

Form



**COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT**

**Well Record
(Unconventional Operators Only)**

DEP USE ONLY	
Site ID	Client Id
Primary Facility Id	Sub Facility Id

WELL INFORMATION													
Well Operator XTO ENERGY INC.			DEP ID# 265476		US Well No. (API No.) 37-019-22800-00-00			Farm Name Patton C		Well # 2H			
Address 190 Thorn Hill Road					Latitude (DD) 40.894711		NAD 83		Project Number		Serial #		
City Warrendale					State PA		Zip 15086		Municipality Prospect Boro		County Butler		
Phone 724-772-3500			Email melissa_breitenbach@xtoenergy.com			Borrow Pit N/A			USGS 7.5 min. quadrangle map Prospect			Section 8	

Check the appropriate Submission: ☒ Original Well Record ☐ Amended Well Record

Well Type		☒ Gas		Wellbore Conditioning:	
Well Orientation		☐ Vertical ☒ Deviated from Vertical (Top & Side views & Deviation Survey must be attached)		Surface Casing: Pumped 190 bbls H2O to break circulation and test lines, 50 bbls gel spacer, pump 5 bbls H2O to establish circulation prior to pumping cement.	
Drill Method(s)		☒ Rotary - Air 0-5,000' ☐ Rotary - Mud ☐ Cable Tool ☐ Other		Intermediate Casing: Pump 200 bbls H2O to establish circulation prior to pumping cement.	
Drilling Started 3/15/2019		Surface Elev. 1,300ft.		GW Depth 70 ft.	
Drilling Complete N/A		True Vertical Depth 4,607 ft.		Depth of DFGW 400 ft.	
Date Well Completed N/A		Total Measured Depth 5,000 ft.		DFGW decided by: 5 Geologist Determination	

CEMENT			
Cement returned on surface casing?		☒ Yes ☐ No	
Cement returned on coal protective casing?		☐ Yes ☐ No	
Cement returned on intermediate casing?		☒ Yes ☐ No	
If No, provide depth to top of cement and method used to determine:		☒ NA	
If No, provide depth to top of cement and method used to determine:		☐ NA	

Casing String	Type/Class of Cement (Lead/Tail)	Slurry Temp F°	Amount of Cement (sks) (Lead/Tail/Total)	WOC hrs	WT PPG	Yld ft³/sk	Gas Migration Controls Used
Conductor	Concrete /	60 °	90 / / 90	8			What controls were used if any (additives/ hardware. Specify type and depth applicable). Intermediate: 0.4% fluid loss additive
Surface	/ Class A	70 °	/ 530 / 530	8	15.60	1.22	
Intermediate	/ Class A	70 °	/ 650 / 650	8	15.60	1.21	
Production	/		/ /				
If additional strings attach form(s)			Total		1,270		

CASING AND TUBING											
Hole Size	Pipe Size	Wt. #/ft.	Grade Casing / Tubing Type	Thread / Weld - New/ Used	Amount in Well (ft.)	CO	R	Hardware - Baskets / Packer / Centralizers (Total/String) Type	Size	Depth	Date Run
30	24	95	A-252	W - N	40	TR	N		24	40	3/15/2019
17 1/2	13 3/8	48	H-40	T - N	553	CA	Y	5 Centralizers F Shoe	13 3/8	68-430 553	4/18/2019
12 3/8	9 5/8	36	J55	T - N	1,886	CA	Y	15 Centralizers F Shoe	9 5/8	91-1,843 1,886	4/21/2019

If any casing is welded, provide the name(s) of the welder(s): Ryan McCulley Lightning Energy

PLUG-BACK/WELLBORE ALTERATION						
Fill Material & Plugs	Depth		Date	Casing & Tubing		
	From	To		Size	Pulled	Left

LOG OF FORMATIONS

US Well No. (API No.): 37-019-22800-00-00

(If you will need more space than this page, please photocopy the blank form before filling it in.)

Formation Name or Lithology	Top (feet)	Bottom (feet)	Gas at (feet)	Oil at (feet)	Water at (fresh / brine; ft.)	Source of Data
Cellar	-----0	8				Drillers Log
Shale	8	14				Drillers Log
Sandstone	14	20				Drillers Log
Limestone	20	27				Drillers Log
Sandstone	27	37				Drillers Log
Limestone	37	40				Drillers Log
Shale	40	260			FW 70	Drillers Log
Sandstone	260	350				Drillers Log
Sandy Shale	350	420			FW 400	Drillers Log
Sandstone	420	516				Drillers Log
Sandy Shale	516	565				Drillers Log
Sandstone	565	610				Drillers Log
Sandy Shale	610	705				Drillers Log
Shale	705	800				Drillers Log
Sandy Shale	800	863				Drillers Log
Shale	863	1116				Drillers Log
Sandy Shale	1116	1211				Drillers Log
Sandstone	1211	1250				Drillers Log
Sandy Shale	1250	1385				Drillers Log
Sandstone	1385	1440				Drillers Log
Sandy Shale	1440	1510	1441	1441		Drillers Log
Sandstone	1510	1540				Drillers Log
Sandstone/White	1540	1573				Drillers Log
Sandy Shale	1573	1667				Drillers Log
Shale	1667	2650				Drillers Log
Sandy Shale	2650	2700				Drillers Log
Shale	2700	2810				Drillers Log

If no show of oil, gas or water, explain why:

WELL SERVICE COMPANIES (Provide the name, address, and telephone number of all well service companies involved.)

Casing Source	Cementing Company	Hardware Supplier	Logging Company
Name Ken Miller Supply, Inc.	Name Lightning Energy C&J Energy	Name Ken Miller Supply, Inc.	Name N/A
Address 5484 Route 286 Hwy East	Address 415 Benedum Dr. 380 Southpointe Blvd., Suite 210	Address 5484 Route 286 Hwy East	Address
City - State - Zip Indiana PA 15701	City - State - Zip Bridgeport WV 26330 Canonsburg PA 15317	City - State - Zip Indiana PA 15701	City - State - Zip
Phone 724-465-8875	Phone 304-933-3544 724-541-1018	Phone 724-465-8875	Phone

I do hereby certify to the best of my knowledge, information and belief that the well identified on this Well Record has been properly cased and cemented in accordance with the requirements of 25 Pa. Code Chapter 78a and any conditions contained in the permit for this well. In addition, I do hereby certify that any casing which is attached to a blow-out preventer with a pressure rating greater than 3,000 psi has passed a pressure test in accordance with 25 Pa. Code §78a.84(f). I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Driller	Well Operator's Signature	DEP USE ONLY
Name Appalachian Drillers	 Printed Name / Title: Melissa Breitenbach / Regulatory Coordinator Date: 10/15/2019	Reviewed by:
Rig 1		
Address 409 Butler Road, Suite A		
City - State - Zip Kittanning PA 16201-4403		Comments:
Phone (814) 341-9425		

LOG OF FORMATIONS

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Formation Name or Lithology	Top (feet)	Bottom (feet)	Gas at (feet)	Oil at (feet)	Water at (fresh / brine; ft.)	Source of Data
Sandy Shale	2801	2900				Drillers Log
Shale	2900	2980				Drillers Log
Sand	2980	2905				Drillers Log
Shale	2905	3180				Drillers Log
Sandy Shale	3180	3800				Drillers Log
Sandy Shale	3800	3900				Drillers Log
Shale	3900	4950				Drillers Log
Sandy Shale	4950					Drillers Log

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Phone (814) 341-9425		

XTO Energy

Coretsky/Patton, Butler County, PA
Coretsky/Patton
Patton C2H
C2H

Design: C2H

Javins Corporation Survey Report

16 October, 2019



Javins Corporation
Javins Corporation Survey Report



Company:	XTO Energy	Local Co-ordinate Reference:	Well Patton C2H
Project:	Coretsky/Patton, Butler County, PA	TVD Reference:	WELL @ 1300.0usft (Original Well Elev)
Site:	Coretsky/Patton	MD Reference:	WELL @ 1300.0usft (Original Well Elev)
Well:	Patton C2H	North Reference:	True
Wellbore:	C2H	Survey Calculation Method:	Minimum Curvature
Design:	C2H	Database:	EDM 5000.1 Single User Db

Project	Coretsky/Patton, Butler County, PA, Butler County PA		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Ground Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Pennsylvania South 3702		

Site	Coretsky/Patton		
Site Position:		Northing:	577,069.18 usft
From:	Lat/Long	Easting:	1,363,350.73 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	40° 53' 40.700 N
		Longitude:	80° 3' 10.730 W
		Grid Convergence:	-1.49 °

Well		Patton C2H				
Well Position	+N/-S	0.0 usft	Northing:	577,071.16 usft	Latitude:	40° 53' 40.730 N
	+E/-W	0.0 usft	Easting:	1,363,390.73 usft	Longitude:	80° 3' 10.210 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,300.0 usft

Wellbore	C2H				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	-9.19	68.40	53,497

Design	C2H			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	144.26

Javins Corporation
Javins Corporation Survey Report



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Project:	Coretsky/Patton, Butler County, PA	TVD Reference:	WELL @ 1300.0usft (Original Well Elev)
Site:	Coretsky/Patton	MD Reference:	WELL @ 1300.0usft (Original Well Elev)
Well:	Patton C2H	North Reference:	True
Wellbore:	C2H	Survey Calculation Method:	Minimum Curvature
Design:	C2H	Database:	EDM 5000.1 Single User Db

Survey Program		Date 4/24/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
50.0	1,800.0	Gyro Surveys (C2H)	Javins Gyro	Surface Read Out Inertial Gyroscope
1,909.0	4,939.0	MWD Surveys (C2H)	MWD	OWSG MWD - Standard

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	CL (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.00	0.00	
50.0	0.30	289.40	50.0	50.0	0.0	-0.1	-0.1	0.1	289.40	0.60	
100.0	0.03	112.10	50.0	100.0	0.1	-0.2	-0.2	0.2	289.26	0.66	
150.0	0.20	288.90	50.0	150.0	0.1	-0.3	-0.3	0.3	289.05	0.46	
200.0	0.36	258.60	50.0	200.0	0.1	-0.5	-0.4	0.6	280.72	0.43	
250.0	0.26	245.50	50.0	250.0	0.0	-0.8	-0.5	0.8	271.76	0.24	
300.0	0.48	231.70	50.0	300.0	-0.2	-1.1	-0.5	1.1	261.87	0.47	
350.0	0.44	229.80	50.0	350.0	-0.4	-1.4	-0.5	1.4	253.58	0.09	
400.0	0.39	227.60	50.0	400.0	-0.6	-1.6	-0.4	1.8	248.66	0.10	
450.0	0.34	219.30	50.0	450.0	-0.9	-1.9	-0.4	2.1	244.94	0.15	
500.0	0.19	233.90	50.0	500.0	-1.0	-2.0	-0.3	2.3	242.92	0.33	
550.0	0.24	230.60	50.0	550.0	-1.2	-2.2	-0.3	2.5	242.10	0.10	
600.0	0.10	239.10	50.0	600.0	-1.2	-2.3	-0.3	2.6	241.59	0.28	
650.0	0.27	206.00	50.0	650.0	-1.4	-2.4	-0.3	2.8	240.13	0.39	
700.0	0.15	199.90	50.0	700.0	-1.5	-2.5	-0.2	2.9	237.99	0.24	
750.0	0.31	175.00	50.0	750.0	-1.7	-2.5	0.0	3.0	234.93	0.37	
800.0	0.50	172.50	50.0	800.0	-2.1	-2.4	0.3	3.2	229.37	0.38	
850.0	0.70	176.60	50.0	850.0	-2.6	-2.4	0.7	3.5	222.44	0.41	
900.0	0.41	204.80	50.0	900.0	-3.1	-2.4	1.1	3.9	218.45	0.78	
950.0	0.61	209.80	50.0	950.0	-3.5	-2.6	1.3	4.4	217.37	0.41	
1,000.0	0.43	213.80	50.0	1,000.0	-3.9	-2.9	1.4	4.8	216.81	0.37	

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Wellbore:	C2H	Survey Calculation Method:	Minimum Curvature
Design:	C2H	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	CL (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	Closure Distance (usft)	Closure Azimuth (°)	DLeg (°/100usft)	
1,050.0	0.36	267.70	50.0	1,050.0	-4.0	-3.1	1.4	5.1	218.07	0.73	
1,100.0	0.92	321.20	50.0	1,100.0	-3.7	-3.6	0.9	5.1	223.77	1.53	
1,150.0	1.44	333.30	50.0	1,150.0	-2.8	-4.1	-0.1	5.0	235.25	1.15	
1,200.0	1.44	331.30	50.0	1,200.0	-1.7	-4.7	-1.3	5.0	249.75	0.10	
1,250.0	1.67	337.30	50.0	1,249.9	-0.5	-5.3	-2.7	5.3	264.57	0.56	
1,300.0	1.68	333.20	50.0	1,299.9	0.8	-5.9	-4.1	5.9	278.02	0.24	
1,350.0	1.81	335.20	50.0	1,349.9	2.2	-6.5	-5.6	6.9	288.60	0.29	
1,400.0	1.99	336.20	50.0	1,399.9	3.7	-7.2	-7.2	8.1	297.22	0.37	
1,450.0	0.95	336.20	50.0	1,449.8	4.9	-7.7	-8.5	9.1	302.29	2.08	
1,500.0	0.74	328.50	50.0	1,499.8	5.5	-8.1	-9.2	9.8	304.48	0.48	
1,550.0	0.65	327.60	50.0	1,549.8	6.1	-8.4	-9.8	10.3	305.82	0.18	
1,600.0	0.55	328.80	50.0	1,599.8	6.5	-8.7	-10.3	10.8	306.87	0.20	
1,650.0	0.61	333.40	50.0	1,649.8	6.9	-8.9	-10.8	11.3	307.93	0.15	
1,700.0	0.48	331.50	50.0	1,699.8	7.4	-9.1	-11.3	11.7	308.90	0.26	
1,750.0	0.49	331.00	50.0	1,749.8	7.7	-9.3	-11.7	12.1	309.66	0.02	
1,800.0	0.28	339.80	50.0	1,799.8	8.0	-9.5	-12.1	12.4	310.30	0.44	
1,909.0	0.63	284.76	109.0	1,908.8	8.4	-10.1	-12.8	13.2	309.75	0.48	
2,003.0	1.64	167.10	94.0	2,002.8	7.3	-10.3	-11.9	12.6	305.06	2.14	
2,098.0	6.06	150.32	95.0	2,097.6	1.6	-7.6	-5.7	7.7	281.76	4.75	
2,193.0	10.22	135.22	95.0	2,191.6	-8.8	0.9	7.6	8.8	174.34	4.89	
2,287.0	14.51	121.35	94.0	2,283.4	-20.8	16.8	26.7	26.8	141.09	5.52	
2,382.0	18.44	123.07	95.0	2,374.5	-35.2	39.6	51.7	53.0	131.67	4.17	
2,476.0	21.84	127.87	94.0	2,462.7	-54.1	65.8	82.4	85.2	129.39	4.02	
2,573.0	24.62	133.89	97.0	2,551.9	-79.2	94.7	119.5	123.4	129.91	3.77	
2,668.0	28.00	136.57	95.0	2,637.0	-109.1	124.3	161.1	165.4	131.28	3.77	
2,762.0	32.18	138.01	94.0	2,718.4	-143.7	156.2	207.9	212.3	132.62	4.51	
2,857.0	34.14	137.75	95.0	2,797.9	-182.3	191.0	259.5	264.0	133.65	2.07	

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2,951.0	34.31	134.24	94.0	2,875.6	-220.3	227.8	311.8	316.9	134.04	2.11
3,046.0	33.49	131.26	95.0	2,954.5	-256.3	266.6	363.7	369.8	133.86	1.95
3,141.0	31.99	127.60	95.0	3,034.4	-288.9	306.3	413.4	421.0	133.33	2.61
3,236.0	31.17	128.92	95.0	3,115.3	-319.7	345.4	461.2	470.6	132.79	1.13
3,331.0	30.82	132.75	95.0	3,196.8	-351.7	382.4	508.8	519.5	132.61	2.11
3,425.0	31.09	134.43	94.0	3,277.4	-385.0	417.4	556.3	567.8	132.69	0.96
3,520.0	32.13	134.48	95.0	3,358.3	-419.9	452.9	605.4	617.6	132.83	1.10
3,615.0	32.11	133.73	95.0	3,438.7	-455.0	489.2	655.1	668.1	132.93	0.42
3,709.0	32.59	132.79	94.0	3,518.1	-489.5	525.8	704.4	718.4	132.95	0.74
3,807.0	32.34	133.11	98.0	3,600.8	-525.3	564.3	756.0	771.0	132.95	0.31
3,901.0	32.64	134.05	94.0	3,680.1	-560.1	600.9	805.6	821.5	132.99	0.62
3,996.0	32.29	134.80	95.0	3,760.3	-595.8	637.3	855.9	872.5	133.07	0.56
4,090.0	31.12	133.46	94.0	3,840.2	-630.2	672.8	904.5	921.9	133.13	1.45
4,185.0	32.22	135.33	95.0	3,921.1	-665.1	708.4	953.7	971.7	133.20	1.55
4,280.0	34.08	136.48	95.0	4,000.6	-702.5	744.5	1,005.0	1,023.6	133.33	2.07
4,374.0	32.57	133.38	94.0	4,079.2	-738.9	781.1	1,056.0	1,075.2	133.41	2.42
4,469.0	33.27	135.55	95.0	4,158.9	-775.1	817.9	1,106.9	1,126.8	133.46	1.44
4,564.0	32.46	132.97	95.0	4,238.7	-811.1	854.8	1,157.6	1,178.4	133.50	1.70
4,658.0	31.77	135.33	94.0	4,318.3	-845.9	890.7	1,206.8	1,228.3	133.52	1.52
4,753.0	33.36	136.03	95.0	4,398.4	-882.5	926.4	1,257.4	1,279.4	133.61	1.72
4,848.0	32.25	132.69	95.0	4,478.3	-918.5	963.1	1,308.1	1,330.9	133.64	2.23
4,939.0	31.64	133.56	91.0	4,555.5	-951.4	998.3	1,355.3	1,379.0	133.62	0.84

Checked By: _____	Approved By: _____	Date: _____
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