

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

API 47-033-05820 County Harrison District Clark
Quad Wolf Summit Pad Name Goff East Field/Pool Name _____
Farm name Cather, H Dotson Trustee Well Number 18HM
Operator (as registered with the OOG) PDC Mountaineer, LLC
Address 6031 Wallace Road Extension, Suite 300 City Wexford State PA Zip 15090

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,347,794 Easting 553,867
Landing Point of Curve Northing 4,347,313 Easting 553,957
Bottom Hole Northing 4,348,800 Easting 553,404

Elevation (ft) 1127' 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 Oil-based Mud

Date permit issued 9/26/2015 Date drilling commenced 3/16/2015 Date drilling ceased 3/26/2015
Date completion activities began 5/20/2015 Date completion activities ceased 5/25/2015
Verbal plugging (Y/N) N Date permission granted NA Granted by NA

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

Freshwater depth(s) ft 25' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 749' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 500' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) Y

APPROVED

NAME: Sam Ward
DATE: 8/17/2017

Reviewed by:
[Signature]

09/15/2017

API 47- 033 - 05820 Farm name Cather, H Dotson Trustee Well number 18HM

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"	60'	New	94.00	N/A	Y
Surface	17.5"	13 3/8"	670'	New	48	N/A	Y
Coal							
Intermediate 1	12 1/4"	9 5/8"	2559'	New	40.00	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	12115'	New	20.00	N/A	Y
Tubing							
Packer type and depth set							

Comment Details _____

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	Grout						
Surface	Class A 2% CaCl ₂	500	15.6	1.18	450.14	Surface	8
Coal							
Intermediate 1	Class A	791	15.6	1.18	880.08	Surface	8
Intermediate 2							
Intermediate 3							
Production	Type 1 4% Gel/Type 1 2% Gel	719/1053	13.8/15.0	1.64/1.32	2569.12	2700'	8
Tubing							

Drillers TD (ft) 12115' Loggers TD (ft) 12115'
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 5844' MD

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 _____

13 3/8": 1 bow spring centralizer placed on every joint

9 5/8": 1 bow spring centralizer placed on every third joint

5 1/2": 1 rigid poly centralizer every joint in the lateral, 1 rigid poly centralizer every other joint through the curve, 1 rigid poly centralizer every third joint from kick off point to estimated TOC

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS 22 stages, 880 perforations

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

API 47- 033 - 05820 Farm name Cather, H Dotson Trustee Well number 18HM

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	See Attached				

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
			See Attached					

Please insert additional pages as applicable.

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
22	5/25/2015 10:14	7,653.00	7,655.00	40	Marcellus Shale
22	5/25/2015 10:13	7,693.00	7,695.00	40	Marcellus Shale
22	5/25/2015 10:13	7,733.00	7,735.00	40	Marcellus Shale
22	5/25/2015 10:13	7,773.00	7,775.00	40	Marcellus Shale
22	5/25/2015 10:12	7,813.00	7,815.00	40	Marcellus Shale
21	5/25/2015 6:20	7,853.00	7,855.00	40	Marcellus Shale
21	5/25/2015 6:19	7,893.00	7,895.00	40	Marcellus Shale
21	5/25/2015 6:18	7,933.00	7,935.00	40	Marcellus Shale
21	5/25/2015 6:17	7,973.00	7,975.00	40	Marcellus Shale
21	5/25/2015 6:16	8,013.00	8,015.00	40	Marcellus Shale
20	5/25/2015 1:51	8,053.00	8,055.00	40	Marcellus Shale
20	5/25/2015 1:50	8,093.00	8,095.00	40	Marcellus Shale
20	5/25/2015 1:49	8,133.00	8,135.00	40	Marcellus Shale
20	5/25/2015 1:48	8,173.00	8,175.00	40	Marcellus Shale
20	5/25/2015 1:47	8,213.00	8,215.00	40	Marcellus Shale
19	5/24/2015 19:59	8,253.00	8,255.00	40	Marcellus Shale
19	5/24/2015 19:58	8,293.00	8,295.00	40	Marcellus Shale
19	5/24/2015 19:57	8,333.00	8,335.00	40	Marcellus Shale
19	5/24/2015 19:56	8,373.00	8,375.00	40	Marcellus Shale
19	5/24/2015 19:55	8,413.00	8,415.00	40	Marcellus Shale
18	5/24/2015 14:10	8,453.00	8,455.00	40	Marcellus Shale
18	5/24/2015 14:09	8,493.00	8,495.00	40	Marcellus Shale
18	5/24/2015 14:08	8,533.00	8,535.00	40	Marcellus Shale
18	5/24/2015 14:07	8,573.00	8,575.00	40	Marcellus Shale
18	5/24/2015 14:06	8,613.00	8,615.00	40	Marcellus Shale
17	5/24/2015 8:56	8,653.00	8,655.00	40	Marcellus Shale
17	5/24/2015 8:55	8,693.00	8,695.00	40	Marcellus Shale
17	5/24/2015 8:54	8,733.00	8,735.00	40	Marcellus Shale
17	5/24/2015 8:53	8,773.00	8,775.00	40	Marcellus Shale
17	5/24/2015 8:52	8,813.00	8,815.00	40	Marcellus Shale
16	5/24/2015 4:03	8,853.00	8,855.00	40	Marcellus Shale
16	5/24/2015 4:02	8,893.00	8,895.00	40	Marcellus Shale
16	5/24/2015 4:01	8,933.00	8,935.00	40	Marcellus Shale
16	5/24/2015 3:59	8,973.00	8,975.00	40	Marcellus Shale
16	5/24/2015 3:58	9,013.00	9,015.00	40	Marcellus Shale
15	5/23/2015 22:33	9,053.00	9,055.00	40	Marcellus Shale
15	5/23/2015 22:32	9,093.00	9,095.00	40	Marcellus Shale
15	5/23/2015 22:31	9,133.00	9,135.00	40	Marcellus Shale
15	5/23/2015 22:30	9,173.00	9,175.00	40	Marcellus Shale
15	5/23/2015 22:29	9,213.00	9,215.00	40	Marcellus Shale
14	5/23/2015 18:04	9,253.00	9,255.00	40	Marcellus Shale
14	5/23/2015 18:03	9,293.00	9,295.00	40	Marcellus Shale
14	5/23/2015 18:02	9,333.00	9,335.00	40	Marcellus Shale
14	5/23/2015 18:01	9,373.00	9,375.00	40	Marcellus Shale
14	5/23/2015 18:00	9,413.00	9,415.00	40	Marcellus Shale

13	5/23/2015 12:10	9,453.00	9,455.00	40	Marcellus Shale
13	5/23/2015 12:09	9,493.00	9,495.00	40	Marcellus Shale
13	5/23/2015 12:08	9,533.00	9,535.00	40	Marcellus Shale
13	5/23/2015 12:07	9,573.00	9,575.00	40	Marcellus Shale
13	5/23/2015 12:06	9,613.00	9,615.00	40	Marcellus Shale
12	5/23/2015 6:46	9,653.00	9,655.00	40	Marcellus Shale
12	5/23/2015 6:45	9,693.00	9,695.00	40	Marcellus Shale
12	5/23/2015 6:44	9,733.00	9,735.00	40	Marcellus Shale
12	5/23/2015 6:43	9,773.00	9,775.00	40	Marcellus Shale
12	5/23/2015 6:42	9,813.00	9,815.00	40	Marcellus Shale
11	5/23/2015 0:05	9,853.00	9,855.00	40	Marcellus Shale
11	5/23/2015 0:04	9,893.00	9,895.00	40	Marcellus Shale
11	5/23/2015 0:03	9,933.00	9,935.00	40	Marcellus Shale
11	5/23/2015 0:02	9,973.00	9,975.00	40	Marcellus Shale
11	5/23/2015 0:01	10,013.00	10,015.00	40	Marcellus Shale
10	5/22/2015 17:45	10,053.00	10,055.00	40	Marcellus Shale
10	5/22/2015 17:44	10,093.00	10,095.00	40	Marcellus Shale
10	5/22/2015 17:43	10,133.00	10,135.00	40	Marcellus Shale
10	5/22/2015 17:42	10,173.00	10,175.00	40	Marcellus Shale
10	5/22/2015 17:41	10,213.00	10,215.00	40	Marcellus Shale
9	5/22/2015 12:22	10,253.00	10,255.00	40	Marcellus Shale
9	5/22/2015 12:21	10,293.00	10,295.00	40	Marcellus Shale
9	5/22/2015 12:20	10,333.00	10,335.00	40	Marcellus Shale
9	5/22/2015 12:19	10,373.00	10,375.00	40	Marcellus Shale
9	5/22/2015 12:18	10,413.00	10,415.00	40	Marcellus Shale
8	5/22/2015 6:18	10,453.00	10,455.00	40	Marcellus Shale
8	5/22/2015 6:17	10,493.00	10,495.00	40	Marcellus Shale
8	5/22/2015 6:16	10,533.00	10,535.00	40	Marcellus Shale
8	5/22/2015 6:15	10,573.00	10,575.00	40	Marcellus Shale
8	5/22/2015 6:14	10,613.00	10,615.00	40	Marcellus Shale
7	5/21/2015 0:24	10,653.00	10,655.00	40	Marcellus Shale
7	5/21/2015 0:23	10,693.00	10,695.00	40	Marcellus Shale
7	5/21/2015 0:22	10,733.00	10,735.00	40	Marcellus Shale
7	5/21/2015 0:21	10,773.00	10,775.00	40	Marcellus Shale
7	5/21/2015 0:20	10,813.00	10,815.00	40	Marcellus Shale
6	5/21/2015 19:31	10,853.00	10,855.00	40	Marcellus Shale
6	5/21/2015 19:30	10,893.00	10,895.00	40	Marcellus Shale
6	5/21/2015 19:29	10,933.00	10,935.00	40	Marcellus Shale
6	5/21/2015 19:28	10,973.00	10,975.00	40	Marcellus Shale
6	5/21/2015 19:27	11,013.00	11,015.00	40	Marcellus Shale
5	5/21/2015 14:21	11,053.00	11,055.00	40	Marcellus Shale
5	5/21/2015 14:20	11,093.00	11,095.00	40	Marcellus Shale
5	5/21/2015 14:19	11,133.00	11,135.00	40	Marcellus Shale
5	5/21/2015 14:18	11,173.00	11,175.00	40	Marcellus Shale
5	5/21/2015 14:17	11,213.00	11,215.00	40	Marcellus Shale
4	5/21/2015 6:05	11,253.00	11,255.00	40	Marcellus Shale
4	5/21/2015 6:04	11,293.00	11,295.00	40	Marcellus Shale

4	5/21/2015 6:03	11,333.00	11,335.00	40	Marcellus Shale
4	5/21/2015 6:02	11,373.00	11,375.00	40	Marcellus Shale
4	5/21/2015 6:01	11,413.00	11,415.00	40	Marcellus Shale
3	5/20/2015 23:59	11,453.00	11,455.00	40	Marcellus Shale
3	5/20/2015 23:58	11,493.00	11,495.00	40	Marcellus Shale
3	5/20/2015 23:57	11,533.00	11,535.00	40	Marcellus Shale
3	5/20/2015 23:56	11,573.00	11,575.00	40	Marcellus Shale
3	5/20/2015 23:55	11,613.00	11,615.00	40	Marcellus Shale
2	5/20/2015 19:05	11,653.00	11,655.00	40	Marcellus Shale
2	5/20/2015 19:04	11,693.00	11,695.00	40	Marcellus Shale
2	5/20/2015 19:03	11,733.00	11,735.00	40	Marcellus Shale
2	5/20/2015 19:02	11,773.00	11,775.00	40	Marcellus Shale
2	5/20/2015 19:01	11,813.00	11,815.00	40	Marcellus Shale
1	5/20/2015 19:01	11,856.00	11,862.00	40	Marcellus Shale
1	5/20/2015 19:01	11,908.00	11,914.00	40	Marcellus Shale
1	5/20/2015 19:01	11,960.00	11,966.00	40	Marcellus Shale
1	5/20/2015 19:01	12,012.00	12,018.00	40	Marcellus Shale

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of N/Other (units)
1	5/20/15	71	7,081.00	0	4882	401750	10294	NA
2	5/20/15	78.4	7,494.00	7553	5261	357970	10027	NA
3	5/21/15	82.2	7,642.00	7409	5779	400940	8468	NA
4	5/21/15	68.1	7,574.00	7058	5318	401060	10310	NA
5	5/21/15	75.8	7,491.00	6345	5301	400000	8392	NA
6	5/21/15	78	7,494.00	6961	5165	400380	7519	NA
7	5/22/15	78.9	7,609.00	7421	5359	401320	9461	NA
8	5/22/15	79.3	7,764.00	7111	5501	400880	7676	NA
9	5/22/15	79.1	7,824.00	6613	5243	402880	7782	NA
10	5/22/15	80.9	7,719.00	6877	5854	400940	7858	NA
11	5/23/15	72	7,487.00	8168	5940	314460	9562	NA
12	5/23/15	80	7,880.00	7535	5479	403220	8243	NA
13	5/23/15	78.5	7,528.00	6748	5879	400920	7790	NA
14	5/23/15	88.7	7,704.00	7263	5226	400740	7618	NA
15	5/24/15	84	7,418.00	6783	5310	400840	8442	NA
16	5/24/15	80.1	7,188.00	7054	5363	401760	7506	NA
17	5/24/15	82.1	7,340.00	6865	5542	400100	7475	NA
18	5/24/15	78.7	7,467.00	7578	5003	400160	9779	NA
19	5/24/15	77.9	7,225.00	7305	4940	402920	7645	NA
20	5/25/15	79.2	7,357.00	7408	5130	360980	9423	NA
21	5/25/15	81	7,290.00	6687	5105	404040	8087	NA
22	5/25/15	79.2	7,317.00	7257	5726	406020	9394	NA

API 47- 033 - 05820 Farm name Cather, H Dotson Trustee Well number 18HM

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	7111	TVD 12115 MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

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

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, H ₂ S, ETC)
Sands, Silts, and Coals	0	1817	0	1820	Sand, Silt, and Coal
Big Lime	1817	1876	1820	1879	Sandstone
Balltown	3599	3641	3608	3650	Sandstone
Bradford	4332	4361	4341	4371	Sandstone
Benson	4906	4973	4915	4982	Sandstone
Elk	5190	5248	5199	5257	Siltstone
Burkett	6789	6809	7078	7101	Shale
Tully	6809	6876	7101	7182	Limestone
Mahantango	6876	7012	7182	7406	Shale
Marcellus	7012	7111	7406	12115	Shale-Gas shows through lateral
Purcell	7076	7079	7606	7611	Limestone
Onondaga	7111		N/A*		Limestone
					* Onondaga MD not based lateral drilled in Marcellus** Onondaga top is estimated of thickness from offset 4703305741
					** Big Lime-Elk tops taken from offset 4703305741 Pilot, Burkett-Purcell taken from Goff East 18HM mudlog

Please insert additional pages as applicable.

Drilling Contractor Sidewinder Drilling
Address 952 Echo Land, Suite 460 City Houston State TX Zip 77024

Logging Company NA
Address _____ City _____ State _____ Zip _____

Cementing Company Universal Well Services
Address 18380 Technology Dr Box 4 City Meadville State PA Zip 16335

Stimulating Company USWS
Address 2121 Sage Road City Houston State TX Zip 77056

Please insert additional pages as applicable.

Completed by Zach Allman Telephone 724-940-1200
Signature [Signature] Title Senior Completions Engineer Date 8/15/17

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

WELL OPERATOR: BDC MOUNTAINEER, LLC
 DESIGNATED AGENT: STEVEN P. JOHNSON
 ADDRESS: 120 GENESIS BOULEVARD BRIDGEPORT, WV 26330

WELL TYPE: OIL
 TYPE OF WELL: LIQUID
 WASTE DISPOSAL: GAS X INJECTION
 PRODUCTION: DEEP X
 STORAGE: SHALLOW X

PROPOSED WORK:
 DRILL X CONVERT
 DRILL DEEPER
 REDRILL
 FRACTURE OR STIMULATE X
 PLUG OFF OLD
 PLUG AND ABANDON
 CLEAN OUT AND REPLUG
 OTHER

PHYSICAL CHANGE IN WELL (SPECIFY):
 FORMATION: PERFORATE NEW FORMATION
 TARGET FORMATION: MARGELLUS
 ESTIMATED DEPTH: 7,089' TVD / TMD 14,038'

COUNTY NAME: PERMIT

SURFACE OWNER: H. DOTSON GATHER TRUSTEE
 ROYALTY OWNER: H. DOTSON GATHER TRUSTEE ETAL
 DISTRICT: CLARK
 COUNTY: HARRISON
 QUADRANGLE: WOLF SUMMIT 7.5
 ACREAGE: 404.344
 ACREAGE: 1087.7

WATERSHED: WEST FORK RIVER

ELEVATION: 1,129'
 LOCATION: GROUND PROPOSED 1,129'
 WEST FORK RIVER

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

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

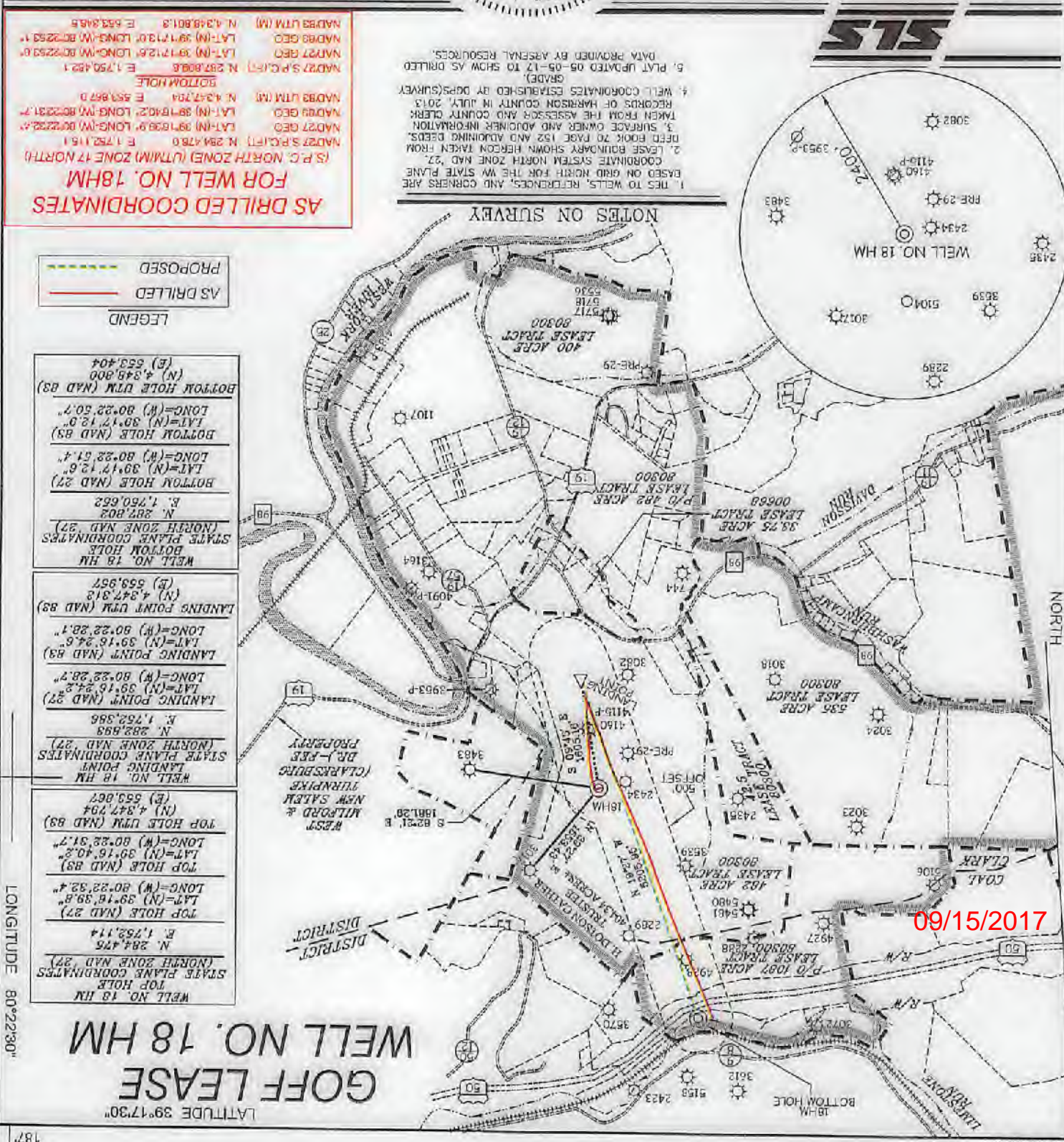
MINIMUM DEGREE OF ACCURACY: 1 / 200
 FILE NO.: 8099P18R2(475-70)
 SCALE: 1" = 2,000'

PROVEN SOURCE OF ELEVATION: DGPS (SUBMETER MAPPING GRADE)

P.S. 677
 GREGORY A. SMITH
 LICENSED PROFESSIONAL SURVEYOR
 STATE OF WEST VIRGINIA
 No. 677

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND BY THE DIVISION OF ENVIRONMENTAL PROTECTION

DATE: MARCH 9, 2013
 UPDATED: MAY 7, 2017
 OPERATORS WELL NO.: GOFF 18HM
 AP# 47
 WELL NO. 47
 COUNTY: 33
 PERMIT NO.: 05830



Gregory A. Smith

09/15/2017

BRIDGEPORT, WV 26330 ADDRESS 130 GENESIS BOULEVARD
 BRIDGEPORT, WV 26330 ADDRESS 130 GENESIS BOULEVARD
 MEGG OPERATOR BDC MOUNTAINEERS, LLC DESIGNATED AGENT STEVEN P. JOHNSON

ESTIMATED DEPTH 1,089.1 TD TMD 14,038.
 PHYSICAL CHANGE IN MEGG (SPECIES) TARGET FORMATION MARCELLUS
 FORMATION BEFOVATE NEW FORMATION BONE AND ABANDON CLEAN OUT AND BEYOND OTHER
 DRIFT COLLIER DRIFT DEEPER BEDDING FRACTURE OR STIMULATE BONE OFF OLD

PROPOSED WORK: LEASE NO. _____
 BOVATLY OWNER H. DOLSON CATHER TRUSTEE ETAL ACREAGE 108.7
 SURFACE OWNER H. DOLSON CATHER TRUSTEE ACREAGE 104.344
 DISTRICT CLARK COUNTY HARRISON SQUAREMILE 106.7
 ELEVATION 1,158, 1,158, WATERSHED WEST FORK RIVER
 LOCATION: GROUPID PROPOSED
 TYPE: OIL GAS INJECTION DISPOSAL GAS PRODUCTION STORAGE DEEP SHAFTLOW
 MEGG LIQUID MAGLE IF

OF ELEVATION ABOVE SOURCE DCBS (SUBMETER MAPPING GRADE)
 OF ACCURACY 1:300 SCALE 1" = 5,000'
 MINIMUM DEGREE FIGE NO. 808861883(412-10)

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



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

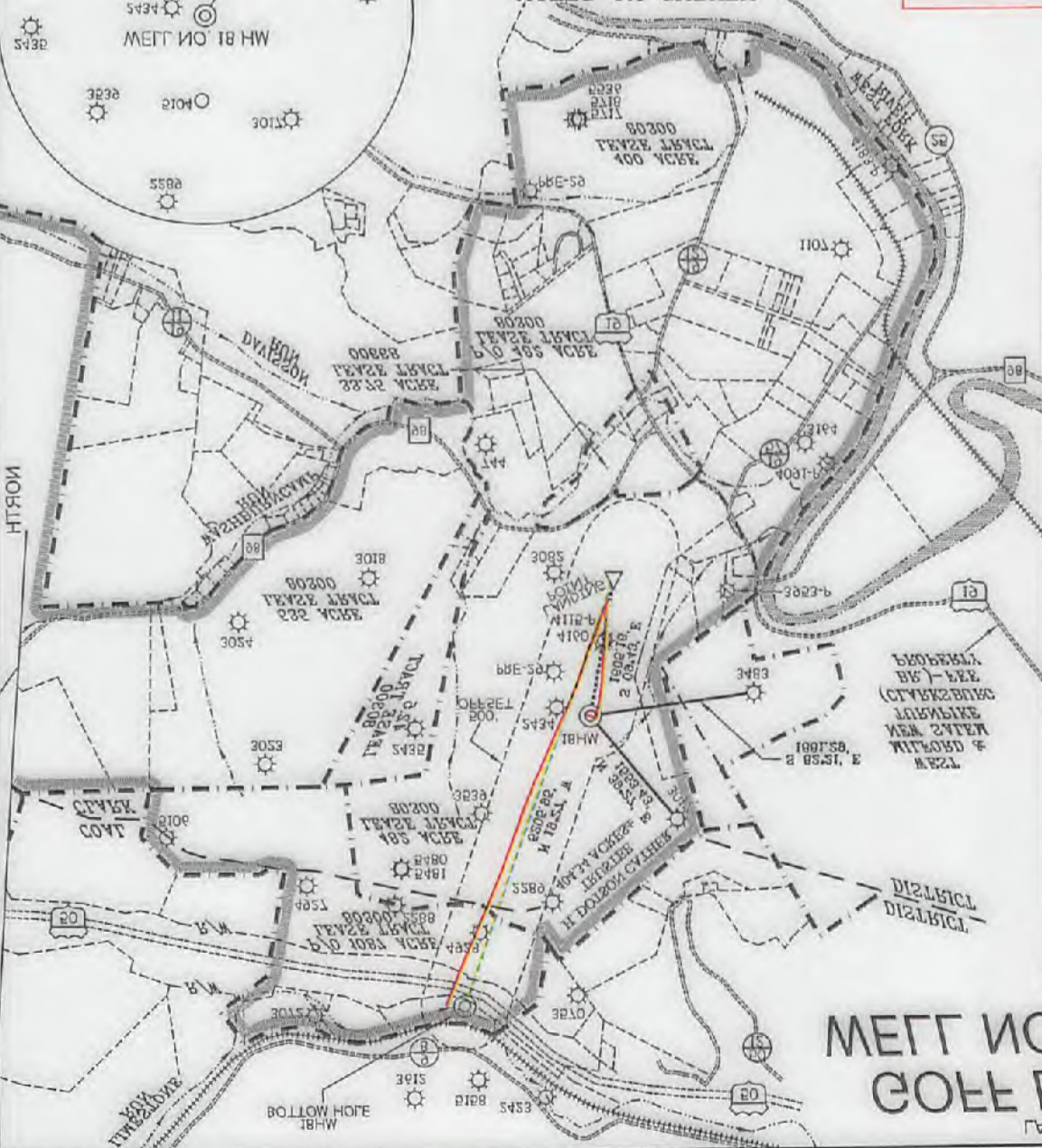


STATE COUNTY PERMIT
 NO. 14 - 33 - 02890
 OPERATORS MEGG NO. COFF 18HW
 UPDATED MAY 1 '13
 DATE MARCH 9 '13
 STATES TOPOGRAPHIC MAPS
 (+) DENOTES LOCATION OF MEGG ON PILED



NOTES ON SURVEY
 ONLY PROVIDED BY VISUAL RESOURCES
 2. DATA PROVIDED 02-02-13 TO SHOW AS DIGITED (GRADE)
 3. MEGG COORDINATES ESTABLISHED BY DCBS (SUBMETER RECORDS OF HARRISON COUNTY IN 100' 2012 TAKEN FROM THE 1922-2012 AND COUNTY DEEDS 2. SURFACE OWNER AND VOLUNTARY INFORMATION DEED BOOK 30 PAGE 125 AND VOLUNTARY DEEDS 3. LEASE BOUNDARY SHOWN HEREON TAKEN FROM COORDINATE SYSTEM NORTH ZONE NAD 83 BASED ON GRID NORTH FOR THE WA STATE PLANE 1. LINES TO MEGG REFERENCES AND CORNERS ARE

STATE AS DIGITED COORDINATES FOR MEGG NO. 18HW
 (215' NORTH ZONE) (NAD 83) (NORTH)
 E 223'34.8
 N 58'00.0
 GOMC=(N) 80.55.20.3
 GVL=(N) 38.12.15.8
 BOTTOM HOLE (MVD 83)
 E 1'120'0.0
 N 58'00.0
 (MONTH ZONE NAD 83)
 STATE PLANE COORDINATES
 BOTTOM HOLE
 MEGG NO. 18 HW



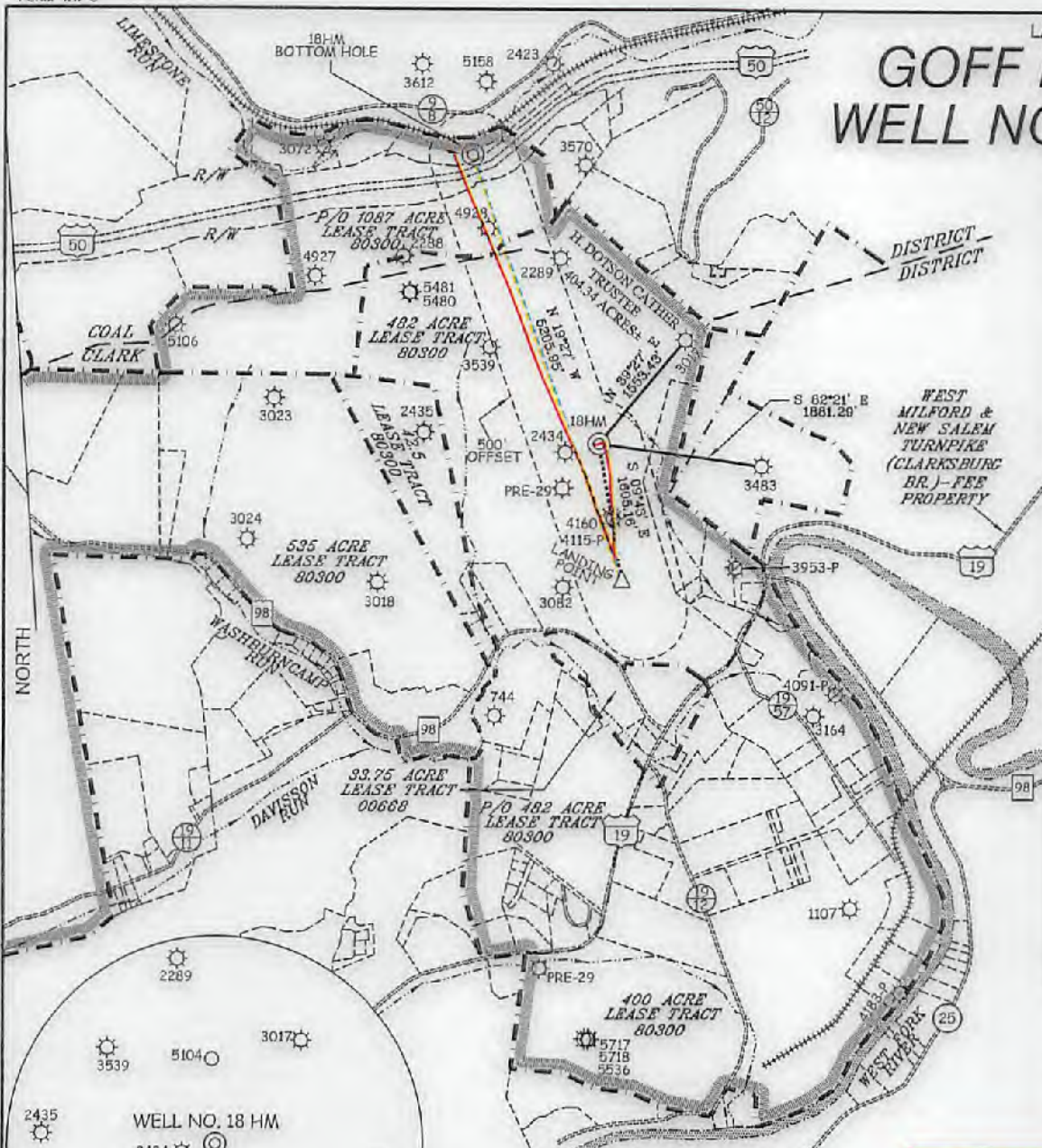
PROPOSED	AS DIGITED
LEGEND	
(E) 223'34.8 (N) 58'00.0 BOTTOM HOLE PLM (MVD 83)	
GOMC=(N) 80.55.20.3 GVL=(N) 38.12.15.8 BOTTOM HOLE (MVD 83)	
GOMC=(N) 80.55.21.4 GVL=(N) 38.12.15.8 BOTTOM HOLE (MVD 83)	
E 1'120'0.0 N 58'00.0 (MONTH ZONE NAD 83) STATE PLANE COORDINATES BOTTOM HOLE MEGG NO. 18 HW	
(E) 223'34.8 (N) 58'00.0 JOB HOLE PLM (MVD 83)	
GOMC=(N) 80.55.21.4 GVL=(N) 38.12.15.8 JOB HOLE (MVD 83)	
GOMC=(N) 80.55.23.4 GVL=(N) 38.12.15.8 JOB HOLE (MVD 83)	
E 1'120'0.0 N 58'00.0 (MONTH ZONE NAD 83) STATE PLANE COORDINATES JOB HOLE MEGG NO. 18 HW	

MEGG NO. 18 HW
 COFF LEASE
 LATITUDE 38°12'30"

GOFF LEASE WELL NO. 18 HM

LATITUDE 39°17'30"

LONGITUDE 80°22'30"



WELL NO. 18 HM TOP HOLE	
STATE PLANE COORDINATES (NORTH ZONE NAD '27)	
N.	284,475
E.	1,752,114
TOP HOLE (NAD 27)	
LAT=(N)	39°16'39.8"
LONG=(W)	80°22'32.4"
TOP HOLE (NAD 83)	
LAT=(N)	39°16'40.2"
LONG=(W)	80°22'31.7"
TOP HOLE UTM (NAD 83)	
(N)	4,347,794
(E)	553,867

WELL NO. 18 HM LANDING POINT	
STATE PLANE COORDINATES (NORTH ZONE NAD '27)	
N.	282,893
E.	1,752,386
LANDING POINT (NAD 27)	
LAT=(N)	39°16'24.2"
LONG=(W)	80°22'28.7"
LANDING POINT (NAD 83)	
LAT=(N)	39°16'24.6"
LONG=(W)	80°22'28.1"
LANDING POINT UTM (NAD 83)	
(N)	4,347,313
(E)	553,967

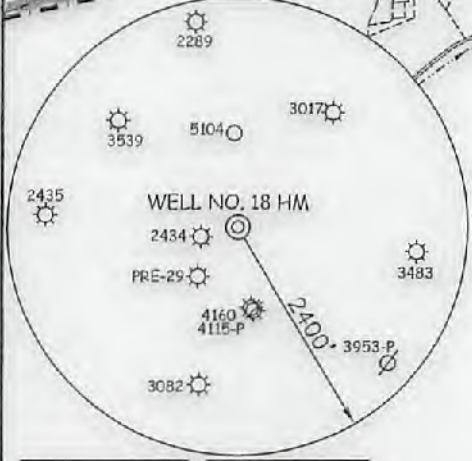
WELL NO. 18 HM BOTTOM HOLE	
STATE PLANE COORDINATES (NORTH ZONE NAD '27)	
N.	287,802
E.	1,750,852
BOTTOM HOLE (NAD 27)	
LAT=(N)	39°17'12.6"
LONG=(W)	80°22'51.4"
BOTTOM HOLE (NAD 83)	
LAT=(N)	39°17'12.9"
LONG=(W)	80°22'50.7"
BOTTOM HOLE UTM (NAD 83)	
(N)	4,348,800
(E)	553,404

LEGEND	
AS DRILLED	
PROPOSED	

NOTES ON SURVEY

1. TIES TO WELLS, REFERENCES, AND CORNERS ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD '27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 70 PAGE 152 AND ADJOINING DEEDS.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF HARRISON COUNTY IN JULY, 2013.
4. WELL COORDINATES ESTABLISHED BY DGPS(SURVEY GRADE).
5. PLAT UPDATED 05-05-17 TO SHOW AS DRILLED DATA PROVIDED BY ARSENAL RESOURCES.

AS DRILLED COORDINATES FOR WELL NO. 18HM			
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)			
NAD27 S.P.C.(FT)	N. 284,476.0	E. 1,752,115.1	
NAD27 GEO.	LAT=(N) 39°16'39.9"	LONG=(W) 80°22'32.4"	
NAD83 GEO.	LAT=(N) 39°16'40.2"	LONG=(W) 80°22'31.7"	
NAD83 UTM (M)	N. 4,347,794	E. 553,867.0	
BOTTOM HOLE			
NAD27 S.P.C.(FT)	N. 287,802.8	E. 1,750,852.1	
NAD27 GEO.	LAT=(N) 39°17'12.6"	LONG=(W) 80°22'51.4"	
NAD83 GEO.	LAT=(N) 39°17'13.0"	LONG=(W) 80°22'51.1"	
NAD83 UTM (M)	N. 4,348,801.3	E. 553,346.5	



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

P.S. 677

Gregory A. Smith



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

DATE	MARCH 6	20	13
UPDATED	MAY 7	20	17
OPERATORS WELL NO.	GOFF 18HM		
API WELL NO.	47 - 33 - 05820		
STATE	COUNTY	PERMIT	

MINIMUM DEGREE OF ACCURACY	1 / 200	FILE NO.	8099P18R2(475-70)
PROVEN SOURCE OF ELEVATION	DGPS (SUBMETER MAPPING GRADE)	SCALE	1" = 2,000'

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

WELL TYPE:	OIL	GAS	<input checked="" type="checkbox"/>	LIQUID INJECTION	WASTE DISPOSAL	IF "GAS" PRODUCTION	<input checked="" type="checkbox"/>	STORAGE	DEEP	SHALLOW	<input checked="" type="checkbox"/>
LOCATION:	GROUND		PROPOSED								
ELEVATION	1,129'		1,126'	WATERSHED	WEST FORK RIVER						
DISTRICT	CLARK			COUNTY	HARRISON		QUADRANGLE	WOLF SUMMIT 7.5'			
SURFACE OWNER	H. DOTSON CATHER TRUSTEE					ACREAGE	404.34±				
ROYALTY OWNER	H. DOTSON CATHER TRUSTEE ETAL					ACREAGE	1087±				
PROPOSED WORK:	LEASE NO. 09/15/2017										
DRILL	<input checked="" type="checkbox"/>	CONVERT	<input type="checkbox"/>	DRILL DEEPER	<input type="checkbox"/>	REDRILL	<input type="checkbox"/>	FRACTURE OR STIMULATE	<input checked="" type="checkbox"/>	PLUG OFF OLD FORMATION	<input type="checkbox"/>
PERFORATE NEW FORMATION	<input type="checkbox"/>	PLUG AND ABANDON	<input type="checkbox"/>	CLEAN OUT AND REPLUG	<input type="checkbox"/>	OTHER	<input type="checkbox"/>				
PHYSICAL CHANGE IN WELL (SPECIFY)							TARGET FORMATION	MARCELLUS			
							ESTIMATED DEPTH	7,089' TVD / TMD 14,038'			

WELL OPERATOR	PDC MOUNTAINEER, LLC	DESIGNATED AGENT	STEVEN P. JOHNSON
ADDRESS	120 GENESIS BOULEVARD BRIDGEPORT, WV 26330	ADDRESS	120 GENESIS BOULEVARD BRIDGEPORT, WV 26330

COUNTY NAME

PERMIT

WELL NO. 18 HM GOFF LEASE

LATITUDE 30°17'30"

LONGITUDE 80°55'30"

WELL NO. 18 HM TOP HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 83) N. 284,472 E. 1,752,114	TOP HOLE (NAD 83) LAT=(N) 30°16'28.8" LONG=(W) 80°52'32.4"	TOP HOLE (NAD 83) LAT=(N) 30°16'40.2" LONG=(W) 80°52'31.7"	TOP HOLE UTM (NAD 83) (N) 4,347,324 (E) 522,282
WELL NO. 18 HM LANDING POINT STATE PLANE COORDINATES (NORTH ZONE NAD 83) N. 282,883 E. 1,752,286	LANDING POINT (NAD 83) LAT=(N) 30°16'24.2" LONG=(W) 80°52'28.7"	LANDING POINT (NAD 83) LAT=(N) 30°16'24.8" LONG=(W) 80°52'28.1"	LANDING POINT UTM (NAD 83) (N) 4,347,313 (E) 522,282
WELL NO. 18 HM BOTTOM HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 83) N. 287,802 E. 1,750,622	BOTTOM HOLE (NAD 83) LAT=(N) 30°17'12.6" LONG=(W) 80°52'21.4"	BOTTOM HOLE (NAD 83) LAT=(N) 30°17'12.8" LONG=(W) 80°52'20.7"	BOTTOM HOLE UTM (NAD 83) (N) 4,348,800 (E) 522,404

LEGEND

AS DRILLED (Red line)

PROPOSED (Green dashed line)

AS DRILLED COORDINATES FOR WELL NO. 18HM

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

NAD83 S.P.C. (E.T)	N. 284,470	E. 1,752,112
NAD83 GEO	LAT=(N) 30°16'28.8"	LONG=(W) 80°52'32.4"
NAD83 GEO	LAT=(N) 30°16'40.2"	LONG=(W) 80°52'31.7"
NAD83 UTM (M)	N. 4,347,324	E. 522,282

BOTTOM HOLE

NAD83 S.P.C. (E.T)	N. 287,802	E. 1,750,622
NAD83 GEO	LAT=(N) 30°17'12.6"	LONG=(W) 80°52'21.4"
NAD83 GEO	LAT=(N) 30°17'12.8"	LONG=(W) 80°52'20.7"
NAD83 UTM (M)	N. 4,348,800	E. 522,404

NOTES ON SURVEY

1. TIES TO WELLS, REFERENCES, AND CORNERS ARE BASED ON GRID NORTH FOR THE STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD 83. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 70 PAGE 152 AND ADJOINING DEEDS. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF HARRISON COUNTY IN JULY, 2017.

2. WELL COORDINATES ESTABLISHED BY DEPS (SURVEY GRADE).

3. DATA PROVIDED BY AERIAL PHOTOGRAPHS.

4. PLAT UPDATED 02-02-17 TO SHOW AS DRILLED.



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.

Gregory A. Smith

P. 2
877

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

FILE NO. 808918R3(475-70)
SCALE 1" = 2,000'

MINIMUM DEGREE OF ACCURACY 1:200

PROVEN SOURCE OF ELEVATION DGPS (SUBMETER MAPPING GRADE)

DATE MARCH 6, 2013
UPDATED MAY 7, 2017

OPERATORS WELL NO. GOFF 18HM

NO. 47
STATE 33
COUNTY PERMIT 02820

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

WELL TYPE: OIL GAS INJECTION WASTE DISPOSAL "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 1,120', 1,128' | GROUND PROPOSED | WATERSHED WEST FORK RIVER

DISTRICT CLARK | COUNTY HARRISON | QUADRANGLE WOLF SUMMIT 7.5

SURFACE OWNER H. DOTSON CATHER TRUSTEE | ACREAGE 404.34±

ROYALTY OWNER H. DOTSON CATHER TRUSTEE ETAL | ACREAGE 1087±

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

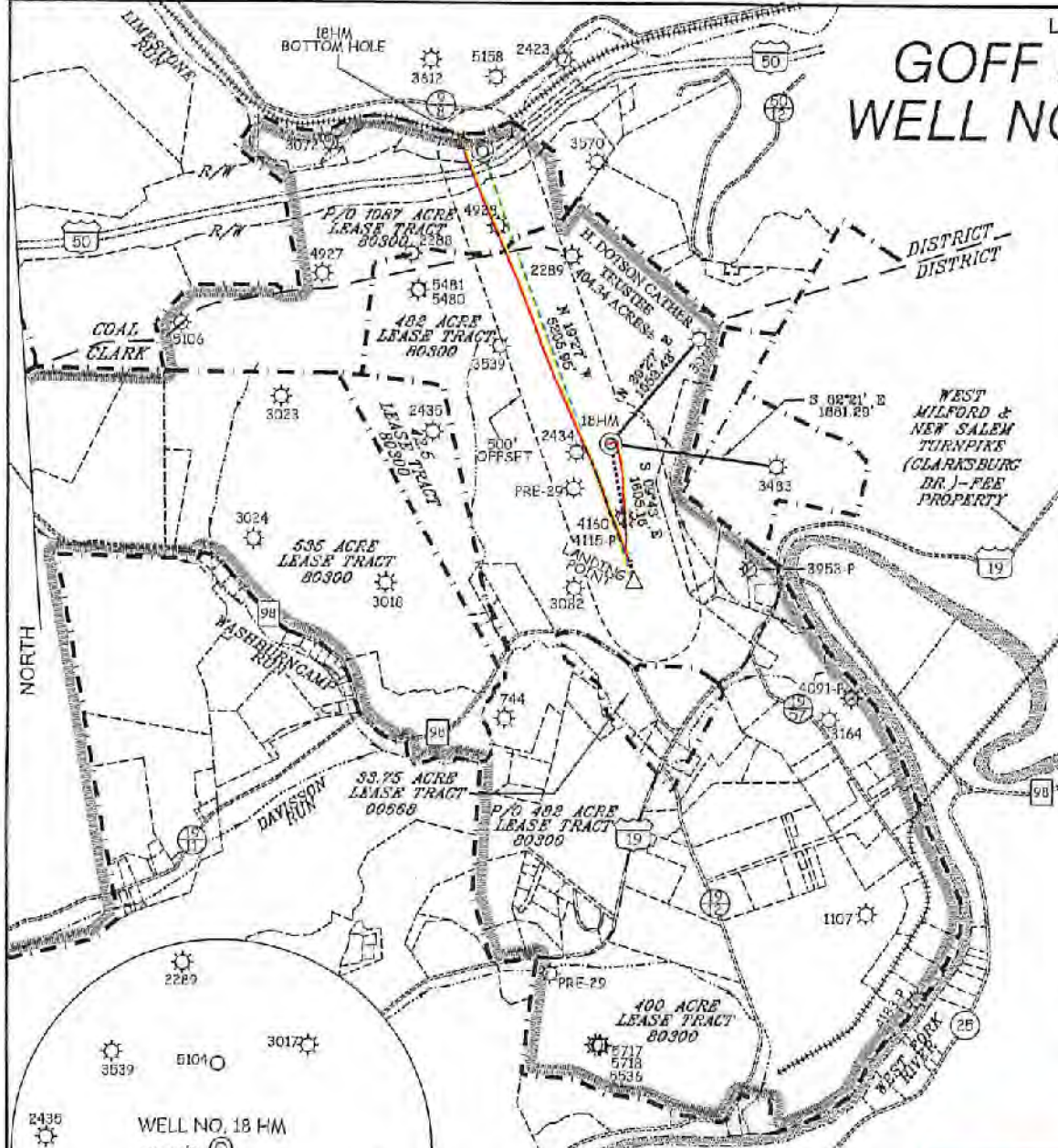
PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS | ESTIMATED DEPTH 7,089' TVD | TMD 14,038'

WELL OPERATOR PDC MOUNTAINEER, LLC | ADDRESS 120 GENESIS BOULEVARD | BRIDGEPORT, WV 26330

DESIGNATED AGENT STEVEN P. JOHNSON

COUNTY NAME PERMIT

09/15/2017



GOFF LEASE WELL NO. 18 HM

WELL NO. 18 HM TOP HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 27) N. 284,475 E. 1,752,114		
TOP HOLE (NAD 27) LAT=(N) 39°16'39.9" LONG=(W) 80°22'32.4"		
TOP HOLE (NAD 83) LAT=(N) 39°16'40.2" LONG=(W) 80°22'31.7"		
TOP HOLE UTM (NAD 83) (N) 4,347,794 (E) 553,867		
WELL NO. 18 HM LANDING POINT STATE PLANE COORDINATES (NORTH ZONE NAD 27) N. 282,893 E. 1,752,388		
LANDING POINT (NAD 27) LAT=(N) 39°16'34.2" LONG=(W) 80°22'28.7"		
LANDING POINT (NAD 83) LAT=(N) 39°16'34.6" LONG=(W) 80°22'28.1"		
LANDING POINT UTM (NAD 83) (N) 4,347,313 (E) 553,957		
WELL NO. 18 HM BOTTOM HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 27) N. 287,802 E. 1,750,862		
BOTTOM HOLE (NAD 27) LAT=(N) 39°17'12.6" LONG=(W) 80°22'51.4"		
BOTTOM HOLE (NAD 83) LAT=(N) 39°17'12.9" LONG=(W) 80°22'50.9"		
BOTTOM HOLE UTM (NAD 83) (N) 4,348,800 (E) 553,404		

LEGEND

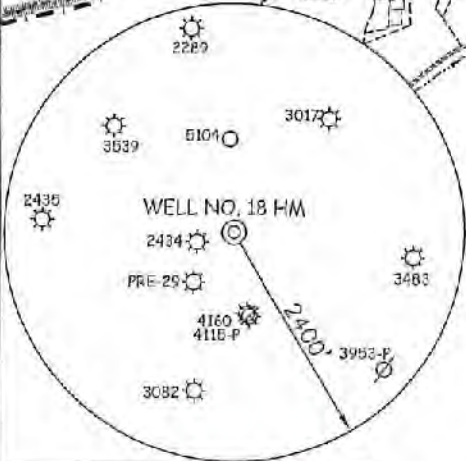
AS DRILLED	
PROPOSED	

NOTES ON SURVEY

1. TIES TO WELLS, REFERENCES, AND CORNERS ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD 27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 70 PAGE 152 AND ADJOINING DEEDS.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF HARRISON COUNTY IN JULY, 2013
4. WELL COORDINATES ESTABLISHED BY DGPS (SURVEY GRADE).
5. PLAT UPDATED 05-05-17 TO SHOW AS DRILLED DATA PROVIDED BY ARSENAL RESOURCES.

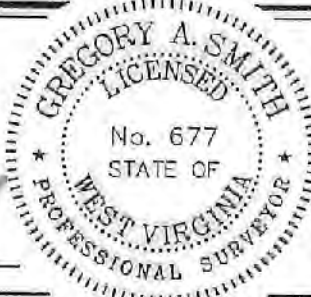
AS DRILLED COORDINATES FOR WELL NO. 18HM
(S.P.C. NORTH ZONE) (UTMM) ZONE 17 NORTH)

NAD27 S.P.C.(FT)	N. 284,475.0	E. 1,752,115.1
NAD27 GEO	LAT=(N) 39°16'39.9"	LONG=(W) 80°22'32.4"
NAD83 GEO	LAT=(N) 39°16'40.2"	LONG=(W) 80°22'31.7"
NAD83 UTM (M)	N. 4,347,794	E. 553,867.0
BOTTOM HOLE		
NAD27 S.P.C.(FT)	N. 287,802.8	E. 1,750,862.1
NAD27 GEO	LAT=(N) 39°17'12.6"	LONG=(W) 80°22'51.4"
NAD83 GEO	LAT=(N) 39°17'13.0"	LONG=(W) 80°22'50.9"
NAD83 UTM (M)	N. 4,348,800.3	E. 553,404.5



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

P.S.
677 Gregory A. Smith



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

DATE MARCH 8, 20 13

UPDATED MAY 7, 20 17

OPERATORS WELL NO. GOFF 18HM

API WELL NO. 47 - 33 - 05820

STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 8099P18R2(475-70)

PROVEN SOURCE OF ELEVATION DGPS (SUBMETER MAPPING GRADE) SCALE 1" = 2,000'

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

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION: GROUND PROPOSED

ELEVATION 1,129' 1,126' WATERSHED WEST FORK RIVER

DISTRICT CLARK COUNTY HARRISON QUADRANGLE WOLF SUMMIT 7.5'

SURFACE OWNER H. DOTSON CATHER TRUSTEE ACREAGE 404.34±

ROYALTY OWNER H. DOTSON CATHER TRUSTEE ETAL ACREAGE 1087± **09/15/2017**

PROPOSED WORK:
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD
 PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) RECEIVED Office of Oil and Gas TARGET FORMATION MARCELLUS

ESTIMATED DEPTH 7,089' TVD / TMD 14,038'

WELL OPERATOR PDC MOUNTAINEER, LLC DESIGNATED AGENT STEVEN P. JOHNSON

ADDRESS 120 GENESIS BOULEVARD BRIDGEPORT, WV 26330 WV Department of Environmental Protection ADDRESS 120 GENESIS BOULEVARD BRIDGEPORT, WV 26330

LONGITUDE 80°22'30" COUNTY NAME PERMIT