

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-061-01751 County Monongalia District Clay
Quad Blacksville Pad Name Fisher Field/Pool Name _____
Farm name Aaron K. Fisher Well Number Fisher 2H
Operator (as registered with the OOG) Northeast Natural Energy LLC
Address 707 Virginia Street E., Suite 1200 City Charleston State WV Zip 25301

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4394325.5 Easting 567415.8
Landing Point of Curve Northing 4394032.1 Easting 567436.7
Bottom Hole Northing 4392635.7 Easting 568521.2

Elevation (ft) 1,453' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine

Mud Type(s) and Additive(s)
Synthetic Based Mud - Horizontal Section: BIO-BASE 365, CALCIUM CHLORIDE POWDER, G-SEAL PLUS, HRP, LIME, M-I WATE (BARITE),
M-I-X II MEDIUM, MEGADRIL P SYSTEM, MEGADRIL P SYSTEM RENTAL, MEGAMUL, SAFE-CARB 250, VERSATHIN HF, VERSAWET, VG-PLUS, VINSEAL MEDIUM, WALNUT NUT PLUG MEDIUM

Date permit issued 3/23/2017 Date drilling commenced 4/9/2017 Date drilling ceased 5/4/2017
Date completion activities began 6/21/2017 Date completion activities ceased 7/3/2017
Verbal plugging (Y/N) _____ Date permission granted _____ Granted by _____

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Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 1,352' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2,500' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 350'; 1,930' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed

Reviewed by:
[Signature]
07/20/2018

API 47-061 - 01751 Farm name Aaron K. Fisher Well number Fisher 2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	30"	24"	40'	N	94.71	N/A	Grouted In
Surface	17-1/2"	13-3/8"	1,436'	N	54.5	N/A	Y 74 Bbl.
Coal							
Intermediate 1	12-1/4"	9-5/8"	2,652'	N	40	N/A	N, see below
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	14,656'	N	20	N/A	N, EST. 1,652'
Tubing	N/A	2-7/8"	N/A	N	6.5	N/A	N/A
Packer type and depth set							

Comment Details Top out job performed on 13 3/8". 1" tubing ran down the backside to lag up. Pumped 4.7 bbl of class A neat cement.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	4,500 PSI Grout	-	-	3 Yds	-	-	-
Surface	Class A + 2%	1,107	15.2	1.26	1,392.41	Surface	8
Coal							
Intermediate 1	Class A + 1%	870	15.6	1.19	1033.083	Surface	8
Intermediate 2							
Intermediate 3							
Production	50:50 Class A + Additives	2,839	14.5	1.19	3368.75	1,652'	48
Tubing							

Drillers TD (ft) 14,591' Loggers TD (ft) 14,561'

Deepest formation penetrated Marcellus Plug back to (ft) _____

Plug back procedure _____

Kick off depth (ft) 6895'

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Surface: Bow spring centralizers every 3rd joint or approximately 120'

Intermediate: Bow spring centralizers every 3rd joint or approximately 120'

Production: Rigid body centralizers placed at a minimum of every other joint (~80') from TD to surface

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

API 47-061-01751 Farm name Aaron K. Fisher Well number Fisher 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>8,293'</u> TVD	<u>14,591'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3,568 psi Bottom Hole _____ psi DURATION OF TEST 48 hrs

OPEN FLOW Gas 4,548 mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP DEPTH IN FT NAME TVD</u>	<u>BOTTOM DEPTH IN FT TVD</u>	<u>TOP DEPTH IN FT MD</u>	<u>BOTTOM DEPTH IN FT MD</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>0</u>		<u>0</u>		<u>Please See Attachment</u>

Please insert additional pages as applicable.

Drilling Contractor Nabors
Address 82 Old Elkins Rd City Buckhannon State WV Zip 26201

Logging Company Baker Hughes
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Cementing Company Baker Hughes
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Stimulating Company BJ Services
Address 1036 E. Main St. City Bridgeport State WV Zip 26330

Please insert additional pages as applicable.

Completed by Hollie Medley Telephone 304-212-0422
Signature Hollie Medley Title Regulatory Manager Date 5-18-18

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Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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CEMENT JOB REPORT



CUSTOMER NORTHEAST NATURAL ENER		DATE 12-APR-17	F.R. # 284734400	SERV. SUPV. Brian Hmidan									
LEASE & WELL NAME Fisher Pad 2H - API 47061017510000		LOCATION		COUNTY-PARISH-BLOCK Monongalia West Virginia									
DISTRICT Massillon		DRILLING CONTRACTOR RIG #		TYPE OF JOB Surface									
SIZE & TYPE OF PLUGS		LIST-CSG-HARDWARE		MECHANICAL BARRIERS		MD TVD							
Cement Plug, Rubber, Top 13-3/8 i		Guide Shoe, Cement Nose 13-3/8 i											
		Float Collar, Auto Fill, 13-3/8 - 8rd											
PHYSICAL SLURRY PROPERTIES													
MATERIALS FURNISHED BY BJ		LAB REPORT NO.		SACKS OF CEMENT	SLURRY WGT PPG	SLURRY YLD FT							
FRESH WATER					8.34	14							
6% Gel + Flake					8.5	50							
FRESH WATER					8.34	10							
Premium NE-1 + Additives				1,107	15.2	1.26							
Fresh Water					8.34	248							
Available Mix Water 500 Bbl.		Available Displ. Fluid 400 Bbl.		TOTAL		151.56							
HOLE		TBG-CSG-D.P.				COLLAR DEPTHS							
SIZE	% EXCESS	DEPTH	ID	OD	WGT.	TYPE	MD	TVD	GRADE	SHOE	FLOAT	STAGE	
17.5	30	1451	12.62	13.38	54.5	CSG	1451	1451	J-55	1436	1394	0	
LAST CASING			PKR-CMT RET-BR PL-LINER			PERF. DEPTH		TOP CONN		WELL FLUID			
ID	OD	WGT.	TYPE	MD	TVD	BRAND & TYPE	DEPTH	TOP	BTM	SIZE	THREAD	TYPE	WGT.
23	24	95	CSG	40	40	NO PACKER	0	0	0	13.375	8RD	FRESH WATER	8.34
DISPL. VOLUME		DISPL. FLUID		CAL. PSI		CAL. MAX PSI		OP. MAX		MAX TBG PSI		MAX CSG PSI	
VOLUME	UOM	TYPE		WGT.	BUMP PLUG	TO REV.	SQ. PSI	RATED	Operator	RATED	Operator	MIX WATER	
215	BBLs	Fresh Water		8.34	517	0	0	0	0	2730	2184	FRAC TANKS	
EXPLANATION: TROUBLE SETTING TOOL, RUNNING CSG, ETC. PRIOR TO CEMENTING: HAD TO CIRCULATE CASING DOWN LAST 3-1/2 JOINTS													
PRESSURE/RATE DETAIL						EXPLANATION							
TIME HR:MIN.	PRESSURE - PSI		RATE BPM	Bbl. FLUID PUMPED	FLUID TYPE	SAFETY MEETING: BJ CREW <input checked="" type="checkbox"/> CO. REP. <input checked="" type="checkbox"/>							
	PIPE	ANNULUS				TEST LINES 2600 PSI							
						CIRCULATING WELL - RIG <input type="checkbox"/> BJ <input checked="" type="checkbox"/>							
05:30						CALLED CLIENT AND GIVEN A 16:00 LOCATION TIME							
10:00						YARD CALL							
11:30						SAFETY MEETING W/ CREW							
11:45						LEFT YARD							
16:00						ARRIVE ON LOCATION/START CHARGES							
16:05						MET W/ CLIENT							
16:50						MIX WATER QUALITY TEST= 66DEG, PH 7, SULFATES <200, CHLORIDES 0, TOTAL HARDNESS >90							
17:00						WAIT ON CASING							
22:40						SAFETY MEETING SPOT TRUCKS							
00:00						THURSDAY 4/13/17							
00:45						SAFETY MEETING/WASH CASING DOWN							
02:30						COULD NOT GET CASING WASHED DOWN/CO MAN RELEASED CREW							
10:45						YARD CALL							
11:45						LEAVE YARD							
04:00						ARRIVE ON LOCATION 4/14/17							
06:30						SAFETY MEETING/RIG UP CEMENT HEAD 4/14/17							
09:30						PRE-JOB SAFETY MEETING W/ CLIENT/RIG CREW/BJ CREW							

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CEMENT JOB REPORT



PRESSURE/RATE DETAIL						EXPLANATION	
TIME HR:MIN.	PRESSURE - PSI		RATE BPM	Bbl. FLUID PUMPED	FLUID TYPE	SAFETY MEETING: BJ CREW <input checked="" type="checkbox"/> CO. REP. <input checked="" type="checkbox"/>	
	PIPE	ANNULUS				TEST LINES	2600 PSI
						CIRCULATING WELL - RIG	BJ <input checked="" type="checkbox"/>
09:57		0	1	4	H2O	LINE FILL W/ FRESH WATER	
09:59	2600	0	0	0	H2O	PRESSURE TEST PUMP & LINES	
10:03	114	0	4	10	SPACER	START FRESH WATER SPACER	
10:09	111	0	3.5	50	SPACER	START GEL SPACER	
10:22	98	0	3.5	10	SPACER	START FRESH WATER SPACER	
10:29	0	0	0	0	CMT	SHUTDOWN/BATCH CMT # 15.2 PPG TEMP=67	
10:52	226	0	5.6	100	CMT	PRESSURE AND RATE CHECK	
11:34	216	0	4.8	148	CMT	PRESSURE AND RATE CHECK	
11:39						DROP PLUG START DISPLACEMENT	
11:47	83		5.5	115	H2O	CMT TO SURFACE	
12:30	382		2.6	109	H2O	FINAL DISPLACEMENT COUNT 224 PLUG DID NOT BUMP	
12:35						CHECKED FLOATS AND THE HELD	
12:40						SHUT HEAD IN AND STOPPED SERVICE	
						1105 SKS CMT USED	
						546 BBLs PUMPED ON SECOND DAY	
						THANK YOU FOR LETTING MASSILLON BAKER HUGHES SERVE YOU	

BUMPED PLUG	PSI TO BUMP PLUG	TEST FLOAT EQUIP.	BBL.CMT RETURNS/ REVERSED	TOTAL BBL PUMPED	PSI LEFT ON CSG	SPOT TOP OUT CEMENT	SERVICE SUPERVISOR SIGNATURE:
Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	0	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	74	546	0	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	

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Customer: NORTHEAST NATURAL ENERGY LLC	Date: 4/17/2017	Serv. Supervisor: Ronnie Helmick
Cust. Rep.: Jim Quesenberry	Ticket #: JWV1704-0020	Serv. Center: Jane Lew, WV
Lease: Fisher 2H	API Well #:	County: Monongalia State: WV
Well Type: Gas	Rig: Nabors X08	Type of Job: Intermediate Casing

Materials Furnished by C&J ENERGY SERVICES

Plugs		Casing Hardware		Physical Slurry Properties			
		Sacks of Cement	Fluid Dens (lb/gal)	Yield (cuft/sk)	Mix Water (gal/sk)	Fluid Volume (bbbls)	Mix Water (bbbls)
Spacer 1:	6% Gel		8.7			25	25
Spacer 2:							
Scavenger							
Lead							
Tail:	CJ910 + 1% CJ110	870	15.6	1.19	5.22	184	108

Displacement Chemicals:

OPEN HOLE DATA				TUBULAR DATA							
SIZE (in)	EXCESS (%)	DEPTH (ft)	TYPE (CSG/BADP)	OD (in)	WEIGHT (lbs/ft)	THREAD	DEPTH (ft)	GRADE	ID (in)	BURST (psi)	COLLAPSE (psi)
12 1/4	30	2689	Casing	9 5/8	40	STC	2680		8.84		

PREVIOUS CASING DATA				PERFORATED INTERVAL DATA				CASING EQUIPMENT DEPTHS			
SIZE (in)	WEIGHT (lbs/ft)	ID (in)	DEPTH (ft)	TOP	BTM	SPF	SIZE	SHOE	FLOAT	STAGE	ACP
13 3/8	54.5	12.61	1438					2689	2640		

WELL FLUID		DISPLACEMENT FLUID			DIFF PRESS (psi)	CSG LIFT (psi)	MAX PRESS (psi)	WATER ON LOC (bbl)
TYPE	DENSITY	VOLUME	TYPE	DENSITY				
water	8.3 ppg	200 bbl	Water	8.3 ppg	1012	1473	2000	1000

Time	Rate (bbl/min)	Csg. Press. (psi)	Tbg. Press (psi)	Ann. Press. (psi)	Stg. Vol. (bbl)	Cum. Vol. (bbl)	Stage Details
9:12 AM						0	Arrived on location. Rig was running 9 5/8 casing
10:00 AM						0	Requested location time
11:18 AM						0	spot trucks
11:30 AM						0	Rig up from pump to V door
12:16 PM						0	walt on Cameron to run landing joint
3:00 PM						0	finish rig up
3:30 PM						0	safety
4:00 PM		2000				0	pressure test
4:05 PM	2	60			15	15	water ahead/ rig circulated water prior
4:15 PM	5	145			25	40	gel
4:20 PM	5	130			15	55	water spacer
4:24 PM	5	300			188	243	cement @ 15.6 ppg
5:10 PM						243	shutdown drop plug
5:12 PM	7	600			198	441	displacement
5:45 PM		1300				441	plug landed
5:50 PM						441	floats held 1 bbl back
7:00 PM						441	rig up to grout
7:30 PM	1/2 bbl/min				4.7	445.7	used 4.7 bbls to top off
8:00 PM						445.7	rig down
						445.7	
9:00 PM						445.7	C&J released
						445.7	
						445.7	
						445.7	

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Left Yard	4/17/17 @ 7:00 am			Left Loc.			
Arrived Loc.	4/17/17 @ 9:00 am			Returned Yd			
Bumped Plug (psi)	Final Differential (psi)	Floats Held (Y/N)	PSI Left on Casing	Cement to Surface (bbl)	Full Circ. During Job (Y/N)	Max Pump Pressure (psi)	Ronnie Helmick Service Supervisor

CEMENT JOB REPORT



CUSTOMER NORTHEAST NATURAL ENER		DATE 03-MAY-17	F.R. # 10011219518	SERV. SUPV. Kevin Paugh									
LEASE & WELL NAME Fisher 2H 5.5" LONGSTRING - API 4706101751000		LOCATION		COUNTY-PARISH-BLOCK Monongalia West Virginia									
DISTRICT Clarksburg		DRILLING CONTRACTOR RIG # Nabors		TYPE OF JOB Long String									
SIZE & TYPE OF PLUGS	LIST-CSG-HARDWARE		MECHANICAL BARRIERS		MD TVD								
Cement Plug, Rubber, Top 5-1/2 in	Float Shoe 5-1/2 - 8rd												
MATERIALS FURNISHED BY BJ			LAB REPORT NO.			PHYSICAL SLURRY PROPERTIES							
			SACKS OF CEMENT	SLURRY WGT PPG	SLURRY YLD FT	WATER GPS	PUMP TIME HR:MIN	Bbl SLURRY	Bbl MIX WATER				
UltraBond 10				13.5				50					
50:50 Class A + Additives			2,839	14.5	1.19	5.18		599.63	349.85				
Fresh Water				8.34				322.67					
Sugar Water 150 LB				8.34				0					
Available Mix Water 1500 Bbl.		Available Displ. Fluid 500 Bbl.		TOTAL				972.30	349.85				
HOLE			TBG-CSG-D.P.				COLLAR DEPTHS						
SIZE	% EXCESS	DEPTH	ID	OD	WGT.	TYPE	MD	TVD	GRADE	SHOE	FLOAT	STAGE	
8.5		14592	4.778	5.5	20	CSG	14592	8260		14565	14523		
LAST CASING			PKR-CMT RET-BR PL-LINER			PERF. DEPTH		TOP CONN		WELL FLUID			
ID	OD	WGT	TYPE	MD	TVD	BRAND & TYPE	DEPTH	TOP	BTM	SIZE	THREAD	TYPE	WGT.
8.8	9.625	40	CSG	2652	2652					5.5	BUTTRES	SYNTHETIC MUD	12.4
DISPL. VOLUME		DISPL. FLUID		CAL. PSI	CAL. MAX PSI	OP. MAX	MAX TBG PSI		MAX CSG PSI		MIX WATER		
VOLUME	UOM	TYPE	WGT.	BUMP PLUG	TO REV.	SQ. PSI	RATED	Operator	RATED	Operator			
328	BBLs	Fresh Water	8.34	4000	0	0	0	0	10112	5050	TANK		

EXPLANATION: TROUBLE SETTING TOOL, RUNNING CSG, ETC. PRIOR TO CEMENTING:

PRESSURE/RATE DETAIL						EXPLANATION	
TIME HR:MIN.	PRESSURE - PSI		RATE BPM	Bbl. FLUID PUMPED	FLUID TYPE	EXPLANATION	
	PIPE	ANNULUS					
						SAFETY MEETING: BJ CREW <input checked="" type="checkbox"/> CO. REP. <input checked="" type="checkbox"/> MAY 31 2018	
						TEST LINES 7280 PSI	
						CIRCULATING WELL - RIG <input checked="" type="checkbox"/> BJ <input checked="" type="checkbox"/>	
01:30						ARRIVE ON LOCATION (LOC TIME 0200)	
02:30						SPOT EQUIPMENT	
02:40						PRE RIG IN SAFETY MEETING	
05:00						RIG IN	
05:25						SAFETY MEETING WITH CUSTOMER	
05:28	220		5	5	H2O	LINE FILL (DROP TOP PLUG)	
05:35	7280		1	1	H2O	PRESSURE TEST	
05:45						LOAD TOP PLUG	
05:50	748		5.5	10	ULTRABOI	SPACER	
05:55						SHUT DOWN LANDING JOINT LEAKING	
06:00	800		5.5	40	ULTRABOI	SPACER	
06:10	1510		7	607	SLURRY	PREM NE 1+15EC-1+.75 GAL/100SK FP-13L+.3% MPA-170+.375% R-3	
08:05						SHUT DOWN WASH LINES	
08:13						DROP BOTTOM PLUG	
08:15	3229		7		TREATED	DISPLACEMENT	
09:09	3950			328		PLUG DOWN	
09:14						RELEASE PSI 5 BBL RTN	
						H2O TEMP 56 / SLURRY TEMP 62	
						TOC 1250 FT	

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CEMENT JOB REPORT



PRESSURE/RATE DETAIL						EXPLANATION		
TIME HR:MIN.	PRESSURE - PSI		RATE BPM	Bbl. FLUID PUMPED	FLUID TYPE	SAFETY MEETING: BJ CREW <input checked="" type="checkbox"/> CO. REP. <input checked="" type="checkbox"/>		
	PIPE	ANNULUS				TEST LINES 7280 PSI		
						CIRCULATING WELL - RIG <input checked="" type="checkbox"/> BJ <input checked="" type="checkbox"/>		
BUMPED PLUG	PSI TO BUMP PLUG	TEST FLOAT EQUIP.	BBL.CMT RETURNS/ REVERSED	TOTAL BBL. PUMPED	PSI LEFT ON CSG	SPOT TOP OUT CEMENT	SERVICE SUPERVISOR SIGNATURE:	
<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	3950	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N	0	1002	0	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N		

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Perforation Record

Stage No.	Report Date	Perforated from MD Ft.	Perforated to MD ft.	Number of Perforations	Formation
1	6/22/2017	14,472	14,350	40	Marcellus
2	6/22/2017	14,322	14,201	40	Marcellus
3	6/22/2017	14,023	14,051	40	Marcellus
4	6/22/2017	14,023	13,902	40	Marcellus
5	6/22/2017	13,874	13,752	40	Marcellus
6	6/23/2017	13,724	13,602	40	Marcellus
7	6/23/2017	13,574	13,453	40	Marcellus
8	6/23/2017	13,425	13,303	40	Marcellus
9	6/24/2017	13,275	13,154	40	Marcellus
10	6/24/2017	13,126	13,004	40	Marcellus
11	6/24/2017	12,976	12,855	40	Marcellus
12	6/25/2017	12,827	12,705	40	Marcellus
13	6/25/2017	12,677	12,556	40	Marcellus
14	6/25/2017	12,528	12,406	40	Marcellus
15	6/25/2017	12,378	12,256	40	Marcellus
16	6/26/2017	12,236	12,107	40	Marcellus
17	6/26/2017	12,079	11,957	40	Marcellus
18	6/26/2017	11,929	11,808	40	Marcellus
19	6/27/2017	11,780	11,658	40	Marcellus
20	6/27/2017	11,630	11,509	40	Marcellus
21	6/27/2017	11,481	11,359	40	Marcellus
22	6/27/2017	11,331	11,209	40	Marcellus
23	6/28/2017	11,182	11,060	40	Marcellus
24	6/28/2017	11,032	10,910	40	Marcellus
25	6/28/2017	10,882	10,761	40	Marcellus
26	6/29/2017	10,733	10,611	40	Marcellus
27	6/29/2017	10,583	10,462	40	Marcellus
28	6/30/2017	10,284	10,312	40	Marcellus
29	6/30/2017	10,284	10,163	40	Marcellus
30	6/30/2017	10,135	10,015	40	Marcellus
31	6/30/2017	9,985	9,863	40	Marcellus
32	6/30/2017	9,836	9,714	40	Marcellus
33	6/30/2017	9,686	9,564	40	Marcellus
34	7/1/2017	9,536	9,415	40	Marcellus
35	7/1/2017	9,387	9,265	40	Marcellus
36	7/1/2017	9,237	9,116	40	Marcellus
37	7/1/2017	9,088	8,966	40	Marcellus
38	7/1/2017	8,938	8,817	40	Marcellus
39	7/2/2017	8,789	8,667	40	Marcellus

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Stimulation Report

<u>Stage No.</u>	<u>Report Date</u>	<u>Avg Treating Rate (BPM)</u>	<u>Avg Treating Pressure (psi)</u>	<u>Breakdown Pressure (psi)</u>	<u>ISIP (psi)</u>	<u>Total Amount of Proppant (lbs)</u>	<u>Total Clean Fluid (Bbls)</u>
1	6/22/2017	77	8,577	7,716	5,574	400,994	7,651
2	6/22/2017	77	8,601	7,013	5,674	401,042	7,757
3	6/22/2017	78	8,763	7,733	5,893	400,874	7,758
4	6/22/2017	80	8,679	7,611	5,771	399,383	7,789
5	6/22/2017	80	8,642	8,045	6,368	402,791	7,408
6	6/23/2017	80	8,563	8,673	6,248	403,567	7,613
7	6/23/2017	80	8,653	8,476	6,407	398,110	7,465
8	6/23/2017	78	8,841	8,023	6,466	401,423	9,740
9	6/24/2017	78	8,635	7,622	6,440	399,160	8,237
10	6/24/2017	79	8,331	7,664	6,138	401,132	7,180
11	6/24/2017	79	8,272	7,631	5,942	398,806	7,357
12	6/25/2017	79	8,349	7,616	5,925	400,525	7,453
13	6/25/2017	80	8,269	8,220	6,084	398,424	6,976
14	6/25/2017	80	8,457	7,951	6,433	399,400	6,964
15	6/25/2017	80	8,342	7,620	6,268	400,527	7,383
16	6/26/2017	79	8,481	7,706	6,334	400,799	7,200
17	6/26/2017	80	8,484	7,411	6,097	398,436	7,196
18	6/26/2017	78	8,372	7,661	6,245	400,515	7,259
19	6/27/2017	78	8,593	7,795	6,413	400,067	7,335
20	6/27/2017	80	8,531	7,646	6,366	398,604	6,984
21	6/27/2017	80	8,415	7,821	5,819	397,114	6,950
22	6/27/2017	80	8,298	7,820	5,982	399,510	7,260
23	6/28/2017	80	8,441	7,896	5,859	398,213	7,111
24	6/28/2017	79	8,240	8,042	5,907	395,558	6,978
25	6/28/2017	78	8,599	8,282	6,075	363,619	7,306
26	6/29/2017	80	8,631	8,522	5,932	400,389	6,999
27	6/29/2017	80	8,768	8,502	6,940	400,339	7,110
28	6/30/2017	81	8,639	8,509	6,021	401,000	7,308
29	6/30/2017	80	8,488	8,343		399,052	6,993
30	6/30/2017	81	8,376	8,103	6,126	400,256	6,999
31	6/30/2017	80	8,243	7,668	5,836	399,670	6,745
32	6/30/2017	80	8,216	8,426	6,212	400,331	6,925
33	6/30/2017	80	8,416	8,035	6,280	399,695	6,934
34	7/1/2017	81	8,391	8,202	5,848	400,316	7,553
35	7/1/2017	77	8,335	8,439	5,599	400,239	7,165
36	7/1/2017	80	8,421	7,801	5,475	400,322	6,873
37	7/1/2017	79	8,223	8,280	5,531	400,313	6,820
38	7/1/2017	78	8,576	8,211	5,736	400,524	7,532
39	7/2/2017	81	8,451	7,797	5,989	399,847	6,930

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Formation and Depths					
Lithology/Formation	Top Depth in FT Name TVD	Bottom Depth in FT TVD	Top Depth in FT MD	Bottom Depth in FT MD	Describe rock type and record quantity and type of fluid (freshwater, brine, oil, gas, H2S, etc)
Gray Sand/Shale	0	245			sand/shale
Gray/Red Shale	245	335			shale
Gray Sand	335	350			sand
Coal	350	355			coal
Sand	355	375			sand
Coal	375	380			coal
Sand/Shale	380	1056			sand/shale
Coal	1056	1066			coal
Sand/Shale	1066	1135			sand/shale
Gray/Red Shale	1135	1670			shale
Sand	1670	1864			sand
Coal	1884	1890			coal
Sand/Shale	1890	1920			sand/shale
Coal	1920	1930			coal
Sand/shale	1930	2480			sand/shale
Sand	2480	2680			sand
Sand/shale	2680	3600			sand/shale
Sandstone/Shale/Siltstone	3600	6300			sandstone/shale/siltstone
Middlesex	7574	7787	7649	7901	shale
Burkett	7787	7973	7901	8129	shale
Geneseo	7973	8006	8129	8177	shale
Tully	8006	8065	8177	8251	limestone
Hamilton	8065	8172	8251	8435	shale
Marcellus	8172	8222	8435	8565	shale
Cherry Valley	8222	8226	8565	8576	limestone
Lower Marcellus	8226		8576		shale

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	7/2/2017
Job End Date:	7/21/2017
State:	West Virginia
County:	Monongalia
API Number:	47-061-01751-00-00
Operator Name:	Northeast Natural Energy LLC
Well Name and Number:	Fisher 2H
Latitude:	39.69611800
Longitude:	-80.21368900
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	8,293
Total Base Water Volume (gal):	12,256,986
Total Base Non Water Volume:	0

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Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier					
			Water	7732-18-5	100.00000	86.34815	
Other Chemical (s)	BJ Services	See Trade Name (s) List					
			Water	7732-18-5	92.50000	42.35570	

Sand, White	BJ Services	Proppant					
				Listed Below			
HCl, 5.1 - 7.5%	BJ Services	Acidizing					
				Listed Below			
MaxPerm 30	BJ Services	Friction Reducer					
				Listed Below			
Ferrotrol 300L	BJ Services	Iron Control					
				Listed Below			
CI-14	BJ Services	Corrosion Inhibitor					
				Listed Below			
GBW-5	BJ Services	Breaker					
				Listed Below			
K-139	Nalco-Champion	Microbial Control					
				Listed Below			
EC6486A	Nalco-Champion	Scale Inhibitor					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Crystalline Silica (Quartz)	14808-60-7	100.00000	13.13925	
			Hydrochloric Acid	7647-01-0	7.50000	0.03185	

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		Acrylamide Modified Acrylic Polymer	38193-60-1	60.00000	0.02924	
		Petroleum distillates	64742-47-8	30.00000	0.01462	
		Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	35.00000	0.00486	
		Sorbic, mono-(9Z)-9octadecenoate	1338-43-8	5.00000	0.00244	
		Sorbitan monooleate ethoxylate	9005-65-6	5.00000	0.00244	
		Oxyalkylated Alcohol	78330-21-9	5.00000	0.00244	
		Sodium Chloride	7647-14-5	5.00000	0.00244	
		Glutaraldehyde	111-30-8	10.00000	0.00191	
		Citric Acid	77-92-9	60.00000	0.00186	
		Ethylene Glycol	107-21-1	30.00000	0.00140	
		Amine Triphosphate	Proprietary	30.00000	0.00126	
		Methanol	67-56-1	100.00000	0.00072	
		Ethanol	64-17-5	5.00000	0.00066	
		Acetic acid	127-08-2	1.00000	0.00049	
		Polyoxyalkylenes	68951-67-7	30.00000	0.00022	
		Fatty Acids	61790-12-3	1.20000	0.00007	
		Modified Thiourea Polymer	68527-49-1	7.00000	0.00005	
		Acetic acid, Potassium Salt	64-19-7	0.10000	0.00005	
		Tetrasodium EDTA	64-02-8	0.10000	0.00005	
		Propargyl Alcohol	107-19-7	5.00000	0.00004	
		Olefin	64743-02-8	5.00000	0.00004	
		Formaldehyde	50-00-0	1.00000	0.00001	
		Ammonium Persulfate	7727-54-0	100.00000	0.00000	

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- * Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water
 - ** Information is based on the maximum potential for concentration and thus the total may be over 100%
 - *** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line
- Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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SURFACE HOLE DEC. LONG: 80.213895
 SURVEYED LONG: 80° 12' 50.0"

Latitude: 39° 42' 30" (NAD27)

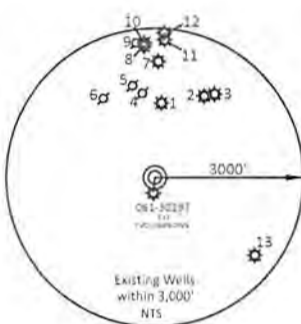
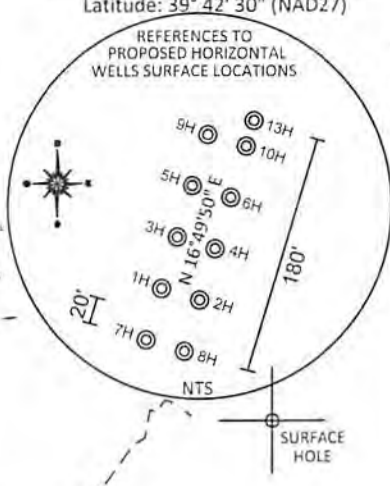
Longitude: 80° 12' 30" (NAD27)

AS-DRILLED



TOP HOLE (UTM NAD 83)
 N) 4394325.7
 E) 567416.2

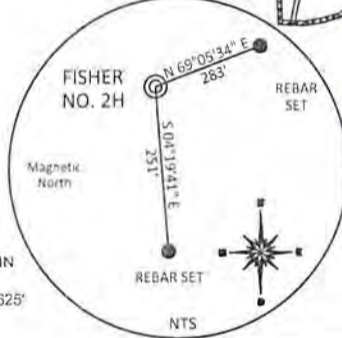
BOTTOM HOLE (UTM NAD 83)
 N) 4392636.5
 E) 568522.7



- Existing Wells within 3,000' NTS
- WELL REFERENCE (API#, DISTANCE TO WELL)
- 061-30132
 - 061-70251
 - 061-30014
 - 061-71046
 - 061-30120
 - PLUGGED FOUND IN FIELD
 - 061-71042
 - 061-30130
 - PLUGGED FOUND IN FIELD
 - 061-71043
 - 061-01594
 - 061-01568
 - 061-71096

REFERENCE NOTES
 Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records MONONGALIA County, West Virginia MAY 2016
 State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS
 Drafted by: E.A.M.

NOTE:
 NO WATER WELLS WERE FOUND WITHIN 250' OF THE CENTER OF WELL PAD.
 NO DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF WELL PAD.

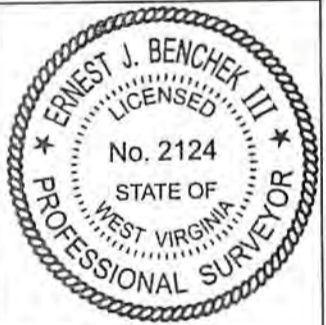


WELL (BOTTOM HOLE) FISHER 2H
 WV N (NAD 83)
 UTM (NAD 83)
 N) 4392635.7
 E) 568521.9

FILE #: NNE14
 DRAWING #: 2384
 SCALE: PLAT: 1" = 1400'
TICK: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/200
 PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

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



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

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

WATERSHED: DUNKARD CREEK
 COUNTY/DISTRICT: MONONGALIA / CLAY
 SURFACE OWNER: AARON K. FISHER
 OIL & GAS ROYALTY OWNER: HENRY P. AMES, III, ET AL
 LEASE NUMBERS: _____

TARGET FORMATION: MARCELLUS
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

DATE: APRIL 13, 2018
 OPERATOR'S WELL #: FISHER NO. 2H
 API WELL #: 47 61
 STATE COUNTY PERMIT

AS-BUILT ELEVATION: 1,453'
 QUADRANGLE: BLACKSVILLE
 ACREAGE: 52.203 +/-
 ACREAGE: 562.9188 **07/20/2018**

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

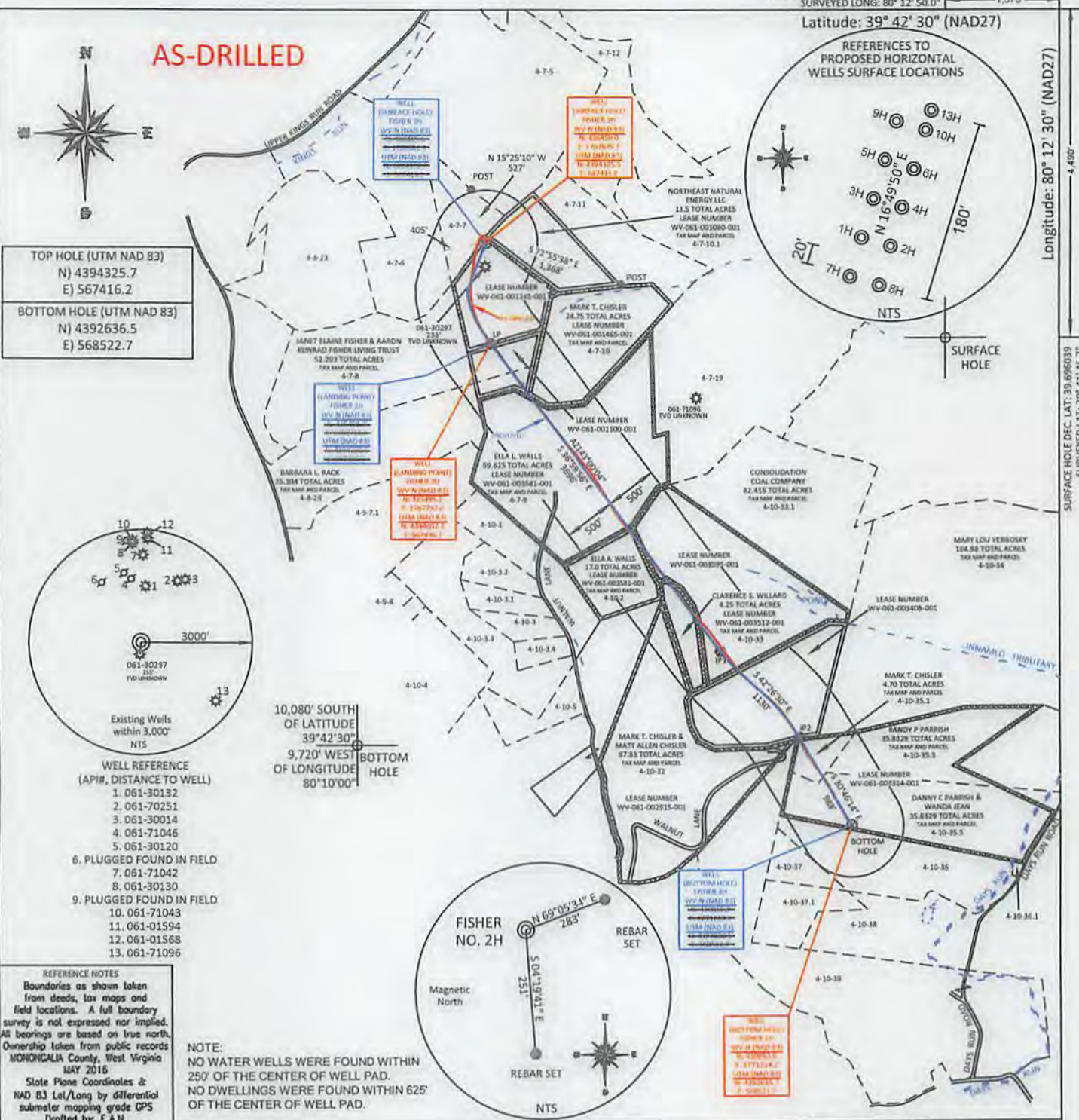
ESTIMATED DEPTH: TVD: 8,293.36' TMD: 14,591'
 DESIGNATED AGENT: JOHN ADAMS
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

SURFACE HOLE DEC. LONG: 80.21385 SURVEYED LONG: 80° 12' 50.0" Longitude: 80° 12' 30" (NAD27)

AS-DRILLED

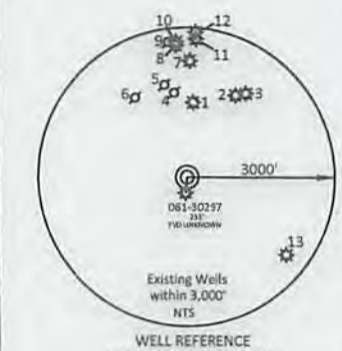
Latitude: 39° 42' 30" (NAD27)

REFERENCES TO PROPOSED HORIZONTAL WELLS SURFACE LOCATIONS



TOP HOLE (UTM NAD 83)
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E) 567416.2

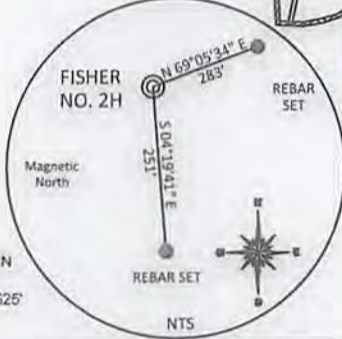
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N) 4392636.5
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 - 061-01568
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Drafted by: E.A.M.

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601 57TH STREET
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 Gas Liquid Injection Storage Shallow

WATERSHED: DUNKARD CREEK AS-BUILT ELEVATION: 1,453'

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SURFACE OWNER: AARON K. FISHER ACREAGE: 52.203 +/-

OIL & GAS ROYALTY OWNER: HENRY P. AMES, III, ET AL ACREAGE: 562.9188 +

LEASE NUMBERS: _____

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

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ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
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07/20/2018