

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

API 47 - 033 - 05822 County Harrison District Clark
Quad Wolf Summit Pad Name Goff East Field/Pool Name _____
Farm name Cather, H Dotson Trustee Well Number 19HM
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 4,347,788 Easting 553,874
Landing Point of Curve Northing 4,347,457 Easting 554,239
Bottom Hole Northing 4,348,945 Easting 553,686

Elevation (ft) 1129' 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 3/7/2015 Date drilling ceased 3/15/2015
Date completion activities began 5/20/2015 Date completion activities ceased 5/24/2015
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

Reviewed by:
SWC

APPROVED

NAME: Sam Ward
DATE: 8/17/2017

09/15/2017

API 47- 033 - 05822 Farm name Cather, H Dotson Trustee Well number 19HM

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"	643'	New	48.00	N/A	Y
Coal							
Intermediate 1	12 1/4"	9 5/8"	2657'	New	40.00	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4" & 8 1/2"	5 1/2"	11237'	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	487	15.6	1.18	438.35	Surface	8
Coal							
Intermediate 1	Class A	534/172	14.5/15.7	1.55/1.29	1049.58	Surface	8
Intermediate 2							
Intermediate 3							
Production	Type 1 4% Gel/Type 1 2% Gel	707/933	13.8/15.0	1.64/1.32	2391.04	2700'	8
Tubing							

Drillers TD (ft) 11238' Loggers TD (ft) 11238'
 Deepest formation penetrated Marcellus Plug back to (ft) NA
 Plug back procedure None

Kick off depth (ft) 6532' 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 18 stages, 720 perforations

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
18	5/24/2015	7548	7550	40	Marcellus Shale
18	5/24/2015	7588	7590	40	Marcellus Shale
18	5/24/2015	7628	7630	40	Marcellus Shale
18	5/24/2015	7668	7670	40	Marcellus Shale
18	5/24/2015	7708	7710	40	Marcellus Shale
17	5/24/2015	7748	7750	40	Marcellus Shale
17	5/24/2015	7788	7790	40	Marcellus Shale
17	5/24/2015	7828	7830	40	Marcellus Shale
17	5/24/2015	7868	7870	40	Marcellus Shale
17	5/24/2015	7908	7910	40	Marcellus Shale
16	5/24/2015	7948	7950	40	Marcellus Shale
16	5/24/2015	7988	7990	40	Marcellus Shale
16	5/24/2015	8028	8030	40	Marcellus Shale
16	5/24/2015	8068	8070	40	Marcellus Shale
16	5/24/2015	8108	8110	40	Marcellus Shale
15	5/23/2015	8148	8150	40	Marcellus Shale
15	5/23/2015	8188	8190	40	Marcellus Shale
15	5/23/2015	8228	8230	40	Marcellus Shale
15	5/23/2015	8268	8270	40	Marcellus Shale
15	5/23/2015	8308	8310	40	Marcellus Shale
14	5/23/2015	8348	8350	40	Marcellus Shale
14	5/23/2015	8388	8390	40	Marcellus Shale
14	5/23/2015	8428	8430	40	Marcellus Shale
14	5/23/2015	8468	8470	40	Marcellus Shale
14	5/23/2015	8508	8510	40	Marcellus Shale
13	5/23/2015	8548	8550	40	Marcellus Shale
13	5/23/2015	8588	8590	40	Marcellus Shale
13	5/23/2015	8628	8630	40	Marcellus Shale
13	5/23/2015	8668	8670	40	Marcellus Shale
13	5/23/2015	8708	8710	40	Marcellus Shale
12	5/23/2015	8748	8750	40	Marcellus Shale
12	5/23/2015	8788	8790	40	Marcellus Shale
12	5/23/2015	8828	8830	40	Marcellus Shale
12	5/23/2015	8868	8870	40	Marcellus Shale
12	5/23/2015	8908	8910	40	Marcellus Shale
11	5/23/2015	8948	8950	40	Marcellus Shale
11	5/23/2015	8988	8990	40	Marcellus Shale
11	5/23/2015	9028	9030	40	Marcellus Shale
11	5/23/2015	9068	9070	40	Marcellus Shale
11	5/23/2015	9108	9110	40	Marcellus Shale
10	5/22/2015	9148	9150	40	Marcellus Shale
10	5/22/2015	9188	9190	40	Marcellus Shale
10	5/22/2015	9228	9230	40	Marcellus Shale
10	5/22/2015	9268	9270	40	Marcellus Shale
10	5/22/2015	9308	9310	40	Marcellus Shale

9	5/22/2015	9348	9350	40	Marcellus Shale
9	5/22/2015	9388	9390	40	Marcellus Shale
9	5/22/2015	9428	9430	40	Marcellus Shale
9	5/22/2015	9468	9470	40	Marcellus Shale
9	5/22/2015	9508	9510	40	Marcellus Shale
8	5/22/2015	9548	9550	40	Marcellus Shale
8	5/22/2015	9588	9590	40	Marcellus Shale
8	5/22/2015	9628	9630	40	Marcellus Shale
8	5/22/2015	9668	9670	40	Marcellus Shale
8	5/22/2015	9708	9710	40	Marcellus Shale
7	5/22/2015	9748	9750	40	Marcellus Shale
7	5/22/2015	9788	9790	40	Marcellus Shale
7	5/22/2015	9828	9830	40	Marcellus Shale
7	5/22/2015	9868	9870	40	Marcellus Shale
7	5/22/2015	9908	9910	40	Marcellus Shale
6	5/21/2015	9948	9950	40	Marcellus Shale
6	5/21/2015	9988	9990	40	Marcellus Shale
6	5/21/2015	10028	10030	40	Marcellus Shale
6	5/21/2015	10068	10070	40	Marcellus Shale
6	5/21/2015	10108	10110	40	Marcellus Shale
5	5/21/2015	10148	10150	40	Marcellus Shale
5	5/21/2015	10188	10190	40	Marcellus Shale
5	5/21/2015	10228	10230	40	Marcellus Shale
5	5/21/2015	10268	10270	40	Marcellus Shale
5	5/21/2015	10308	10310	40	Marcellus Shale
4	5/21/2015	10348	10350	40	Marcellus Shale
4	5/21/2015	10388	10390	40	Marcellus Shale
4	5/21/2015	10428	10430	40	Marcellus Shale
4	5/21/2015	10468	10470	40	Marcellus Shale
4	5/21/2015	10508	10510	40	Marcellus Shale
3	5/21/2015	10548	10550	40	Marcellus Shale
3	5/21/2015	10588	10590	40	Marcellus Shale
3	5/21/2015	10628	10630	40	Marcellus Shale
3	5/21/2015	10668	10670	40	Marcellus Shale
3	5/21/2015	10708	10710	40	Marcellus Shale
2	5/20/2015	10748	10750	40	Marcellus Shale
2	5/20/2015	10788	10790	40	Marcellus Shale
2	5/20/2015	10828	10830	40	Marcellus Shale
2	5/20/2015	10868	10870	40	Marcellus Shale
2	5/20/2015	10908	10910	40	Marcellus Shale
1	5/20/2015	10950	10956	40	Marcellus Shale
1	5/20/2015	11002	11007	40	Marcellus Shale
1	5/20/2015	11053	11059	40	Marcellus Shale
1	5/20/2015	11105	11110	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	5/20/2015	77.2	6985	0	4710	402380	8209	NA
2	5/20/2015	81.6	7429	7710	5207	402500	10177	NA
3	5/21/2015	83.4	7692	7647	5224	404600	8741	NA
4	5/21/2015	80.6	7576	6893	5380	400040	7478	NA
5	5/21/2015	78	7533	4395	4925	401200	7716	NA
6	5/21/2015	80.4	7211	6905	5039	401500	6969	NA
7	5/22/2015	80	7204	6167	5556	402400	7014	NA
8	5/22/2015	79.1	7322	6825	4771	401060	7278	NA
9	5/22/2015	78.4	7165	6877	4960	401280	8820	NA
10	5/22/2015	82.1	7184	7832	5862	400860	7238	NA
11	5/23/2015	75.6	6842	7385	5393	400020	6846	NA
12	5/23/2015	79.9	7064	6791	5221	401600	6887	NA
13	5/23/2015	81.7	7138	6334	5091	401080	7201	NA
14	5/23/2015	83.4	7248	8168	5507	400260	7166	NA
15	5/24/2015	82.5	7290	6407	5343	358440	8879	NA
16	5/24/2015	81.8	7410	7557	5178	403920	6903	NA
17	5/24/2015	79.1	7499	8315	5599	403420	8829	NA
18	5/24/2015	78	6949	7334	4793	400380	7236	NA

API 47- 033 - 05822 Farm name Cather, H Dotson Trustee Well number 19HM

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
Marcellus	7141	TVD	11238 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	6813	6834	6962	6988	Shale- Gas show at 6980' MD
Tully	6834	6900	6988	7077	Limestone
Mahantango	6900	7040	7077	7347	Shale- Gas show at 7205' MD
Marcellus	7040	7141	7347	11238	Shale-Gas shows through lateral
Purcell	7106	7109	7575	7580	Limestone
Onondaga	7141		N/A*		Limestone
					*Onondaga MD not listed-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 19HM 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 _____

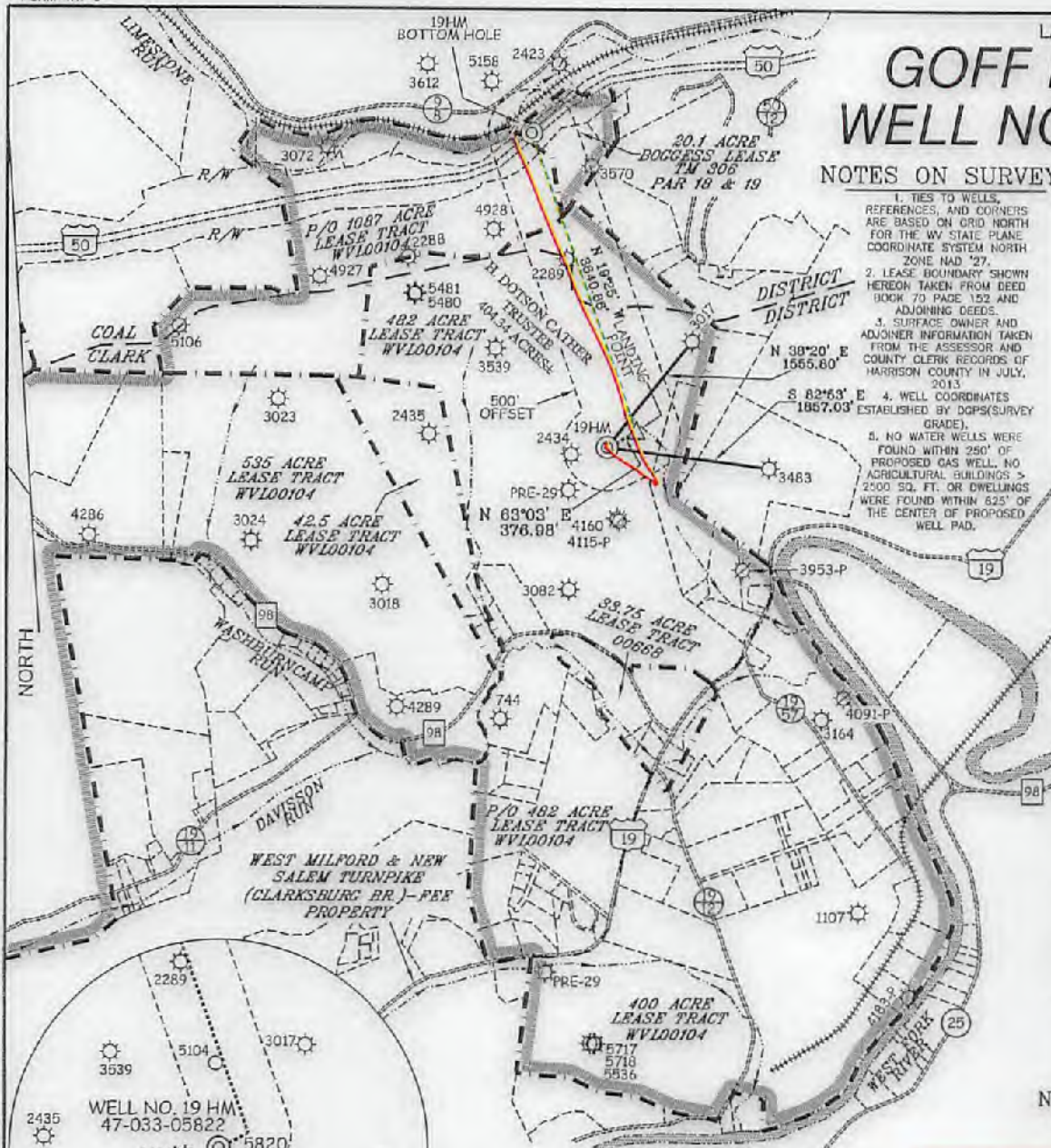
Cementing Company Universal Well Services
 Address 18360 Technology Dr Box 4 City Meadville State PA Zip 16335

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



GOFF LEASE WELL NO. 19 HM

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. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS > 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.

WELL NO. 19 HM TOP HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 27) N. 284,455 E. 1,752,136 TOP HOLE (NAD 27) LAT=(N) 39°16'39.6" LONG=(W) 80°22'32.1" TOP HOLE (NAD 83) LAT=(N) 39°16'40.0" LONG=(W) 80°22'31.4" TOP HOLE UTM (NAD 83) (N) 4,347,788 (E) 553,874
WELL NO. 19 HM LANDING POINT STATE PLANE COORDINATES (NORTH ZONE NAD 27) N. 284,626 E. 1,752,472 LANDING POINT (NAD 27) LAT=(N) 39°16'41.4" LONG=(W) 80°22'27.8" LANDING POINT (NAD 83) LAT=(N) 39°16'41.7" LONG=(W) 80°22'27.2" LANDING POINT UTM (NAD 83) (N) 4,347,841 (E) 553,975
WELL NO. 19 HM BOTTOM HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 27) N. 288,060 E. 1,751,262 BOTTOM HOLE (NAD 27) LAT=(N) 39°17'15.2" LONG=(W) 80°22'43.7" BOTTOM HOLE (NAD 83) LAT=(N) 39°17'15.5" LONG=(W) 80°22'43.0" BOTTOM HOLE UTM (NAD 83) (N) 4,348,881 (E) 553,589

LEGEND

AS DRILLED	—
PROPOSED	- - -

NOTES ON SURVEY (CONT.)

6. PLAT UPDATED 05-05-17 TO SHOW AS DRILLED DATA PROVIDED BY ARSENAL RESOURCES.



LEGEND

LEASE LINE	- - - - -
SURFACE LINE	— — — — —
WELL LATERAL	· · · · ·
OFFSET LINE	— — — — —
TIE LINE	— — — — —
CREEK	~~~~~
ROAD	— — — — —
COUNTY ROUTE	— — — — —
PROPOSED WELL	⊙
EXISTING WELL	⊙

AS DRILLED COORDINATES FOR WELL NO. 19HM

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

NAD27 S.P.C.(FT)	N. 284,458.0	E. 1,752,137.7
NAD27 GEO	LAT=(N) 39°16'39.7"	LONG=(W) 80°22'32.1"
NAD83 GEO	LAT=(N) 39°16'40.0"	LONG=(W) 80°22'31.4"
NAD83 UTM (M)	N. 4,347,789.0	E. 553,874.0

BOTTOM HOLE

NAD27 S.P.C.(FT)	N. 288,061.8	E. 1,751,073.9
NAD27 GEO	LAT=(N) 39°17'14.8"	LONG=(W) 80°22'46.1"
NAD83 GEO	LAT=(N) 39°17'14.9"	LONG=(W) 80°22'45.4"
NAD83 UTM (M)	N. 4,348,862.9	E. 553,531.7



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 APRIL 16, 20 14
REVISED 02/04/15 & 05/05/17
OPERATORS WELL NO. GOFF 19HM
API WELL NO. 47 — 033 — 5822
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 8329P19(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 X LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION X STORAGE DEEP SHALLOW X

LOCATION: ELEVATION 1122.80' 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± & 20-1±

PROPOSED WORK: DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X 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 11,284'

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

LONGITUDE 80°22'30" 5,094'

COUNTY NAME

PERMIT

09/15/2014

WELL NO. 19 HM GOFF LEASE

LATITUDE 39°17'30"

NOTES ON SURVEY

1. LIES TO WELL 47-033-0855 AS SHOWN ON THE PLAT DATED 05-02-17 TO SHOW AS DRILLED DATA PROVIDED BY AERIAL PHOTOGRAPHS.

2. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS > 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 250' OF THE CENTER OF PROPOSED WELL PAD.

3. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK TO PAGE 182 AND ADJOINING DEEDS. ADDITIONAL INFORMATION TAKEN FROM THE ASSessor AND COUNTY CLERK RECORDS OF HARRISON COUNTY IN JULY, 2012.

4. WELL COORDINATES ESTABLISHED BY DEPARTMENT OF ENERGY (E) 4347388 (N) 3916417

5. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK TO PAGE 182 AND ADJOINING DEEDS. ADDITIONAL INFORMATION TAKEN FROM THE ASSessor AND COUNTY CLERK RECORDS OF HARRISON COUNTY IN JULY, 2012.

6. COORDINATE SYSTEM NORTH FOR THE W-8 STATE PLANE ARE BASED ON GRID NORTH REFERENCES AND CORRECTIONS TO THE W-8 STATE PLANE.



<p>WELL NO. 19 HM TOP HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 83) E. 1752138 N. 284455</p>	<p>WELL NO. 19 HM LANDING POINT STATE PLANE COORDINATES (NORTH ZONE NAD 83) E. 1752473 N. 284828</p>	<p>WELL NO. 19 HM BOTTOM HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 83) E. 1751282 N. 288080</p>
<p>TOP HOLE (NAD 83) LAT=(N) 39°16'38.8" LONG=(W) 80°22'22.1"</p>	<p>LANDING POINT (NAD 83) LAT=(N) 39°16'41.7" LONG=(W) 80°22'27.8"</p>	<p>BOTTOM HOLE (NAD 83) LAT=(N) 39°17'15.2" LONG=(W) 80°22'42.7"</p>
<p>TOP HOLE UTM (NAD 83) (E) 5232974 (N) 4347388</p>	<p>LANDING POINT UTM (NAD 83) (E) 5232975 (N) 4347341</p>	<p>BOTTOM HOLE UTM (NAD 83) (E) 5232989 (N) 4348881</p>

LEGEND

AS DRILLED (Red dashed line)

PROPOSED (Green dashed line)

NOTES ON SURVEY (CONT.)

A. PLAT DATED 05-02-17 TO SHOW AS DRILLED DATA PROVIDED BY AERIAL PHOTOGRAPHS.

AS DRILLED COORDINATES FOR WELL NO. 19HM

<p>WELL NO. 19 HM BOTTOM HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 83) E. 1751282 N. 288080</p>	<p>WELL NO. 19 HM LANDING POINT STATE PLANE COORDINATES (NORTH ZONE NAD 83) E. 1752473 N. 284828</p>	<p>WELL NO. 19 HM TOP HOLE STATE PLANE COORDINATES (NORTH ZONE NAD 83) E. 1752138 N. 284455</p>
<p>BOTTOM HOLE (NAD 83) LAT=(N) 39°17'15.2" LONG=(W) 80°22'42.7"</p>	<p>LANDING POINT (NAD 83) LAT=(N) 39°16'41.7" LONG=(W) 80°22'27.8"</p>	<p>TOP HOLE (NAD 83) LAT=(N) 39°16'38.8" LONG=(W) 80°22'22.1"</p>
<p>BOTTOM HOLE UTM (NAD 83) (E) 5232989 (N) 4348881</p>	<p>LANDING POINT UTM (NAD 83) (E) 5232975 (N) 4347341</p>	<p>TOP HOLE UTM (NAD 83) (E) 5232974 (N) 4347388</p>

LEGEND

- LEASE LINE
- SURFACE LINE
- WELL LATERAL
- OFFSET LINE
- THE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL



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

DATE APRIL 16, 2014

REVISED 02/04/15 & 05/05/17

OPERATORS WELL NO. GOFF 19HM

API WELL NO. 47-033-5822

STATE COUNTY PERMIT

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

FILE NO. 8328P19(475-70)

SCALE 1" = 2,000'

MINIMUM DEGREE OF ACCURACY 1/200

PROVEN SOURCE OF ELEVATION DGPS (SUBMETER MAPPING GRADE)

WELL TYPE: OIL GAS LIQUID WASTE IF

DISPOSAL "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 1152.80' DISTRICT CLARK COUNTY HARRISON WATERSHED WEST FORK RIVER

SURFACE OWNER H. DOTSON CATHER TRUSTEE ETAL ACREAGE 1087± & 20.1±

ROYALTY OWNER H. DOTSON CATHER TRUSTEE ETAL ACREAGE 404.34±

LEASE NO. W10014 & B06282 LEASE (ANTERO ASS'GNMENT-TM 308 P. 10 & 19) QUADRANGLE WOLF SUMMIT 7.5

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 11,284'

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

ADDRESS 120 GENESIS BOULEVARD ADDRESS 120 GENESIS BOULEVARD

BRIDGEPORT, WV 26330 BRIDGEPORT, WV 26330

09/15/2017

COUNTY NAME PERMIT

LATITUDE 39°17'30"

GOFF LEASE WELL NO. 19 HM

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. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS > 7500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.

WELL NO. 19 HM TOP HOLE		
STATE PLANE COORDINATES (NORTH ZONE NAD '27)		
N	284,455	E. 1,752,136
TOP HOLE (NAD 27)		
LAT=(N)	39°16'39.6"	LONG=(W) 80°22'32.1"
TOP HOLE (NAD 83)		
LAT=(N)	39°16'40.0"	LONG=(W) 80°22'31.4"
TOP HOLE UTM (NAD 83)		
(N)	4,347,788	(E) 553,874

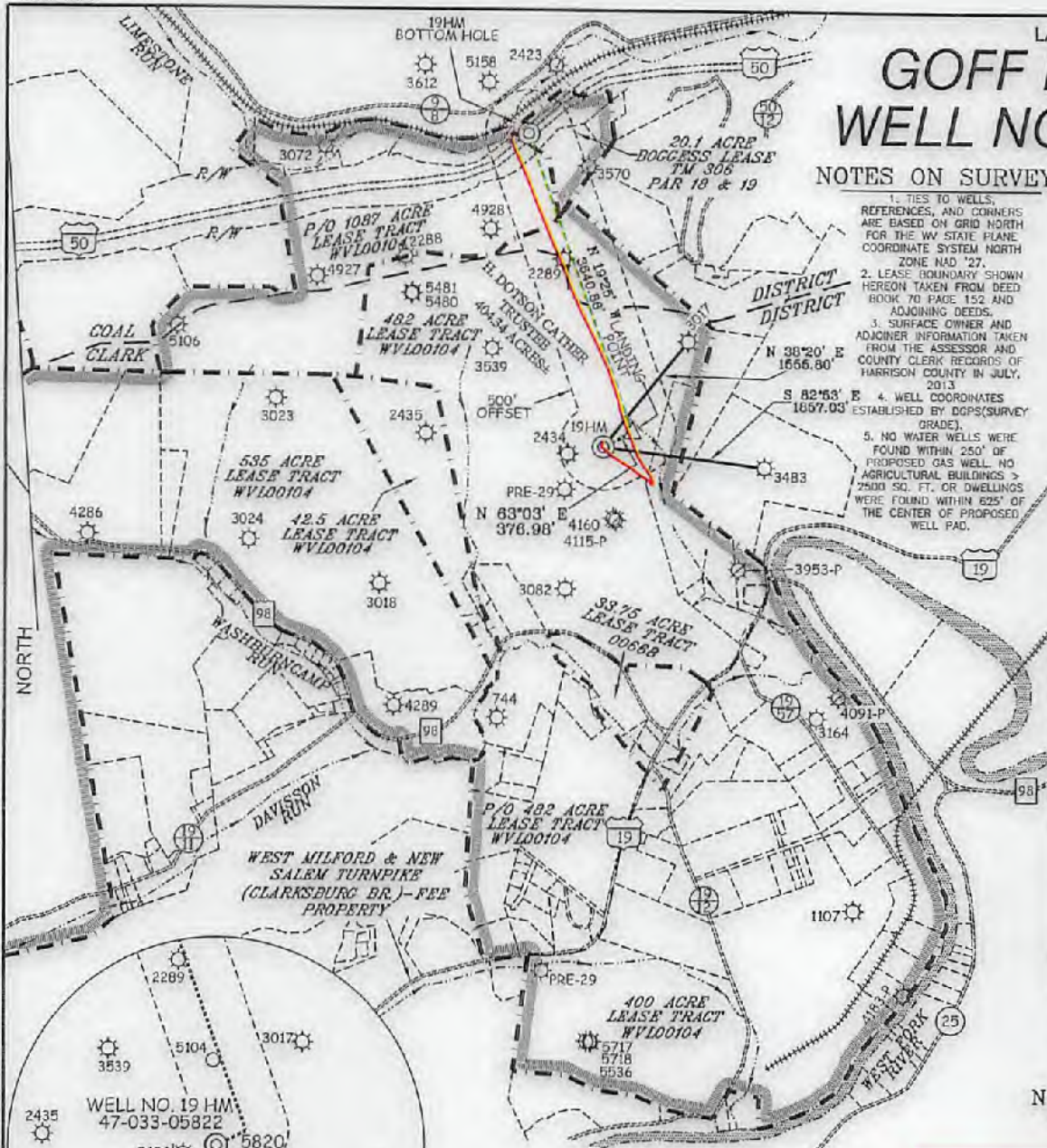
WELL NO. 19 HM LANDING POINT		
STATE PLANE COORDINATES (NORTH ZONE NAD '27)		
N	284,626	E. 1,752,472
LANDING POINT (NAD 27)		
LAT=(N)	39°16'41.4"	LONG=(W) 80°22'27.8"
LANDING POINT (NAD 83)		
LAT=(N)	39°16'41.7"	LONG=(W) 80°22'27.2"
LANDING POINT UTM (NAD 83)		
(N)	4,347,841	(E) 553,975

WELL NO. 19 HM BOTTOM HOLE		
STATE PLANE COORDINATES (NORTH ZONE NAD '27)		
N	288,060	E. 1,751,262
BOTTOM HOLE (NAD 27)		
LAT=(N)	39°17'15.2"	LONG=(W) 80°22'43.7"
BOTTOM HOLE (NAD 83)		
LAT=(N)	39°17'15.5"	LONG=(W) 80°22'43.0"
BOTTOM HOLE UTM (NAD 83)		
(N)	4,348,881	(E) 553,589

LEGEND	
AS DRILLED	—
PROPOSED	- - -

NOTES ON SURVEY(CONT.)

6. PLAT UPDATED 05-05-17 TO SHOW AS DRILLED DATA PROVIDED BY ARSENAL RESOURCES.



LEGEND

LEASE LINE	- - - - -
SURFACE LINE	— — — — —
WELL LATERAL	· · · · ·
OFFSET LINE	— — — — —
TIE LINE	— — — — —
CREEK	~~~~~
ROAD	— — — — —
COUNTY ROUTE	— — — — —
PROPOSED WELL	⊙
EXISTING WELL	⊙

AS DRILLED COORDINATES FOR WELL NO. 19HM

(S.P.C. NORTH ZONE) (UTM) ZONE 17 NORTH		
NAD27 S.P.C.(FT)	N. 284,456.0	E. 1,752,137.7
NAD27 GEO.	LAT=(N) 39°16'39.7"	LONG=(W) 80°22'32.1"
NAD83 GEO.	LAT=(N) 39°16'40.0"	LONG=(W) 80°22'31.4"
NAD83 UTM (M)	N. 4,347,788.0	E. 553,874.0
BOTTOM HOLE		
NAD27 S.P.C.(FT)	N. 288,061.8	E. 1,751,073.3
NAD27 GEO.	LAT=(N) 39°17'14.6"	LONG=(W) 80°22'46.1"
NAD83 GEO.	LAT=(N) 39°17'14.9"	LONG=(W) 80°22'45.4"
NAD83 UTM (M)	N. 4,348,882.9	E. 553,531.7

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 APRIL 16, 20 14

REVISED 02/04/15 & 05/05/17

OPERATORS WELL NO. GOFF 19HM

API
WELL NO. 47 — 033 — 5822
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 8329P19(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: ELEVATION 1122.80' 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± & 201±

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 11,284'

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

LONGITUDE 80°22'30"

COUNTY NAME

PERMIT

09/15/2017

LATITUDE 39°17'30"

GOFF LEASE

WELL NO. 19 HM

NOTES ON SURVEY

WELL NO. 19 HM

STATE PLANE COORDINATES (NORTH ZONE NAD 83)

N. 284,455

E. 1,752,198

TOP HOLE (NAD 83)

LAT(N) 39°16'39.6"

LONG(W) 80°22'32.1"

TOP HOLE (NAD 83)

LAT(N) 39°16'40.0"

LONG(W) 80°22'31.4"

LANDING POINT (NAD 83)

LAT(N) 39°16'41.4"

LONG(W) 80°22'27.0"

LANDING POINT (NAD 83)

LAT(N) 39°16'41.7"

LONG(W) 80°22'27.2"

LANDING POINT TRM (NAD 83)

(N) 4,948,881

(E) 553,595

WELL NO. 19 HM

STATE PLANE COORDINATES (NORTH ZONE NAD 83)

N. 283,000

E. 1,751,862

BOTTOM HOLE (NAD 83)

LAT(N) 39°17'15.2"

LONG(W) 80°22'43.7"

BOTTOM HOLE (NAD 83)

LAT(N) 39°17'15.8"

LONG(W) 80°22'43.0"

BOTTOM HOLE UTM (NAD 83)

(N) 4,948,881

(E) 553,595

NOTES ON SURVEY (CONT.)

AS DRILLED

PROPOSED

5. PART REPORTED 03-05-17 TO SHOW AS DRILLED DATA PROVIDED BY AISCAL RESOURCES.

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

DATE APRIL 16, 2014

REVISED 02/04/15 & 05/05/17

OPERATORS WELL NO. GOFF 18HM

API WELL NO. 47 - 033 - 5822

PERMIT

STATE OF WEST VIRGINIA

DIVISION OF ENVIRONMENTAL PROTECTION

OFFICE OF OIL AND GAS

BRIDGEPORT, WV 26330

ADDRESS 120 GENESIS BOULEVARD

DESIGNATED AGENT STEVEN P. JOHNSON

BRIDGEPORT, WV 26330

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DESIGNATED AGENT STEVEN P. JOHNSON

BRIDGEPORT, WV 26330

ADDRESS 120 GENESIS BOULEVARD

DESIGNATED AGENT STEVEN P. JOHNSON

1. LINES TO WELLS

2. LEASE BOUNDARY SHOWN

HEREON TAKEN FROM DEED

BOOK 20, PAGE 152 AND

ADJOINING INFORMATION TAKEN

FROM THE ASSESSOR AND

COUNTY CLERK RECORDS OF

HARRISON COUNTY IN JULY,

1998, 2002,

2003, & WELL COORDINATES

ESTABLISHED BY DEPOSITOR

WELL FAD.

3. NO WATER WELLS WERE

FOUND WITHIN 250' OF

PROPOSED GAS WELL. NO

AGRICULTURAL BUILDINGS >

400 SQ. FT. OR DWELLINGS

WERE FOUND WITHIN 650' OF

THE CENTER OF PROPOSED

WELL.

4. WELL COORDINATES

ESTABLISHED BY DEPOSITOR

ON 03/05/17.

5. PART REPORTED 03-05-17 TO SHOW AS

DRILLED DATA PROVIDED BY AISCAL

RESOURCES.

6. PART REPORTED 03-05-17 TO SHOW AS

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