

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

API 47-051-01719 County Marshall District Clay
Quad Glen Easton Pad Name Francis Field/Pool Name _____
Farm name Francis Well Number 12H
Operator (as registered with the OOG) Chevron Appalachia, LLC
Address 800 Mountain View Drive City Smithfield State PA Zip 15478

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4413725.022 Easting 526308.132
Landing Point of Curve Northing 4413595.3 Easting 525692.8
Bottom Hole Northing 4414652.7 Easting 524830.6

Elevation (ft) 1283 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)
None Aqueous Fluid containing weighting agent, fluid loss additive, emulsifier, Viscosity and Rheological Control agent, Oil-Wetting Agent, fluid rheology conditioner

Date permit issued 3/20/2014 Date drilling commenced 4/22/2014 Date drilling ceased 11/8/2014
Date completion activities began 3/3/2015 Date completion activities ceased 7/28/2015
Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

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

Freshwater depth(s) ft 619 - 648 Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1890' Void(s) encountered (Y/N) depths _____
Coal depth(s) ft 105-145', 490-520', 700-840', 1080-1190', 1475-1585', 1640-1660' Cavern(s) encountered (Y/N) depths _____
Is coal being mined in area (Y/N) No but not sealed

Received
Office of Oil & Gas
JUL 16 2015
Reviewed by: JK 8/20/15
10/23/2015

API 47-051 - 01719 Farm name Francis Well number 12H

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	36	30	45	New	X-56; 118.6		
Surface	17 1/2	13 3/8	651	New	J-55; 54.50		
Coal							
Intermediate 1	12 1/4	9 5/8	2853	New	L-80; 40		
Intermediate 2							
Intermediate 3							
Production	8 1/2	5 1/2	12459	New	P-110; 20		
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	Bulk Cement	Bulk Cement	Bulk Cement	Bulk Cement	Bulk Cement	Surface	8.0
Surface	Class A	635	15.6	1.21	766	Surface	8.0
Coal							
Intermediate 1	Class A	855	15.6	1.24	1056	Surface	8.0
Intermediate 2							
Intermediate 3							
Production	Class A	2284	15.2	1.29	2864	Surface	Well TD'd
Tubing							

Drillers TD (ft) ¹²⁴⁹¹ 6552' Loggers TD (ft) ¹²⁴⁹¹ _____
 Deepest formation penetrated Marcellus Shale Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) ⁴⁸⁰⁹ _____

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 _____
One bow spring centralizer every two jts on the Surface string and intermediate. Two centralizer every ft in the lateral and curve, then one every two jts from KOP to surface

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS SEE ATTACHED PERFORATION/STIMULATION REPORT

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

Received
Office of Oil & Gas
JUL 16 2015

API 47- 051 - 01719 Farm name Francis Well number 12H

PRODUCING FORMATION(S)	DEPTHS	
	TVD	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	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
Monongahela Group Sand	596	635	596	635	Fresh Water 619'-648'MD 2" stream
Pittsburgh Coal	816	820	816	820	Coal
Big Lime	1860	1940	1860	1940	Limestone: crm-wh, hd, crpxln (Brine @ 1890' 25bbls/hr)
Burgoon (Big Injun)	1940	2130	1938	2128	SS:offwh, wh, cons, clr, trans, lcemt, fg-mg
Weir Sand	2290	2310	2288	2308	SLTST: ltgy-mgy, occ mgy, hrd, vf-fg, tcmt, bio, arg, sl calc
Berea Sand	2525	2550	2522	2547	SS: wh, clr, trans, ltgy-gy, cns, lcmt, mg-fg, sbang-ang, arg, msph, non calc, tr flor, ex fast cut, fnt odr, lse pyr
Burket Shale	6396	6415	7272	7326	SH:drkgy,v.drkgy,frm,slty,grty, sbbiky-sbfiss,modcalc,embd calc,lse calct
Tully Limestone	6415	6449	7326	7424	LS: ltgy, gy, mgy, frm-hrd, dns, cln, mic-fxln, v. arg
Hamilton Shale	6449	6515	7424	7645	SH:drkgy,v.drkgy,frm,slty, grty,sbbiky-sbfiss,carb,modv. calc,lse calct,w/LS
Marcellus Shale	6515		7645		SH:drkgy,v.drkgy,frm,slty, grty,sbbiky-sbfiss, non calc, lse calct,lse pyr,w/LS:gy, ltgy,hrd,,molt,mic,fxln,v, arg

Please insert additional pages as applicable.

Drilling Contractor SEE ATTACHED
 Address _____ City _____ State _____ Zip _____

Logging Company Stratagraph NE Inc
 Address 116 Ellsworth Avenue City Marietta State OH Zip 45750

Cementing Company SEE ATTACHED
 Address _____ City _____ State _____ Zip _____

Stimulating Company Schlumberger Technology Corp
 Address Two Robinson Plaza, Suite 200 City Pittsburgh State PA Zip 15205

Please insert additional pages as applicable.

Completed by Jackie M. Scholar Telephone 724-564-3721
 Signature [Signature] Title Regulatory Compliance Team Lead Date 7/1/2015

Received
Office of Oil & Gas
JUL 16 2015

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

API: 47-051-01719	Well Name: Francis	Well Number: 12H
-------------------	--------------------	------------------

PERFORATION RECORD					
Stage No.	Perforation Date	Perforated From TMD Ft.	Perforated To TMD Ft.	Number of Perforations	Formation(s)
1	4/13/2015	12347	12185	50	Marcellus
2	4/14/2015	12147	11985	50	Marcellus
3	4/15/2015	11944	11785	50	Marcellus
4	4/15/2015	11734	11585	50	Marcellus
5	4/15/2015	11537	11388	50	Marcellus
6	4/15/2015	11377	11185	50	Marcellus
7	4/16/2015	11141	10985	50	Marcellus
8	4/16/2015	10937	10785	50	Marcellus
9	4/16/2015	10737	10585	50	Marcellus
10	4/17/2015	10537	10385	50	Marcellus
11	4/17/2015	10337	10185	50	Marcellus
12	4/17/2015	10137	9989	50	Marcellus
13	4/17/2015	9937	9785	50	Marcellus
14	4/18/2015	9741	9585	50	Marcellus
15	4/18/2015	9537	9385	50	Marcellus
16	4/19/2015	9337	9185	50	Marcellus
17	4/19/2015	9137	8980	50	Marcellus
18	4/19/2015	8937	8785	50	Marcellus
19	4/19/2015	8524	8362	50	Marcellus
20	4/20/2015	8313	8159	50	Marcellus
21	4/20/2015	8121	7966	50	Marcellus
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					

Please insert additional copies of this page if additional rows/stages are needed.

Received
Office of Oil & Gas
JUL 16 2015

10/23/2015

API: 47-051-01719	Well Name: Francis	Well Number: 12H
-------------------	--------------------	------------------

STIMULATION INFORMATION / STAGE								
Complete a separate record for each stimulation stage. (Please insert additional lines for additional stages or additional pages as applicable).								
Stg No.	Stimulation 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)
1	4/13/2015	96.2	8336	7540	4304	388040	10797	N/A
2	4/14/2015	99.2	8067	5996	4781	377640	11423	N/A
3	4/15/2015	97.7	7438	5679	4572	402040	10866	N/A
4	4/15/2015	100	7666	5909	5043	400740	10831	N/A
5	4/15/2015	99.8	7454	6197	4614	400500	10986	N/A
6	4/15/2015	98.4	7501	5484	4680	399260	10477	N/A
7	4/16/2015	98	7193	5365	4505	399800	10922	N/A
8	4/16/2015	99	7823	5548	4825	402240	9415	N/A
9	4/16/2015	97.3	7268	5567	4782	412540	9364	N/A
10	4/17/2015	97.6	7201	5630	4919	408360	9197	N/A
11	4/17/2015	100	7211	5544	4819	401500	9302	N/A
12	4/17/2015	99	7206	5410	4961	400760	9338	N/A
13	4/17/2015	97.5	7162	5986	4727	399540	9275	N/A
14	4/18/2015	97.5	7445	5575	4824	398980	9241	N/A
15	4/18/2015	98.7	7418	5808	4899	394380	9514	N/A
16	4/19/2015	99.2	7239	6218	3829	391020	8507	N/A
17	4/19/2015	100	7215	5423	5006	400840	9202	N/A
18	4/19/2015	98.1	7367	5447	4951	400380	9201	N/A
19	4/19/2015	98.8	7124	6078	5107	402540	9460	N/A
20	4/20/2015	98.9	7198	6114	5004	402452	9885	N/A
21	4/20/2015	100	7426	5517	5145	369900	9289	N/A
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								

Received
Office of Oil & Gas
JUL 16 2015

10/23/2015

API: 47-051-01719	Well Name: Francis	Well Number: 12H
-------------------	--------------------	------------------

CEMENTING CONTRACTORS			
Name Schlumberger Technology Corp	Name Baker Hughes	Name	Name
Address Two Robinson Plaza, Suite 200	Address 5373 West Alabama, Suite 300	Address	Address
City - State - Zip Pittsburgh, PA 15205	City - State - Zip Houston, TX 77056	City - State - Zip	City - State - Zip

Received
Office of Oil & Gas
JUL 16 2015

API: 47-051-01719	Well Name: Francis	Well Number: 12H
-------------------	--------------------	------------------

DRILLING CONTRACTORS			
Driller	Driller	Driller	Driller
Name Rocky Mountain Drilling	Name Highlands Drilling LLC	Name Nabors Drilling USA	Name
Address 185 North Vernal Avenue, suite 2	Address 900 Virginia Street East	Address 10100 NW 10th Street	Address
City - State - Zip Vernal, UT 84078	City - State - Zip Charleston, WV 25301	City - State - Zip Oklahoma City, OK 73127	City - State - Zip

Received
Office of Oil & Gas
JUL 16 2015

10/23/2015

51-01719

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/13/2015
Job End Date:	4/20/2015
State:	West Virginia
County:	Marshall
API Number:	47-051-01719-00-00
Operator Name:	Chevron USA Inc.
Well Name and Number:	Francis 12H
Longitude:	-80.69239010
Latitude:	39.87302732
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,479
Total Base Water Volume (gal):	8,672,627
Total Base Non Water Volume:	



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
Base Fluid	Chevron	Carrier/Base Fluid	Water (Including Mix Water Supplied by Client)	7732-18-5	100.00000	89.32021	
Proppant	Schlumberger	Proppant	Crystalline Silica	14808-60-7	100.00000	10.52118	
J580	Schlumberger	Gelling Agent	Carbohydrate Polymer	Proprietary	100.00000	0.02438	
7.5% Acid	Schlumberger	Perf Cleanup	Hydrochloric Acid	7647-01-0	8.00000	0.00880	
J609W	Schlumberger	Friction Reducer	Ammonium Sulfate	7783-20-2	30.00000	0.00452	
M300	BASE Corporation	Biocide	Urea	57-13-6	5.00000	0.00075	
J042	Schlumberger	Iron Chelating Agent	Water	7732-18-5	75.00000	0.00171	
			Glutaral	111-30-8	25.00000	0.00057	
			Tetrasodium ethylenediaminetetraacetate	64-02-8	60.00000	0.00170	
			Trisodium nitrilotriacetate (im purity)	5064-31-3	10.00000	0.00028	
			Sodium hydroxide	1310-73-2	5.00000	0.00014	

Office of Oil & Gas
JUL 10 2015

Amended 6/24/15

51-01719

J134	Schlumberger	Gel Breaker	Hemicellulase enzyme	9012-64-8	100.00000	0.00122
L058	Schlumberger	Iron Stabilizer	Sodium erythorbate	5381-77-7	100.00000	0.00053
B317	Schlumberger	Scale Inhibitor	Trisodium ortho phosphate	7601-54-9	5.00000	0.00011
A264	Schlumberger	Corrosion Inhibitor	Ethane-1,2-diol	107-21-1	5.00000	0.00011
			Methanol	67-56-1	40.00000	0.00004
			Aliphatic acids	Proprietary	30.00000	0.00003
			Aliphatic alcohols, ethoxylated #1	Proprietary	30.00000	0.00003
			Prop-2-yn-1-ol	107-19-7	10.00000	0.00001
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.						

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

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)

Received
Office of Oil & Gas
JUL 16 2015

10/23/2015

Well is located on topo map 669 feet south of Latitude: 39° 52' 30"

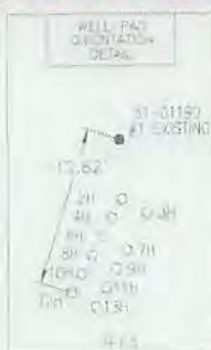
AS DRILLED PLAT

AS DRILLED APPROX. LANDING POINT
 UTM 17-NAD83
 N:4413595.3
 E:525692.8
 NAD83, WV NORTH
 N:501979.93
 E:1631826.22

PERMITTED APPROX. LANDING POINT
 UTM 17-NAD83
 N:4413526.62
 E:525748.75
 NAD83, WV NORTH
 N:501751.46
 E:1632006.08

NOTES:

- There are no water wells or developed springs within 250' of proposed well.
- There are no existing buildings within 625' of proposed well.
- Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
- There are no native trout streams within 300' of proposed well.
- Proposed well is greater than 1000' from surface/groundwater intake or public water supply. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.



LINE	BEARING	DISTANCE
R1	S 80° 2' 14" W	36.12'
R2	N 85° 56' 40" E	163.66'
R3	S 77° 45' 30" E	150.49'
R4	N 26° 03' 19" W	2653.95'
R5	N 08° 22' 28" W	2024.54'
R6	N 38° 56' 15" E	2491.35'

AS DRILLED BOTTOM HOLE LOCATION (BHL)
 UTM 17-NAD83
 N:4414652.7
 E:524830.6
 NAD83, WV NORTH
 N:505496.96
 E:1629054.95

PERMITTED BOTTOM HOLE LOCATION (BHL)
 UTM 17-NAD83
 N:4414658.31
 E:524841.02
 NAD83, WV NORTH
 N:505514.88
 E:1629089.47

PERMITTED SURFACE HOLE LOCATION (SHL)
 UTM 17-NAD83
 N:4413725.022
 E:526308.132
 NAD83, WV NORTH
 N:502371.830
 E:1633852.586

AS DRILLED SURFACE HOLE LOCATION (SHL)
 UTM 17-NAD83
 N:4413725.022
 E:526308.132
 NAD83, WV NORTH
 N:502371.830
 E:1633852.586

LEGEND

- TYPICAL POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- (A) — LEASE LETTER
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- ROAD
- STREAM CENTER LINE
- AS DRILLED
- EXISTING WELLS
- PLUGGED WELLS



PARCEL	LESSOR
A	BARBARA P. FRANCIS
B	BARBARA P. FRANCIS
C	RONALD A. HILL & MARTIN DEAN HILL
D	GUERRY J. & SUZANNE K. SCHUMAN
E	RICKY LEE & LISA MCGARY
F	RICKY LEE & LISA MCGARY
G	ROBERT V. & AGNES FERRELL
H	ROGER L. & JUDITH L. MCGARY
J	ROGER L. & JUDITH L. MCGARY
K	CHARLES V. WHITELATCH

Blue Mountain Inc.
 10125 MASON DIXON HIGHWAY
 BURTON, WV 26562
 PHONE: (304) 662-6486

FILE #: FRANCIS 12H-AS DRILLED
 DRAWING #: FRANCIS 12H-AS DRILLED
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

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]*
 R.P.E.: _____ L.L.S.: P.S. No. 2000

GEORGE D. SIX
 LICENSED
 No. 2000
 STATE OF WEST VIRGINIA
 PROFESSIONAL SURVEYOR
 PLACE SEAL HERE

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



DATE: JUNE 23, 2015
 OPERATOR'S WELL #: FRANCIS 12H-AS DRILLED
 API WELL #: 47 51 01719
 STATE COUNTY PERMIT

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

WATERSHED: MIDDLE GRAVE CREEK ELEVATION: 1260.12'
 COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: GLEN EASTON, WV 7.5'
 SURFACE OWNER: WILLIAMS OHIO VALLEY MIDSTREAM, LLC ACREAGE: 70.41±
 OIL & GAS ROYALTY OWNER: BARBARA P. FRANCIS ACREAGE: 387.019±

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,512'± TMD: 12,561'±
 WELL OPERATOR CHEVRON APPALACHIA, LLC DESIGNATED AGENT KENNETH E. TAWNEY
 Address 800 MOUNTAIN VIEW DRIVE Address 500 LEE STREET, EAST SUITE 1600
 City SMITHFIELD State PA Zip Code 15478 City CHARLESTON State WV Zip Code 25301-3202

Well is located on topo map 7.213 feet west of Longitude: 80° 40' 00"

10/23/2015