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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

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Tuesday, December 6, 2022  
WELL WORK PERMIT  
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC  
380 SOUTHPOINTE BOULEVARD, PLAZA II  
SUITE 200  
CANONSBURG, PA 15317

Re: Permit approval for BIRD DOG-6HM  
47-051-02478-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

A blue ink signature of James A. Martin, Chief, is written over a faint, larger signature of the same name. The signature is fluid and cursive.

James A. Martin  
Chief

Operator's Well Number: BIRD DOG-6HM  
Farm Name: STEPHEN M STARCOVIC & ☒  
U.S. WELL NUMBER: 47-051-02478-00-00  
Horizontal 6A New Drill  
Date Issued: 12/6/2022

Promoting a healthy environment.

12/09/2022

# PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

## CONDITIONS

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1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

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

1) Well Operator: Tug Hill Operating, LLC      494510851      Marshall      Cameron      Cameron 7.5'  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: Bird Dog N-6HM      Well Pad Name: Bird Dog

3) Farm Name/Surface Owner: Stephen & Kimberly Starcovic      Public Road Access: Co. Rte. 25

4) Elevation, current ground: 1,169.20'      Elevation, proposed post-construction: 1,165.20'

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):

Marcellus is the target formation at a depth of 6,860' - 6,912', thickness of 52' and anticipated pressure of approx. 3800 psi.

8) Proposed Total Vertical Depth: 7,012'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 11,716'

11) Proposed Horizontal Leg Length: 4,386.60'

12) Approximate Fresh Water Strata Depths: 70; 828'

13) Method to Determine Fresh Water Depths: Based on the depth of Pittsburgh Coal seam, per WVGES mapping contours

14) Approximate Saltwater Depths: 1,270'

15) Approximate Coal Seam Depths: Sewickley Coal - 733' and Pittsburgh Coal - 822'

16) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated

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: Marshall County Mine

Depth: Pittsburgh Coal - 822' Subsea TVD - 433'

Seam: Pittsburgh #8

Owner: Marshall County Coal Company

*John Strader*  
STRADER  
10-18-2022

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**12/09/2022**

WW-6B  
(04/15)

4705102418  
 API NO. 47-051 -  
 OPERATOR WELL NO. Bird Dog N-6HM  
 Well Pad Name: Bird Dog

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	BW	BW	120'	120'	259ft <sup>3</sup> (CTS)
Fresh Water/Coal	13 3/8"	NEW	J55	54.5#	950'	950'	1,010ft <sup>3</sup> (CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,716'	2,716'	898ft <sup>3</sup> (CTS)
Production	5 1/2"	NEW	P110	20#	11,716'	11,716'	3,003ft <sup>3</sup> (CTS)
Tubing	2 3/8"	NEW	P110	4.7#		6,682'	
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	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water/ Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE #24	1.19
Production	5 1/2"	8 7/8" _ 8 3/4"	.361	12,640	10,112	SEE #24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

PACKERS

Kind:	N/A		
Sizes:	N/A		
Depths Set:	N/A		

*SHANE WOOD  
10-18-2022*

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WW-6B  
(10/14)

4705-02478  
API NO. 47-051 -  
OPERATOR WELL NO. Bird Dog N-6HM  
Well Pad Name: Bird Dog

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

Drill through the Marcellus and TD Pilot Hole 100' into the Onondaga. Log vertical section and run a solid cement plug back to proposed KOP (6,182'). Drill curve and lateral per proposed well plan, run and cement production casing. Perform CBL from 60 deg to surface, make cleanout run, and stimulate.

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

Well to be completed with approximately 11,000,000 lb proppant and 200,000 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 29.51 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.39 acres

23) Describe centralizer placement for each casing string:

Will run 3 centralizers on surface casing at equal distance. Intermediate will have 1 centralizer every other joint. Production casing will have one centralizer every other joint in lateral, one centralizer every joint through curve, one centralizer every other joint to surface.

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

Sfc - Premium NE-1 + 2% CaCl; Int1 - Premium NE-1 + 1.5% CaCL + Flake; Int2 - Lead: Premium NE-1 + 5% BA-90 + .85% R-3 + 3% KCl + .75 gals/100sk FP-13L + 1% MPA-170 Tail: Premium NE-1 + .1% R-3 + 5% KCl + 1% CD-32 + .4% FL-52 + .2% ASA-301 + .6% Sodium Metasilicate; Kick Plug - Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L; Prod - Lead: 50:50 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .75 gal/100sk FP-13L Tail: 25:75 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .375 gal/100sk FP-13L

25) Proposed borehole conditioning procedures:

Will circulate a minimum of 3 hours at TD, short trip to curve, circulate bottoms up, check for flow, POOH

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\*Note: Attach additional sheets as needed.

SRP  
10-18-2022



## Tug Hill Operating, LLC Casing and Cement Program

### Bird Dog N-6HM

### Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	950'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,716'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	11,716'	CTS

### Cement

Conductor:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Conductor Cement mixed at 15.6 ppg, Y=1.2
Surface:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2
Intermediate:	Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15 ppg, Y=1.38
Kick Off Plug:	Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L - KOP Plug
Production:	50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 14.5 ppg, Y = 1.3

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Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Bird Dog N-06 HM (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1166.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1166.00ft
Site:	Bird Dog/Starcovic	North Reference:	Grid
Well:	Bird Dog N-06 HM (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Project	Marshall County, West Virginia NAD83 UTM 17N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD83 West Virginia - HARN		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Bird Dog/Starcovic				
Site Position:		Northing:	14,465,941.063 usft	Latitude:	39.832306125
From:	Lat/Long	Easting:	1,757,040.603 usft	Longitude:	-80.584576800
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "		

Well	Bird Dog N-06 HM (slot I)					
Well Position	+N/-S	0.00 ft	Northing:	14,465,926.577 usft	Latitude:	39.832265760
	+E/-W	0.00 ft	Easting:	1,757,086.344 usft	Longitude:	-80.584414110
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft	Ground Level:	1,166.00 ft	
Grid Convergence:						

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	9/2/2022	-8.75	66.44	51,632.13594926

Design	rev2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	337.307

Plan Survey Tool Program	Date			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	11,715.65 rev2 (Original Hole)		

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Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.000	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,051.21	11.02	115.440	2,047.82	-22.71	47.74	2.00	2.00	0.00	115.44	
6,182.19	11.02	115.440	6,102.57	-362.04	761.09	0.00	0.00	0.00	0.00	
6,916.87	50.00	335.260	6,757.73	-114.55	701.43	8.00	5.31	-19.08	-144.99	
7,329.84	91.00	329.851	6,892.75	222.35	523.78	10.00	9.93	-1.31	-8.21	
11,715.65	91.00	329.851	6,816.21	4,014.27	-1,678.67	0.00	0.00	0.00	0.00	Bird Dog N-06 HM B-

<b>Database:</b>	DB_Feb2822	<b>Local Co-ordinate Reference:</b>	Well Bird Dog N-06 HM (slot I)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1166.00ft
<b>Project:</b>	Marshall County, West Virginia NAD83 UTM 17N	<b>MD Reference:</b>	GL @ 1166.00ft
<b>Site:</b>	Bird Dog/Starovic	<b>North Reference:</b>	Grid
<b>Well:</b>	Bird Dog N-06 HM (slot I)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev2		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.000	0.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
100.00	0.00	0.000	100.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
200.00	0.00	0.000	200.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
300.00	0.00	0.000	300.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
400.00	0.00	0.000	400.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
500.00	0.00	0.000	500.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
600.00	0.00	0.000	600.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
700.00	0.00	0.000	700.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
800.00	0.00	0.000	800.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
900.00	0.00	0.000	900.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
1,000.00	0.00	0.000	1,000.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
1,100.00	0.00	0.000	1,100.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
1,200.00	0.00	0.000	1,200.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
1,300.00	0.00	0.000	1,300.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
1,400.00	0.00	0.000	1,400.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
1,500.00	0.00	0.000	1,500.00	0.00	0.00	14,465,926.577	1,757,086.344	39.832265760	-80.584414110	
<b>KOP Begin 2°/100' build</b>										
1,600.00	2.00	115.440	1,599.98	-0.75	1.58	14,465,925.827	1,757,087.920	39.832263681	-80.584408509	
1,700.00	4.00	115.440	1,699.84	-3.00	6.30	14,465,923.579	1,757,092.646	39.832257447	-80.584391713	
1,800.00	6.00	115.440	1,799.45	-6.74	14.17	14,465,919.835	1,757,100.516	39.832247066	-80.584363742	
1,900.00	8.00	115.440	1,898.70	-11.98	25.18	14,465,914.601	1,757,111.521	39.832232549	-80.584324630	
2,000.00	10.00	115.440	1,997.47	-18.70	39.30	14,465,907.881	1,757,125.647	39.832213916	-80.584274425	
2,051.21	11.02	115.440	2,047.82	-22.71	47.74	14,465,903.868	1,757,134.084	39.832202787	-80.584244439	
<b>Begin 11.02° tangent</b>										
2,100.00	11.02	115.440	2,095.70	-26.72	56.16	14,465,899.860	1,757,142.509	39.832191674	-80.584214495	
2,200.00	11.02	115.440	2,193.86	-34.93	73.43	14,465,891.646	1,757,159.777	39.832168895	-80.584153122	
2,300.00	11.02	115.440	2,292.01	-43.15	90.70	14,465,883.432	1,757,177.045	39.832146117	-80.584091749	
2,400.00	11.02	115.440	2,390.17	-51.36	107.97	14,465,875.217	1,757,194.313	39.832123339	-80.584030377	
2,500.00	11.02	115.440	2,488.32	-59.57	125.24	14,465,867.003	1,757,211.582	39.832100560	-80.583969004	
2,600.00	11.02	115.440	2,586.48	-67.79	142.51	14,465,858.789	1,757,228.850	39.832077782	-80.583907631	
2,700.00	11.02	115.440	2,684.63	-76.00	159.77	14,465,850.575	1,757,246.118	39.832055003	-80.583846258	
2,800.00	11.02	115.440	2,782.79	-84.22	177.04	14,465,842.361	1,757,263.386	39.832032225	-80.583784885	
2,900.00	11.02	115.440	2,880.94	-92.43	194.31	14,465,834.146	1,757,280.654	39.832009446	-80.583723513	
3,000.00	11.02	115.440	2,979.10	-100.64	211.58	14,465,825.932	1,757,297.923	39.831986668	-80.583662140	
3,100.00	11.02	115.440	3,077.25	-108.86	228.85	14,465,817.718	1,757,315.191	39.831963889	-80.583600768	
3,200.00	11.02	115.440	3,175.41	-117.07	246.12	14,465,809.504	1,757,332.459	39.831941111	-80.583539395	
3,300.00	11.02	115.440	3,273.56	-125.29	263.38	14,465,801.290	1,757,349.727	39.831918332	-80.583478022	
3,400.00	11.02	115.440	3,371.72	-133.50	280.65	14,465,793.075	1,757,366.995	39.831895553	-80.583416650	
3,500.00	11.02	115.440	3,469.87	-141.72	297.92	14,465,784.861	1,757,384.264	39.831872775	-80.583355277	
3,600.00	11.02	115.440	3,568.02	-149.93	315.19	14,465,776.647	1,757,401.532	39.831849996	-80.583293905	
3,700.00	11.02	115.440	3,666.18	-158.14	332.46	14,465,768.433	1,757,418.800	39.831827217	-80.583232533	
3,800.00	11.02	115.440	3,764.33	-166.36	349.72	14,465,760.219	1,757,436.068	39.831804438	-80.583171160	
3,900.00	11.02	115.440	3,862.49	-174.57	366.99	14,465,752.004	1,757,453.336	39.831781659	-80.583109788	
4,000.00	11.02	115.440	3,960.64	-182.79	384.26	14,465,743.790	1,757,470.605	39.831758880	-80.583048416	
4,100.00	11.02	115.440	4,058.80	-191.00	401.53	14,465,735.576	1,757,487.873	39.831736101	-80.582987044	
4,200.00	11.02	115.440	4,156.95	-199.22	418.80	14,465,727.362	1,757,505.141	39.831713323	-80.582925672	
4,300.00	11.02	115.440	4,255.11	-207.43	436.07	14,465,719.148	1,757,522.409	39.831690544	-80.582864299	
4,400.00	11.02	115.440	4,353.26	-215.64	453.33	14,465,710.933	1,757,539.677	39.831667765	-80.582802927	
4,500.00	11.02	115.440	4,451.42	-223.86	470.60	14,465,702.719	1,757,556.946	39.831644985	-80.582741555	
4,600.00	11.02	115.440	4,549.57	-232.07	487.87	14,465,694.505	1,757,574.214	39.831622206	-80.582680183	
4,700.00	11.02	115.440	4,647.73	-240.29	505.14	14,465,686.291	1,757,591.482	39.831599427	-80.582618811	
4,800.00	11.02	115.440	4,745.88	-248.50	522.41	14,465,678.077	1,757,608.750	39.831576648	-80.582557440	
4,900.00	11.02	115.440	4,844.04	-256.71	539.68	14,465,669.862	1,757,626.018	39.831553869	-80.582496068	





Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Bird Dog N-06 HM (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1166.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1166.00ft
Site:	Bird Dog/Starovic	North Reference:	Grid
Well:	Bird Dog N-06 HM (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,000.00	11.02	115.440	4,942.19	-264.93	556.94	14,465,661.648	1,757,643.286	39.831531090	-80.582434696	
5,100.00	11.02	115.440	5,040.34	-273.14	574.21	14,465,653.434	1,757,660.555	39.831508310	-80.582373324	
5,200.00	11.02	115.440	5,138.50	-281.36	591.48	14,465,645.220	1,757,677.823	39.831485531	-80.582311952	
5,300.00	11.02	115.440	5,236.65	-289.57	608.75	14,465,637.006	1,757,695.091	39.831462752	-80.582250581	
5,400.00	11.02	115.440	5,334.81	-297.79	626.02	14,465,628.791	1,757,712.359	39.831439973	-80.582189209	
5,500.00	11.02	115.440	5,432.96	-306.00	643.28	14,465,620.577	1,757,729.627	39.831417193	-80.582127837	
5,600.00	11.02	115.440	5,531.12	-314.21	660.55	14,465,612.363	1,757,746.896	39.831394414	-80.582066466	
5,700.00	11.02	115.440	5,629.27	-322.43	677.82	14,465,604.149	1,757,764.164	39.831371634	-80.582005094	
5,800.00	11.02	115.440	5,727.43	-330.64	695.09	14,465,595.934	1,757,781.432	39.831348855	-80.581943723	
5,900.00	11.02	115.440	5,825.58	-338.86	712.36	14,465,587.720	1,757,798.700	39.831326075	-80.581882351	
6,000.00	11.02	115.440	5,923.74	-347.07	729.63	14,465,579.506	1,757,815.968	39.831303296	-80.581820980	
6,100.00	11.02	115.440	6,021.89	-355.29	746.89	14,465,571.292	1,757,833.237	39.831280516	-80.581759608	
6,182.19	11.02	115.440	6,102.57	-362.04	761.09	14,465,564.540	1,757,847.430	39.831261793	-80.581709165	
<b>Begin 8°/100' build/turn</b>										
6,200.00	9.89	110.677	6,120.08	-363.31	764.06	14,465,563.289	1,757,850.398	39.831258263	-80.581698613	
6,250.00	7.27	90.070	6,169.53	-364.83	771.24	14,465,561.748	1,757,857.583	39.831253994	-80.581673046	
6,300.00	6.31	56.887	6,219.19	-363.32	776.70	14,465,563.253	1,757,863.045	39.831258058	-80.581653566	
6,350.00	7.65	25.159	6,268.84	-358.80	780.42	14,465,567.778	1,757,866.758	39.831270435	-80.581640267	
6,400.00	10.45	6.694	6,318.22	-351.28	782.36	14,465,575.299	1,757,868.703	39.831291065	-80.581633214	
6,450.00	13.85	356.543	6,367.10	-340.80	782.53	14,465,585.780	1,757,868.871	39.831319846	-80.581632441	
6,500.00	17.50	350.439	6,415.24	-327.41	780.92	14,465,599.170	1,757,867.261	39.831356639	-80.581637952	
6,550.00	21.27	346.416	6,462.40	-311.17	777.54	14,465,615.405	1,757,863.881	39.831401266	-80.581649721	
6,600.00	25.11	343.567	6,508.35	-292.17	772.40	14,465,634.404	1,757,858.747	39.831453507	-80.581667690	
6,650.00	28.99	341.435	6,552.87	-270.50	765.54	14,465,656.075	1,757,851.885	39.831513109	-80.581691771	
6,700.00	32.90	339.769	6,595.75	-246.26	758.99	14,465,680.313	1,757,843.328	39.831579781	-80.581721848	
6,750.00	36.83	338.422	6,636.77	-219.58	746.77	14,465,707.000	1,757,833.117	39.831653199	-80.581757773	
6,800.00	40.76	337.302	6,675.73	-190.57	734.96	14,465,736.005	1,757,821.303	39.831733004	-80.581799372	
6,850.00	44.71	336.347	6,712.45	-159.39	721.60	14,465,767.187	1,757,807.943	39.831818809	-80.581846441	
6,900.00	48.66	335.517	6,746.74	-126.18	706.76	14,465,800.395	1,757,793.101	39.831910194	-80.581898753	
6,916.87	50.00	335.260	6,757.73	-114.55	701.43	14,465,812.027	1,757,787.773	39.831942206	-80.581917540	
<b>Begin 10°/100' build/turn</b>										
6,950.00	53.28	334.670	6,778.29	-91.02	690.44	14,465,835.561	1,757,776.778	39.832006976	-80.581956312	
7,000.00	58.24	333.868	6,806.41	-53.80	672.49	14,465,872.780	1,757,758.831	39.832109419	-80.582019617	
7,050.00	63.20	333.148	6,830.86	-14.78	653.04	14,465,911.796	1,757,739.378	39.832216814	-80.582088259	
7,100.00	68.16	332.489	6,851.45	25.74	632.22	14,465,952.312	1,757,718.567	39.832328345	-80.582161714	
7,150.00	73.13	331.874	6,868.02	67.44	610.21	14,465,994.018	1,757,696.556	39.832443162	-80.582239423	
7,200.00	78.10	331.290	6,880.44	110.02	587.17	14,466,036.599	1,757,673.513	39.832560393	-80.582320796	
7,250.00	83.06	330.728	6,888.62	153.15	563.27	14,466,079.730	1,757,649.612	39.832679144	-80.582405212	
7,300.00	88.03	330.177	6,892.50	196.51	538.69	14,466,123.082	1,757,625.037	39.832798513	-80.582492029	
7,329.84	91.00	329.851	6,892.75	222.35	523.78	14,466,148.922	1,757,610.126	39.832869666	-80.582544710	
<b>Begin 91.00° lateral</b>										
7,400.00	91.00	329.851	6,891.52	283.01	488.55	14,466,209.583	1,757,574.893	39.833036705	-80.582669205	
7,500.00	91.00	329.851	6,889.78	369.47	438.33	14,466,296.042	1,757,524.675	39.833274782	-80.582846645	
7,600.00	91.00	329.851	6,888.03	455.92	388.11	14,466,382.501	1,757,474.457	39.833512858	-80.583024086	
7,700.00	91.00	329.851	6,886.29	542.38	337.90	14,466,468.959	1,757,424.240	39.833750933	-80.583201528	
7,800.00	91.00	329.851	6,884.54	628.84	287.68	14,466,555.418	1,757,374.022	39.833989009	-80.583378972	
7,900.00	91.00	329.851	6,882.80	715.30	237.46	14,466,641.877	1,757,323.805	39.834227084	-80.583556417	
8,000.00	91.00	329.851	6,881.05	801.76	187.24	14,466,728.335	1,757,273.587	39.834465159	-80.583733862	
8,100.00	91.00	329.851	6,879.31	888.22	137.03	14,466,814.794	1,757,223.370	39.834703234	-80.583911309	
8,200.00	91.00	329.851	6,877.56	974.68	86.81	14,466,901.253	1,757,173.152	39.834941308	-80.584088758	
8,300.00	91.00	329.851	6,875.82	1,061.14	36.59	14,466,987.712	1,757,122.935	39.835179382	-80.584266207	
8,400.00	91.00	329.851	6,874.07	1,147.60	-13.63	14,467,074.170	1,757,072.717	39.835417456	-80.584443658	
8,500.00	91.00	329.851	6,872.33	1,234.06	-63.84	14,467,160.629	1,757,022.500	39.835655529	-80.584621110	



Planning Report - Geographic

4705102478

Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Bird Dog N-06 HM (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1166.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1166.00ft
Site:	Bird Dog/Starcovic	North Reference:	Grid
Well:	Bird Dog N-06 HM (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
8,600.00	91.00	329.851	6,870.58	1,320.51	-114.06	14,467,247.088	1,756,972.282	39.835893602	-80.584798563	
8,700.00	91.00	329.851	6,868.84	1,406.97	-164.28	14,467,333.547	1,756,922.065	39.836131675	-80.584976018	
8,800.00	91.00	329.851	6,867.09	1,493.43	-214.50	14,467,420.005	1,756,871.847	39.836369748	-80.585153473	
8,900.00	91.00	329.851	6,865.35	1,579.89	-264.72	14,467,506.464	1,756,821.629	39.836607821	-80.585330930	
9,000.00	91.00	329.851	6,863.60	1,666.35	-314.93	14,467,592.923	1,756,771.412	39.836845893	-80.585508388	
9,100.00	91.00	329.851	6,861.86	1,752.81	-365.15	14,467,679.382	1,756,721.194	39.837083965	-80.585685848	
9,200.00	91.00	329.851	6,860.11	1,839.27	-415.37	14,467,765.840	1,756,670.977	39.837322036	-80.585863308	
9,300.00	91.00	329.851	6,858.37	1,925.73	-465.59	14,467,852.299	1,756,620.759	39.837560108	-80.586040770	
9,400.00	91.00	329.851	6,856.62	2,012.19	-515.80	14,467,938.758	1,756,570.542	39.837798179	-80.586218233	
9,500.00	91.00	329.851	6,854.88	2,098.64	-566.02	14,468,025.216	1,756,520.324	39.838036249	-80.586395697	
9,600.00	91.00	329.851	6,853.13	2,185.10	-616.24	14,468,111.675	1,756,470.107	39.838274320	-80.586573163	
9,700.00	91.00	329.851	6,851.39	2,271.56	-666.46	14,468,198.134	1,756,419.889	39.838512390	-80.586750629	
9,800.00	91.00	329.851	6,849.64	2,358.02	-716.67	14,468,284.593	1,756,369.672	39.838750460	-80.586928097	
9,900.00	91.00	329.851	6,847.90	2,444.48	-766.89	14,468,371.051	1,756,319.454	39.838988530	-80.587105566	
10,000.00	91.00	329.851	6,846.15	2,530.94	-817.11	14,468,457.510	1,756,269.237	39.839226599	-80.587283036	
10,100.00	91.00	329.851	6,844.41	2,617.40	-867.33	14,468,543.969	1,756,219.019	39.839464668	-80.587460508	
10,200.00	91.00	329.851	6,842.66	2,703.86	-917.54	14,468,630.428	1,756,168.801	39.839702737	-80.587637981	
10,300.00	91.00	329.851	6,840.92	2,790.32	-967.76	14,468,716.886	1,756,118.584	39.839940806	-80.587815455	
10,400.00	91.00	329.851	6,839.17	2,876.77	-1,017.98	14,468,803.345	1,756,068.366	39.840178874	-80.587992930	
10,500.00	91.00	329.851	6,837.43	2,963.23	-1,068.20	14,468,889.804	1,756,018.149	39.840416942	-80.588170406	
10,600.00	91.00	329.851	6,835.68	3,049.69	-1,118.42	14,468,976.263	1,755,967.931	39.840655010	-80.588347884	
10,700.00	91.00	329.851	6,833.93	3,136.15	-1,168.63	14,469,062.721	1,755,917.714	39.840893077	-80.588525363	
10,800.00	91.00	329.851	6,832.19	3,222.61	-1,218.85	14,469,149.180	1,755,867.496	39.841131144	-80.588702843	
10,900.00	91.00	329.851	6,830.44	3,309.07	-1,269.07	14,469,235.639	1,755,817.279	39.841369211	-80.588880324	
11,000.00	91.00	329.851	6,828.70	3,395.53	-1,319.29	14,469,322.097	1,755,767.061	39.841607278	-80.589057807	
11,100.00	91.00	329.851	6,826.95	3,481.99	-1,369.50	14,469,408.556	1,755,716.844	39.841845344	-80.589235290	
11,200.00	91.00	329.851	6,825.21	3,568.45	-1,419.72	14,469,495.015	1,755,666.626	39.842083410	-80.589412775	
11,300.00	91.00	329.851	6,823.46	3,654.90	-1,469.94	14,469,581.474	1,755,616.409	39.842321476	-80.589590261	
11,400.00	91.00	329.851	6,821.72	3,741.36	-1,520.16	14,469,667.932	1,755,566.191	39.842559542	-80.589767749	
11,500.00	91.00	329.851	6,819.97	3,827.82	-1,570.37	14,469,754.391	1,755,515.973	39.842797607	-80.589945237	
11,600.00	91.00	329.851	6,818.23	3,914.28	-1,620.59	14,469,840.850	1,755,465.756	39.843035672	-80.590122727	
11,700.00	91.00	329.851	6,816.48	4,000.74	-1,670.81	14,469,927.309	1,755,415.538	39.843273737	-80.590300218	
11,715.65	91.00	329.851	6,816.21	4,014.27	-1,678.67	14,469,940.842	1,755,407.678	39.843311000	-80.590328000	

PBHL/TD 11715.65 MD 6816.21 TVD

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Bird Dog N-06 HM BHL	0.00	0.000	6,816.21	4,014.27	-1,678.67	14,469,940.842	1,755,407.678	39.843311000	-80.590328000	
- hit/miss target										
- plan hits target center										
- Point										
Bird Dog N-06 HM LP 5(	0.00	0.000	6,904.00	-299.25	827.12	14,465,627.323	1,757,913.463	39.831433357	-80.581472916	
- plan misses target center by 259.28ft at 6857.17ft MD (6717.51 TVD, -154.75 N, 719.56 E)										
- Point										
Bird Dog N-06 HM LP	0.00	0.000	6,904.00	-299.25	777.12	14,465,627.323	1,757,863.466	39.831434000	-80.581651000	
- plan misses target center by 242.17ft at 6872.01ft MD (6727.85 TVD, -145.01 N, 715.24 E)										
- Point										



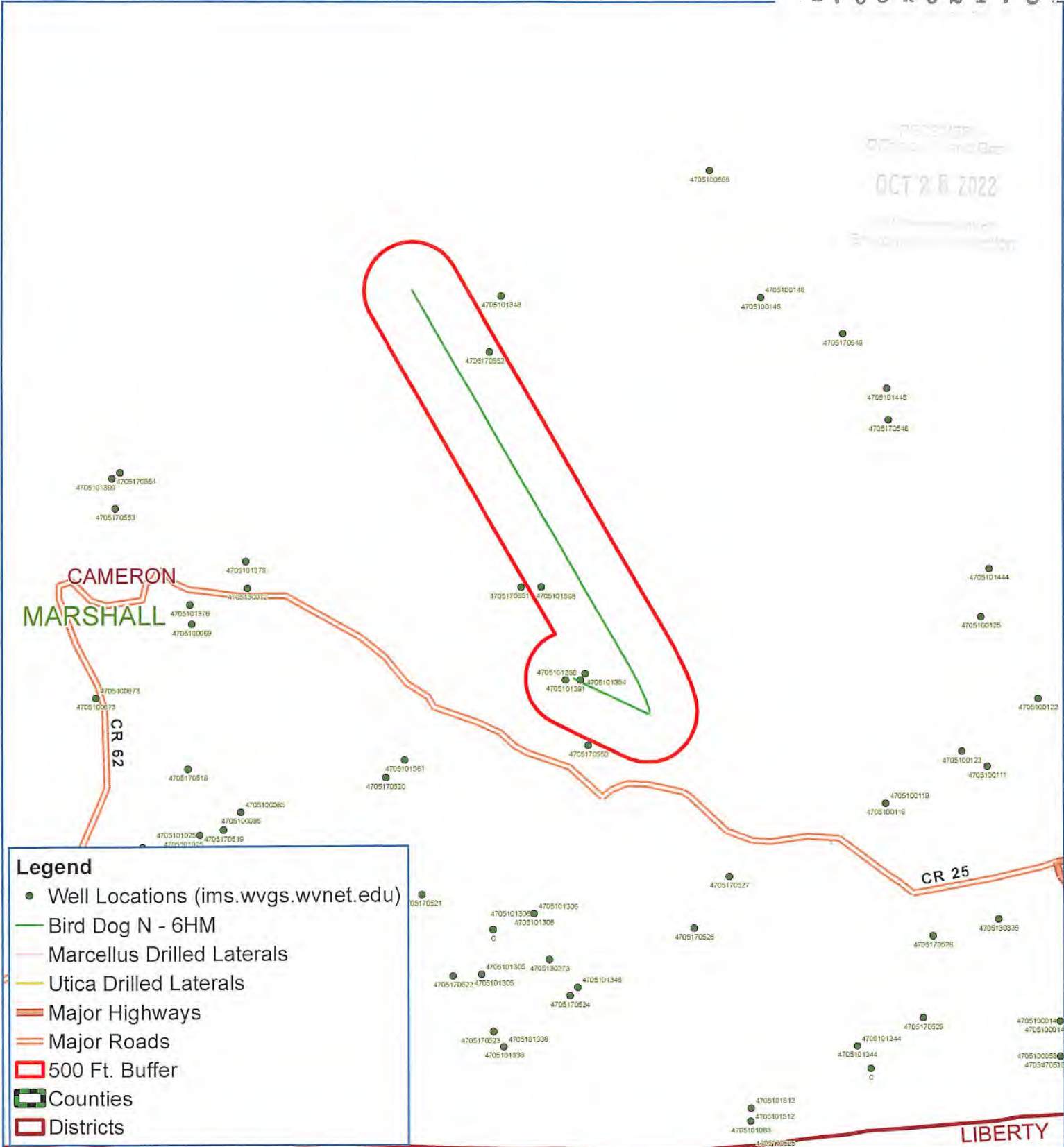
Planning Report - Geographic

4100102418

Database:	DB_Feb2822	Local Co-ordinate Reference:	Well Bird Dog N-06 HM (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1166.00ft
Project:	Marshall County, West Virginia NAD83 UTM 17N	MD Reference:	GL @ 1166.00ft
Site:	Bird Dog/Starcovic	North Reference:	Grid
Well:	Bird Dog N-06 HM (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,500.00	1,500.00	0.00	0.00	KOP Begin 2°/100' build	
2,051.21	2,047.82	-22.71	47.74	Begin 11.02° tangent	
6,182.19	6,102.57	-362.04	761.09	Begin 8°/100' build/turn	
6,916.87	6,757.73	-114.55	701.43	Begin 10°/100' build/turn	
7,329.84	6,892.75	222.35	523.78	Begin 91.00° lateral	
11,715.65	6,816.21	4,014.27	-1,678.67	PBHL/TD 11715.65 MD 6816.21 TVD	

DATE: OCT 26 2022



# Bird Dog N - 6HM Cameron District Marshall County, WV



Notes:  
All locations are approximate and are for visualization purposes only.

Map Prepared by:  
**EPS**  
LAND SERVICES  
12/09/2022

### Area of Review

#### Sources of information to Support 35CSR8 - 5.11: 9.3 et seq.

Description of process to identify potential pathways for well communication during hydraulic fracturing activities.

#### Data Sources Reviewed:

1. Enverus and RS Energy Group Well Data service: Public nationwide data service that pulls directly from State agency Oil and Gas databases
2. Farm Maps
3. Topo Maps: Recent and older (contact WVGES)
4. Check with DPS

Contacted Adam Picard 724-485-9331, [apicard@dpslandservices.com](mailto:apicard@dpslandservices.com), DPS GIS (10/26/2022) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it is the best publicly available. See attached map he provided.

#### Request maps for:

1. Wellbore with Enverus All Wells Layer
2. Map with Farm lines overlain and any well spots identified on Farm Maps
3. More recent (1970s vintage) topos and older topos

#### Discussion with Phil Dinterman WVGES GIS Department (7/15/2016)

- WVGES has plotted every well spot they have access to and are aware of with that contains a coordinate. 30000, 70000, and 90000 series wells are available via the WVGES online map. Some locations aren't great due to vintage and manipulation of maps through time
- 30000 series – any well drilled prior to 1929 – APIs were not assigned to original wells
- 70000 series – Well spots pulled from old Farm line maps that the WVGES has access to
- 90000 series – Any sources that the WVGES has access that shows a well spot but has no additional supporting information. DEP does not have 90000 series on their maps.
- There can be duplication between wells in the 3 series
- Phil indicated that other Operators are providing a screenshot of the WVGES map with their planned well and using that for permits

WW-9  
(4/16)

4705102478

API Number 47 - 051 - \_\_\_\_\_  
Operator's Well No. Bird Dog N-6HM

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

Watershed (HUC 10) Middle Grave Creek - HUC 10 Quadrangle Cameron 7.5'

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes  No

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: AST Tanks with proper containment will be used for staging fresh and produced water for frac

Will a synthetic liner be used in the pit? Yes  No  If so, what ml.? AST tanks will be used with proper contain<sup>+</sup>

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number UIC 2459, UIC 965, UIC 359, UIC 2D0732540, UIC 2D0732523 )
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain \_\_\_\_\_)

Will closed loop system be used? If so, describe: Yes - For Vertical Drilling

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air for vertical

-If oil based, what type? Synthetic, petroleum, etc. n/a

Additives to be used in drilling medium? \_\_\_\_\_

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All drill cuttings to be disposed of in a Landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP ECH189426), Chestnut Valley Landfill (100418)

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature *Jim Pancake*

Company Official (Typed Name) Jim Pancake

Company Official Title Vice President - Geosciences

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Office of Oil and Gas

OCT 28 2022

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Subscribed and sworn before me this 20th day of October, 2022

*Susanne Deliere*

Commonwealth of Pennsylvania Notary Public  
Susanne Deliere, Notary Public  
Washington County  
My commission expires January 15, 2025  
Commission number 1382332

My commission expires 1-15-2025

*Susanne Deliere*  
10-18-2022  
12/09/2022

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 6.39 acres Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Orchard Grass	12
Spring Oats	96	Ladino	3
		White Clover	2

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments:

Title: Oil and Gas Inspector

Date: 10-18-2022

Field Reviewed? ( ) Yes ( ) No

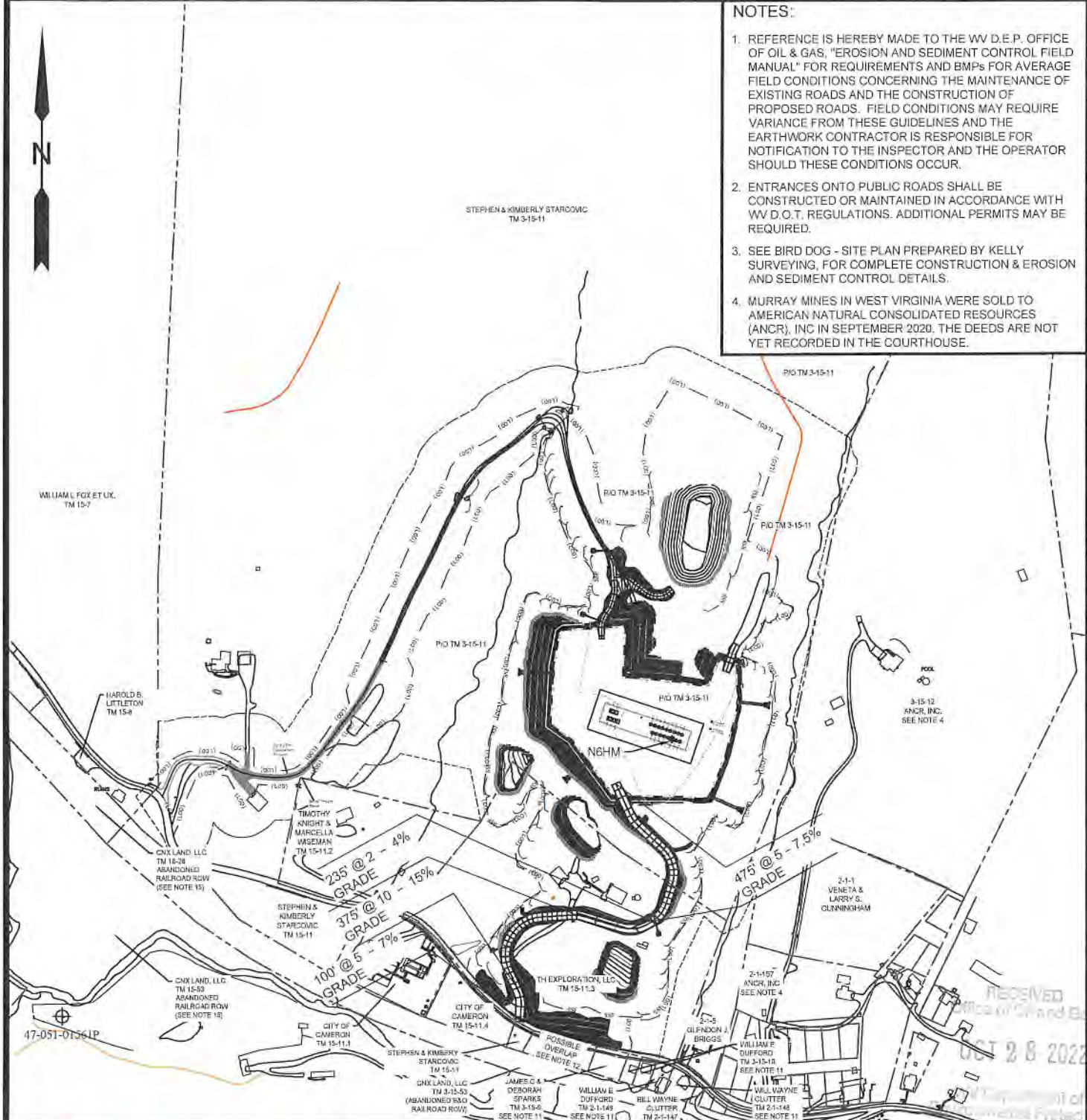
RECEIVED Office of Oil and Gas OCT 28 2022 WV Department of Environment 12/09/2022

# PROPOSED BIRD DOG N - 6HM

**NOTES:**

1. REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.
2. ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.
3. SEE BIRD DOG - SITE PLAN PREPARED BY KELLY SURVEYING, FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.
4. MURRAY MINES IN WEST VIRGINIA WERE SOLD TO AMERICAN NATURAL CONSOLIDATED RESOURCES (ANCR), INC IN SEPTEMBER 2020. THE DEEDS ARE NOT YET RECORDED IN THE COURTHOUSE.

STEPHEN & KIMBERLY STARCOVIC  
TM 3-15-11



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26031 | 304.462.5352  
 1442 Hahnemann Boulevard, 301st | Charleston, WV 25301 | 304.346.3992  
 254 East Chesley Bypass | Beckley, WV 25801 | 304.255.5296  
 sls.com

TOPO SECTION:		OPERATOR:	
CAMERON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT		
MARSHALL	CAMERON (DIST)		
DRAWN BY	JOB NO.	DATE	SCALE
J.D.R.	9263	10/25/2022	1" = 400'



**TUG HILL  
OPERATING**

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OCT 28 2022

12/09/2022





**TUG HILL**  
**OPERATING**

**Well Site Safety Plan**  
**Part A – Site Specific Data and Figures**

**Well Name: Bird Dog N-6HM**

**Pad Name: Bird Dog**

**County: Marshall**

UTM (meters), NAD83, Zone 17

Northing: 4,409,223.24

Easting: 535,560.99

**KEY CONTACT FOR WELL SITE SAFETY PLAN  
DEVELOPMENT AND MAINTENANCE**

**Jerry V. DeRosa, Director EH&S Affairs**

**(724) 338-2029 (office)**

**(412) 736-5767 (cellular)**

**24-HOUR EMERGENCY PHONE NUMBER**

**(800) 921-9745**

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Office of Oil and Gas

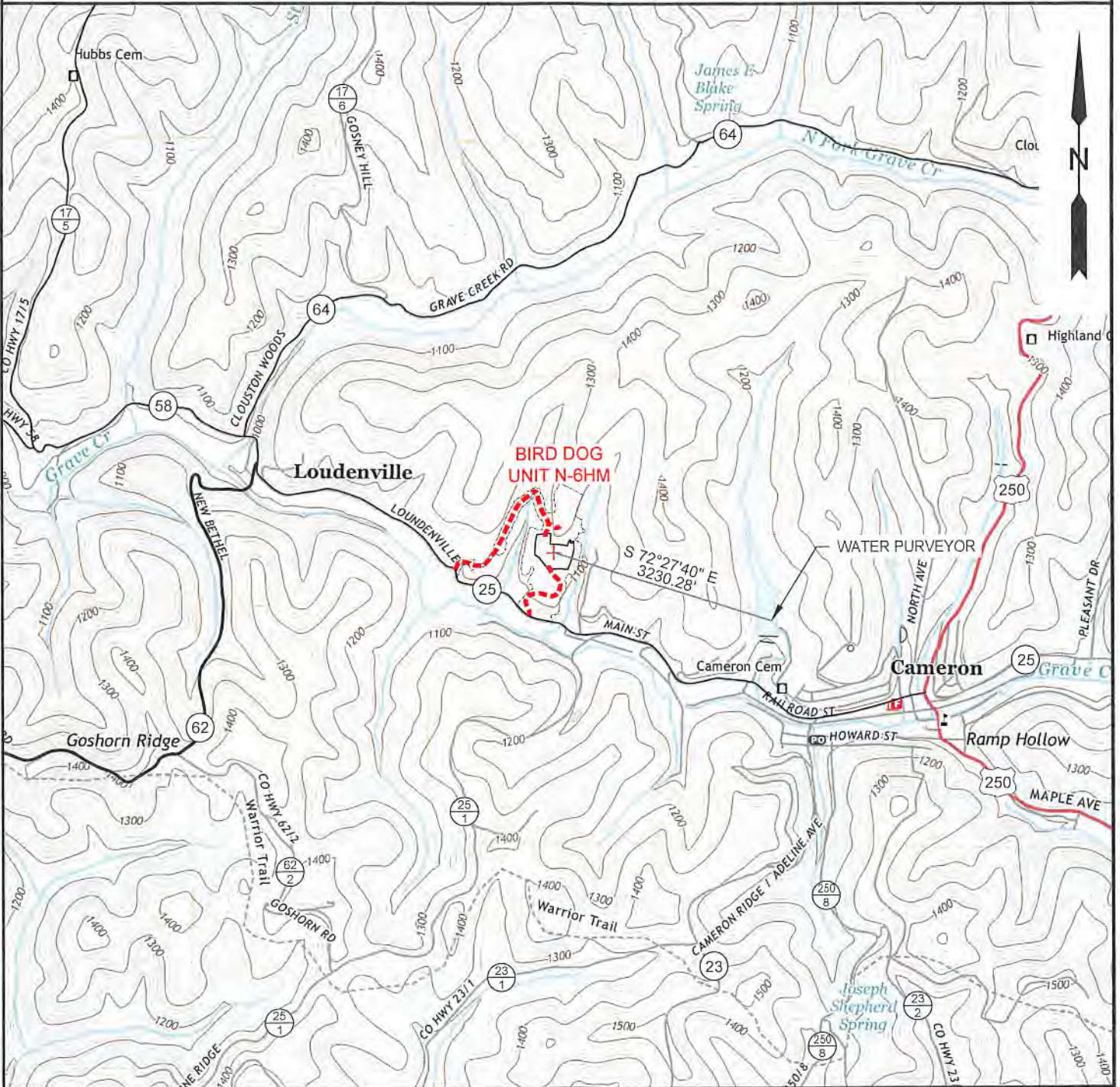
OCT 28 2022

WV Department of  
Environmental Protection

12/09/2022



*Handwritten signature and date: 10-14-2022*

# PROPOSED BIRD DOG UNIT N - 6HM



NOTE: CLOSEST WATER PURVEYOR  
CITY OF CAMERON - FRANK WALKER RESERVOIR  
CAMERON, WV

LAT: 39.829865° N  
LON: 80.573724° W  
LOCATED: S 72°27'40" E AT 3,230.28' FROM THE CENTER OF BIRD DOG WELL PAD LOCATION.

 <p>12 Vanhorn Drive   P.O. Box 150   Glenville, WV 26351   304.462.5634 1412 Kanawha Boulevard, East   Charleston, WV 25301   304.346.3952 254 East Beckley Bypass   Beckley, WV 25801   304.255.5296 sllsw.com</p>	<b>TOPO SECTION:</b> CAMERON 7.5'		<b>OPERATOR:</b> PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		 <p><b>TUG HILL OPERATING</b></p>
	<b>COUNTY</b> MARSHALL	<b>DISTRICT</b> CAMERON (DIST)	<b>DATE</b> 10/25/2022	<b>SCALE</b> 1" = 2000'	
	<b>DRAWN BY</b> J.D.R.	<b>JOB NO.</b> 9263			

12/09/2022

**BIRD DOG LEASE  
WELL 6HM  
TUG HILL OPERATING**

T.H. LATITUDE 39°50'00"  
B.H. LATITUDE 39°52'30"

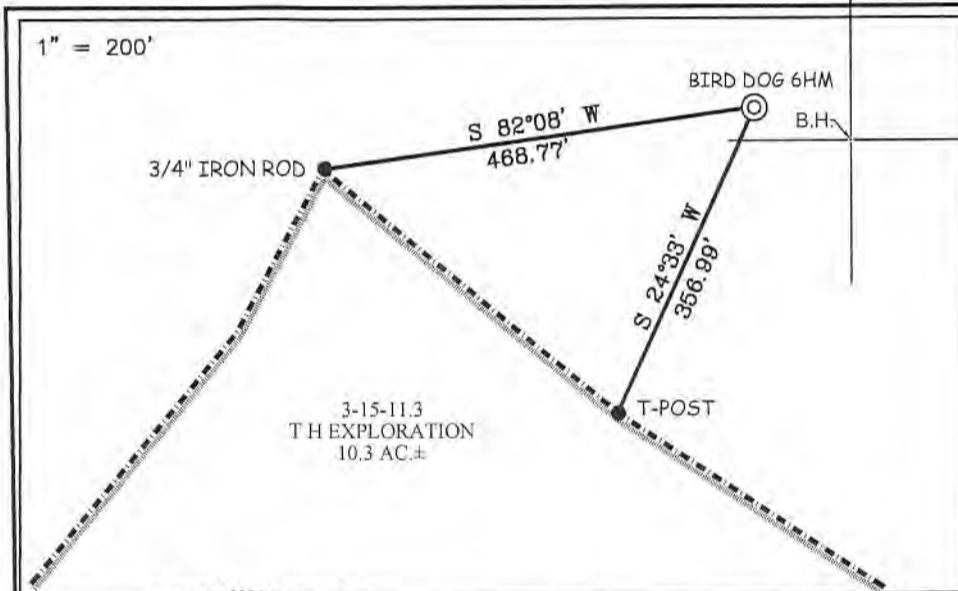
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)  
 NAD'83 S.P.C.(FT) N. 487,091.73 E. 1,663,968.69  
 NAD'83 GEO. LAT-(N) 39.832266 LONG-(W) 80.584414  
 NAD'83 UTM (M) N. 4,409,223.24 E. 535,560.99  
**LANDING POINT**  
 NAD'83 S.P.C.(FT) N. 487,305.4 E. 1,664,496.3  
 NAD'83 GEO. LAT-(N) 39.832870 LONG-(W) 80.582545  
 NAD'83 UTM (M) N. 4,409,291.0 E. 535,720.6  
**BOTTOM HOLE**  
 NAD'83 S.P.C.(FT) N. 491,134.8 E. 1,662,356.8  
 NAD'83 GEO. LAT-(N) 39.843311 LONG-(W) 80.590328  
 NAD'83 UTM (M) N. 4,410,446.8 E. 535,049.3

BIRD DOG 6HM REV2			
TAG	SURFACE OWNER	PARCEL	ACRES
A	STEPHEN M. & KIMBERLY STARCOVIC	3-15-11	167.998
B	JAMES & PAULA HILL	3-15-12	26.38
C	GERALD H II & DEBRA D BLAKE -TOD	3-15-5	23.71
D	CNX LAND, LLC	13.48	13.49

T.H. LONGITUDE 80°35'00"  
B.H. LONGITUDE 80°35'00"

11,543' B.H.

**REFERENCES**



**NOTES ON SURVEY**

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296  
 slsvv.com

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 DIVISION OF ENVIRONMENTAL PROTECTION.



P.S. 677 *Gregory A. Smith*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
 DATE OCTOBER 25, 20 22  
 REVISED \_\_\_\_\_, 20 \_\_\_\_\_  
 OPERATORS WELL NO. BIRD DOG-6HM  
 API WELL NO. 47 — 051 — 02478  
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 9263P6HM.dwg  
BIRD DOG-6HM REV2  
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY: DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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



WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  IF "GAS" PRODUCTION  STORAGE  DEEP  SHALLOW   
 LOCATION: GROUND = 1,169.20' PROPOSED = 1,165.96' WATERSHED GRAVE CREEK & NORTH FORK  
 DISTRICT CAMERON COUNTY MARSHALL QUADRANGLE CAMERON 7.5'  
 SURFACE OWNER STEPHEN M. STARCOVIC & KIMBERERLY A. STARCOVIC ACREAGE 167.998±  
 ROYALTY OWNER STEPHEN M. STARCOVIC & KIMBERERLY A. STARCOVIC ACREAGE 167.998±  
 PROPOSED WORK: LEASE NO. \_\_\_\_\_  
 DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER \_\_\_\_\_  
 PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS  
 ESTIMATED DEPTH TVD: 7,012' TMD: 11, 716

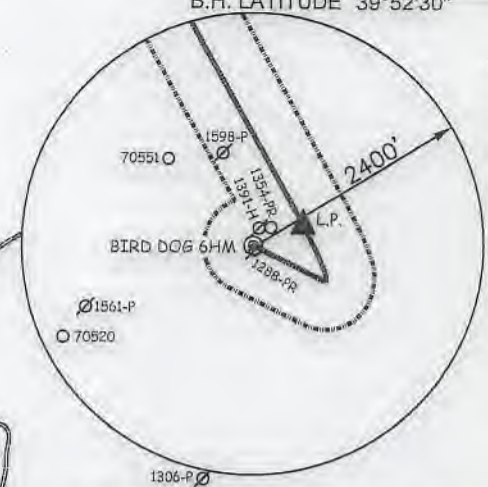
WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DARREN BROWN - CT CORPORATION  
 ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5098 WASHINGTON ST. W, STE 407  
FORT WORTH, TX 76107 CHARLESTON, WV 25313-1561

COUNTY NAME  
PERMIT

12/09/2022

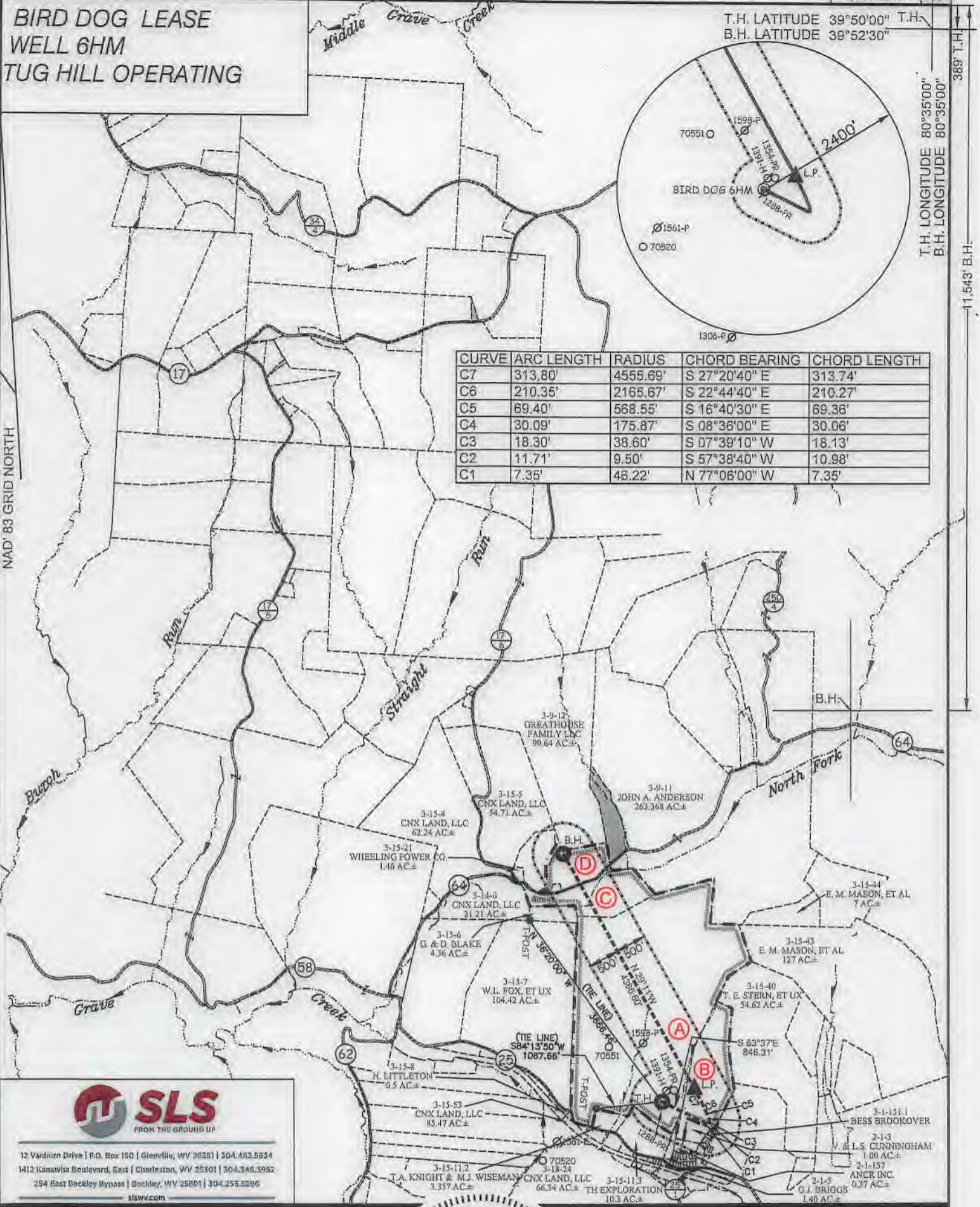
**BIRD DOG LEASE  
WELL 6HM  
TUG HILL OPERATING**

1,965' B.H.  
315'  
369' T.H.  
11,543' B.H.  
T.H. LATITUDE 39°50'00" T.H.  
B.H. LATITUDE 39°52'30"  
T.H. LONGITUDE 80°35'00"  
B.H. LONGITUDE 80°35'00"



CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C7	313.80'	4555.69'	S 27°20'40" E	313.74'
C6	210.35'	2165.67'	S 22°44'40" E	210.27'
C5	69.40'	568.55'	S 16°40'30" E	69.36'
C4	30.09'	175.87'	S 08°36'00" E	30.06'
C3	18.30'	38.60'	S 07°39'10" W	18.13'
C2	11.71'	9.50'	S 57°38'40" W	10.98'
C1	7.35'	46.22'	N 77°06'00" W	7.35'

NAD'83 GRID NORTH



12 Vandoren Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634  
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952  
254 East Beckley Bypass | Beckley, WV 25801 | 304.258.5296  
slsw.com

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)		
NAD'83 S.P.C.(FT)	N. 487,091.73	E. 1,663,968.69
NAD'83 GEO.	LAT-(N) 39.832266	LONG-(W) 80.584414
NAD'83 UTM (M)	N. 4,409,223.24	E. 535,560.99
<u>LANDING POINT</u>		
NAD'83 S.P.C.(FT)	N. 487,305.4	E. 1,664,496.3
NAD'83 GEO.	LAT-(N) 39.832870	LONG-(W) 80.582545
NAD'83 UTM (M)	N. 4,409,291.0	E. 535,720.6
<u>BOTTOM HOLE</u>		
NAD'83 S.P.C.(FT)	N. 491,134.8	E. 1,662,356.8
NAD'83 GEO.	LAT-(N) 39.843311	LONG-(W) 80.590328
NAD'83 UTM (M)	N. 4,410,446.8	E. 535,049.3



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

P.S. 677 *Gregory A. Smith*

LEASE LINE	-----
SURFACE LINE	-----
WELL LATERAL	-----
OFFSET LINE	-----
TIE LINE	-----
CREEK	-----
ROAD	-----
COUNTY ROUTE	-----
PROPOSED WELL	○
EXISTING WELL	○
PERMITTED WELL	○
FOUND MONUMENT, AS NOTED	●
TAX MAP-PARCEL	00-00
SURFACE OWNER (SEE TABLE)	○
LEASE # (SEE WW-6A1)	○

SCALE 1" = 2000' FILE NO. 9263P6HM.dwg  
BIRD DOG-6HM REV2  
DATE OCTOBER 25, 20 22  
REVISED \_\_\_\_\_, 20 \_\_\_\_  
OPERATORS WELL NO. BIRD DOG-6HM REV2  
API WELL NO. 47 STATE 051 COUNTY 02478 PERMIT  
WELL OPERATOR TUG HILL OPERATING, LLC  
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107

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



DESIGNATED AGENT DARREN BROWN - CT CORPORATION  
ADDRESS 5098 WASHINGTON ST. W, STE 407 CHARLESTON, WV 25313-1561

COUNTY NAME  
PERMIT

12/09/2022

WW-6A1  
(5/13)

Operator's Well No. Bird Dog N-6HM

**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 pages

**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: Tug Hill Operating, LLC  
 By: Amy L. Morris *Amy L. Morris*  
 Its: Permitting Specialist - Appalachia Region

# WW - 6A1 Supplement

# Operator's Well No. Bird Dog N - 6HM

LM_ID	SEC	Tags	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment
10*30506	3-15-11	A	STEPHEN M STARCOVIC & KIMBERLY A STARCOVIC	TH EXPLORATION LLC	1/8+	1114	35	NA
10*39216	3-15-12	B	DAVID C BARROW	TH EXPLORATION LLC	1/8+	1111	401	NA
10*39289	3-15-12	B	JERRY L SAMPSON AND VICKI A SAMPSON	TH EXPLORATION LLC	1/8+	1116	584	NA
10*39608	3-15-12	B	TOM LEE BARROW II	TH EXPLORATION LLC	1/8+	1120	485	NA
10*39609	3-15-12	B	JAMES E BARROW	TH EXPLORATION LLC	1/8+	1121	502	NA
10*39618	3-15-12	B	ALICE J BARROW	TH EXPLORATION LLC	1/8+	1121	494	NA
10*30505	3-15-5	C	GERALD H BLAKE II AND DEBRA BLAKE	TH EXPLORATION LLC	1/8+	1106	263	NA
10*24114	3-15-4	D	CLAIRE S LEMKE	TH EXPLORATION LLC	1/8+	1010	336	NA
10*22785	3-15-4	D	KAREN WHITWORTH	TH EXPLORATION LLC	1/8+	970	89	NA
10*27943	3-15-4	D	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063	565	NA
10*30481	3-15-4	D	SUZANNE STURDIVANT	TH EXPLORATION LLC	1/8+	1106	266	NA
10*30533	3-15-4	D	CAROLYN G AUCREMAN AND THOMAS C AUCREMAN	TH EXPLORATION LLC	1/8+	1105	270	NA
10*39132	3-15-4	D	THE OHIO CONFERENCE ASSOCIATION OF THE SEVENTH DAY ADVENTIST CHURCH	TH EXPLORATION LLC	1/8+	1110	505	NA
10*40771	3-15-4	D	EVELYN PETIT RAY	TH EXPLORATION LLC	1/8+	1142	96	NA

4705102478



4705102478

October 26, 2022

WV Department of Environmental Protection  
Office of Oil & Gas  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
Attention: Charles Brewer

RE: Bird Dog N-6HM

Subject: Road Crossing Letter

RECEIVED  
Office of Oil and Gas  
OCT 28 2022  
WV Department of  
Environmental Protection

Dear Taylor:

Tug Hill Operating, LLC (THO) hereby submits this letter as confirmation that THO has obtained the right to drill, extract and produce the minerals under Marshall County Route 64 in the area reflected on the Bird Dog N-6HM well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Route and is not currently aware of any recorded document that would suggest an ownership other than THO.

If your office has any questions or concerns regarding the contents of this letter, please do not hesitate to contact me directly at 304-376-0111, or by email at [amorris@tug-hilop.com](mailto:amorris@tug-hilop.com).

Sincerely,

Amy L. Morris  
Permitting Specialist – Appalachia Region

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE CERTIFICATION

Date of Notice Certification: 10/26/2022

API No. 47- 051 - \_\_\_\_\_  
Operator's Well No. Bird Dog N-6HM  
Well Pad Name: Bird Dog

**Notice has been given:**

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>535,560.99</u>
County: <u>Marshall</u>		Northing: <u>4,409,223.24</u>
District: <u>Cameron</u>	Public Road Access: _____	Co. Route <u>25</u>
Quadrangle: <u>Cameron 7.5'</u>	Generally used farm name: _____	<u>Stephen &amp; Kimberly Starcovic</u>
Watershed: <u>Middle Grave Creek - HUC 10</u>		

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>		<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p> <p><input checked="" type="checkbox"/> RECEIVED</p>
---	--	---

**Required Attachments:**

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

RECEIVED  
Office of Oil and Gas

OCT 28 2022

WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
12/09/2022



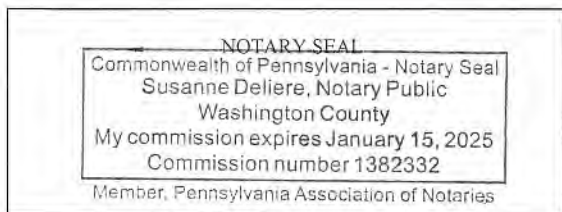
4705102478

**Certification of Notice is hereby given:**

THEREFORE, I Amy L. Morris, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator: Tug Hill Operating, LLC  
By: Amy L. Morris *Amy L. Morris*  
Its: Permitting Specialist - Appalachia Region  
Telephone: 724-749-8388

Address: 380 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317  
Facsimile: \_\_\_\_\_  
Email: amorris@tug-hilop.com



Subscribed and sworn before me this 26<sup>th</sup> day of October 2022  
*Susanne Deliere* Notary Public  
My Commission Expires 1/15/2025

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [deprivacyofficer@wv.gov](mailto:deprivacyofficer@wv.gov).

Office of Oil and Gas  
OCT 28 2022  
West Virginia Department of Environmental Protection

Office of Oil and Gas  
OCT 28 2022  
West Virginia Department of Environmental Protection  
12/09/2022

WW-6A  
(9-13)

API NO. 47- 051 -  
OPERATOR WELL NO. Bird Dog N-6HM  
Well Pad Name: Bird Dog

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF APPLICATION

Notice Time Requirement: notice shall be provided no later than the filing date of permit application.

Date of Notice: 10/25/2022 Date Permit Application Filed: 10/27/2022

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice  WSSP Notice  E&S Plan Notice  Well Plat Notice is hereby provided to:

SURFACE OWNER(s)  
Name: Stephen M. Starcovic and Kimberly A. Starcovic (Pad)  
Address: 70 Starcovic Drive  
Cameron, WV 26033  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
Name: Consol Energy Attn: Casey Saunders  
Address: 275 Technology Drive, Suite 101  
Canonsburg, PA 15317

COAL OPERATOR  
Name: Marshall County Coal Resources, Inc. Attn: Steve Blair  
Address: 46226 National Road  
St. Clairsville, OH 43950

SURFACE OWNER(s) (Road and/or Other Disturbance)  
Name: TH Exploration, LLC Attn: David Kalish (Access Road)  
Address: 1320 S. University Drive, Suite 500  
Fort Worth, TX 76107  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)  
Name: \*See Attached  
Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

\*Please attach additional forms if necessary

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DEPT OF ENVIRONMENTAL PROTECTION

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(8-13)**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

**This Notice Shall Include:**

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

**Water Well Testing:**

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

**Water Testing Laboratories:**

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

**Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:**

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

**Written Comment:**

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

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Environmental Protection

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API NO. 47- 051 - \_\_\_\_\_  
OPERATOR WELL NO. Bird Dog N-6HM  
Well Pad Name: Bird Dog \_\_\_\_\_

**Time Limits and Methods for Filing Comments.**

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

**Comment Requirements**

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

**Permit Denial or Condition**

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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API NO. 47-051 -

OPERATOR WELL NO. Bird Dog N-6HM

Well Pad Name: Bird Dog

**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC

Telephone: 724-749-8388

Email: amorris@tug-hilltop.com *amorris*

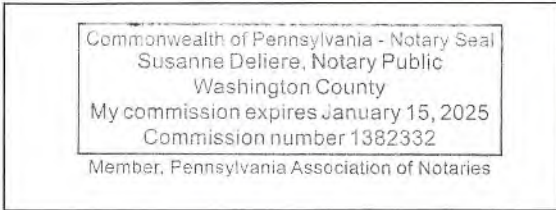
Address: 380 Southpointe Boulevard, Plaza II, Suite 200

Canonsburg, PA 15317

Facsimile: \_\_\_\_\_

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).



Subscribed and sworn before me this 25<sup>th</sup> day of October, 2022

Susanne Deliere Notary Public

My Commission Expires 1/15/2025

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12/09/2022

**Exhibit 3A**

Tug Hill Operating, LLC  
 380 Southpointe Blvd, Suite 200  
 Canonsburg, PA 15137

**Residences within 1,500 Feet (1,500')**

Well: Bird Dog N-6HM  
 Districts: Cameron Corp. (Map 1) and Cameron District (Maps 15, 18)  
 State: West Virginia (WV)

There are twenty-eight (28) residences, five (5) business or commercial sites, no church or religious buildings, six (6) Industrial facilities, no schools, church or religious buildings, or emergency facilities within approximately 1,500 feet (1,500 feet) of the above referenced well location.

<p>Residence 1                  TM-PAR: 3-15-11                  STARCOVIC STEPHEN M &amp; KIMBERLY                  Phone: (304) 686-2454                  Physical Address                  508 STARCOVIC DR                  Cameron, WV 26033                  Tax Address                  70 STARCOVIC DR                  CAMERON WV 26033</p>	<p>Residence 2                  TM-PAR: 3-15-11                  STARCOVIC STEPHEN M &amp; KIMBERLY                  Phone: (304) 686-2454                  Physical Address                  508 STARCOVIC DR                  Cameron, WV 26033                  Tax Address                  70 STARCOVIC DR                  CAMERON, WV 26033</p>	<p>Residence 3                  TM-PAR: 3-15-11.2                  KNIGHT TIMOTHY A &amp; WISEMAN MARCELLA J                  Phone: (304) 686-3853                  Alt Phone: (304) 686-3344                  Physical Address                  1548 LOUDENVILLE RD                  Cameron, WV 26033                  Tax Address                  75 NORTH AVE                  CAMERON, WV 26033</p>
<p>Industrial 4                  TM-PAR: 3-18-24                  CONSOL MINING COMPANY LLC                  ATTN: LAND ADMIN/PROPERTY TAX                  Phone: (724) 416-8300                  Physical Address                  121 GRAPEVINE RIDGE DR                  Cameron, WV 26033                  Tax Address                  1000 CONSOL ENERGY DR                  CANONSBURG PA 15317</p>	<p>Business 5                  TM-PAR: 3-15-11.1                  CAMERON CITY OF                  Phone: (304) 686-2366                  Alt Phone: (304) 686-2213                  Tax Address                  MAIN ST                  CAMERON WV 26033</p>	<p>Business 6                  TM-PAR: 3-15-11.1                  CAMERON CITY OF                  Phone: (304) 686-2366                  Alt Phone: (304) 686-2213                  Tax Address                  MAIN STREET                  CAMERON, WV 26033</p>
<p>Business 7                  TM-PAR: 3-15-11.1                  CAMERON CITY OF                  Phone: (304) 686-2366                  Alt Phone: (304) 686-2213                  Physical Address                    Cameron, WV 26033                  Tax Address                  MAIN ST                  CAMERON WV 26033</p>	<p>Residence 8                  TM-PAR: 3-15-11.3                  JOHNSTON MATTHEW H &amp; JESSICA P                  Phone: (724) 852-4377                  Alt Phone: (724) 627-6300                  Physical Address                  1650 LOUDENVILLE RD                  Cameron, WV 26033                  Tax Address                  1650 LOUDENVILLE RD</p>	<p>Residence 9                  TM-PAR: 3-15-11.3                  JOHNSTON MATTHEW H &amp; JESSICA P                  Phone: (724) 852-4377                  Alt Phone: (724) 627-6300                  Physical Address                  1650 LOUDENVILLE RD                  Cameron, WV 26033                  Tax Address                  1650 LOUDENVILLE RD                  CAMERON WV 26033</p>

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<p>Residence 10  TM-PAR: 3-15-11.3  JOHNSTON MATTHEW H &amp; JESSICA P  Phone: (724) 852-4377  Alt Phone: (724) 627-6300  Physical Address  1650 LOUDENVILLE RD  Cameron, WV 26033  Tax Address  1650 LOUDENVILLE RD  CAMERON WV 26033</p>	<p>Industrial 11  TM-PAR: 3-15-11  STARCOVIC STEPHEN M &amp;  KIMBERLY  Phone: (304) 686-2454  Physical Address  508 STARCOVIC DR  Cameron, WV 26033  Tax Address  70 STARCOVIC DR  CAMERON WV 26033</p>	<p>Industrial 12  TM-PAR: 3-15-12  MARSHALL COUNTY COAL  COMPANY  Phone: (304) 238-1500  Physical Address  30 SUMMITT AVE  Cameron, WV 26033  Tax Address  46226 NATIONAL RD  SAINT CLAIRSVILLE OH 43950</p>
<p>Industrial 13  TM-PAR: 3-15-12  MARSHALL COUNTY COAL  COMPANY  Phone: (304) 238-1500  Physical Address  30 SUMMITT AVE  Cameron, WV 26033  Tax Address  46226 NATIONAL RD  SAINT CLAIRSVILLE OH 43950</p>	<p>Residence 14  TM-PAR: 2-1-5  JONES NANCY L &amp; TENNIS SCAGGS  Phone: (304) 686-9370  Alt Phone: (304) 686-2431  Physical Address  1740 LOUDENVILLE RD  Cameron, WV 26033  Tax Address  1740 LOUDENVILLE RD  CAMERON WV 26033</p>	<p>Residence 15  TM-PAR: 2-1-149  DUFFORD WILLIAM E  Phone: (304) 686-4665  Alt Phone: (304) 686-3702  Physical Address  1731 LOUDENVILLE RD  Cameron, WV 26033  Tax Address  33 NORTH AVE  CAMERON WV 26033</p>
<p>Residence 16  TM-PAR: 2-1-150.2  CARNATION PLACE LIMITED  PARTNERSHIP  Phone: (304) 686-3556  Physical Address  15 CARNATION DR APT 8A  Cameron, WV 26033  Tax Address  PO BOX 156  CADIZ OH 43907 0156</p>	<p>Residence 17  TM-PAR: 2-1-150.2  CARNATION PLACE LIMITED  PARTNERSHIP  Phone: (304) 686-3556  Physical Address  15 CARNATION DR APT 8A  Cameron, WV 26033  Tax Address  PO BOX 156  CADIZ OH 43907 0156</p>	<p>Residence 18  TM-PAR: 2-1-150.1  CHAMBERS JAMES DAVID  Phone: (304) 686-3423  Alt Phone: (304) 686-2843  Physical Address  105 GRAPEVINE RIDGE DR  Cameron, WV 26033  Tax Address  121 GRAPEVINE RIDGE DR  CAMERON WV 26033</p>
<p>Residence 19  TM-PAR: 2-1-150.2  CARNATION PLACE LIMITED  PARTNERSHIP  Phone: (304) 686-3556  Physical Address  15 CARNATION DR APT 8A  Cameron, WV 26033  Tax Address  PO BOX 156  CADIZ OH 43907 0156</p>	<p>Residence 20  TM-PAR: 2-1-148  CLUTTER BILL WAYNE ET AL  Phone: (304) 686-3890  Alt Phone: (336) 869-0047  Physical Address  1745 LOUDENVILLE RD  Cameron, WV 26033  Tax Address  RR 4 BOX 149  CAMERON WV 26033 9723</p>	<p>Residence 21  TM-PAR: 2-1-4  CUNNINGHAM VENETA &amp; LARRY S  Phone: (304) 686-3196  Physical Address  44 SUMMITT AVE  Cameron, WV 26033  Tax Address  5 SUMMITT AVE  CAMERON WV 26033</p>

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Page 2 of 4



<p>Residence 22  TM-PAR: 2-1-7  CUNNINGHAM LARRY S &amp; VENETA M  Phone: (304) 686-3196  Physical Address  16 SUMMITT AVE  Cameron, WV 26033  Tax Address  5 SUMMIT AVE  CAMERON WV 26033 9723</p>	<p>Residence 23  TM-PAR: 2-1-10  CUNNINGHAM LARRY S &amp; VENETTA M  Phone: (304) 686-3196  Physical Address  85 SUMMITT AVE  Cameron, WV 26033  Tax Address  5 SUMMIT AVE  CAMERON WV 26033</p>	<p>Residence 24  TM-PAR: 2-1-8  CUNNINGHAM VENETA M &amp; LARRY S  Phone: (304) 686-3196  Physical Address  5 SUMMITT AVE  Cameron, WV 26033  Tax Address  5 SUMMIT AVE  CAMERON WV 26033 9723</p>
<p>Residence 25  TM-PAR: 2-1-3  CUNNINGHAM VENETA &amp; LARRY S  Phone: (304) 686-3196  Physical Address  50 SUMMITT AVE  Cameron, WV 26033  Tax Address  5 SUMMIT AVE  CAMERON WV 26033</p>	<p>Residence 26  TM-PAR: 2-1-3  CUNNINGHAM VENETA &amp; LARRY S  Phone: (304) 686-3196  Physical Address  50 SUMMITT AVE  Cameron, WV 26033  Tax Address  5 SUMMIT AVE  CAMERON WV 26033</p>	<p>Residence 27  TM-PAR: 2-1-2  SAMPSON ALMA L  Phone: (304) 686-2325  Physical Address  140 SUMMITT AVE  Cameron, WV 26033  Tax Address  160 SUMMITT AVE  CAMERON WV 26033 9722</p>
<p>Residence 28  TM-PAR: 2-1-38  SAMPSON ALMA L  Phone: (304) 686-2325  Physical Address  Cameron, WV 26033  Tax Address  160 SUMMITT AVE  CAMERON WV 26033 9722</p>	<p>Residence 29  TM-PAR: 2-1-26  SAMPSON ALMA L  Phone: (304) 686-2325  Physical Address  160 SUMMITT AVE  Cameron, WV 26033  Tax Address  160 SUMMITT AVE  CAMERON WV 26033 9722</p>	<p>Residence 30  TM-PAR: 2-1-24  SAMPSON ALMA L  Phone: (304) 686-2325  Physical Address  Cameron, WV 26033  Tax Address  160 SUMMITT AVE  CAMERON WV 26033 9722</p>
<p>Residence 31  TM-PAR: 2-1-13  SIMMS LINDA D  Phone: (304) 686-2552  Alt Phone: (304) 686-2124  Physical Address  1840 LOUDENVILLE RD  Cameron, WV 26033  Tax Address  1252 TUNNEL HILL RD  CAMERON WV 26033</p>	<p>Industrial 32  TM-PAR: 2-1-15  CONSOL MINING COMPANY LLC  ATTN: LAND ADMIN/PROPERTY TAX  Phone: (724) 416-8300  Physical Address  1870 LOUDENVILLE RD  Cameron, WV 26033  Tax Address  1000 CONSOL ENERGY DR  CANONSBURG PA 15317</p>	<p>Business 33  TM-PAR: 2-1-143  POTTERY TERR LIMITED PARTNERSHIP  Phone: (304) 686-3556  Physical Address  20 TERRACE DR  Cameron, WV 26033  Tax Address  PO BOX 156  CADIZ OH 43907 0156</p>

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<p>Residence 34                  TM-PAR: 2-1-16 ✓                  WILLIAMSON CHARLOTTE N                  Phone: (304) 686-3647                  Physical Address                  1880 LOUDENVILLE RD                  Cameron, WV 26033                  Tax Address                  1880 LOUDENVILLE RD                  CAMERON WV 26033 9722</p>	<p>Business 35                  TM-PAR: 2-1-143                  POTTERY TERR LIMITED                  PARTNERSHIP                  Phone: (304) 686-3556                  Physical Address                  20 TERRACE DR                  Cameron, WV 26033                  Tax Address                  PO BOX 156                  CADIZ OH 43907 0156</p>	<p>Residence 36                  TM-PAR: 2-1-18 ✓                  THOMAS DOUGLAS &amp; CARLENE                  Phone: (304) 780-9454                  Alt Phone: (304) 662-9284                  Physical Address                  1900 LOUDENVILLE RD                  Cameron, WV 26033                  Tax Address                  1900 LOUDENVILLE RD                  CAMERON WV 26033</p>
<p>Residence 46                  TM-PAR: 2-1-23                  SAMPSON ALMA L                  Phone: (304) 686-2325                  Physical Address                  220 SUMMITT AVE                  Cameron, WV 26033                  Tax Address                  160 SUMMITT AVE                  CAMERON WV 26033 9722</p>	<p>Residence 317                  TM-PAR: 3-15-11                  STARCOVIC STEPHEN M &amp;                  KIMBERLY                  Phone: (304) 686-2454                  Physical Address                  2093 CLOUSTON RD                  Cameron, WV 26033                  Tax Address                  70 STARCOVIC DR                  CAMERON WV 26033</p>	<p>Industrial 369                  TM-PAR: 3-15-11-1                  CAMERON CITY OF                  Phone: (304) 686-2366                  Alt Phone: (304) 686-2213                  Physical Address                  16 HILLCREST AVE                  Cameron, WV 26033                  Tax Address                  MAIN ST                  CAMERON WV 26033</p>

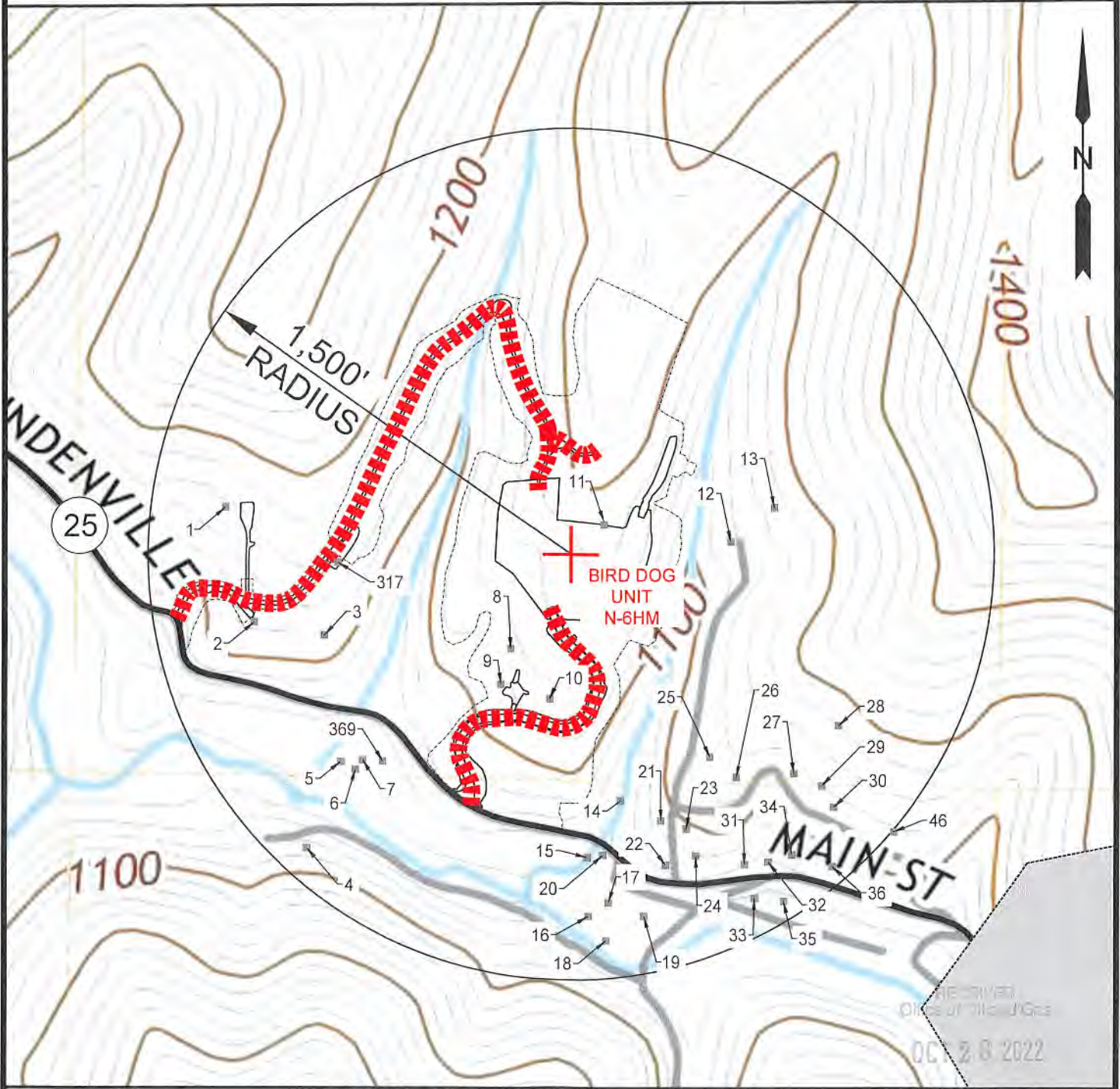
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OCT 23 2022



WV Department of  
 Environmental Protection

# PROPOSED BIRD DOG UNIT N - 6HM 47-5102478

EXHIBIT 3



NOTE: THERE ARE TWENTY-EIGHT (28) RESIDENCES, SIX (6) INDUSTRIAL FACILITIES, FIVE (5) BUSINESS LOCATIONS, AND NO EMERGENCY FACILITIES, CHURCHES, OR EDUCATIONAL FACILITIES WITHIN FIFTEEN-HUNDRED FEET (1,500').

 12 Vanhorn Drive   P.O. Box 150   Glenville, WV 26351   304.462.5634 1412 Kanawha Boulevard, East   Charleston, WV 25301   304.346.3952 254 East Beckley Bypass   Beckley, WV 25801   304.255.5295 slsvv.com	<b>TOPO SECTION:</b>		<b>OPERATOR:</b>	
	CAMERON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
	COUNTY	DISTRICT	 <b>TUG HILL OPERATING</b>	
	MARSHALL	CAMERON (DIST)		
DRAWN BY	JOB NO.	DATE	SCALE	<span style="color: red; font-weight: bold; font-size: 1.2em;">12/09/2022</span>
J.D.R.	9263	10/25/2022	1" = 500'	

4705102478

**STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

**Notice Time Requirement:** Notice shall be provided at least TEN (10) days prior to filing a permit application.  
**Date of Notice:** 10/10/2022      **Date Permit Application Filed:** 10/20/2022

**Delivery method pursuant to West Virginia Code § 22-6A-16(b)**

HAND DELIVERY       CERTIFIED MAIL RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

**Notice is hereby provided to the SURFACE OWNER(s):**

Name: Stephen M. Starcovic and Kimberly A. Starcovic (Pad)  
Address: 70 Starcovic Drive  
Cameron, WV 26033

Name: TH Exploration, LLC (Access Road)  
Address: 1320 S. University Drive, Suite 500  
Fort Worth, TX 76107

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: West Virginia      UTM NAD 83      Easting: 535,560.99  
County: Marshall      Northing: 4,409,223.24  
District: Cameron      Public Road Access: Co. Rt. 25  
Quadrangle: Cameron 7.5'      Generally used farm name: Stephen M. Starcovic and Kimberly A. Starcovic  
Watershed: Middle Grave Creek - HUC 10

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC  
Address: 380 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317  
Telephone: 724-749-8388  
Email: amorris@tug-hilllop.com  
Facsimile: \_\_\_\_\_

Authorized Representative: Darren Brown  
Address: 5098 Washington Street W, Suite 407  
Charleston, WV 25313-1561  
Telephone: 877-467-3525  
Email: ct-statecommunications@wolterskluwer.com  
Facsimile: \_\_\_\_\_

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

12/09/2022

WW-6A5  
(1/12)

Operator Well No. Bird Dog N-6HM

17-3702478

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF PLANNED OPERATION**

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** 10/25/2022      **Date Permit Application Filed:** 10/27/2022

**Delivery method pursuant to West Virginia Code § 22-6A-16(c)**

CERTIFIED MAIL                                       HAND  
RETURN RECEIPT REQUESTED                                      DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

**Notice is hereby provided to the SURFACE OWNER(s)**  
(at the address listed in the records of the sheriff at the time of notice):

Name: Stephen M. Starcovic and Kimberly A. Starcovic (Pad)  
Address: 70 Starcovic Drive  
Cameron, WV 26033

Name: TH Exploration, LLC Attn: David Kalish (Access Road)  
Address: 1320 S. University Drive, Suite 500  
Fort Worth, TX 76107

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>535,560.99</u>
County:	<u>Marshall</u>		Northing:	<u>4,409,223.24</u>
District:	<u>CAMERON</u>	Public Road Access:	<u>Co. Route 25</u>	
Quadrangle:	<u>CAMERON 7.5'</u>	Generally used farm name:	<u>Stephen &amp; Kimberly Starcovic</u>	
Watershed:	<u>Middle Grave Creek - HUC 10</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator: Tug Hill Operating, LLC  
Telephone: 724-749-8388  
Email: amorris@tug-hilltop.com

Address: 380 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317  
Facsimile: \_\_\_\_\_

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

12/09/2022

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
**WELL LOCATION RESTRICTION WAIVER**

The well operator, Tug Hill Operating, LLC is applying for a permit from the State of West Virginia to conduct oil or gas well work. Please be advised that well work permits are valid for twenty-four (24) months.

**Well Location Restrictions**

Pursuant to West Virginia Code § 22-6A-12(a), Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements.

**WAIVER**

I, David Kalish, TH Exploration, LLC, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through \_\_\_\_\_, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83 Easting:	<u>535,560.99</u>
County:	<u>Marshall</u>	UTM NAD 83 Northing:	<u>4,409,223.24</u>
District:	<u>Cameron</u>	Public Road Access:	<u>Co. Rta. 25</u>
Quadrangle:	<u>Cameron 7.5'</u>	Generally used farm name:	<u>Stephen &amp; Kimberly Starcovic</u>
Watershed:	<u>Middle Grave Creek - HUC 10</u>		

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials and I therefore waive all well site restrictions listed under West Virginia Code § 22-6A-12(a).

**WELL SITE RESTRICTIONS BEING WAIVED**

\*Please check all that apply

- EXISTING WATER WELLS
- DEVELOPED SPRINGS
- DWELLINGS
- AGRICULTURAL BUILDINGS

**FOR EXECUTION BY A NATURAL PERSON**

Signature: \_\_\_\_\_  
Print Name: \_\_\_\_\_  
Date: \_\_\_\_\_

**FOR EXECUTION BY A CORPORATION, ETC.**

Company: TH Exploration, LLC  
By: David Kalish  
Its: Vice President, Land  
Signature: David D. Kalish  
Date: 12/5/2022

Well Operator: Tug Hill Operating, LLC  
By: Amy L. Morris  
Its: Permitting Specialist

Signature: [Signature]  
Telephone: 724-749-4388



Subscribed and sworn before me this 5 day of December  
Haley Michelle Stackhouse Notary Public  
My Commission Expires 07-30-2024

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).



4705102478

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
**Division of Highways**

1900 Kanawha Boulevard East • Building Five • Room 110  
Charleston, West Virginia 25305-0430 • (304) 558-3505

D. Alan Reed, P.E.  
State Highway Engineer

Jimmy Wriston, P. E.  
Secretary of Transportation  
Commissioner of Highways

November 2, 2022

James A. Martin, Chief  
Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304

Subject: DOH Permit for the Starcovic Pad, Marshall County  
Bird Dog N-64M Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2021-0385 which has been issued to Tug Hill Operating LLC for access to the State Road for a well site located off Marshall County Route 25 SLS MP 0.91.

This operator is in compliance with §22-6A-20 of the WV Code. Operator has signed a DISTRICT WIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated October 1, 2018. This letter is valid for permitting purposes for one year from the date of this letter.

Very Truly Yours,

Gary K. Clayton, P.E.  
Regional Maintenance Engineer  
Central Office O&G Coordinator

Cc: Amy Morris  
Tug Hill Operating LLC  
CH, OM, D-6  
File



TUG HILL

47-5102478

**PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION**

Bird Dog N-6HM

PRODUCT NAME:	CHEMICAL DESCRIPTION:	PRODUCT USE:	HAZARDOUS COMPONENT:
GBW-20C	Hemicellulase Breaker	Breaker - Water	None
ALPHA 1427		Biocide	Glutaraldehyde – CAS#000111-30-8 Quaternary ammonium chloride CAS# 007173-51-5 Alky dimethyl benzyl ammonium Chloride (C12-16) – CAS#068424-85-1 Ethanol – CAS# 000064-17-5 Water – CAS# 007732-18-5
FRAC SAND	Silica Sand (various Mesh sizes)	Proppant	Crystalline silica (quartz) CAS# 14808-60-7
S-8C, Sand	Silica Sand (100 mesh)	Sand	Silica – CAS# 14808-60-7
GW-3LDF		Gellant - Water	Petroleum Distillate Blend – Proprietary, (Not Associated with Diesel Fuel) Guar gum – CAS# 009000-30-0
FRW-18		Friction Reducer	Hydrotreated light distillate CAS# 064742-47-8
Scaletrol		Scale Inhibitor	Ethylene glycol – CAS# 000107-21-1 Diethylene glycol – CAS# 000111-46-6

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Office of Oil and Gas  
OCT 28 2022  
PA Department of  
Environmental Protection



4705102472



Bird Dog Well Site  
Site Design, Construction Plan, &  
Erosion and Sediment Control Plans  
Tug Hill Operating  
Marshall County  
Cameron District  
Latitude 39.83243578°  
Longitude -80.58473244°  
Grave Creek Watershed

Project Site Information  
Bird Dog Well Site  
Inventory Number: 04-8454879  
Cameron District, Marshall County, WV  
Watershed: Grave Creek Watershed  
Site 911 Address:  
  
Tug Hill Contact Number: 1-877-632-4308

Project Summary Information - Bird Dog Well Site  
Table with columns for Project ID, Area, and various codes.

Exhibit A: Final Design: Issue for Permitting

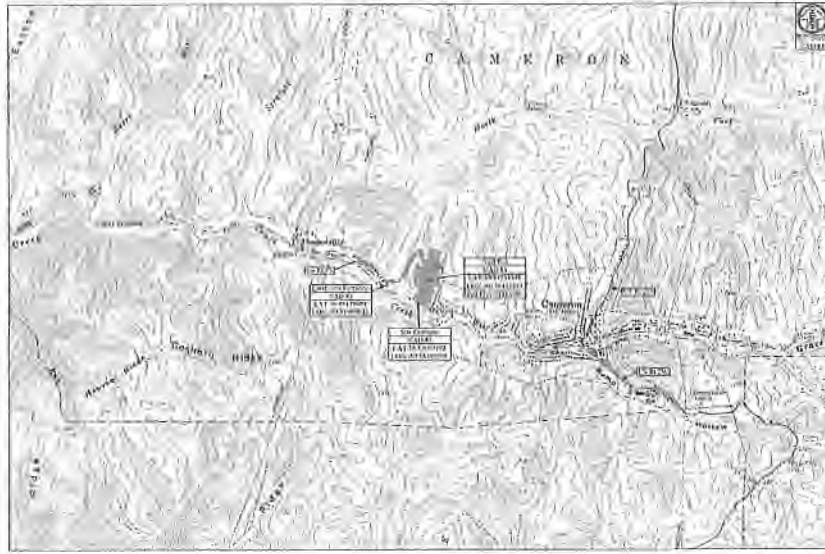


Table with 3 columns: Category, Description, and Notes. Contains regulatory references and site details.

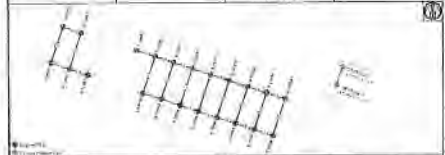


Table with multiple columns: Description, Location, and Notes. Lists specific site features and their details.

Table with 4 columns: Area, Volume, Weight, and Notes. Details for Agave Pond.

Table with 4 columns: Area, Volume, Weight, and Notes. Details for Bird Dog Well Site quantities.

Table with 4 columns: Area, Volume, Weight, and Notes. Details for Ephemeral Stream Impact Linear Feet.

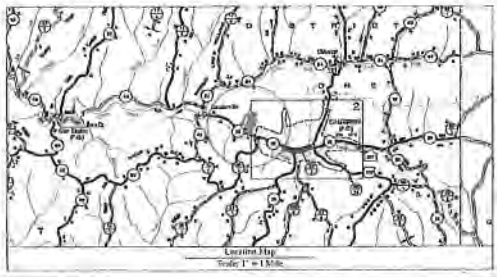
Table with 4 columns: Area, Volume, Weight, and Notes. Details for Intermittent Stream Impact Linear Feet.

Table with 4 columns: Area, Volume, Weight, and Notes. Details for Wetland Impact Linear Feet.

USGS 7.5 Quad Grid Center  
Watershed: Grave Creek

Site Location (OADN #1) and Site Location (OADN #2) tables listing coordinates and addresses.

Address: 04-8454879  
From the intersection of US RT 218 and OH Rt 1, southwesterly  
to Cameron, WV, Deed Volume C-60-7, Landwarrant 342  
for 9.6 ac, Tax Parcel No 04-8454879, Deed Volume C-60-7, Parcel 5  
pt. The area shown will be the Bird Dog Well site.



State of West Virginia Department of Transportation  
Division of Highway Planning and Construction  
Date: 11/14/2014  
Scale: 1" = 1 Mile

Table with 2 columns: Item, Description. Lists items for the site plan including construction materials and equipment.

Project Contacts:   
Kathy S. ...  
Miss Utility of West Virginia  
811

The WV Department of Transportation, Division of Highway Planning and Construction, is not responsible for the accuracy of any information provided for the construction of any construction project.

Vertical sidebar containing:  
- TUG HILL OPERATING logo  
- THIS DOCUMENT PREPARED FOR TUG HILL OPERATING  
- K+S CONCRETE logo  
- Bird Dog Well Site  
- Cameron District  
- Marshall County, WV  
- Scale: AS SHOWN  
- Drawing By: JLS  
- Date: 11/14/2014

**Bird Dog Well Site**  
 Site Design, Construction Plan, &  
 Erosion and Sediment Control Plans  
 Tug Hill Operating  
 Marshall County  
 Cameron District  
 Latitude 39.83243578°  
 Longitude -80.58473244°  
 Grave Creek Watershed

**Pertinent Site Information**  
 Bird Dog Well Site  
 Emergency Number: 304-845-1920  
 Cameron District, Marshall County, WV  
 Watershed: Grave Creek Watershed  
 Site 911 Address:

Tug Hill Contact Number: 1-817-632-3400

Property Owner Information - Bird Dog Well Site

Property	Owner	Address	City	County	State	Zip
Parcel No.	1211	1211	1211	1211	1211	1211
Parcel No.	1211	1211	1211	1211	1211	1211
Parcel No.	1211	1211	1211	1211	1211	1211

**WEST VIRGINIA COUNTY MAP**



**Exhibit A: Final Design: Issue for Permitting**



WV State Plane Coordinate System  
 North Zone NAD 83  
 Elevations Based on NAVD 83  
 Established by Survey 38461/95  
 and 4050N Final Drawings

Access Road			
Stationing	Width (Feet)	Grade (Feet)	Type
1+10.00 to 1+300.00	12	12.00	Gravel
1+300.00 to 1+340.00	12	12.00	Gravel

Disturbed Area	
Wild Area	2,936.44
Grassland	1,172.40
Water	1,872.40
Other	1,872.40
<b>Total Disturbed Area</b>	<b>7,853.64</b>

Bird Dog Well Site Quantities						
Item	Quantity	Unit	Notes	Item	Quantity	Unit
Excavation	1,234.56	Cu Yd		Fill	1,234.56	Cu Yd
Gravel	1,234.56	Cu Yd				
Asphalt	1,234.56	Sq Yd				
<b>Total</b>	<b>3,703.68</b>					

Ephemeral Stream Impact (Linear Feet)				
Stream Name	Channel Feet	Bank Feet	Stream Feet	Total Impact
Gravel Run	120	180	300	600
Grass Run	50	75	150	300
<b>Total</b>	<b>170</b>	<b>255</b>	<b>450</b>	<b>875</b>

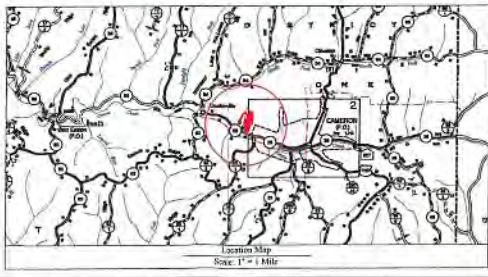
Intermittent Stream Impact (Linear Feet)				
Stream Name	Channel Feet	Bank Feet	Stream Feet	Total Impact
Gravel Run	120	180	300	600
Grass Run	50	75	150	300
<b>Total</b>	<b>170</b>	<b>255</b>	<b>450</b>	<b>875</b>

Wetland Impact (Square Feet)			
Wetland Type	Area (Sq Ft)	Notes	Total Impact
Wetland A	1,234.56		1,234.56
Wetland B	1,234.56		1,234.56
<b>Total</b>	<b>2,469.12</b>		<b>2,469.12</b>



Site Locations (NAD 27)			Site Locations (NAD 83)		
Station	Easting (Feet)	Northing (Feet)	Station	Easting (Feet)	Northing (Feet)
Well Pad	1234567	8765432	Well Pad	1234567	8765432
Gravel Run	1234567	8765432	Gravel Run	1234567	8765432

**Approach Routes:**  
 From the intersection of US RT 210 and Co. Rt. 9, Louisville Rd in Cameron, WV. Travel West on Co. Rt. 9, Louisville Rd for 0.5 mi. Turn Left onto Co. Rt. 25. Follow Co. Rt. 25 for 0.3 mi. The site entrance will be on the Right (North) side of the road.



- Well Location Summary:**
- All Well construction complies with state restrictions.
  - All Well construction will be developed along used or existing access roads.
  - All Well construction will be developed along used or existing access roads.
  - All Well construction will be developed along used or existing access roads.



The design and construction of this project have been prepared by me or under my direct supervision and I am a duly licensed Professional Engineer in the State of West Virginia.  
 Date: 10/26/2023

Sheet	Description
1	Cover Sheet
2	Schedule of Quantities
3	Site Notes
4	Pre-Construction Site Conditions
5	Site Map
6	Clearing Exhibit
7	Overall Plan View
8	E&S Plan View
9	The Key Exhibit
10	Plan View
11	Cross Sections - Well Pad
12	Cross Sections - Access Road
13	Cross Sections - Topsoil Stockpile
14	Drainage Exhibit
15	Site Reclamation
16	Landmarks Disturbance Area Exhibit
17	Erosion and Sediment Control Details
18	Access Road Details
19	Well Details

**Project Contacts**

**Use Bill Contact:**  
 Tug Hill Operating, 1211 S. 2nd St., Charleston, WV 25302  
 (304) 845-1920  
**Use Bill Contact:**  
 Tug Hill Operating, 1211 S. 2nd St., Charleston, WV 25302  
 (304) 845-1920

**Environmental:**  
 Wetland Determination as per USACE, 1500 Wallace Drive  
 Charleston, WV 25302

**MISCELLANEOUS:**  
 811 Call before you dig. Know what's below. Call before you dig.

The Tug Hill Operating will obtain an Environmental Permit from MM-109 prior to the commencement of any construction activities. The WV Mine Website was consulted. Pre-mine mining activities are required by the ADR. WVDNR Website files show that there are active and/or abandoned gas wells within the ADR.

Permitting Conditions		
Permitting Conditions	101	101
Permitting Conditions	102	102
Permitting Conditions	103	103
Permitting Conditions	104	104
Permitting Conditions	105	105

**TUG HILL**  
 Tug Hill Operating

**THIS DOCUMENT PREPARED FOR TUG HILL OPERATING**

**Key Surveys**  
 Tug Hill Operating

**Bird Dog Well Site**  
 Cameron District, Marshall County, WV

Sheet 1 of 18

# Bird Dog Well Site

## Site Design, Construction Plan, & Erosion and Sediment Control Plans

### Tug Hill Operating Marshall County Cameron District

Latitude 39.83243578° Longitude -80.58473244° Grave Creek Watershed

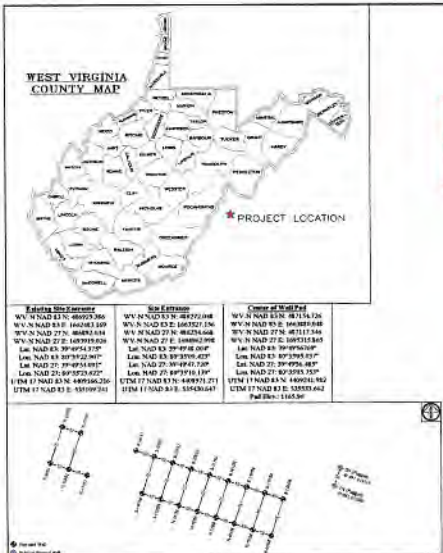
APPROVED  
WVDEP OOG  
12/5/2022

**Pertinent Site Information**  
Bird Dog Well Site  
Emergency Number: 304-845-1920  
Cameron District, Marshall County, WV  
Watershed: Grave Creek Watershed  
Site 911 Address

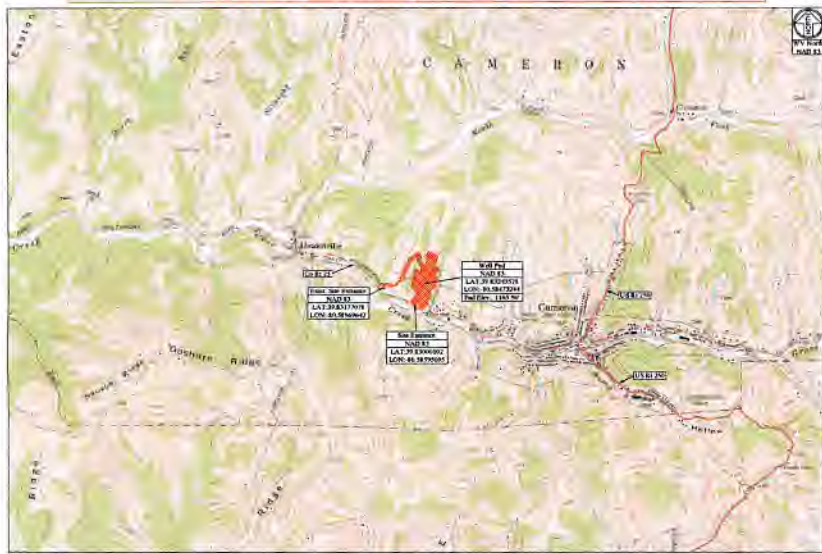
Tug Hill Contact Number: 1-817-632-3400

Property Owner Information - Bird Dog Well Site						
Cameron District - Marshall County						
Owner	Map	Parcel	WV Parcel	County	Acres	Total District
Stephens & Kimberly Service, LLC	15-113	15-113	0.55	0.54	0.54	0.54
US Express, LLC	15-113	15-113	0.55	0.54	0.54	0.54
<b>Total</b>	<b>15-113</b>	<b>15-113</b>	<b>1.10</b>	<b>1.08</b>	<b>1.08</b>	<b>1.08</b>

### Exhibit A: Final Design: Issue for Permitting



Section	WV Parcel	WV Parcel	WV Parcel	WV Parcel	WV Parcel	WV Parcel	WV Parcel
1	15-113-1	15-113-2	15-113-3	15-113-4	15-113-5	15-113-6	15-113-7
2	15-113-8	15-113-9	15-113-10	15-113-11	15-113-12	15-113-13	15-113-14
3	15-113-15	15-113-16	15-113-17	15-113-18	15-113-19	15-113-20	15-113-21



Access Road		
Sheet Owner	Map Parcel	Length (Feet)
Stephens & Kimberly Service, LLC	15-113	206.23
(Tug Hill Operations, LLC)	15-113	430.23
<b>Total</b>		<b>636.46</b>

Disturbed Area		
Activity	Area (Acres)	Notes
Well Pad Construction	0.20	
Access Road Construction	0.20	
Gravel Storage	0.02	
Additional Clearing	0.00	
<b>Total Disturbed Area</b>	<b>0.42</b>	

Bird Dog Well Site Quantities						
Item	Quantity	Unit	Material	Material	Material	Notes
Well Pad	1	Square	18.0	18.0	18.0	18.0
Well Pad Access Road	0.20	Square	18.0	18.0	18.0	18.0
Gravel Storage	0.02	Square	18.0	18.0	18.0	18.0
Additional Clearing	0.00	Square	18.0	18.0	18.0	18.0
<b>Total</b>	<b>1.22</b>	<b>Square</b>	<b>18.0</b>	<b>18.0</b>	<b>18.0</b>	<b>18.0</b>

Ephemeral Stream Impact (Linear Feet)					
Stream	Length (LF)	Stream	Length (LF)	Stream	Length (LF)
Grave Creek	150.00	Grave Creek	150.00	Grave Creek	150.00
Grave Creek	150.00	Grave Creek	150.00	Grave Creek	150.00
<b>Total</b>	<b>300.00</b>	<b>Total</b>	<b>300.00</b>	<b>Total</b>	<b>300.00</b>

Intermittent Stream Impact (Linear Feet)					
Stream	Length (LF)	Stream	Length (LF)	Stream	Length (LF)
Grave Creek	150.00	Grave Creek	150.00	Grave Creek	150.00
<b>Total</b>	<b>150.00</b>	<b>Total</b>	<b>150.00</b>	<b>Total</b>	<b>150.00</b>

Well Pad Impact (Square Feet)		
Well Pad	Area (SF)	Notes
Well Pad	18.0	
<b>Total</b>	<b>18.0</b>	



**Project Contacts**

Role	Name	Contact Info
WV DEP Permitting	Christy Bost	304-286-6863
Chief District Construction Manager	John P. Lee	304-286-6863
Ready State Construction Manager	Jonathan Hord	304-286-6863

**WV DEP Information:**

WV DEP Online Permitting System (WVDEP.ORG)

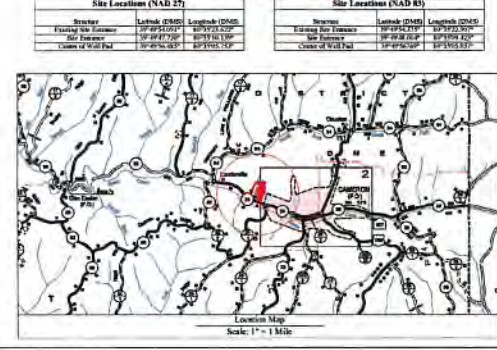
WV DEP Project Information System (WVDEP.PIS.ORG)

**Approach Route:**

From the intersection of US RT 259 and Co R-2, Loudensville Rd in Cameron, WV, Travel West on Co R-2, Loudensville Rd for 0.5 mi. Turn Left onto Co R-25, Follow Co R-25 for 0.5 mi. The site entrance will be on the Right (North) side of the road.

**Fluctuation Conditions:**

Final Construction	90%
Final Operation	90%
Final Decommission	90%
Final Closure	90%



**WV Location Restriction:**

- All Well construction activities shall follow the following restrictions:
  - \*20' Buffer on release wells or discharge pipes shall be located in stream channel.
  - \*50' Buffer on edge of discharge to a nearby neighboring bank stream.
  - \*1,000' of a well or ground water intake to a public water supply.

**WV License Restriction:**

(WV License Restriction of WV Code 26-2-1)

**Professional Engineer:**

STATE OF WEST VIRGINIA REGISTERED PROFESSIONAL ENGINEER

22214

**TUG HILL OPERATIONS**

THIS DOCUMENT PREPARED FOR TUG HILL OPERATIONS

**Kelly Services**

Cover Sheet

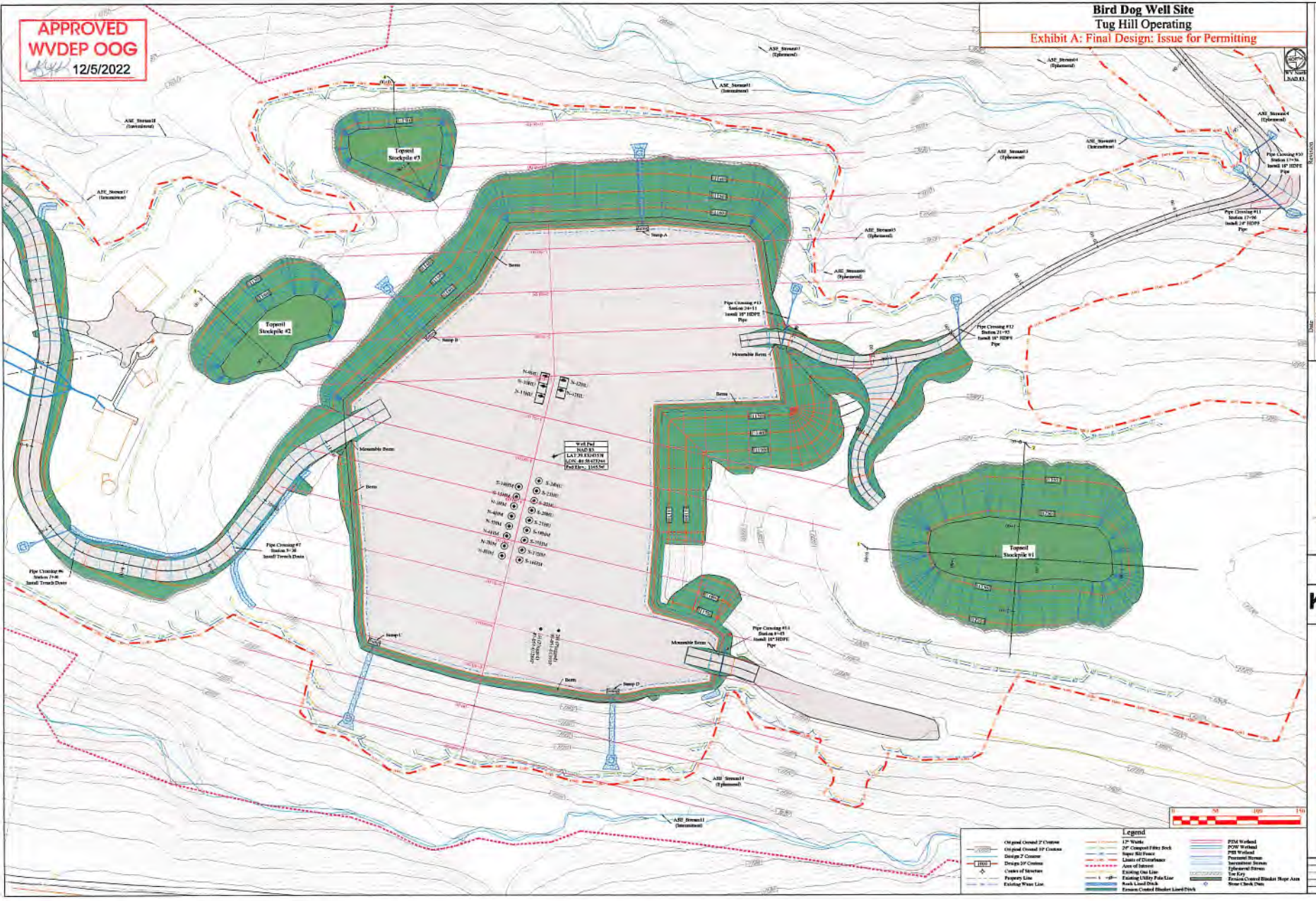
Sheet	Description
V-1	Cover Sheet
M-1/24	Schedule of Quantities
1	Site Notes
2	Pre-Construction Site Conditions
3	Site Soil Map
4	Clearing Exhibit
5	Overall Plan View
6-9	EAS Plan View
10	Two Key Exhibit
11-14	Plan View
15	Cross Sections - Well Pad
16-17	Cross Sections - Access Road
18	Cross Sections - Topsoil Stockpiles
GI-1/2	Gravel Exhibit
L-1	Landscape Disturbance Area Exhibit
M1-2/3	Production Exhibit
M1-4/5	Site Reduction
M1-6/7	Excavation and Sediment Control Details
M1-8	Well Pad Details
P-1	Well Pad Details

Date: 06/03/2023  
Scale: As Shown  
Designed By: ZS  
File No: \_\_\_\_\_  
Sheet 1 of 18

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**APPROVED**  
**WVDEP OOG**  
12/5/2022

**Bird Dog Well Site**  
**Tug Hill Operating**  
Exhibit A: Final Design: Issue for Permitting



**TUG HILL OPERATING**

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

**Kelly S. Suran**  
Geotechnical Engineer  
Professional Engineer

**Bird Dog Well Site**  
Cameron District  
Marshall County, WV

Date: 06/07/2022  
Scale: As Shown  
Designed By: JS  
Fig. No.  
Sheet 14 of 18