



west virginia department of environmental protection

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

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

Tuesday, August 31, 2021
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

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

Re: Permit Modification Approval for OLD CROW N-6IIM
47-051-02238-00-00

Casing Plan Update

TUG HILL OPERATING, LLC

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

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

James A. Martin
Chief



Operator's Well Number: OLD CROW N-6HM
Farm Name: DONNA VIVIAN YOHO (TOD) GARY LANCE YOHO
U.S. WELL NUMBER: 47-051-02238-00-00
Horizontal 6A New Drill
Date Modification Issued: 08/31/2021

Promoting a healthy environment.

09/03/2021

Check# 051795
\$5,000.00
8/20/2021

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 Franklin Powhatan Point 7
Operator ID County District Quadrangle

2) Operator's Well Number: Old Crow N-6HM Well Pad Name: Old Crow

3) Farm Name/Surface Owner: Donna Yoho Public Road Access: Rines Ridge Road (County Route 76)

4) Elevation, current ground: 1286' Elevation, proposed post-construction: 1264.99'

5) Well Type (a) Gas Oil Underground Storage
Other

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No Yes

Randy Shilley 8-23-21

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):

Marcellus is the target formation at a depth of 6557' - 6540', thickness of 53' and an anticipated approximate pressure of 3800 psi.

8) Proposed Total Vertical Depth: 6,740'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 16,993'

11) Proposed Horizontal Leg Length: 8,723.29'

12) Approximate Fresh Water Strata Depths: 70'; 919'

13) Method to Determine Fresh Water Depths: Use shallow offset wells to determine deepest freshwater, or determine using pre-drill tests, testing while drilling or petrophysical evaluation of resistivity.

14) Approximate Saltwater Depths: 1,353'

15) Approximate Coal Seam Depths: Sewickley Coal - 821' and Pittsburgh Coal - 913'

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

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No

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

Depth: _____

Seam: _____

Owner: _____

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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^3(CTS)
Fresh Water	13 3/8"	NEW	J55	54.5#	1,010'	1,010'	1052ft^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	1,010'	1,010'	1052ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	3,018'	3,018'	1002ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	16,993'	16,993'	4339ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#	7,861'		
Liners							

B.S. 8-23-21

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	13 3/8"	17.5"	.33	2,740	2,192	SEE #24	1.2
Coal	13 3/8"	17.5"	.33	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		

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

Drill through the Marcellus tagging less than 100' from the top of the Onondaga to get depths and log data. Plug back to proposed kick off point. Drill the horizontal section to planned and proposed TD. Run casing and cement to surface. Run Bond Log from app. 60 deg to surface. Make clean out run and stimulate.

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

Well to completed with approximately 21,805,000 lb. proppant and 337,121 barrels of water.
Max rate = 80bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 19.18 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.64 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:

*See attachment

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.

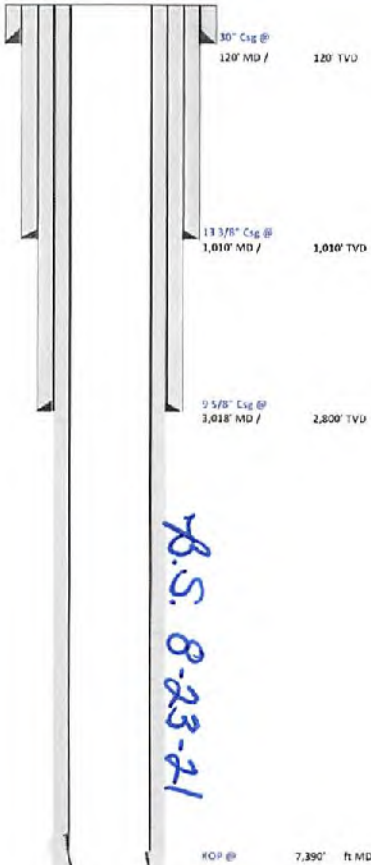


WELL NAME: Old Crow N-6HM
 STATE: WV COUNTY: Marshall
 DISTRICT: Franklin
 DF Elev: 1,298' GL Elev: 1,265'
 TD: 16,993'
 TH Latitude: 39.77851669
 TH Longitude: -80.76308293
 BH Latitude: 39.808148
 BH Longitude: -80.770159

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	519
Sewickley Coal	821
Pittsburgh Coal	913
Big Lime	2114
Weir	2468
Berea	2663
Gordon	3008
Rhinestreet	5981
Genesee/Burkett	6480
Tully	6505
Hamilton	6533
Marcellus	6587
Landing Depth	6626
Onondaga	6640
Pilot Hole Depth	6740

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	8W	8W	Surface
Surface	17.5	13 3/8	1,010'	1,010'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	3,018'	2,800'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	16,993'	6,473'	20	LYHP110	Surface

	CEMENT SUMMARY			DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.5	Air	None
Surface	1,050	A	15.5	Air	3 Centralizers at equal distance
Intermediate 1	1,009	A	15	Air	1 Centralizer every other jt
Production	3,987	A	14.5	Air / SOBMs	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to stc



B.S. 8-23-21

Pilot Hole
PH TD @
6,740' TVD

Landing Point @ 8,271' MD / 6,626' TVD

PH TVD = 100' below Onondaga Top

Lateral TD @ 16,993' ft MD
6,473' ft TVD

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Tug Hill Operating, LLC Casing and Cement Program

Old Crow 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"	1,010'	CTS
Intermediate	9 5/8"	J55	12 1/4"	3,018'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	16,993'	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 15.6 ppg, Y=1.19

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 15.2ppg, Y = 1.19

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Well: Old Crow N-06 HM (slot B)
 Site: Old Crow Pad
 Project: Marshall County, West Virginia.
 Design: rev3
 SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1132.50	0.00	0.00	1132.50	0.00	0.00	0.00	0.00	0.00	KOP Begin 3°/100' build
3	2132.50	30.00	25.00	2067.43	231.90	108.14	3.00	25.00	208.08	Begin 3°/100' build/turn
4	2809.91	38.89	45.07	2482.00	447.05	265.50	3.00	60.56	390.65	Begin 38.89° tangent
5	7390.28	38.89	45.07	6202.65	2556.90	2390.34	0.00	0.00	2084.02	Begin 8°/100' build/turn
6	7713.93	50.00	11.23	6436.39	2763.42	2487.99	8.00	-77.67	2259.25	Begin 10°/100' build/turn
7	8271.45	91.01	329.73	6826.00	3253.13	2360.38	10.00	-53.25	2760.40	Begin 90.97° lateral
8	16993.23	91.01	329.73	6473.00	10784.41	-2015.75	0.00	0.00	10971.17	PBHL/TD 16993.17 MD 6478.50 TVD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BHL Old Crow N-06 HM r3 - plan hits target center	6473.00	10784.41	-2015.75	14466855.45	1704963.66	39.808148	-80.770159	Point
LP Old Crow N-06 HM 50E r3 - plan hits target center	6626.00	3253.13	2360.38	14449425.18	1709359.80	39.787433	-80.754579	Point

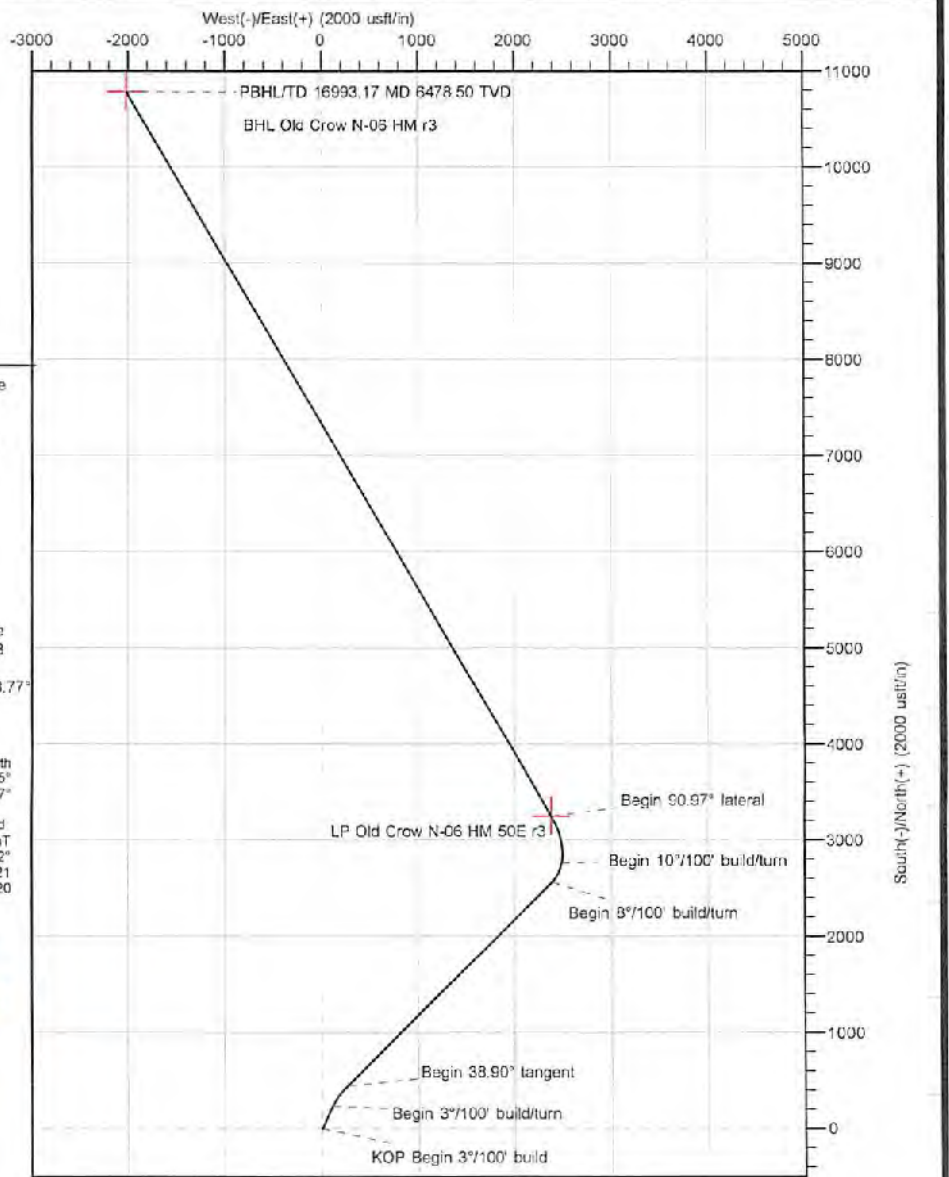
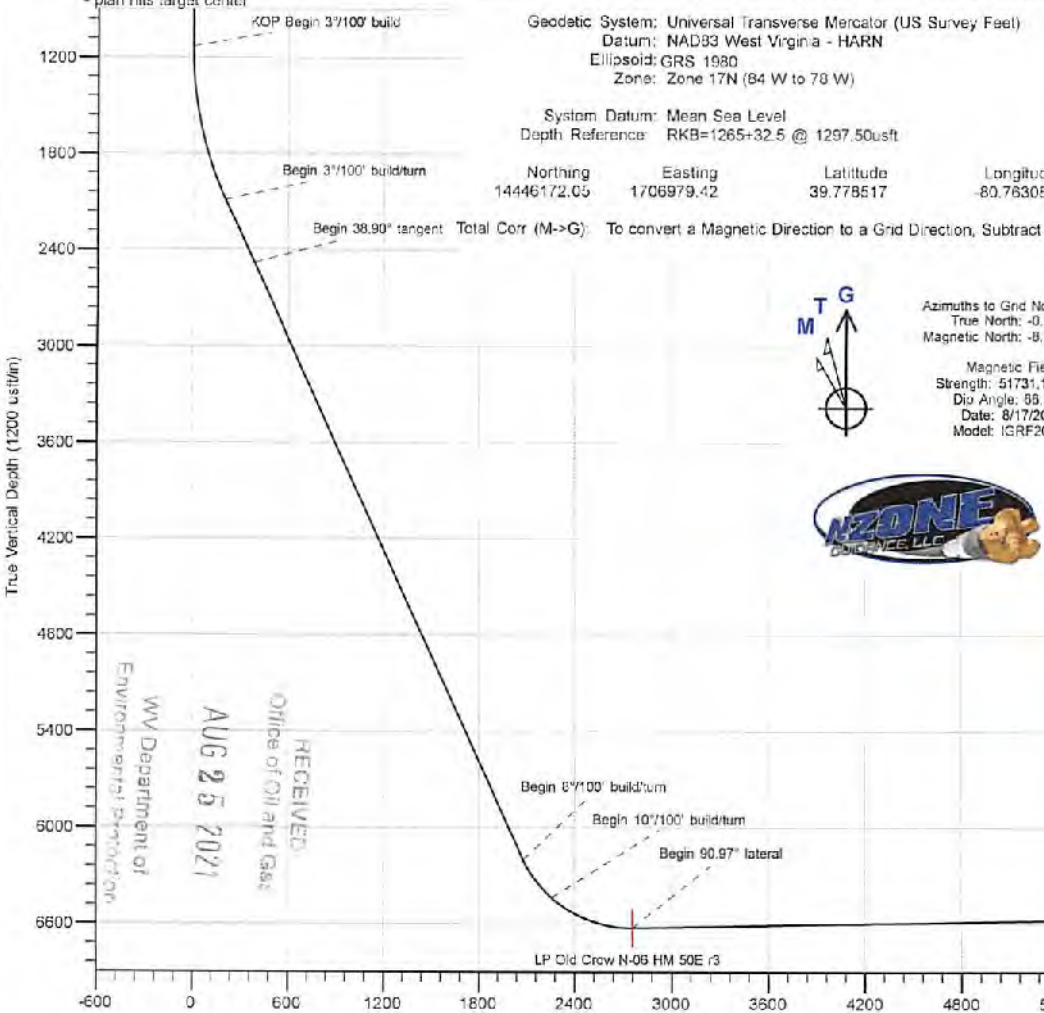
Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)
 System Datum: Mean Sea Level
 Depth Reference: RKB=1265+32.5 @ 1297.50usft

Northing	Easting	Latitude	Longitude
14446172.05	1706979.42	39.778517	-80.763093

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.77°



Azimuths to Grid North
 True North: -0.15°
 Magnetic North: -8.77°
 Magnetic Field
 Strength: 51731.1nT
 Dip Angle: 88.52°
 Date: 8/17/2021
 Model: IGRF2020



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Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Old Crow N-06 HM (slot B)
Company:	Tug Hill Operating LLC	TVD Reference:	RKB=1265+32.5 @ 1297.50usft
Project:	Marshall County, West Virginia.	MD Reference:	RKB=1265+32.5 @ 1297.50usft
Site:	Old Crow Pad	North Reference:	Grid
Well:	Old Crow N-06 HM (slot B)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Project	Marshall County, West Virginia.		
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	Old Crow Pad				
Site Position:		Northing:	14,446,179.89 usft	Latitude:	39.778538
From:	Lat/Long	Easting:	1,706,970.33 usft	Longitude:	-80.763115
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well	Old Crow N-06 HM (slot B)					
Well Position	+N/-S	0.00 usft	Northing:	14,446,172.05 usft	Latitude:	39.778517
	+E/-W	0.00 usft	Easting:	1,706,979.41 usft	Longitude:	-80.763083
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft	Ground Level:	1,265.00 usft
Grid Convergence:						

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	8/17/2021	-8.62	68.52	51,731.12286267

Design	rev3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	349.41

Plan Survey Tool Program	Date	
Depth From (usft)	Depth To (usft)	Survey (Wellbore)
1	0.00	16,993.15 rev3 (Original Hole)
		Tool Name
		Remarks

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Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,132.50	0.00	0.00	1,132.50	0.00	0.00	0.00	0.00	0.00	0.00	
2,132.50	30.00	25.00	2,087.43	231.90	108.14	3.00	3.00	0.00	25.00	
2,609.91	38.89	45.07	2,482.00	447.05	265.50	3.00	1.86	4.20	60.56	
7,390.28	38.89	45.07	6,202.65	2,566.90	2,390.34	0.00	0.00	0.00	0.00	
7,713.63	50.00	11.23	6,436.39	2,763.42	2,487.99	8.00	3.43	-10.46	-77.87	
8,271.45	91.01	329.73	6,626.00	3,253.13	2,380.38	10.00	7.35	-7.44	-53.25	
16,993.23	91.01	329.73	6,473.00	10,784.41	-2,015.75	0.00	0.00	0.00	0.00	BHL Old Crow N-06 H

WV Department of Environmental Protection



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Old Crow N-06 HM (slot B)
Company:	Tug Hill Operating LLC	TVD Reference:	RKB=1265+32.5 @ 1297.50usft
Project:	Marshall County, West Virginia.	MD Reference:	RKB=1265+32.5 @ 1297.50usft
Site:	Old Crow Pad	North Reference:	Grid
Well:	Old Crow N-06 HM (slot B)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
100.00	0.00	0.00	100.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
200.00	0.00	0.00	200.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
300.00	0.00	0.00	300.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
400.00	0.00	0.00	400.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
500.00	0.00	0.00	500.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
600.00	0.00	0.00	600.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
700.00	0.00	0.00	700.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
800.00	0.00	0.00	800.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
900.00	0.00	0.00	900.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
1,132.50	0.00	0.00	1,132.50	0.00	0.00	14,446,172.05	1,706,979.41	39.778517	-80.763083	
KOP Begin 3°/100' build										
1,200.00	2.03	25.00	1,199.99	1.08	0.50	14,446,173.13	1,706,979.92	39.778520	-80.763031	
1,300.00	5.03	25.00	1,299.79	6.65	3.10	14,446,178.70	1,706,982.52	39.778535	-80.763072	
1,400.00	8.03	25.00	1,399.13	16.95	7.90	14,446,189.00	1,706,987.32	39.778563	-80.763055	
1,500.00	11.03	25.00	1,497.74	31.95	14.90	14,446,204.00	1,706,994.31	39.778604	-80.763030	
1,600.00	14.03	25.00	1,595.35	51.60	24.06	14,446,223.65	1,707,003.48	39.778658	-80.762997	
1,700.00	17.03	25.00	1,691.69	75.85	35.37	14,446,247.90	1,707,014.79	39.778725	-80.762957	
1,800.00	20.03	25.00	1,786.49	104.65	48.80	14,446,276.70	1,707,028.21	39.778804	-80.762908	
1,900.00	23.03	25.00	1,879.51	137.90	64.30	14,446,309.95	1,707,043.72	39.778895	-80.762853	
2,000.00	26.03	25.00	1,970.48	175.51	81.84	14,446,347.56	1,707,061.26	39.778998	-80.762790	
2,100.00	29.03	25.00	2,059.15	217.39	101.37	14,446,389.44	1,707,080.79	39.779113	-80.762720	
2,132.50	30.00	25.00	2,087.43	231.90	108.14	14,446,403.95	1,707,087.55	39.779153	-80.762696	
Begin 3°/100' build/turn										
2,200.00	31.04	28.42	2,145.58	262.50	123.55	14,446,434.55	1,707,102.87	39.779237	-80.762641	
2,300.00	32.74	33.11	2,230.50	307.84	150.60	14,446,479.89	1,707,130.01	39.779361	-80.762544	
2,400.00	34.59	37.37	2,313.74	353.05	182.60	14,446,525.10	1,707,162.02	39.779485	-80.762430	
2,500.00	36.58	41.23	2,395.07	398.03	219.48	14,446,570.08	1,707,198.89	39.779608	-80.762298	
2,609.91	38.89	45.07	2,482.00	447.05	265.50	14,446,619.10	1,707,244.92	39.779743	-80.762134	
2,609.99	38.89	45.07	2,482.06	447.08	265.54	14,446,619.13	1,707,244.95	39.779743	-80.762134	
Begin 38.90° tangent										
2,700.00	38.89	45.07	2,552.12	486.99	305.54	14,446,659.05	1,707,284.98	39.779852	-80.761891	
2,800.00	38.89	45.07	2,629.95	531.34	349.99	14,446,703.39	1,707,329.41	39.779973	-80.761832	
2,900.00	38.89	45.07	2,707.78	575.66	394.44	14,446,747.74	1,707,373.86	39.780095	-80.761674	
3,000.00	38.89	45.07	2,785.61	620.03	438.89	14,446,792.08	1,707,418.31	39.780216	-80.761515	
3,100.00	38.89	45.07	2,863.45	664.37	483.34	14,446,836.43	1,707,462.76	39.780338	-80.761356	
3,200.00	38.89	45.07	2,941.28	708.72	527.79	14,446,880.77	1,707,507.21	39.780459	-80.761198	
3,300.00	38.89	45.07	3,019.11	753.06	572.24	14,446,925.12	1,707,551.65	39.780581	-80.761039	
3,400.00	38.89	45.07	3,096.94	797.41	616.69	14,446,969.46	1,707,596.10	39.780702	-80.760881	
3,500.00	38.89	45.07	3,174.77	841.75	661.14	14,447,013.81	1,707,640.55	39.780824	-80.760722	
3,600.00	38.89	45.07	3,252.60	886.10	705.59	14,447,058.15	1,707,685.00	39.780945	-80.760563	
3,700.00	38.89	45.07	3,330.44	930.44	750.04	14,447,102.49	1,707,729.45	39.781067	-80.760405	
3,800.00	38.89	45.07	3,408.27	974.79	794.49	14,447,146.84	1,707,773.90	39.781188	-80.760246	
3,900.00	38.89	45.07	3,486.10	1,019.13	838.94	14,447,191.18	1,707,818.35	39.781309	-80.760087	
4,000.00	38.89	45.07	3,563.93	1,063.48	883.39	14,447,235.53	1,707,862.80	39.781431	-80.759929	
4,100.00	38.89	45.07	3,641.76	1,107.82	927.83	14,447,279.87	1,707,907.25	39.781552	-80.759770	
4,200.00	38.89	45.07	3,719.59	1,152.17	972.28	14,447,324.22	1,707,951.70	39.781674	-80.759611	
4,300.00	38.89	45.07	3,797.43	1,196.51	1,016.73	14,447,368.56	1,707,996.15	39.781795	-80.759453	
4,400.00	38.89	45.07	3,875.26	1,240.86	1,061.18	14,447,412.91	1,708,040.60	39.781917	-80.759294	
4,500.00	38.89	45.07	3,953.09	1,285.20	1,105.63	14,447,457.25	1,708,085.05	39.782038	-80.759136	
4,600.00	38.89	45.07	4,030.92	1,329.55	1,150.08	14,447,501.60	1,708,129.50	39.782160	-80.758977	
4,700.00	38.89	45.07	4,108.75	1,373.89	1,194.53	14,447,545.94	1,708,173.95	39.782281	-80.758818	

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Department of Environmental Protection



Planning Report - Geographic

Database: DB_Dec2220_v16
Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia.
Site: Old Crow Pad
Well: Old Crow N-06 HM (slot B)
Wellbore: Original Hole
Design: rev3

Local Co-ordinate Reference: Well Old Crow N-06 HM (slot B)
TVD Reference: RKB=1265+32.5 @ 1297.50usft
MD Reference: RKB=1265+32.5 @ 1297.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4 800.00	38.89	45.07	4 186.59	1 418.24	1 238.98	14 447 590.29	1 708 218.39	39.782403	-80.758660
4 900.00	38.89	45.07	4 264.42	1 462.58	1 283.43	14 447 634.63	1 708 262.64	39.782524	-80.758501
5 000.00	38.89	45.07	4 342.25	1 506.93	1 327.88	14 447 678.98	1 708 307.29	39.782645	-80.758342
5 100.00	38.89	45.07	4 420.08	1 551.27	1 372.33	14 447 723.32	1 708 351.74	39.782767	-80.758184
5 200.00	38.89	45.07	4 497.91	1 595.62	1 416.78	14 447 767.67	1 708 396.19	39.782888	-80.758025
5 300.00	38.89	45.07	4 575.74	1 639.96	1 461.23	14 447 812.01	1 708 440.64	39.783010	-80.757866
5 400.00	38.89	45.07	4 653.58	1 684.31	1 505.68	14 447 856.36	1 708 485.09	39.783131	-80.757708
5 500.00	38.89	45.07	4 731.41	1 728.65	1 550.12	14 447 900.70	1 708 529.54	39.783253	-80.757549
5 600.00	38.89	45.07	4 809.24	1 773.00	1 594.57	14 447 945.05	1 708 573.99	39.783374	-80.757391
5 700.00	38.89	45.07	4 887.07	1 817.34	1 639.02	14 447 989.39	1 708 618.44	39.783496	-80.757232
5 800.00	38.89	45.07	4 964.90	1 861.69	1 683.47	14 448 033.74	1 708 662.89	39.783617	-80.757073
5 900.00	38.89	45.07	5 042.74	1 906.03	1 727.92	14 448 078.08	1 708 707.34	39.783739	-80.756915
6 000.00	38.89	45.07	5 120.57	1 950.38	1 772.37	14 448 122.43	1 708 751.79	39.783860	-80.756756
6 100.00	38.89	45.07	5 198.40	1 994.72	1 816.82	14 448 166.77	1 708 796.24	39.783981	-80.756597
6 200.00	38.89	45.07	5 276.23	2 039.07	1 861.27	14 448 211.12	1 708 840.68	39.784103	-80.756439
6 300.00	38.89	45.07	5 354.06	2 083.41	1 905.72	14 448 255.46	1 708 885.13	39.784224	-80.756280
6 400.00	38.89	45.07	5 431.89	2 127.76	1 950.17	14 448 299.81	1 708 929.58	39.784345	-80.756121
6 500.00	38.89	45.07	5 509.73	2 172.10	1 994.62	14 448 344.15	1 708 974.03	39.784467	-80.755963
6 600.00	38.89	45.07	5 587.56	2 216.45	2 039.07	14 448 388.50	1 709 018.48	39.784589	-80.755804
6 700.00	38.89	45.07	5 665.39	2 260.79	2 083.52	14 448 432.84	1 709 062.93	39.784710	-80.755645
6 800.00	38.89	45.07	5 743.22	2 305.14	2 127.97	14 448 477.19	1 709 107.38	39.784832	-80.755487
6 900.00	38.89	45.07	5 821.05	2 349.48	2 172.42	14 448 521.53	1 709 151.83	39.784953	-80.755328
7 000.00	38.89	45.07	5 898.88	2 393.83	2 216.86	14 448 565.88	1 709 196.28	39.785075	-80.755169
7 100.00	38.89	45.07	5 976.72	2 438.17	2 261.31	14 448 610.22	1 709 240.73	39.785196	-80.755011
7 200.00	38.89	45.07	6 054.55	2 482.52	2 305.76	14 448 654.57	1 709 285.18	39.785317	-80.754852
7 300.00	38.89	45.07	6 132.38	2 526.86	2 350.21	14 448 698.91	1 709 329.63	39.785439	-80.754693
7 390.28	38.89	45.07	6 202.65	2 566.90	2 390.34	14 448 738.95	1 709 369.78	39.785549	-80.754550
7 390.46	38.89	45.07	6 202.79	2 566.98	2 390.42	14 448 739.03	1 709 369.84	39.785549	-80.754550
Begin 8°/100' build/turn									
7 400.00	39.06	43.86	6 210.20	2 571.26	2 394.62	14 448 743.31	1 709 374.04	39.785560	-80.754535
7 450.00	40.13	37.81	6 248.75	2 595.36	2 415.43	14 448 767.41	1 709 394.84	39.785625	-80.754481
7 500.00	41.49	32.05	6 286.80	2 622.13	2 434.10	14 448 794.19	1 709 413.51	39.785700	-80.754394
7 550.00	43.12	26.63	6 323.59	2 651.46	2 450.56	14 448 823.51	1 709 429.97	39.785780	-80.754335
7 600.00	45.00	21.54	6 359.53	2 683.19	2 464.71	14 448 855.24	1 709 444.13	39.785867	-80.754284
7 650.00	47.08	16.80	6 394.25	2 717.18	2 476.50	14 448 889.23	1 709 455.92	39.785961	-80.754242
7 700.00	49.35	12.38	6 427.57	2 753.25	2 485.86	14 448 925.30	1 709 465.28	39.786060	-80.754208
7 713.63	50.00	11.23	6 436.39	2 763.42	2 487.98	14 448 935.47	1 709 467.40	39.786087	-80.754201
7 713.79	50.00	11.23	6 436.49	2 763.54	2 488.01	14 448 935.59	1 709 467.43	39.786088	-80.754201
Begin 10°/100' build/turn									
7 750.00	52.24	7.54	6 459.22	2 791.34	2 492.59	14 448 963.39	1 709 472.01	39.786164	-80.754184
7 800.00	55.48	2.83	6 468.72	2 831.53	2 498.21	14 449 003.58	1 709 475.82	39.786274	-80.754171
7 850.00	58.90	358.48	6 515.82	2 873.53	2 495.66	14 449 045.58	1 709 476.07	39.786390	-80.754169
7 900.00	62.44	354.44	6 540.31	2 917.02	2 493.94	14 449 089.07	1 709 473.36	39.786509	-80.754178
7 950.00	66.10	350.66	6 562.02	2 961.66	2 488.08	14 449 133.71	1 709 467.50	39.786632	-80.754198
8 000.00	69.85	347.09	6 580.77	3 007.12	2 479.12	14 449 179.17	1 709 458.54	39.786757	-80.754230
8 050.00	73.66	343.68	6 596.42	3 053.05	2 467.13	14 449 225.10	1 709 446.54	39.786883	-80.754272
8 100.00	77.53	340.41	6 608.86	3 099.10	2 452.19	14 449 271.15	1 709 431.61	39.787010	-80.754325
8 150.00	81.44	337.23	6 617.99	3 144.92	2 434.43	14 449 316.97	1 709 413.84	39.787136	-80.754388
8 200.00	85.37	334.12	6 623.73	3 190.16	2 413.97	14 449 362.21	1 709 393.39	39.787260	-80.754460
8 250.00	89.31	331.04	6 626.06	3 234.48	2 390.98	14 449 406.53	1 709 370.40	39.787382	-80.754541
8 271.34	91.00	329.73	6 626.00	3 253.03	2 380.44	14 449 425.08	1 709 359.85	39.787433	-80.754579
Begin 90.97° lateral									
8 271.45	91.01	329.73	6 626.00	3 253.13	2 380.38	14 449 425.18	1 709 359.79	39.787433	-80.754579
8 300.00	91.01	329.73	6 625.50	3 277.78	2 365.99	14 449 449.83	1 709 345.41	39.787501	-80.754630

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Department of Environmental Protection



Planning Report - Geographic

Database: DB_Dec2220_v16
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Old Crow Pad
 Well: Old Crow N-06 HM (slot B)
 Wellbore: Original Hole
 Design: rev3

Local Co-ordinate Reference: Well Old Crow N-06 HM (slot B)
 TVD Reference: RKB=1265+32.5 @ 1297.50usft
 MD Reference: RKB=1265+32.5 @ 1297.50usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,400.00	91.01	329.73	6,623.74	3,364.13	2,315.59	14,449,536.18	1,709,295.00	39.787738	-80.754809
8,500.00	91.01	329.73	6,621.99	3,450.48	2,265.18	14,449,622.53	1,709,244.60	39.787976	-80.754987
8,600.00	91.01	329.73	6,620.23	3,536.83	2,214.78	14,449,708.88	1,709,194.19	39.788214	-80.755166
8,700.00	91.01	329.73	6,618.48	3,623.18	2,164.37	14,449,795.23	1,709,143.79	39.788451	-80.755344
8,800.00	91.01	329.73	6,616.72	3,709.53	2,113.97	14,449,881.58	1,709,093.39	39.788689	-80.755523
8,900.00	91.01	329.73	6,614.97	3,795.88	2,063.57	14,449,967.94	1,709,042.98	39.788926	-80.755701
9,000.00	91.01	329.73	6,613.22	3,882.23	2,013.16	14,450,054.29	1,708,992.58	39.789164	-80.755880
9,100.00	91.01	329.73	6,611.46	3,968.58	1,962.76	14,450,140.64	1,708,942.17	39.789401	-80.756059
9,200.00	91.01	329.73	6,609.71	4,054.93	1,912.35	14,450,226.99	1,708,891.77	39.789639	-80.756237
9,300.00	91.01	329.73	6,607.95	4,141.28	1,861.95	14,450,313.34	1,708,841.36	39.789876	-80.756416
9,400.00	91.01	329.73	6,606.20	4,227.64	1,811.55	14,450,399.69	1,708,790.96	39.790114	-80.756594
9,500.00	91.01	329.73	6,604.44	4,313.99	1,761.14	14,450,486.04	1,708,740.56	39.790351	-80.756773
9,600.00	91.01	329.73	6,602.69	4,400.34	1,710.74	14,450,572.39	1,708,690.15	39.790589	-80.756952
9,700.00	91.01	329.73	6,600.94	4,486.69	1,660.33	14,450,658.74	1,708,639.75	39.790826	-80.757130
9,800.00	91.01	329.73	6,599.18	4,573.04	1,609.93	14,450,745.09	1,708,589.34	39.791064	-80.757309
9,900.00	91.01	329.73	6,597.43	4,659.39	1,559.53	14,450,831.44	1,708,538.94	39.791301	-80.757487
10,000.00	91.01	329.73	6,595.67	4,745.74	1,509.12	14,450,917.79	1,708,488.54	39.791539	-80.757666
10,100.00	91.01	329.73	6,593.92	4,832.09	1,458.72	14,451,004.14	1,708,438.13	39.791776	-80.757845
10,200.00	91.01	329.73	6,592.17	4,918.44	1,408.31	14,451,090.49	1,708,387.73	39.792014	-80.758023
10,300.00	91.01	329.73	6,590.41	5,004.79	1,357.91	14,451,176.84	1,708,337.32	39.792251	-80.758202
10,400.00	91.01	329.73	6,588.66	5,091.14	1,307.51	14,451,263.19	1,708,286.92	39.792489	-80.758380
10,500.00	91.01	329.73	6,586.90	5,177.49	1,257.10	14,451,349.54	1,708,236.52	39.792726	-80.758559
10,600.00	91.01	329.73	6,585.15	5,263.84	1,206.70	14,451,435.89	1,708,186.11	39.792964	-80.758738
10,700.00	91.01	329.73	6,583.39	5,350.19	1,156.29	14,451,522.24	1,708,135.71	39.793201	-80.758916
10,800.00	91.01	329.73	6,581.64	5,436.54	1,105.89	14,451,608.59	1,708,085.30	39.793439	-80.759095
10,900.00	91.01	329.73	6,579.89	5,522.89	1,055.49	14,451,694.94	1,708,034.90	39.793676	-80.759274
11,000.00	91.01	329.73	6,578.13	5,609.24	1,005.08	14,451,781.29	1,707,984.50	39.793914	-80.759452
11,100.00	91.01	329.73	6,576.38	5,695.59	954.68	14,451,867.64	1,707,934.09	39.794151	-80.759631
11,200.00	91.01	329.73	6,574.62	5,781.94	904.27	14,451,953.99	1,707,883.69	39.794389	-80.759809
11,300.00	91.01	329.73	6,572.87	5,868.29	853.87	14,452,040.34	1,707,833.28	39.794626	-80.759988
11,400.00	91.01	329.73	6,571.12	5,954.64	803.46	14,452,126.69	1,707,782.88	39.794864	-80.760167
11,500.00	91.01	329.73	6,569.36	6,040.99	753.06	14,452,213.04	1,707,732.48	39.795101	-80.760345
11,600.00	91.01	329.73	6,567.61	6,127.34	702.66	14,452,299.39	1,707,682.07	39.795339	-80.760524
11,700.00	91.01	329.73	6,565.85	6,213.69	652.25	14,452,385.74	1,707,631.67	39.795576	-80.760702
11,800.00	91.01	329.73	6,564.10	6,300.04	601.85	14,452,472.09	1,707,581.26	39.795814	-80.760881
11,900.00	91.01	329.73	6,562.34	6,386.39	551.44	14,452,558.44	1,707,530.86	39.796052	-80.761060
12,000.00	91.01	329.73	6,560.59	6,472.74	501.04	14,452,644.79	1,707,480.46	39.796289	-80.761238
12,100.00	91.01	329.73	6,558.84	6,559.09	450.64	14,452,731.14	1,707,430.05	39.796527	-80.761417
12,200.00	91.01	329.73	6,557.08	6,645.44	400.23	14,452,817.49	1,707,379.65	39.796764	-80.761596
12,300.00	91.01	329.73	6,555.33	6,731.79	349.83	14,452,903.84	1,707,329.24	39.797002	-80.761774
12,400.00	91.01	329.73	6,553.57	6,818.14	299.42	14,452,990.19	1,707,278.84	39.797239	-80.761953
12,500.00	91.01	329.73	6,551.82	6,904.49	249.02	14,453,076.54	1,707,228.43	39.797477	-80.762132
12,600.00	91.01	329.73	6,550.07	6,990.84	198.62	14,453,162.89	1,707,178.03	39.797714	-80.762310
12,700.00	91.01	329.73	6,548.31	7,077.19	148.21	14,453,249.24	1,707,127.63	39.797952	-80.762489
12,800.00	91.01	329.73	6,546.56	7,163.54	97.81	14,453,335.59	1,707,077.22	39.798189	-80.762667
12,900.00	91.01	329.73	6,544.80	7,249.89	47.40	14,453,421.94	1,707,026.82	39.798427	-80.762846
13,000.00	91.01	329.73	6,543.05	7,336.24	-3.00	14,453,508.29	1,706,976.41	39.798664	-80.763025
13,100.00	91.01	329.73	6,541.29	7,422.59	-53.40	14,453,594.64	1,706,926.01	39.798902	-80.763203
13,200.00	91.01	329.73	6,539.54	7,508.94	-103.81	14,453,680.99	1,706,875.61	39.799139	-80.763382
13,300.00	91.01	329.73	6,537.79	7,595.29	-154.21	14,453,767.34	1,706,825.20	39.799377	-80.763561
13,400.00	91.01	329.73	6,536.03	7,681.64	-204.62	14,453,853.69	1,706,774.80	39.799614	-80.763739
13,500.00	91.01	329.73	6,534.28	7,767.99	-255.02	14,453,940.04	1,706,724.39	39.799852	-80.763918
13,600.00	91.01	329.73	6,532.52	7,854.34	-305.42	14,454,026.39	1,706,673.99	39.800089	-80.764097
13,700.00	91.01	329.73	6,530.77	7,940.69	-355.83	14,454,112.74	1,706,623.59	39.800327	-80.764275
13,800.00	91.01	329.73	6,529.02	8,027.04	-406.23	14,454,199.09	1,706,573.18	39.800564	-80.764454

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Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Old Crow N-06 HM (slot B)
Company:	Tug Hill Operating LLC	TVD Reference:	RKB=1265+32.5 @ 1297.50usft
Project:	Marshall County, West Virginia.	MD Reference:	RKB=1265+32.5 @ 1297.50usft
Site:	Old Crow Pad	North Reference:	Grid
Well:	Old Crow N-06 HM (slot B)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
13,900.00	91.01	329.73	6,527.26	8,113.39	-456.64	14,454,285.44	1,706,522.78	39.800802	-80.764633	
14,000.00	91.01	329.73	6,525.51	8,199.74	-507.04	14,454,371.79	1,706,472.37	39.801039	-80.764811	
14,100.00	91.01	329.73	6,523.75	8,286.09	-557.44	14,454,458.14	1,706,421.97	39.801277	-80.764990	
14,200.00	91.01	329.73	6,522.00	8,372.44	-607.85	14,454,544.49	1,706,371.57	39.801514	-80.765188	
14,300.00	91.01	329.73	6,520.24	8,458.79	-658.25	14,454,630.84	1,706,321.16	39.801752	-80.765347	
14,400.00	91.01	329.73	6,518.49	8,545.14	-708.66	14,454,717.19	1,706,270.76	39.801989	-80.765526	
14,500.00	91.01	329.73	6,516.74	8,631.49	-759.06	14,454,803.55	1,706,220.35	39.802227	-80.765704	
14,600.00	91.01	329.73	6,514.98	8,717.84	-809.47	14,454,889.90	1,706,169.95	39.802464	-80.765883	
14,700.00	91.01	329.73	6,513.23	8,804.19	-859.87	14,454,976.25	1,706,119.55	39.802702	-80.766062	
14,800.00	91.01	329.73	6,511.47	8,890.54	-910.27	14,455,062.60	1,706,069.14	39.802939	-80.766240	
14,900.00	91.01	329.73	6,509.72	8,976.90	-960.68	14,455,148.95	1,706,018.74	39.803177	-80.766419	
15,000.00	91.01	329.73	6,507.97	9,063.25	-1,011.08	14,455,235.30	1,705,968.33	39.803414	-80.766598	
15,100.00	91.01	329.73	6,506.21	9,149.60	-1,061.49	14,455,321.65	1,705,917.93	39.803652	-80.766776	
15,200.00	91.01	329.73	6,504.46	9,235.95	-1,111.89	14,455,408.00	1,705,867.53	39.803889	-80.766955	
15,300.00	91.01	329.73	6,502.70	9,322.30	-1,162.29	14,455,494.35	1,705,817.12	39.804127	-80.767134	
15,400.00	91.01	329.73	6,500.95	9,408.65	-1,212.70	14,455,580.70	1,705,766.72	39.804364	-80.767312	
15,500.00	91.01	329.73	6,499.19	9,495.00	-1,263.10	14,455,667.05	1,705,716.31	39.804602	-80.767491	
15,600.00	91.01	329.73	6,497.44	9,581.35	-1,313.51	14,455,753.40	1,705,665.91	39.804839	-80.767670	
15,700.00	91.01	329.73	6,495.69	9,667.70	-1,363.91	14,455,839.75	1,705,615.50	39.805077	-80.767848	
15,800.00	91.01	329.73	6,493.93	9,754.05	-1,414.31	14,455,926.10	1,705,565.10	39.805314	-80.768027	
15,900.00	91.01	329.73	6,492.18	9,840.40	-1,464.72	14,456,012.45	1,705,514.70	39.805552	-80.768206	
16,000.00	91.01	329.73	6,490.42	9,926.75	-1,515.12	14,456,098.80	1,705,464.29	39.805789	-80.768384	
16,100.00	91.01	329.73	6,488.67	10,013.10	-1,565.53	14,456,185.15	1,705,413.89	39.806027	-80.768563	
16,200.00	91.01	329.73	6,486.91	10,099.45	-1,615.93	14,456,271.50	1,705,363.48	39.806264	-80.768742	
16,300.00	91.01	329.73	6,485.16	10,185.80	-1,666.33	14,456,357.85	1,705,313.08	39.806502	-80.768920	
16,400.00	91.01	329.73	6,483.41	10,272.15	-1,716.74	14,456,444.20	1,705,262.68	39.806739	-80.769099	
16,500.00	91.01	329.73	6,481.65	10,358.50	-1,767.14	14,456,530.55	1,705,212.27	39.806977	-80.769278	
16,600.00	91.01	329.73	6,479.90	10,444.85	-1,817.55	14,456,616.90	1,705,161.87	39.807214	-80.769457	
16,700.00	91.01	329.73	6,478.14	10,531.20	-1,867.95	14,456,703.25	1,705,111.46	39.807452	-80.769635	
16,800.00	91.01	329.73	6,476.39	10,617.55	-1,918.35	14,456,789.60	1,705,061.06	39.807689	-80.769814	
16,900.00	91.01	329.73	6,474.64	10,703.90	-1,968.76	14,456,875.95	1,705,010.66	39.807927	-80.769993	
16,993.17	91.01	329.73	6,473.00	10,784.35	-2,015.72	14,456,956.40	1,704,963.70	39.808148	-80.770159	
PBHL/TD 16993.17 MD 6478.50 TVD										
16,993.23	91.01	329.73	6,473.00	10,784.41	-2,015.75	14,456,956.46	1,704,963.66	39.808148	-80.770159	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
BHL Old Crow N-06 HM - plan hits target center - Point	0.00	0.00	6,473.00	10,784.41	-2,015.75	14,456,956.46	1,704,963.66	39.808148	-80.770159	
LP Old Crow N-06 HM 5 - plan hits target center - Point	0.00	0.00	6,626.00	3,253.13	2,360.38	14,449,425.18	1,709,359.79	39.787433	-80.754579	

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All Documents of



Planning Report - Geographic

Database:	DB_Dec2220_v16	Local Co-ordinate Reference:	Well Old Crow N-06 HM (slot B)
Company:	Tug Hill Operating LLC	TVD Reference:	RKB=1265+32.5 @ 1297.50usft
Project:	Marshall County, West Virginia.	MD Reference:	RKB=1265+32.5 @ 1297.50usft
Site:	Old Crow Pad	North Reference:	Grid
Well:	Old Crow N-06 HM (slot B)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
16,993.23	6,473.00	20" Casing	20	24		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N-S (usft)	+E-W (usft)		
1,132.50	1,132.50	0.00	0.00	KOP Begin 3°/100' build	
2,132.50	2,087.43	231.90	108.14	Begin 3°/100' build/turn	
2,609.99	2,482.06	447.08	265.54	Begin 38.80° tangent	
7,390.46	6,202.79	2,566.98	2,390.42	Begin 8°/100' build/turn	
7,713.79	6,436.49	2,763.54	2,488.01	Begin 10°/100' build/turn	
8,271.34	6,626.00	3,253.03	2,360.44	Begin 90.97° lateral	
16,993.17	6,473.00	10,784.35	-2,015.72	PBHL/TD 16993.17 MD 6478.50 TVD	

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WV Department of
Environmental Protection

**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: 8/23/2021 **Date Permit Application Filed:** 8/23/2021

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: Donna Yoho
Address: 3682 Rines Ridge Road
Proctor, WV 26055

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: _____
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: Consol Energy, Inc. Leatherwood, Inc. Attn: Casey Saunders
Address: 1000 CONSOL Energy Drive
Canonsburg, PA 15317

COAL OPERATOR

Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: _____
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

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*Please attach additional forms if necessary

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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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting 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

09/03/2021

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 57th St. SE
Charleston, WV 25304
(304) 926-0450

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WV Department of
Environmental Protection

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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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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WW-6A
(8-13)

API NO. 47- 051 - 02238
OPERATOR WELL NO. Old Crow N-6HM
Well Pad Name: Old Crow

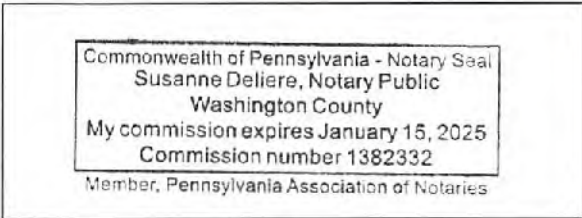
Notice is hereby given by:

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: 724-339-2030

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.



Subscribed and sworn before me this 23rd day of August 2021.
Susanne Deliere Notary Public
My Commission Expires 1/15/2025

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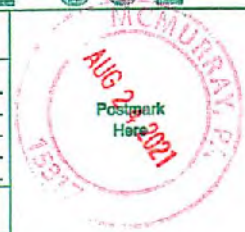
For delivery information, visit our website at www.usps.com

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Certified Mail Fee	\$
Extra Services & Fees (check box, add fee as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$
<input type="checkbox"/> Return Receipt (electronic)	\$
<input type="checkbox"/> Certified Mail Restricted Delivery	\$
<input type="checkbox"/> Adult Signature Required	\$
<input type="checkbox"/> Adult Signature Restricted Delivery	\$

Postage	\$
---------	----

Total	Donna Yoho
\$	3682 Rines Ridge Road
Sen	Proctor, WV 26055
Str	
City	
PS	



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7018 0040 0000 4474 8429

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Certified Mail Fee \$ _____
Extra Services & Fees (check box, add fee as appropriate)
 Return Receipt (hardcopy) \$ _____
 Return Receipt (electronic) \$ _____
 Certified Mail Restricted Delivery \$ _____
 Adult Signature Required \$ _____
 Adult Signature Restricted Delivery \$ _____

Postage \$ _____

Total \$ _____

Sent \$ _____

Street _____

City _____

PS Form 3800, September 2015 Edition (PSN 7530-01-000-9000)

Instructions

Consol Energy, Inc.
Leatherwood, Inc.
Attn: Casey Saunders
10000 Consol Energy Drive
Canonsburg, PA 15317



7018 0040 0000 4414 8412

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**OLD CROW N LEASE
WELL 6HM
TUG HILL OPERATING**

T.H. LATITUDE 39°47'30"
B.H. LATITUDE 39°50'00"

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'83 S.P.C.(FT)	N. 488,170.89	E. 1,613,521.72
NAD'83 GEO.	LAT-(N) 39.778517	LONG-(W) 80.753083
NAD'83 UTM (M)	N. 4,403,202.05	E. 520,288.37

LANDING POINT

NAD'83 S.P.C.(FT)	N. 471,984.8	E. 1,615,957.0
NAD'83 GEO.	LAT-(N) 39.787433	LONG-(W) 80.754579
NAD'83 UTM (M)	N. 4,404,193.6	E. 521,013.9

BOTTOM HOLE

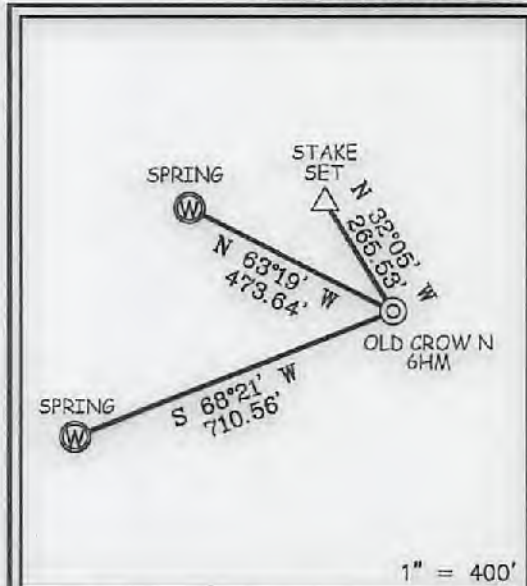
NAD'83 S.P.C.(FT)	N. 478,991.1	E. 1,611,885.8
NAD'83 GEO.	LAT-(N) 39.808148	LONG-(W) 80.770159
NAD'83 UTM (M)	N. 4,406,489.1	E. 519,674.0

T.H. LONGITUDE 80°45'00"
B.H. LONGITUDE 80°45'00"
4,790' T.H.
9,175' B.H.

MAP/PARCEL	ADJOINING SURFACE OWNER LIST	ACRES
5-9-4.3	HARRY E. KARR, JR., ET UX	1.471
5-9-4.7	FRANCIS D. BARR, ET UX	0.481
5-9-4.8	THOMAS MIDCAP, ET UX	0.376
5-9-4.10	DEBORAH S. MIDCAP	0.819
5-9-4.11	GARY PORTER	1.00
5-9-4.14	PAUL G. BROWN	0.500
5-9-4.15	PAUL G. BROWN	0.500
5-9-4.18	PAUL G. BROWN	0.657
5-9-4.19	SAMUEL L. CANTERBURY, ET UX	2.078
5-9-14	DENNIS P. CADMUS	136 POLES
5-9-15	DENNIS P. CADMUS	3.85
5-9-16	SHEENA ROSE	1.65
5-9-17.1	MARK S. STOCKLASK	1.187
5-9-18	MALCOMB H. BROWNLEE, ET AL	25,300 SQ. FT.
5-9-19	MARK STEPHEN STOCKLASK	2.38
5-9-23	DELBERT K. & LINDA K. MYERS	7.00
5-9-33.2	KEITH D. DANIELS, ET UX	1.534
5-10-1.2	JOSHUA A. & SHANNON N. HOYT	2.436
5-10-4.1	WILLIAM F. RULONG, ET AL	0.39
5-10-4.2	JACK E. RECTOR	2.887
5-10-4.3	ANTHONY A. & KAREN L. ANKROM	5.697
5-10-4.8	SAMUEL FRANKLIN	1.8808
5-10-4.9	JAMES E. & KAREN M. WILSON	0.6692
5-10-4.10	SHEENA ROSE	0.803
5-10-4.11	JASON E. BONNETTE	1.50
5-10-6	WILLIAM F. RULONG, ET AL	PTO 1.00



REFERENCES



NOTES ON SURVEY

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 525' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE ARE 1"=2000'
- THE ASSESSMENT OF THE 1/10 ACRE LOT, OWNED BY JASON J. STEED AND DESCRIBED AS THE SECOND PARCEL IN DEED BOOK 843 PAGE 319 AND CORRECTIVE DEED 843 PAGE 300, IS NOT CURRENTLY ACCOUNTED FOR WITHIN THE 135.61 ACRE ASSESSMENT OF SURFACE TAX MAP 5-9-13.2



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26039 | 304.462.6334
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3953
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slswv.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. *Gregory A. Smith*
677



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE MAY 28, 20 19
REVISED AUGUST 23, 20 21
OPERATORS WELL NO. OLD CROW N-6HM
API WELL NO. 47 - 051 - 02238 HKA
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8796P6HMR.dwg
OLD CROW NORTH 6HM REV3

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: ELEVATION 1,264.99' WATERSHED TRIBUTARY OF FISH CREEK (HUC-10)

DISTRICT FRANKLIN COUNTY MARSHALL QUADRANGLE POWHATAN POINT 7.5'

SURFACE OWNER DONNA VIVIAN YOHO (TOD) GARY LANCE YOHO ACREAGE 71.205±

ROYALTY OWNER DONNA VIVIAN YOHO, ET AL ACREAGE 71.205±
LEASE NO. SEE WW-6A1

PROPOSED WORK: 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: 6,740' / TMD: 16,993'

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

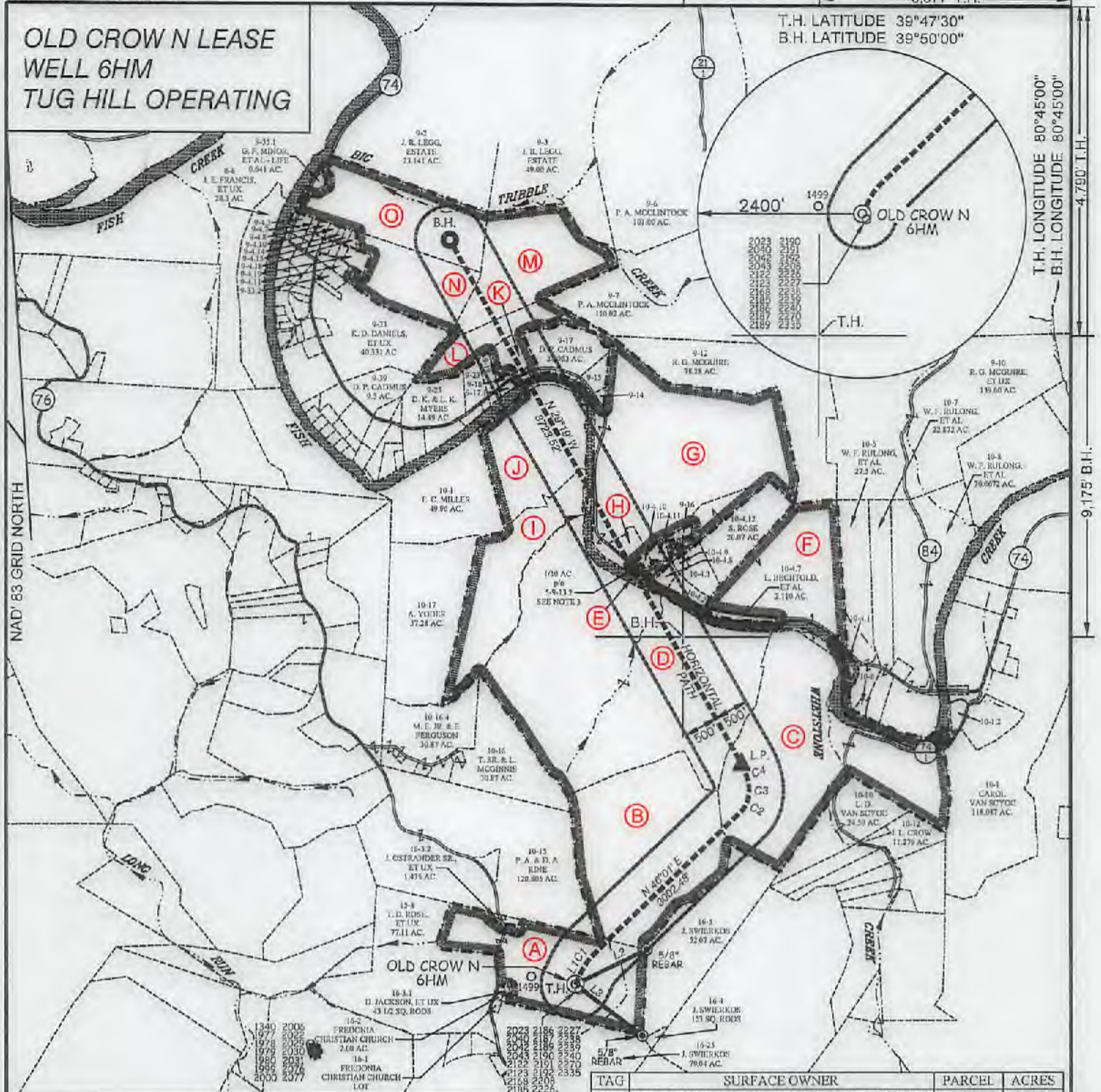
COUNTY NAME PERMIT

5,663' B.H. 3,677' T.H.

**OLD CROW N LEASE
WELL 6HM
TUG HILL OPERATING**

T.H. LATITUDE 39°47'30"
B.H. LATITUDE 39°50'00"

T.H. LONGITUDE 80°45'00"
B.H. LONGITUDE 80°45'00"



CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	287.91'	792.95'	N 37°08' E	266.64'
C2	212.35'	371.54'	N 28°06' E	209.47'
C3	256.18'	574.08'	N 00°34' W	254.06'
C4	266.01'	808.91'	N 20°55' W	265.06'

TAG	SURFACE OWNER	PARCEL	ACRES
A	DONNA VIVIAN YOHO (TOD) GARY LANCE YOHO	5-16-3	71.205
B	JOHN SWIERKOS	5-10-14	100.00
C	HERBERT M. AULENBACHER, JR.	5-10-9	141.43
D	HERBERT M. AULENBACHER, JR.	5-10-3	225.50
E	STATE OF WEST VIRGINIA (FISH CREEK)	N/A	N/A
F	SHEENA ROSE	5-10-4	74.229
G	JASON J. STEED	5-9-13.2	135.61
H	KAREN M. KAZEMKA (NKA KAREN M. WILSON)	5-9-13	3.69
I	WILLIAM A. PRASCIK, ET AL	5-10-2	52.00
J	EDWIN C. MILLER	5-9-20	51.64
K	DENNIS P. CADMUS	5-9-42	5.42
L	DENNIS P. CADMUS	5-9-24	21 AC 49 P.
M	LLOYD C. & JUDITH C. ARNOLD	5-9-41	93.00
N	LLOYD C. & JUDITH C. ARNOLD	5-9-4	18.854
O	LLOYD C. & JUDITH C. ARNOLD	5-9-35	47.00

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 25°57' E	255.96'
L2	N 63°56' E	1159.85'
L3	S 52°48' E	1228.02'



12 Vanhorn Drive | P.O. Box 150 | Glenview, WV 26351 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.1952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
sls-wv.com

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'83 S.P.C.(FT) N. 468,170.89 E. 1,613,521.72
 NAD'83 GEO. LAT-(N) 39.778517 LONG-(W) 80.763083
 NAD'83 UTM (M) N. 4,403,202.05 E. 520,288.37
LANDING POINT
 NAD'83 S.P.C.(FT) N. 471,384.8 E. 1,615,967.0
 NAD'83 GEO. LAT-(N) 39.778433 LONG-(W) 80.754579
 NAD'83 UTM (M) N. 4,404,193.6 E. 521,013.9
BOTTOM HOLE
 NAD'83 S.P.C.(FT) N. 478,981.1 E. 1,611,885.8
 NAD'83 GEO. LAT-(N) 39.808148 LONG-(W) 80.770159
 NAD'83 UTM (M) N. 4,406,489.1 E. 519,674.0



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

P.S. 677 *Gregory A. Smith*

LEGEND

- LEASE LINE
- SURFACE LINE
- WELL LATERAL
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- TAX MAP-PARCEL 00-00
- SURFACE OWNER (SEE TABLE) (A)
- LEASE # (SEE WW-6A1)

SCALE 1" = 2000' FILE NO. 8796P6HMR.dwg
 OLD CROW NORTH 6HM REV3
 DATE MAY 28 20 19
 REVISED AUGUST 23 20 21
 OPERATORS WELL NO. OLD CROW N-6HM
 API WELL NO. 47 - 051 - 02238
 STATE COUNTY PERMIT

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

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

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
VOLUNTARY STATEMENT OF NO OBJECTION

Instructions to Persons Named on Page WW-6A

The well operator named on page WW-6A is applying for a permit from the State of West Virginia to conduct oil or gas well work. Well work permits are valid for twenty-four (24) months. Please contact the listed well operator and the Office of Oil and Gas if you do not own any interest in the listed surface tract.

Comment and Waiver Provisions

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.

Pursuant to West Virginia Code § 22-6A-8(b) No permit may be issued less than thirty days after the filing date of the application for any well work except plugging or replugging; and no permit for plugging or replugging may be issued less than five days after the filing date of the application except a permit for plugging or replugging a dry hole: *Provided*, That if the applicant certifies that all persons entitled to notice of the application under the provisions of subsection (b), section ten of this article have been served in person or by certified mail, return receipt requested, with a copy of the well work application, including the erosion and sediment control plan, if required, and the well plat, and further files written statements of no objection by all such persons, the secretary may issue the well work permit at any time.

VOLUNTARY STATEMENT OF NO OBJECTION

I, Donna Vivian Yoho, 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>520,288.37</u>
County:	<u>Marshall</u>		Northing:	<u>4,403,202.05</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Rines Ridge Road (County Route 76)</u>	
Quadrangle:	<u>Powhatan Point 7.5'</u>	Generally used farm name:	<u>Donna Yoho</u>	
Watershed:	<u>Tributary of Fish 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.

<p>*Please check the box that applies</p> <p><input checked="" type="checkbox"/> SURFACE OWNER</p> <p><input type="checkbox"/> SURFACE OWNER (Road and/or Other Disturbance)</p> <p><input type="checkbox"/> SURFACE OWNER (Impoundments/Pits)</p> <p><input type="checkbox"/> COAL OWNER OR LESSEE</p> <p><input type="checkbox"/> COAL OPERATOR</p> <p><input type="checkbox"/> WATER PURVEYOR</p> <p><input type="checkbox"/> OPERATOR OF ANY NATURAL GAS STORAGE FIELD</p>	<p>FOR EXECUTION BY A NATURAL PERSON</p> <p>Signature: <u>Donna Vivian Yoho</u></p> <p>Print Name: <u>Donna Yoho</u></p> <p>Date: <u>8-25-21</u></p>
	<p>FOR EXECUTION BY A CORPORATION, ETC.</p> <p>Company: _____</p> <p>By: _____</p> <p>Its: _____</p> <p>Signature: _____</p> <p>Date: _____</p>

RECEIVED
Office of Oil and Gas

AUG 26 2021

WV Department of
Environmental Protection

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.

09/03/2021



August 24, 2021

MR. CHARLES T. BREWER
WV DEP OFFICE OF OIL & GAS
601 57TH STREET SE
CHARLESTON, WV 25304-2345

VIA FEDEX

**RE: Old Crow N-6HM Modification (API # 47-051-02238)
Franklin District, Marshall County, WV
Updated Freshwater/Coal String Depth**

Dear Taylor:

Tug Hill Operating, LLC is submitting an expedited modification request to our Old Crow N-6HM permit (47-051-02238).

- Check – Expedited Fee of \$5,000
- Updated WW-6B
- New WW-6A Notice of Application for the Surface Owner and Coal Owner
- Updated Well Plat

If you have any questions or need any additional information, please do not hesitate to call me on (304) 376-0111. Thank you for attention to this matter, it is greatly appreciated.

Sincerely,

AMY MORRIS
PERMIT SPECIALIST-APPALACHIA REGION
TUG HILL OPERATING, LLC

Enclosures

RECEIVED
Office of Oil and Gas

AUG 25 2021

WV Department of
Environmental Protection



Stansberry, Wade A <wade.a.stansberry@wv.gov>

Expedited Modification Horizontal H6A Well Work Permit (API: 47-051-02238)

1 message

Stansberry, Wade A <wade.a.stansberry@wv.gov>

Tue, Aug 31, 2021 at 9:05 AM

To: Amy Morris <amorris@tug-hilop.com>, Barry Stollings <barry.w.stollings@wv.gov>, Eric Buzzard <ebuzzard@marshallcountywv.org>

have attached a copy of the newly issued well [permit](#) number, "OLD CROW N-6HM", API: (47-051-02238). This will serve as your copy.

If you have any questions, then [please](#) contact us here at the Office of Oil and Gas.

Thank you,

Wade A. Stansberry**Environmental Resource Specialist 3****West Virginia Department of Environmental Protection****Office of Oil & Gas****601 57th St. SE****Charleston, WV 25304****(304) 926-0499 ext. 41115****(304) 926-0452 fax****Wade.A.Stansberry@wv.gov**

2 attachments**IR-26 Blank.pdf**

152K

**47-051-02238 - mod.pdf**

2989K

09/03/2021