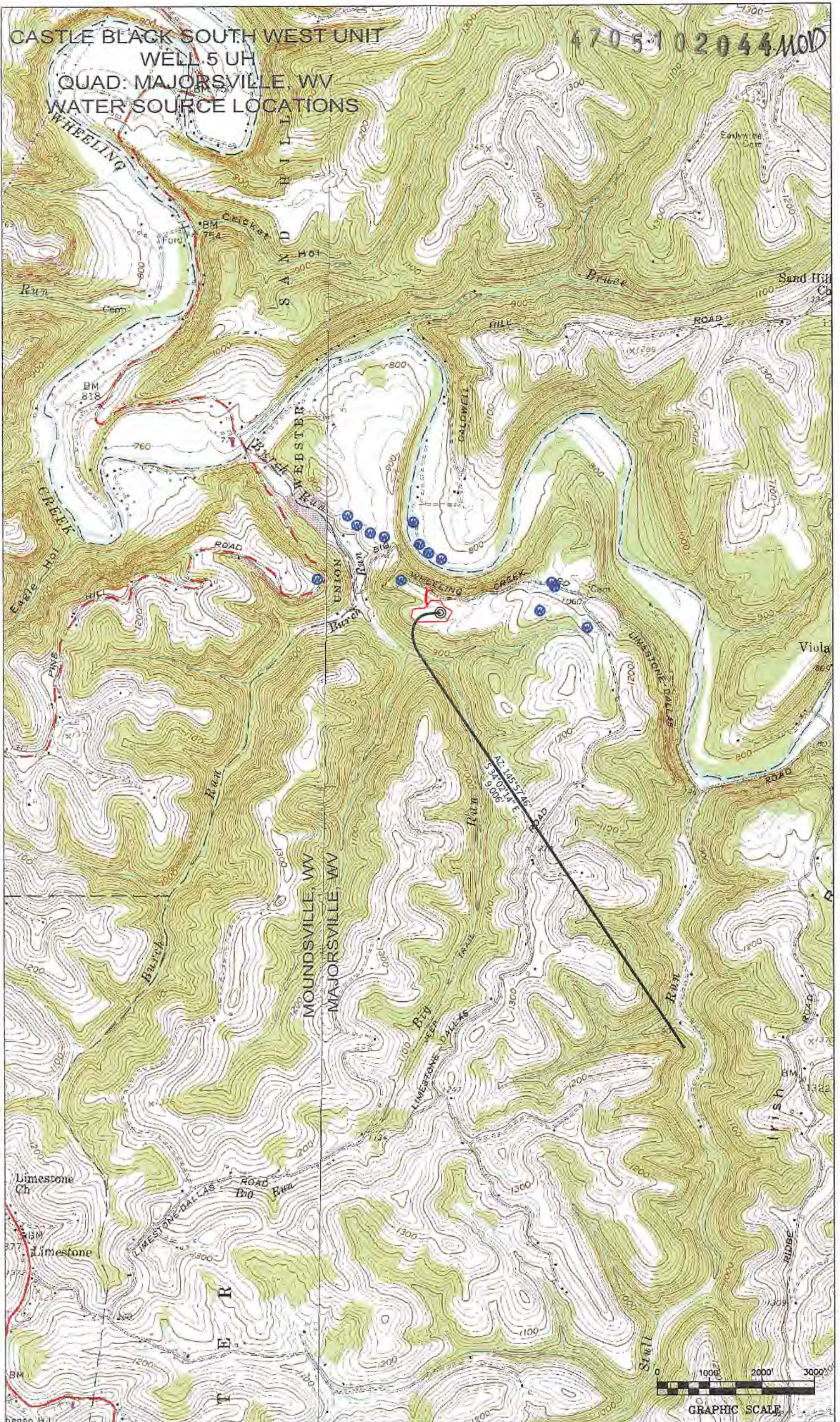
4705102064 No.1

*Handwritten signature and date: 8/22/18*



CASTLE BLACK SOUTH WEST UNIT  
WELL 5 UH  
QUAD: MAJORSVILLE, WV  
WATER SOURCE LOCATIONS

4705102044MOD







4705102044 MOD



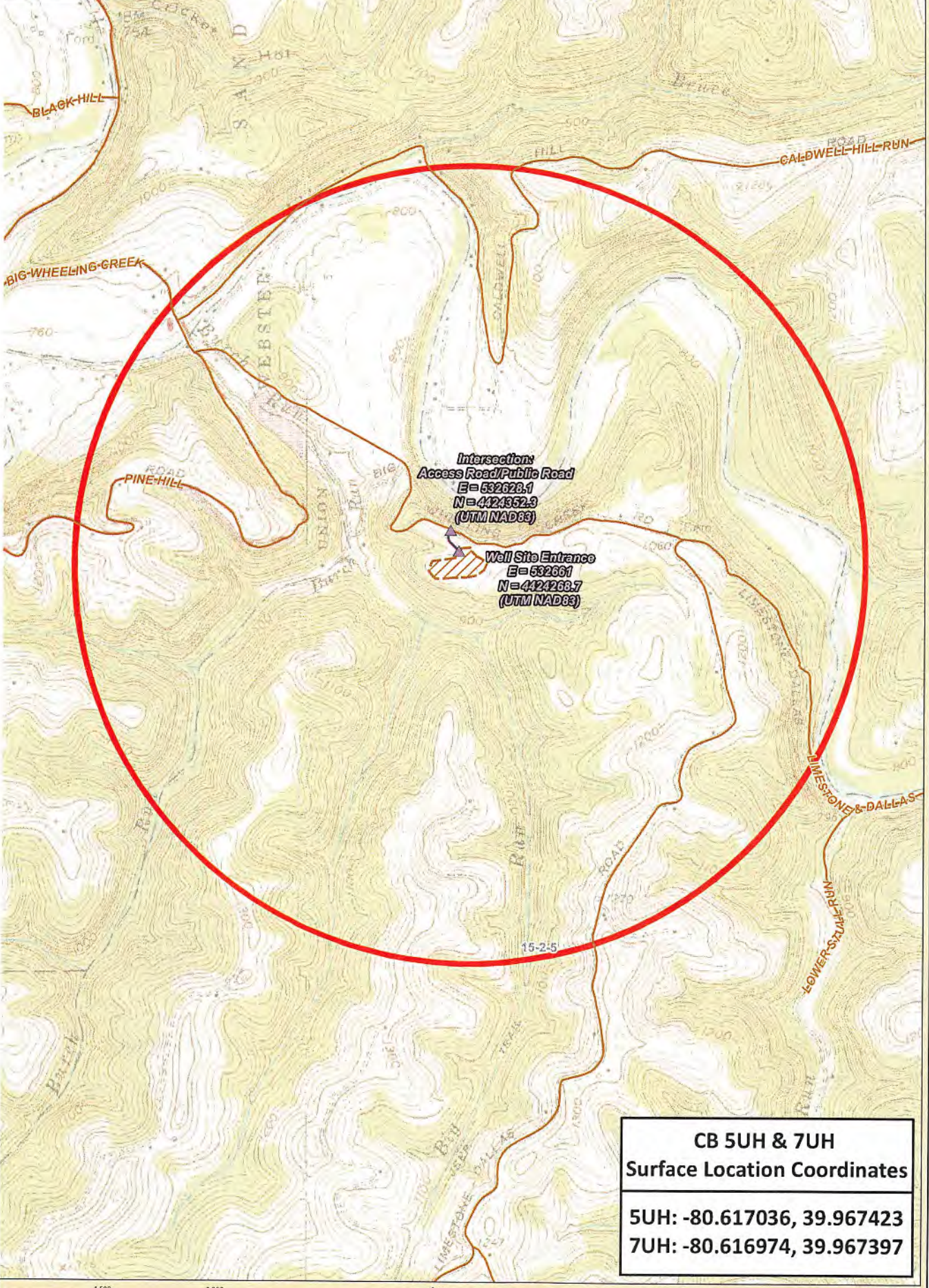
**CB 5UH Surface Location Coordinates**  
**5UH: -80.617036, 39.967423**

<b>CB 5UH - 400' Buffer</b>		<ul style="list-style-type: none"> <li> Well SHL</li> <li> Well Pad</li> <li> Laterals</li> <li> 400' buffer</li> <li> Parcels</li> </ul>	
Marshall County West Virginia	<b>Coordinate System:</b> Coordinate System: NAD 83(1) UTM Zone 18N Projection: Transverse Mercator Datum: North American 1983 Linear Units: Meter	<b>Map Scale Units:</b> 1:12,000 1 inch = 1,000 feet	Map Author: JKS Map Date: 8/22/2023





4705102044MB



**CB 5UH & 7UH**  
**Surface Location Coordinates**  
 5UH: -80.617036, 39.967423  
 7UH: -80.616974, 39.967397

**CB 5UH & 7UH - Well Site**

Marshall County West Virginia	Coordinate System: NAD 1983 UTM Zone 18N Projection: Transverse Mercator Datum: North American 1983 Linear Units: Meter	Map Scale Units: 1:18,000 1 inch = 1,500 feet	Map Author: JKS Map Date: 8/12/2018
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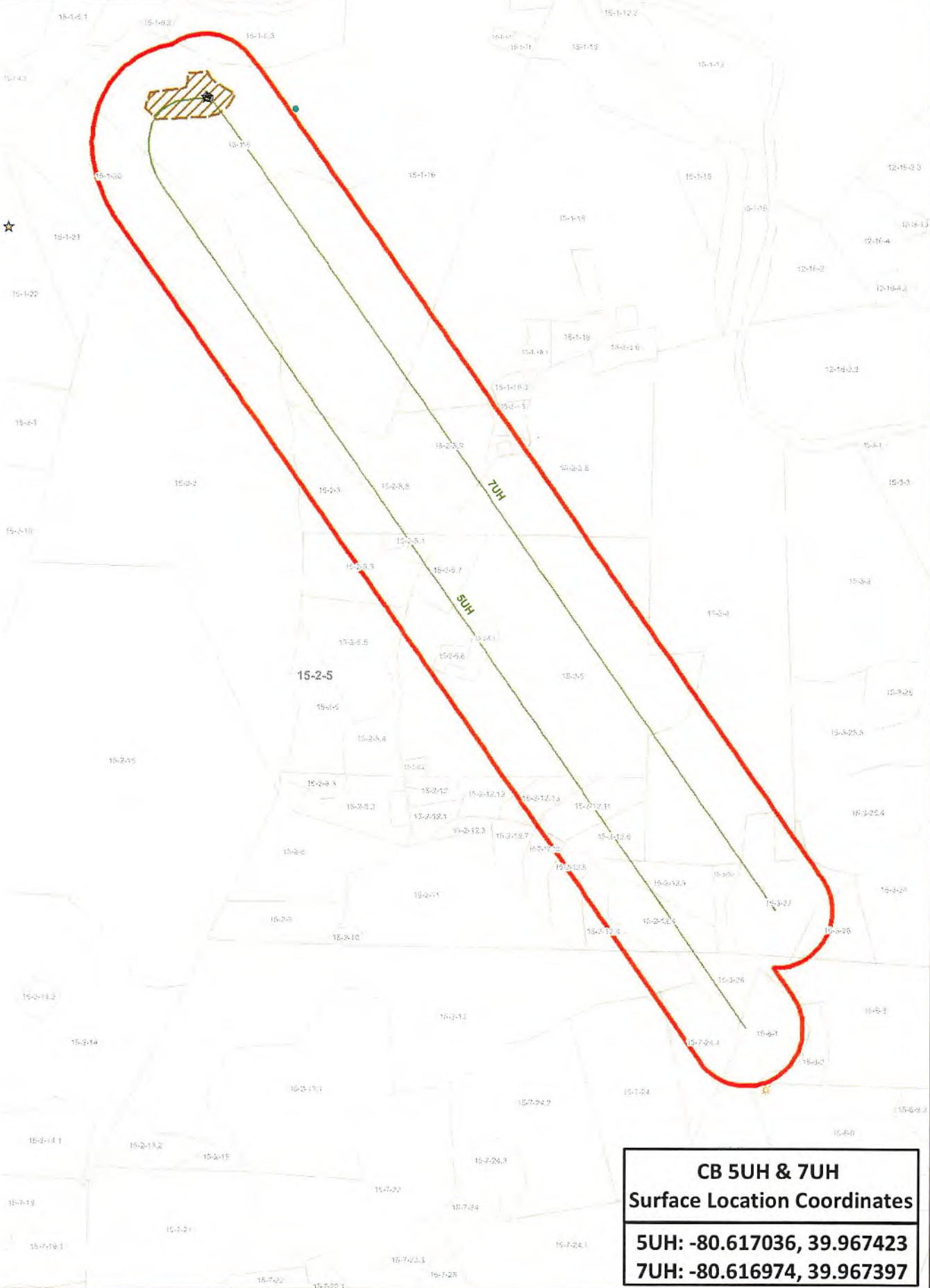
- ⊙ Well SHL
- ▨ Well Pad
- ◻ 1 mile buffer
- ▲ Access Rd Intersection
- Access Road
- County Road





**NO AREA WELLS WITHIN 500'**

4705102044 *WJ*



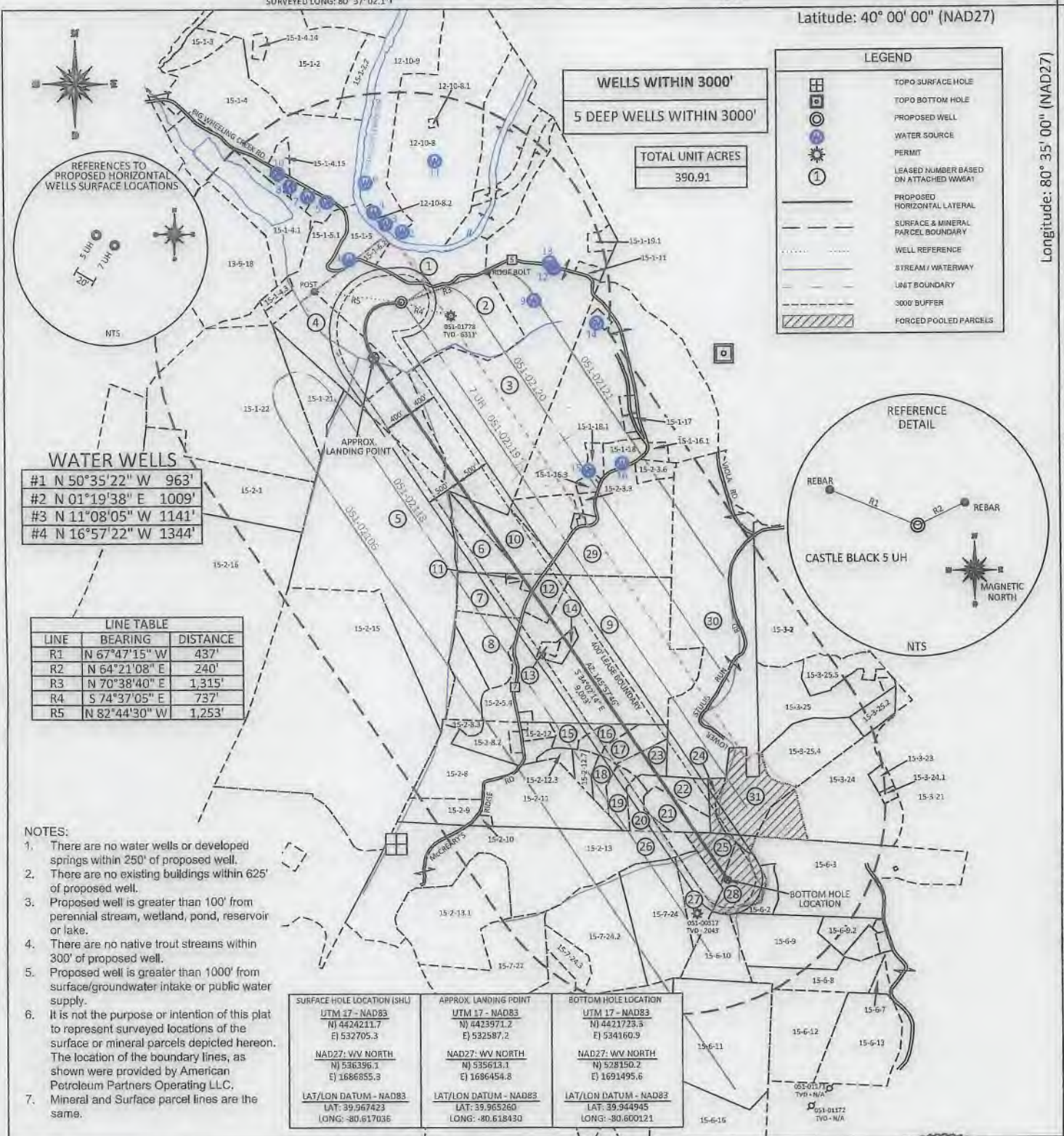
**CB 5UH & 7UH**  
**Surface Location Coordinates**  
**5UH: -80.617036, 39.967423**  
**7UH: -80.616974, 39.967397**



**CB 5UH & 7UH - Area of Review**

Marshall County West Virginia	Coordinate System: NAD 83/UTM Zone 18N Projection: Transverse Mercator Datum: North American 1983 Linear Units: Meter	Map Scale Units: 112,000 1 inch = 1,000 feet	Map Author: JKS Map Date: 8/14/2018	Well SHL Well Pad Laterals	500' buffer Parcels	Other Abandoned Well Active Well Marcellus Permit	Marcellus Well Permit / Future Use Plugged	Shutin Utica Permit Utica Well	
	<p>Legend symbols: Well SHL (circle with dot), Well Pad (square with dot), Laterals (line with dot), 500' buffer (red outline), Parcels (thin grey lines), Other (circle with cross), Abandoned Well (circle with X), Active Well (circle with dot), Marcellus Permit (circle with star), Marcellus Well (circle with dot), Permit / Future Use (circle with star), Plugged (circle with X), Shutin (circle with star), Utica Permit (circle with star), Utica Well (circle with star).</p>								





**WATER WELLS**

#1	N 50°35'22" W	963'
#2	N 01°19'38" E	1009'
#3	N 11°08'05" W	1141'
#4	N 16°57'22" W	1344'

**LINE TABLE**

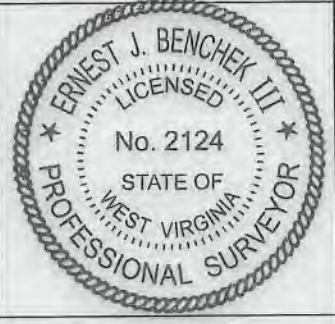
LINE	BEARING	DISTANCE
R1	N 67°47'15" W	437'
R2	N 64°21'08" E	240'
R3	N 70°38'40" E	1,315'
R4	S 74°37'05" E	737'
R5	N 82°44'30" W	1,253'

- 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 were provided by American Petroleum Partners Operating LLC.
  - Mineral and Surface parcel lines are the same.

SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT	BOTTOM HOLE LOCATION
UTM 17 - NAD83 N) 4424211.7 E) 532705.3	UTM 17 - NAD83 N) 4423971.2 E) 532587.2	UTM 17 - NAD83 N) 4423723.5 E) 534160.9
NAD27: WV NORTH N) 536396.1 E) 1686855.3	NAD27: WV NORTH N) 535613.1 E) 1686454.8	NAD27: WV NORTH N) 528150.2 E) 1691495.6
LAT/LON DATUM - NAD83 LAT: 39.967423 LONG: -80.617036	LAT/LON DATUM - NAD83 LAT: 39.965260 LONG: -80.618430	LAT/LON DATUM - NAD83 LAT: 39.944945 LONG: -80.600121

FILE #: APP001  
DRAWING #: 2821  
SCALE: PLAT: 1" = 2000'  
TICK: 1" = 2000'  
MINIMUM DEGREE OF ACCURACY: 1/200  
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

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: *[Signature]*  
L.L.S. #2124 : Ernest J. Benchek III



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

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

WATERSHED: UPPER OHIO SOUTH  
COUNTY/DISTRICT: MARSHALL / WEBSTER  
SURFACE OWNER: ECO-VRINDABAN, INC., DBA GORAKSHYA-SEVA & ENVIRONMENTAL EDUCATION TRUST OF AMERICA, INC.  
OIL & GAS ROYALTY OWNER: ECO-VRINDABAN, INC.  
LEASE NUMBERS:

DATE: OCTOBER 03, 2018  
OPERATOR'S WELL #: CASTLE BLACK 5 UH MOD  
API WELL #: 47 51 02044  
STATE COUNTY PERMIT  
PROPOSED ELEVATION: 1,041.65'  
CURRENT ELEVATION: 1,044'  
QUADRANGLE: MAJORSVILLE, WV  
ACREAGE: 89.017 +/-  
ACREAGE: 89.017 +/-

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY):  
TARGET FORMATION: POINT PLEASANT  
ESTIMATED DEPTH: TVD: 9,003' TMD: 21,052'  
WELL OPERATOR: AMERICAN PETROLEUM PARTNERS OPERATING, LLC  
DESIGNATED AGENT: STEVEN GREEN  
ADDRESS: 4600 J. BARRY COURT, SUITE 310  
ADDRESS: 300 SUMMERS ST, SUITE 1000  
CITY: CANONSBURG STATE: PA ZIP CODE: 15317  
CITY: CHARLESTON STATE: WV ZIP CODE: 25301



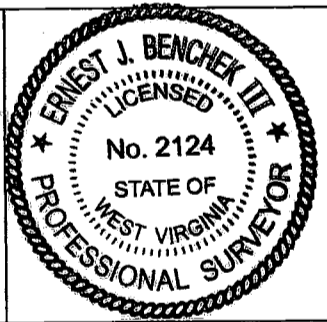


BHL



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

DATE: OCTOBER 03, 2018  
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 API WELL #: 47 51  
 STATE COUNTY PERMIT  
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 CURRENT ELEVATION: 1,044'

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

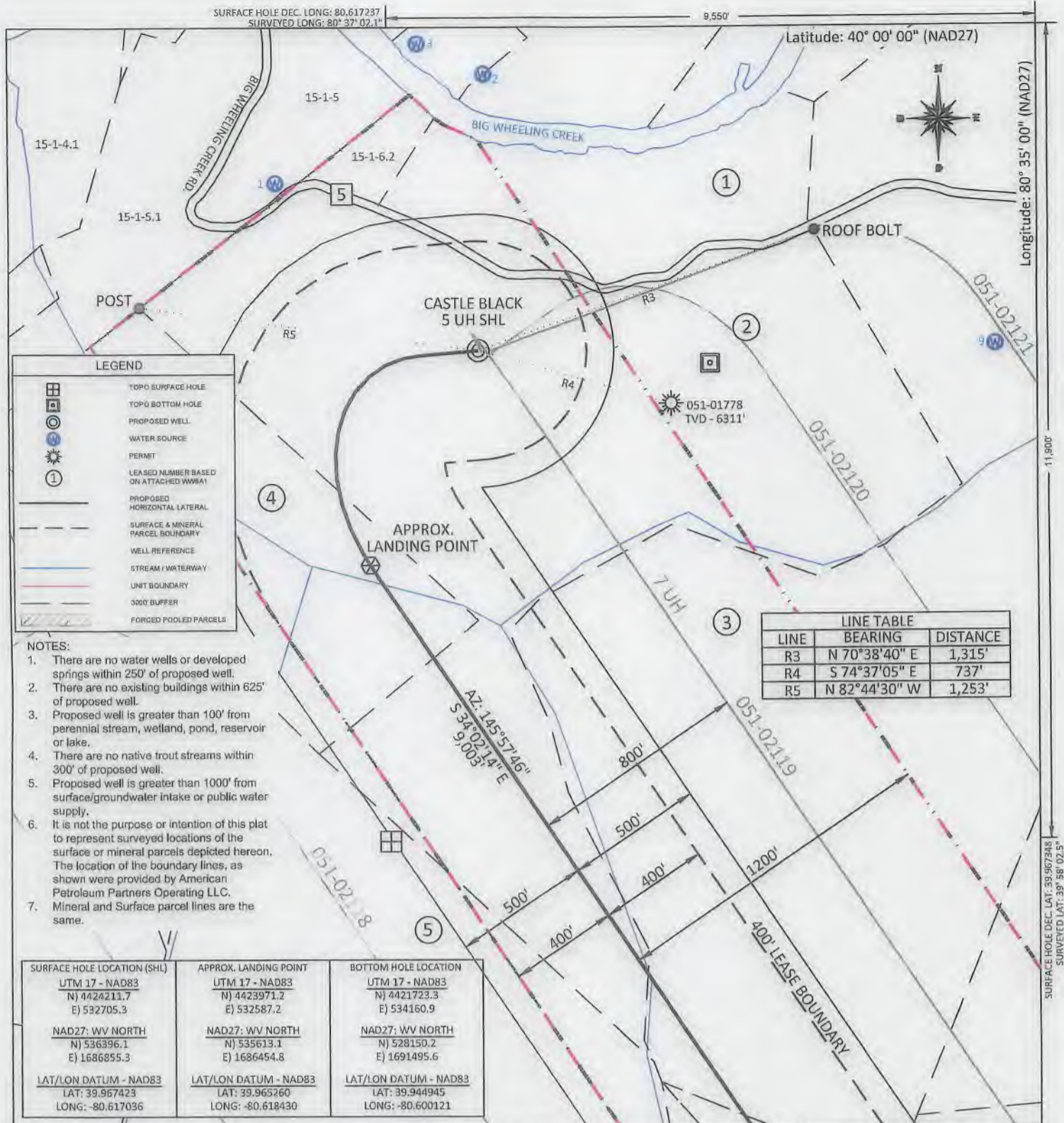
WATERSHED: UPPER OHIO SOUTH  
 COUNTY/DISTRICT: MARSHALL / WEBSTER  
 SURFACE OWNER: ECO-VRINDABAN, INC., DBA GORAKSHYA-SEVA & ENVIRONMENTAL EDUCATION TRUST OF AMERICA, INC.  
 OIL & GAS ROYALTY OWNER: ECO-VRINDABAN, INC.  
 LEASE NUMBERS: \_\_\_\_\_

QUADRANGLE: MAJORSVILLE, WV  
 ACREAGE: 89.017 +/-  
 ACREAGE: 89.017 +/-

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

TARGET FORMATION: POINT PLEASANT ESTIMATED DEPTH: TVD: 9,003' TMD: 21,052'  
 WELL OPERATOR: AMERICAN PETROLEUM PARTNERS OPERATING, LLC DESIGNATED AGENT: STEVEN GREEN  
 ADDRESS: 4600 J. BARRY COURT, SUITE 310 ADDRESS: 300 SUMMERS ST. SUITE 1000  
 CITY: CANONSBURG STATE: PA ZIP CODE: 15317 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

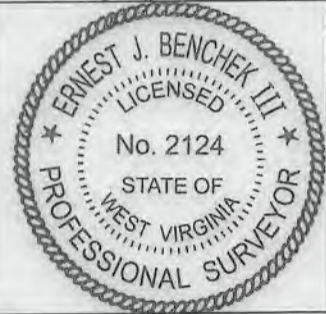




FILE #: APP001  
 DRAWING #: 2821  
 SCALE: PLAT: 1" = 500'  
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 CURRENT ELEVATION: 1,044'

WATERSHED: UPPER OHIO SOUTH  
 COUNTY/DISTRICT: MARSHALL / WEBSTER  
 SURFACE OWNER: ECO-VRINDABAN, INC., DBA GORAKSHYA-SEVA & ENVIRONMENTAL EDUCATION TRUST OF AMERICA, INC.  
 OIL & GAS ROYALTY OWNER: ECO-VRINDABAN, INC.  
 LEASE NUMBERS:

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

TARGET FORMATION: POINT PLEASANT  
 ESTIMATED DEPTH: TVD: 9,003' TMD: 21,052'  
 WELL OPERATOR: AMERICAN PETROLEUM PARTNERS OPERATING, LLC  
 ADDRESS: 4600 J. BARRY COURT, SUITE 310  
 CITY: CANONSBURG STATE: PA ZIP CODE: 15317  
 DESIGNATED AGENT: STEVEN GREEN  
 ADDRESS: 300 SUMMERS ST. SUITE 1000  
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301



SURFACE HOLE DEC. LONG: 80.617237  
SURVEYED LONG: 80° 37' 02.1"

9,550'

Latitude: 40° 00' 00" (NAD27)

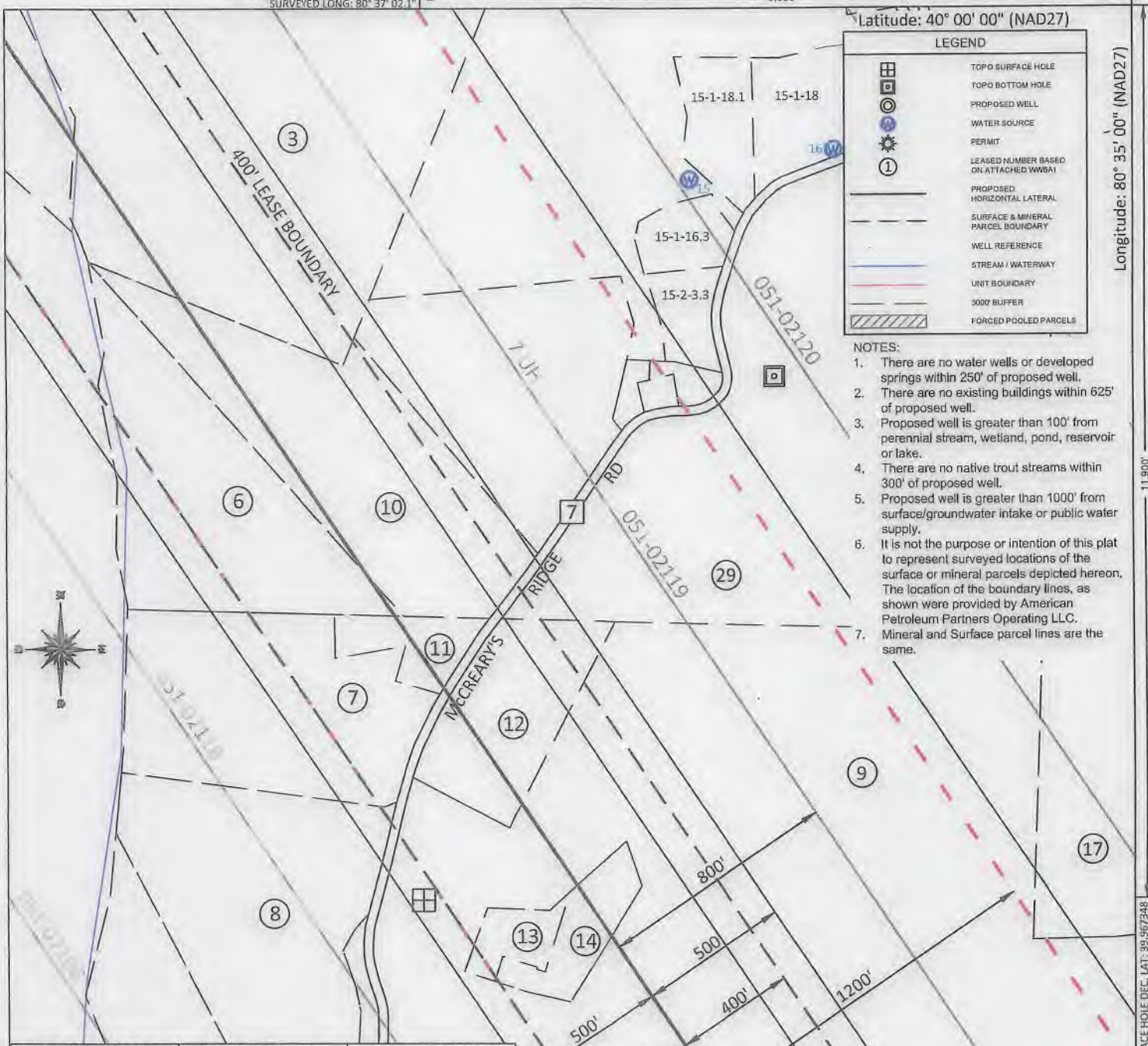
Longitude: 80° 35' 00" (NAD27)

**LEGEND**

- TOPO SURFACE HOLE
- TOPO BOTTOM HOLE
- PROPOSED WELL
- WATER SOURCE
- PERMIT
- LEASED NUMBER BASED ON ATTACHED WWSA1
- PROPOSED HORIZONTAL LATERAL
- SURFACE & MINERAL PARCEL BOUNDARY
- WELL REFERENCE
- STREAM / WATERWAY
- UNIT BOUNDARY
- 3000' BUFFER
- FORCED POOLED PARCELS

**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.
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6. 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 were provided by American Petroleum Partners Operating LLC.
7. Mineral and Surface parcel lines are the same.



SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT	BOTTOM HOLE LOCATION
UTM 17 - NAD83 N) 4424211.7 E) 532705.3	UTM 17 - NAD83 N) 4423971.2 E) 532587.2	UTM 17 - NAD83 N) 4421723.3 E) 534160.9
NAD27: WV NORTH N) 536396.1 E) 1686855.3	NAD27: WV NORTH N) 535613.1 E) 1686454.8	NAD27: WV NORTH N) 528150.2 E) 1691495.6
LAT/LON DATUM - NAD83 LAT: 39.967423 LONG: -80.617036	LAT/LON DATUM - NAD83 LAT: 39.965260 LONG: -80.618430	LAT/LON DATUM - NAD83 LAT: 39.944945 LONG: -80.600121

FILE #: APP001  
DRAWING #: 2821  
SCALE: PLAT: 1" = 500'  
TICK: 1" = 2000'

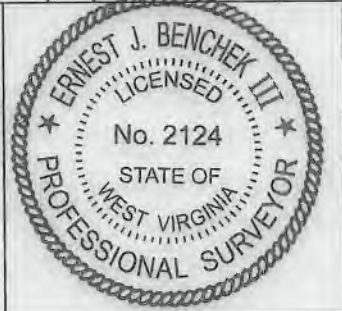
MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

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: *[Signature]*

L.L.S. #2124 : Ernest J. Benchek III



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

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

WATERSHED: UPPER OHIO SOUTH

COUNTY/DISTRICT: MARSHALL / WEBSTER

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DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
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CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY):

TARGET FORMATION: POINT PLEASANT

WELL OPERATOR: AMERICAN PETROLEUM PARTNERS OPERATING, LLC  
ADDRESS: 4600 J. BARRY COURT, SUITE 310  
CITY: CANONSBURG STATE: PA ZIP CODE: 15317

DATE: OCTOBER 03, 2018

OPERATOR'S WELL #: CASTLE BLACK 5 UH MOD

API WELL #: 47 51  
STATE COUNTY PERMIT  
PROPOSED ELEVATION: 1,041.65'  
CURRENT ELEVATION: 1,044'

QUADRANGLE: MAJORSVILLE, WV  
ACREAGE: 89.017 +/-

ESTIMATED DEPTH: TVD: 9,003' TMD: 21,052'  
DESIGNATED AGENT: STEVEN GREEN  
ADDRESS: 300 SUMMERS ST. SUITE 1000  
CITY: CHARLESTON STATE: WV ZIP CODE: 25301

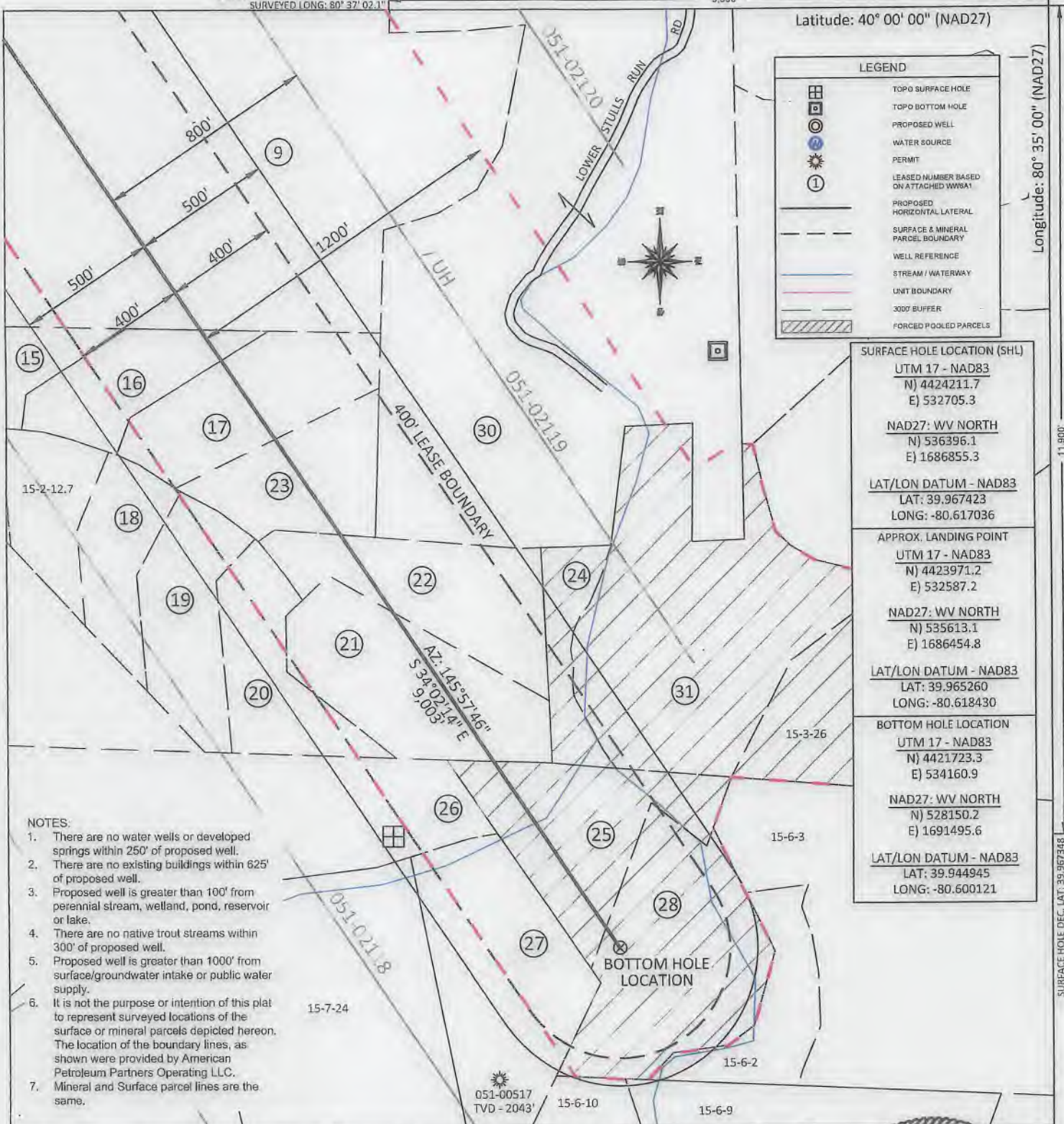


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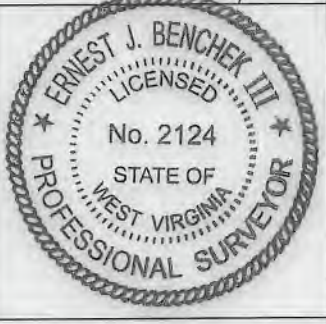
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 Gas  Liquid Injection  Storage  Shallow

WATERSHED: UPPER OHIO SOUTH

COUNTY/DISTRICT: MARSHALL / WEBSTER

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OIL & GAS ROYALTY OWNER: ECO-VRINDABAN, INC.

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STATE COUNTY PERMIT  
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ACREAGE: 89.017 +/-  
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DESIGNATED AGENT: STEVEN GREEN  
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CITY: CHARLESTON STATE: WV ZIP CODE: 25301



<p>① TAX MAP NO. 15-1-6.3 ASSESSSED AREA = 16.96 AC. <b>SURFACE OWNERS:</b> KENNETH L. MERINAR, JAMES M. MERINAR, JEFFREY T. MERINAR, &amp; STANLEY J. MERINAR <b>MINERAL OWNERS:</b> GLENN M. HICKEY, CALVIN C. MERINAR, KENNETH L. MERINAR, JAMES M. MERINAR, JEFFREY T. MERINAR &amp; STANLEY L. MERINAR</p>	<p>⑪ TAX MAP NO. 15-2-5.1 ASSESSSED AREA = 1.82 AC. <b>SURFACE OWNER:</b> DIAN F. ALPERT <b>MINERAL OWNER:</b> DIAN F. ALPERT</p>	<p>⑫ TAX MAP NO. 15-2-5.7 ASSESSSED AREA = 5.86 AC. <b>SURFACE OWNER:</b> RAMESH &amp; VINA PATEL <b>MINERAL OWNER:</b> RAMESH &amp; VINA PATEL</p>	<p>⑬ TAX MAP NO. 15-2-5.6 ASSESSSED AREA = 1.24 AC. <b>SURFACE OWNER:</b> L ONE LLC <b>MINERAL OWNER:</b> L ONE LLC</p>	<p>⑭ TAX MAP NO. 15-2-5.8 ASSESSSED AREA = 2.23 AC. <b>SURFACE OWNER:</b> LEON LANE <b>MINERAL OWNER:</b> LEON &amp; CELERINA R. LANE</p>	<p>⑮ TAX MAP NO. 15-2-12.12 ASSESSSED AREA = 3.648 AC. <b>SURFACE OWNER:</b> GREGORY D. &amp; MADRI CARLSON <b>MINERAL OWNER:</b> HEMA K. MULCHAND</p>	<p>⑯ TAX MAP NO. 15-2-12.13 ASSESSSED AREA = 3.982 AC. <b>SURFACE OWNER:</b> JESSE S. &amp; JOY HANSON <b>MINERAL OWNER:</b> JESSE S. &amp; JOY HANSON</p>	<p>⑰ TAX MAP NO. 15-2-12.11 ASSESSSED AREA = 6.174 AC. <b>SURFACE OWNER:</b> VRINDA CLOTHIER <b>MINERAL OWNER:</b> Vrinda D. Clothier &amp; Christopher L. Harkness as JTWRWS Vrinda Clothier</p>	<p>⑱ TAX MAP NO. 15-2-12.5 ASSESSSED AREA = 5.779 AC. <b>SURFACE OWNER:</b> GINTARAS LUKOSEVICIUS <b>MINERAL OWNER:</b> GINTARAS LUKOSEVICIUS</p>	<p>⑲ TAX MAP NO. 15-2-12.4 ASSESSSED AREA = 8.42 AC. <b>SURFACE OWNER:</b> NATHANI PRAKASH &amp; RENTATA MOHAN; BRUZA <b>MINERAL OWNER:</b> NATHANI PRAKASH &amp; RENTATA MOHAN; BRUZA</p>	<p>⑳ TAX MAP NO. 15-2-12.9 ASSESSSED AREA = 6.324 AC. <b>SURFACE OWNER:</b> ANAATA RAMKAREE GAFFOOR &amp; VANESSA GAFFOOR <b>MINERAL OWNER:</b> THERESA MARIE LINERODE</p>	<p>㉑ TAX MAP NO. 15-2-12.6 ASSESSSED AREA = 4.499 AC. <b>SURFACE OWNER:</b> GELDA ORTEGA <b>MINERAL OWNER:</b> GELDA ORTEGA</p>	<p>㉒ TAX MAP NO. 15-3-29 ASSESSSED AREA = 2.000 AC. <b>SURFACE OWNER:</b> ALBERT COFFIELD <b>MINERAL OWNER:</b> Heirs of Albert Coffield (Robert W. Coffield)</p>	<p>㉓ TAX MAP NO. 15-3-28 ASSESSSED AREA = 7.68 AC. <b>SURFACE OWNER:</b> Jasper N. Givens <b>MINERAL OWNER:</b> Heirs of Jasper Givens (Robert W. Coffield)</p>	<p>㉔ TAX MAP NO. 15-2-13 ASSESSSED AREA = 94.03 AC. <b>SURFACE OWNER:</b> Jeffrey T. Bock <b>MINERAL OWNER:</b> Jeffrey T. Bock &amp; Sally A. Hunter-Bock</p>	<p>㉕ TAX MAP NO. 15-7-24.4 ASSESSSED AREA = 15.42 AC. <b>SURFACE OWNER:</b> Dennis J. &amp; Margaret Moreau <b>MINERAL OWNER:</b> ISKCON New Vrindaban, Inc.</p>	<p>㉖ TAX MAP NO. 15-6-1 ASSESSSED AREA = 5.00 AC. <b>SURFACE OWNER:</b> Edna S. Gall &amp; Frank P. Lautar <b>MINERAL OWNER:</b> Ann B. Montgomery Ellen G. Miller Jane B. Elliot Janet G. Murray Karen Joseph Leslie Gall Underdonk Leslie Kay Harclerode (Remainderman) Lisa Ann Jackson (Remainderman) Paul D. Lautar Susan Gall Smith</p>	<p>㉗ TAX MAP NO. 15-2-3.5 ASSESSSED AREA = 44.88 AC. <b>SURFACE OWNER:</b> ECO-VRINDABAN, INC., DBA GORAKSHYA-SEVA &amp; ENVIRONMENTAL EDUCATION TRUST OF AMERICA, INC. <b>MINERAL OWNER:</b> ECO - Vrindaban, Inc.</p>	<p>㉘ TAX MAP NO. 15-2-4 ASSESSSED AREA = 116.89 AC. <b>SURFACE OWNER:</b> Sara Jo. Anderson <b>MINERAL OWNER:</b> Bounty Minerals, LLC</p>	<p>㉙ TAX MAP NO. 15-3-27 ASSESSSED AREA = 17.00 AC. <b>SURFACE OWNER:</b> James S. Shipley <b>MINERAL OWNER:</b> Manger Enterprises LLC Monica R. Defallice Karen Sue Shipley Master Mineral Holdings I, LP Patrick William Shipley Paul E. &amp; Debra J. Shipley Nancy C. Beckett Nyia J. Bell Charles W. &amp; Sara Jane Likens Daniel L. &amp; Karen A. Shipley Black Gold Group LTD Kenneth Wendell Oldfield Dianna Gallovitch Donald R. &amp; Diane K. Reynolds Raymond L. Kachermeyer James W. &amp; Erlene M. Likens John R. &amp; Sheereen S. McCabe Shane Aaron &amp; Christina M. Muravsky Shirley May Bennington Star R. &amp; Allan J. Duperlor Suellen &amp; Andy P. Cox Vemuri Home &amp; Garden LLC Sara Jane Likens Life Estate, (Susan V. Chaney, Charlotte L. Gray, John R. McCabe, Nancy L.O. Bright Remaindermen) Keith J. &amp; Rachel E. Burns Jane Driver-Lint Edward J. &amp; Pamela Kachermeyer David J. Kachermeyer Orlan James Kachermeyer Brian K. &amp; Shelley L. Kachermeyer Charlotte L. Gray Chad M. Simons Karen Kay Oldfield Patrick William Shipley</p>
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Well Type:  Oil  Waste Diposal  Production  Deep  Gas  Liquid Injection  Storage  Shallow

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ADDRESS: 300 SUMMERS ST. SUITE 1000  
CITY: CHARLESTON STATE: WV ZIP CODE: 25301



**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 sheet				

**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

RECEIVED  
Office of Oil and Gas  
OCT - 9 2018  
WV Department of  
Environmental Protection

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: American Petroleum Partners Operating, LLC  
 By: Braulio Silva  
 Its: Vice President-Drilling



Castle Black 5UH Wellbore Tracts

4705102044MOB

Map#	Lease#	Lessor	Current Lessee	Royalty	Recording Information	Parcel
2	WV-MAR-0083	Eco-Vrindaban Inc.	American Petroleum Partners Operating, LLC	Not Less than 1/8th	827/144	15-1-6
3	WV-MAR-1254	Tatia Josephine Rose	American Petroleum Partners Operating, LLC	Not Less than 1/8th	820/167	15-1-19
4	WV-MAR-0908	Hayhurst Company	American Petroleum Partners Operating, LLC	Not Less than 1/8th	836/420	15-1-20
6	WV-MAR-0080	ISKCON New Vrindaban, Inc.	American Petroleum Partners Operating, LLC	Not Less than 1/8th	827/480	15-2-3
9	WV-MAR-0080	ISKCON New Vrindaban, Inc.	American Petroleum Partners Operating, LLC	Not Less than 1/8th	827/480	15-2-5
10	WV-MAR-0034	Sham Shadeen Gaffoor and Vidya Ramkaree	American Petroleum Partners Operating, LLC	Not Less than 1/8th	825/578	15-2-3.8
11	WV-MAR-0142	Dian F. Alpert	American Petroleum Partners Operating, LLC	Not Less than 1/8th	836/412	15-2-5.1
12	WV-MAR-0500	Ramesh & Vina Patel	American Petroleum Partners Operating, LLC	Not Less than 1/8th	935/331	15-2-5.7
14	WV-MAR-1127	Leon Lane and Celerina R. Lane	SWN Production Company, LLC; STATOIL USA Onshore Properties Inc.	Not Less than 1/8th	837/13	15-2-5.8
16	WV-MAR-0066	Jesse S. Hanson & Joy Hanson	American Petroleum Partners Operating, LLC	Not Less than 1/8th	825/524	15-2-12.13
17	WV-MAR-0057	Vrinda D. Clothier f/k/a Vrindadevi Clothier and Christopher L. Harkness	American Petroleum Partners Operating, LLC	Not Less than 1/8th	825/558	15-2-12.11
21	WV-MAR-0017	Nathani Prakash Mohan and Renata Bruza	American Petroleum Partners Operating, LLC	Not Less than 1/8th	825/506	15-2-12.4
22	WV-MAR-1126	Theresa Marie Linerode	American Petroleum Partners Operating, LLC	Not Less than 1/8th	835/644	15-2-12.9
23	WV-MAR-0134	Gelda Ortega	American Petroleum Partners Operating, LLC	Not Less than 1/8th	831/555	15-2-12.6
25		Heirs and Assigns of Jasper N. Givens	Heirs and Assigns of Jasper N. Givens	Not Less than 1/8th	FP	15-3-28
28		Ann B. Montgomery	Ann B. Montgomery	Not Less than 1/8th	FP	15-6-1
28	WV-MAR-1448	Ellen G. Miller	American Petroleum Partners Operating, LLC	Not Less than 1/8th	1014/96	15-6-1
28	WV-MAR-1458	Jane B. Elliott	American Petroleum Partners Operating, LLC	Not Less than 1/8th	1018/55	15-6-1
28	WV-MAR-1457	Janet G. Murray	American Petroleum Partners Operating, LLC	Not Less than 1/8th	1014/104	15-6-1
28	WV-MAR-1447	Karen Joseph aka Karen Lautar	American Petroleum Partners Operating, LLC	Not Less than 1/8th	1014/100	15-6-1



4705102044 MOD

28	WV-MAR-1446	Leslie Gall Underdonk f/k/a Leslie Gall Wood & Charles Allen Underdonk	American Petroleum Partners Operating, LLC	Not Less than 1/8th	1014/112	15-6-1
28	WV-MAR-1436	Leslie Kay Harclerode (remainderman)	American Petroleum Partners Operating, LLC	Not Less than 1/8th	1014/108	15-6-1
28	WV-MAR-1459	Lisa Ann Jackson (remainderman)	American Petroleum Partners Operating, LLC	Not Less than 1/8th	1018/59	15-6-1
28	WV-MAR-1439	Paul D. Lautar & Judy B. Lautar	American Petroleum Partners Operating, LLC	Not Less than 1/8th	1010/547	15-6-1
28		Susan Gall Smith	Susan Gall Smith	Not Less than 1/8th	FP	15-6-1

Note: The parcels that have no lease number or recording information we will be pursuing force pooling procedures. Heirship was run on 15-3-28 to determine ownership. The ones with addresses unknown were searched in the Marshall County Court House, Estate searches were done both locally and out of state. In addition, obituaries were searched, both local and out of state, genealogy websites and multiple search engines were utilized including ancestry.com, white pages, orbit, along with taking to relatives in an attempt to try to locate the unlocatable heirs/unknown addresses. Attempts were made on 15-3-28 & 15-6-1 to contact and verify owners to sign leases.



### Castle Black - Offset Operators List

Map Index	Parcel	Owner/Operator	Address
1	12-10-8	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730
2	12-10-9	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730
3	15-1-4.1	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730
4	15-1-4.3	Melinda Dawn Wiselka	3305 Ward St., Pittsburgh, PA 15213
5	15-1-4.8	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730
6	15-1-5.1	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730
7	15-3-2	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730
8	15-3-24	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730
9	15-3-25.4	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730
10	15-3-26	Manger Enterprises LLC	PO Box 6812, Wheeling, WV 26003
10	15-3-26	Monica R. Defelice	695 Mealer RD., Lenoir City, TN 37771
10	15-3-26	Shirley May Bennington	126 Spring Street, Gnadenhutten, OH 44629

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10	15-3-26	Sara Jane Likens Life Estate, (Susan V. Chaney, Charlotte L Gray, John R McCabe, Nancy L OBright Remaindermen)	54 Glenhaven Road, Phenix City, AL 36869
11	15-3-27	Manger Enterprises LLC	PO Box 6812, Wheeling, WV 26003
11	15-3-27	Monica R. Defelice	695 Mealer RD., Lenoir City, TN 37771
11	15-3-27	Shirley May Bennington	126 Spring Street, Gnadenhutten, OH 44629
11	15-3-27	Sara Jane Likens Life Estate, (Susan V. Chaney, Charlotte L Gray, John R McCabe, Nancy L OBright Remaindermen)	54 Glenhaven Road, Phenix City, AL 36869
12	15-3-28	Heirs of Jasper Givens (Robert W. Coffield)	13 Brady DR, Moundsville, WV 26041
13	15-3-29	Heirs of Albert Coffield (Robert W. Coffield)	13 Brady DR, Moundsville, WV 26041
14	15-6-1	Ann B. Montgomery	9412 Tube Court, Vienna, VA 22182
14	15-6-1	Susan Gall Smith	6273 Hollow Wood Circle, Loveland, OH 45140
5 RECEIVED Office of Oil and Gas	15-6-2	TH Exploration, LLC	1320 S. University Drive, Suite 500, Fort Worth, TX 76107
	15-6-3	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730
17	15-6-8	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730
18	15-6-9	Chevron U.S.A. Inc.	700 Cherrington Parkway, Coraopolis, PA 15108
18	15-6-9	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730
19	15-6-9.2	SWN Production Company, LLC; Equinor USA Onshore Properties Inc.	10000 Energy Drive, Spring, TX 77389; 6300 Bridge Point Parkway, Bldg. 2, Suite 100, Austin, TX 78730

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