

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

API 47 - 051 - 01713 County Marshall District Clay
Quad Glen Easton Pad Name Francis Field/Pool Name _____
Farm name Francis Well Number 6H
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 4413737.147 Easting 526314.585
Landing Point of Curve Northing 4413903.3 Easting 526353.6
Bottom Hole Northing 4415334.2 Easting 525199.8

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 5/30/2014 Date drilling ceased 9/20/2014
Date completion activities began 3/3/2015 Date completion activities ceased 7/1/2015
Verbal plugging (Y/N) 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 619 - 648 Open mine(s) (Y/N) depths _____
Salt water depth(s) ft 1890' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 105-145', 490-520', 700-840', 1080-1190', 1475-1585', 1640-1660' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No but not sealed

WV Department of
Environmental Protection

Reviewed by:
JK 8/24/15
10/23/2015

API 47-051 - 01713 Farm name Francis Well number 6H

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	685	New	J-55; 54.50		
Coal							
Intermediate 1	12-1/4	9-5/8	2653	New	L-80; 40		
Intermediate 2							
Intermediate 3							
Production	8-1/2	5-1/2	13150	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	768	Surface	8.0
Coal							
Intermediate 1	Class A	918	15.6	1.21	1179	Surface	8.0
Intermediate 2							
Intermediate 3							
Production	Class A	2562	15.2	1.25	3195		
Tubing							

Drillers TD (ft) ¹³¹⁹³ 6452 Loggers TD (ft) ¹³¹⁹³ _____
 Deepest formation penetrated Marcellus Shale Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) ⁴³¹⁸ _____

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 joints on the Surface string and Intermediate. Two centralizer every jt in the lateral and curve, then one every two jts from KOP to surface

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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 _____

API: 47-051-01713	Well Name: Francis	Well Number: 6H
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PERFORATION RECORD					
Stage No.	Perforation Date	Perforated From TMD Ft.	Perforated To TMD Ft.	Number of Perforations	Formation(s)
1	4/24/2015	13118	12956	50	Marcellus
2	4/24/2015	12918	12756	50	Marcellus
3	4/25/2015	12718	12556	50	Marcellus
4	4/26/2015	12518	12356	50	Marcellus
5	4/26/2015	12318	12156	50	Marcellus
6	4/27/2015	12118	11956	50	Marcellus
7	4/27/2015	11918	11756	50	Marcellus
8	4/27/2015	11718	11556	50	Marcellus
9	4/28/2014	11518	11356	50	Marcellus
10	4/28/2015	11318	11156	50	Marcellus
11	4/28/2015	11113	10996	50	Marcellus
12	4/29/2015	10918	10756	50	Marcellus
13	4/29/2015	10718	10553	50	Marcellus
14	4/29/2015	10361	10514	50	Marcellus
15	4/30/2015	10323	10156	50	Marcellus
16	5/1/2015	10118	9956	50	Marcellus
17	5/1/2015	9918	9756	50	Marcellus
18	5/2/2015	9711	9556	50	Marcellus
19	5/2/2015	9518	9356	50	Marcellus
20	5/2/2015	9318	9156	50	Marcellus
21	5/2/2015	9118	8961	50	Marcellus
22	5/3/2015	8918	8756	50	Marcellus
23	5/3/2015	8718	8556	50	Marcellus
24	5/3/2015	8518	8356	50	Marcellus
25	5/4/2015	8318	8156	50	Marcellus
26	5/4/2015	8118	7951	50	Marcellus
27	5/4/2015	7911	7759	50	Marcellus
28	5/4/2015	7718	7556	50	Marcellus
29	5/4/2015	7518	7356	50	Marcellus
30	5/5/2015	7318	7156	50	Marcellus
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Please insert additional copies of this page if additional rows/stages are needed.

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10/23/2015

API: 47-051-01713	Well Name: Francis	Well Number: 6H
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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	4/24/2015	95.2	8449	6398	4378	403800	10816	
2	4/24/2015	98.8	8179	5877	4621	402780	13164	
3	4/25/2015	96.2	8497	5590	4794	355340	12355	
4	4/26/2015	96.2	8464	6620	4662	399400	11367	
5	4/26/2015	98.7	8187	5609	4485	399180	11923	
6	4/27/2015	99.2	8251	6040	4761	407400	12183	
7	4/27/2015	100.1	7789	5442	4630	403240	11240	
8	4/27/2015	99.3	7764	5403	4621	405080	10474	
9	4/28/2014	99.2	8076	6016	4656	406260	9666	
10	4/28/2015	94.5	8094	5729	4790	400000	8708	
11	4/28/2015	99.7	7827	5570	4829	403780	10907	
12	4/29/2015	98.9	8033	5871	4553	403400	9441	
13	4/29/2015	95	7604	5458	4918	400620	10484	
14	4/29/2015	97.6	8413	5367	4912	348060	9130	
15	4/30/2015	99	8219	5389	4945	400700	8529	
16	5/1/2015	98.2	8042	5745	5068	398180	8891	
17	5/1/2015	96.1	8195	6127	4746	395677	11727	
18	5/2/2015	96.3	7981	6089	5076	400560	9527	
19	5/2/2015	98.9	7794	5840	5195	401060	10207	
20	5/2/2015	97.2	7533	5541	5023	393420	10065	
21	5/2/2015	99.7	8084	5362	4988	401700	9237	
22	5/3/2015	99.3	7890	5797	5029	404380	9294	
23	5/3/2015	92.2	7817	6151	5153	392220	10279	
24	5/3/2015	97.5	7764	5318	5318	396300	9221	
25	5/4/2015	99.2	7500	5639	5003	402100	9191	
26	5/4/2015	99.5	7442	5541	4871	401340	9206	
27	5/4/2015	97.2	7391	6656	5125	397720	9299	
28	5/4/2015	96.8	7200	5678	5167	398200	9243	
29	5/4/2015	99.4	7362	6310	4920	401700	9179	
30	5/5/2015	99.4	7405	6522	4870	416720	9120	
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API 47- 051 - 01713 Farm name Francis Well number 66392H

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' 25bbbls/hr)
Burgoon (Big Injun)	1940	2130	1938	2128	SS: offwh, wh, cons, clr, trans, lccmt, 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, crs, lccmt, mg-fg, sbang-ang, arg, msp, non calc, tr floor, exl fast cut, fnt odr, lse pyr
Burket Shale	6392	6411	6602	6633	SH: drkgy, v. drkgy, frm, slty, grty, sbbiky-sbfiss, modcalc, embd calc, lse calct
Tully Limestone	6411	6443	6633	6692	LS: ltgy, gy, mgy, frm-hrd, dns, cln, mic-fxln, v. arg
Hamilton Shale	6443	6522	6692	6932	SH: drkgy, v. drkgy, frm, slty, grty, sbbiky-sbfiss, carb, modv. calc, lse calct, w/LS
Marcellus Shale	6522		6932		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 Baker Hughes
 Address 5373 West Alabama, Suite 300 City Houston State TX Zip 77056

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

Please insert additional pages as applicable.

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Completed by Jackie M. Scholar Telephone 724-564-3721
 Signature *Jackie M. Scholar* Title Regulatory Compliance Team Lead Date 7/14/2015 WV Department of
 Environmental Protection

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

10/23/2015

API: 47-051-01713	Well Name: Francis	Well Number: 6H
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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

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Environmental Protection

51-01713

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/24/2015
Job End Date:	5/5/2015
State:	West Virginia
County:	Marshall
API Number:	47-051-01713-00-00
Operator Name:	Chevron USA Inc.
Well Name and Number:	Francis 6H
Longitude:	-80.69231500
Latitude:	39.87313600
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,452
Total Base Water Volume (gal):	12,813,043
Total Base Non Water Volume:	



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Abstract 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	89.60324	
Proppant	Schlumberger	Proppant	Crystalline Silica	14808-60-7	100.00000	10.20952	
J580	Schlumberger	Gelling Agent, Water	Carbohydrate Polymer	Proprietary	100.00000	0.05012	
7.5% Acid	Schlumberger	Perf Cleanup	Hydrochloric Acid	7647-01-0	8.00000	0.00882	
J609W	Schlumberger	Friction Reducer	Ammonium Sulfate	7783-20-2	30.00000	0.00459	
			Urea	57-13-6	5.00000	0.00077	
J134	Schlumberger	Gel Breaker	Hemicellulase enzyme	9012-54-8	100.00000	0.00337	
J300	BASF Corporation	Biocide	Water	7732-18-5	75.00000	0.00177	
			Glutaral	111-30-8	25.00000	0.00059	
J042	Schlumberger	Iron Chelating Agent	Tetrasodium ethylenediaminetetraacetate	64-02-8	60.00000	0.00176	

Amended 6/24/15

51-01713

			Trisodium nitrioltriacetate (im purity)	5064-31-3	10.00000	0.00029
L058	Schlumberger	Iron Stabilizer	Sodium hydroxide	1310-73-2	5.00000	0.00015
B317	Schlumberger	Scale Inhibitor	Sodium erythorbate	5381-77-7	100.00000	0.00053
			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	0.00006
			Aliphatic alcohols, ethoxylated #1	Proprietary	30.00000	0.00004
			Aliphatic acids	Proprietary	30.00000	0.00004
			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)

Well is located on topo map 629 feet south of Latitude: 39° 52' 30"

AS DRILLED APPROX. LANDING POINT
 UTM 17-NAD83
 N:4413903.3
 E:526353.6
 NAD83, WV NORTH
 N:502954.46
 E:1634011.60

PERMITTED APPROX. LANDING POINT
 UTM 17-NAD83
 N:4413883.62
 E:526360.78
 NAD83, WV NORTH
 N:502889.37
 E:1634034.06

AS DRILLED PLAT

AS DRILLED BOTTOM HOLE LOCATION (BHL)
 UTM 17-NAD83
 N:4415334.2
 E:525199.8
 NAD83, WV NORTH
 N:507712.99
 E:1630303.90

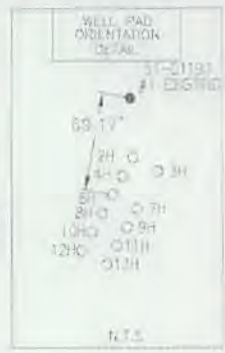
PERMITTED BOTTOM HOLE LOCATION (BHL)
 UTM 17-NAD83
 N:4415333.26
 E:525198.03
 NAD83, WV NORTH
 N:507710.14
 E:1630298.01

AS DRILLED SURFACE HOLE LOCATION (SHL)
 UTM 17-NAD83
 N:4413737.147
 E:526314.585
 NAD83, WV NORTH
 N:502411.262
 E:1633874.426

PERMITTED SURFACE HOLE LOCATION (SHL)
 UTM 17-NAD83
 N:4413737.147
 E:526314.585
 NAD83, WV NORTH
 N:502411.262
 E:1633874.426

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.



LEGEND

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

Well is located on topo map 7.191 feet west of Longitude: 80° 40' 00"



LINE	BEARING	DISTANCE
R1	S 72°01'50" W	156.44'
R2	E 79°43'35" E	163.51'
R3	S 60°46'53" E	181.69'
R4	N 06°53'52" W	2006.79'
R5	N 49°12'34" E	2163.10'
R6	N 60°36'54" E	2406.29'

PARCEL	LESSOR
A	BARBARA P. FRANCIS
B	BARBARA P. FRANCIS
C	BARBARA P. FRANCIS
D	JOSEPH D. & NELLIE B. PARTRIT
E	TIMOTHY S. & SHIRLEY M. DULANY
F	RICHARD WILEY & NANCY J. WOODS

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

FILE #: FRANCIS 6H-AS DRILLED
 DRAWING #: FRANCIS 6H-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: *George D. Six*
 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 6H-AS DRILLED
 API WELL #: 47 51 **01713**
 STATE COUNTY PERMIT

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

WATERSHED: MIDDLE GRAVE CREEK ELEVATION: 1260.66'
 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: 535.129±

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: 13,143'±
 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

10/23/2015