

Reviewed

John C. ...
12/19/18

WR-35
Rev. 8/23/13

Page ___ of ___

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

API 47-049-02423 County Marion District Lincoln
Quad Shinnston Pad Name Worthington Field/Pool Name Marcellus
Farm name XTO Energy Inc. Well Number Worthington C 6H
Operator (as registered with the OOG) XTO Energy Inc.
Address PO Box 1008 City Jane Lew State WV Zip 26378

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4370699.207 Easting 558346.378
Landing Point of Curve Northing 4370860.651 Easting 559249.105
Bottom Hole Northing 4373264.204 Easting 558616.153

Elevation (ft) 1,194' 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)
SOBM

Date permit issued 2/28/17 Date drilling commenced 10/5/17 Date drilling ceased 4/19/18
Date completion activities began 6/30/18 Date completion activities ceased 7/30/18
Verbal plugging (Y/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 None Seen Open mine(s) (Y/N) depths 469-479
Salt water depth(s) ft None Seen Void(s) encountered (Y/N) depths N
Coal depth(s) ft 203-208, 222-226, 469-479 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

RECEIVED
Office of Oil and Gas
469-479
OCT 26 2018
WV Department of
Environmental Protection

Reviewed by: _____

API 47-049 - 02423 Farm name XTO Energy Inc. Well number Worthington C 6H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	30"	24"	40	New	PE&B, 94.62 #		Y
Surface	22"	18 5/8"	350.5	New	J-55, 87.50 #		Y
Coal	17 1/2"	13 3/8"	558.5	New	H-40, 48 #	471' & ~450'	N
Intermediate 1	12 3/8" / 12 1/4"	9 5/8"	3,220.6	New	J-55, 36#		Y
Intermediate 2							
Intermediate 3							
Production	8 3/4" / 8 1/2"	5 1/2"	17,422	New	CYP-110, 23 #		TOC - est 2,250'
Tubing							
Packer type and depth set							

Comment Details Coal string - 75 bbls on basket on backside to surface. Cement basket at 471', stop ring and basket ~450'.

Hole problems with original lateral - plugged back and drilled sidetrack.

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	Redi-Mix	5 yards				0	8
Surface	A	385	15.60	1.20	462	0	8
Coal	A	290/304	15.60/15.60	1.20/1.20	348 / 365	0	8
Intermediate 1	A	1,125	15.60	1.21	1,361.25	0	8
Intermediate 2							
Intermediate 3							
Production	35/65 POZ A/H Ld/Cls H Tail	480 / 1840	15.20 / 15.60	1.10 / 1.57	528 / 2,888.8	TOC - est 2,250'	8
Tubing							

Drillers TD (ft) 17,462' Loggers TD (ft) 17,462'

Deepest formation penetrated Marcellus Plug back to (ft) _____

Plug back procedure _____

Kick off depth (ft) 4,064'

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 _____

Surface - Every 3rd Joint

Intermediate - Every Joint

Production - Every Joint

RECEIVED
Office of Oil and Gas

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____ **OCT 26 2018**

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____ WV Department of Environmental Protection

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

* Verbal permission given by Sam Ward for cased casing string

Perforation Record Worthington C 6H 47-049-02423

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
7/19/2018	1	17,103.00	17,289.00	66	Marcellus
7/20/2018	2	16,899.00	17,033.00	48	Marcellus
7/20/2018	3	16,695.00	16,829.00	48	Marcellus
7/20/2018	4	16,495.00	16,620.00	48	Marcellus
7/20/2018	5	16,287.00	16,421.00	48	Marcellus
7/21/2018	6	16,083.00	16,220.00	48	Marcellus
7/21/2018	7	15,879.00	16,013.00	48	Marcellus
7/21/2018	8	15,672.00	15,809.00	48	Marcellus
7/22/2018	9	15,471.00	15,605.00	48	Marcellus
7/22/2018	10	15,267.00	15,401.00	48	Marcellus
7/22/2018	11	15,062.00	15,192.00	48	Marcellus
7/22/2018	12	14,859.00	14,993.00	48	Marcellus
7/23/2018	13	14,655.00	14,791.00	48	Marcellus
7/23/2018	14	14,451.00	14,585.00	48	Marcellus
7/23/2018	15	14,247.00	14,381.00	48	Marcellus
7/24/2018	16	14,043.00	14,177.00	48	Marcellus
7/24/2018	17	13,835.00	13,973.00	48	Marcellus
7/25/2018	18	13,635.00	13,769.00	48	Marcellus
7/25/2018	19	13,436.00	13,565.00	48	Marcellus
7/25/2018	20	13,227.00	13,361.00	48	Marcellus
7/25/2018	21	13,023.00	13,157.00	48	Marcellus
7/26/2018	22	12,819.00	12,957.00	48	Marcellus
7/26/2018	23	12,615.00	12,749.00	48	Marcellus
7/26/2018	24	12,411.00	12,545.00	48	Marcellus
7/26/2018	25	12,207.00	12,338.00	48	Marcellus
7/27/2018	26	12,003.00	12,137.00	48	Marcellus
7/27/2018	27	11,799.00	11,933.00	48	Marcellus
7/27/2018	28	11,595.00	11,729.00	48	Marcellus
7/27/2018	29	11,391.00	11,525.00	48	Marcellus
7/28/2018	30	11,182.00	11,317.00	48	Marcellus
7/28/2018	31	10,983.00	11,117.00	48	Marcellus
7/28/2018	32	10,779.00	10,913.00	48	Marcellus
7/28/2018	33	10,575.00	10,714.00	48	Marcellus
7/29/2018	34	10,371.00	10,505.00	48	Marcellus
7/29/2018	35	10,167.00	10,301.00	48	Marcellus
7/29/2018	36	9,967.00	10,101.00	48	Marcellus
7/29/2018	37	9,759.00	9,893.00	48	Marcellus
7/30/2018	38	9,555.00	9,689.00	48	Marcellus
7/30/2018	39	9,351.00	9,485.00	48	Marcellus
7/30/2018	40	9,147.00	9,277.00	48	Marcellus
7/30/2018	41	8,943.00	9,077.00	48	Marcellus

Stimulation Information Per Stage Worthington C 6H 47-049-02423

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)
1	7/19/2018	83.2	8,975.80	7,365.10	4,385.00	400,580.00	12,133.00	
2	7/20/2018	84.6	9,115.00	8,308.70	5,055.00	395,540.00	11,744.00	
3	7/20/2018	84.6	8,598.30	7,555.20	5,031.00	394,540.00	12,116.00	
4	7/20/2018	82	8,859.20	7,190.30	5,484.00	290,860.00	9,876.00	
5	7/20/2018	84.9	8,504.40	6,581.30	5,379.00	285,680.00	9,920.00	
6	7/21/2018	84.3	8,689.10	7,878.20	5,053.00	399,740.00	11,377.00	
7	7/21/2018	84	8,473.20	6,994.10	5,193.00	402,340.00	11,391.00	
8	7/21/2018	85.5	8,506.10	6,831.60	4,882.00	397,120.00	11,859.00	
9	7/22/2018	84.6	8,607.90	6,579.60	5,368.00	398,640.00	12,010.00	
10	7/22/2018	83.6	8,923.20	8,355.90	5,376.00	399,140.00	11,405.00	
11	7/22/2018	83.8	9,270.00	7,789.10	5,858.00	189,920.00	11,038.00	
12	7/22/2018	82.6	9,196.70	7,051.00	5,956.00	123,800.00	9,163.00	
13	7/23/2018	84.5	8,755.30	6,896.50	5,308.00	399,300.00	12,461.00	
14	7/23/2018	84.9	8,681.10	7,411.50	5,396.00	403,700.00	12,227.00	
15	7/23/2018	85.5	8,703.00	6,735.80	5,605.00	398,800.00	11,815.00	
16	7/24/2018	85	8,445.00	7,373.30	6,320.00	394,940.00	12,990.00	
17	7/24/2018	86	8,571.30	7,229.90	6,493.00	395,160.00	11,379.00	
18	7/25/2018	84.6	8,411.60	7,196.80	5,393.00	403,440.00	12,053.00	
19	7/25/2018	85.2	8,641.10	6,582.30	5,939.00	398,680.00	11,954.00	
20	7/25/2018	85.7	8,226.20	6,325.90	6,206.00	393,960.00	11,530.00	
21	7/25/2018	82.8	8,698.70	6,677.60	5,966.00	264,400.00	12,077.00	
22	7/26/2018	84.5	8,610.50	6,994.50	5,553.00	398,380.00	12,008.00	
23	7/26/2018	84.2	8,605.90	7,035.70	6,053.00	398,260.00	11,658.00	
24	7/26/2018	86.2	8,356.50	6,784.70	5,436.00	396,640.00	11,699.00	
25	7/27/2018	85.4	8,556.70	7,314.90	5,645.00	401,440.00	11,167.00	
26	7/27/2018	85.5	8,996.70	7,468.30	5,293.00	396,100.00	11,530.00	
27	7/27/2018	85.9	8,510.60	8,538.40	5,881.00	398,240.00	11,524.00	
28	7/27/2018	84.9	8,132.60	7,569.00	5,322.00	399,080.00	10,867.00	
29	7/28/2018	85.5	8,306.30	7,411.50	5,510.00	395,600.00	11,312.00	
30	7/28/2018	85.4	8,220.50	7,342.10	5,625.00	399,600.00	11,517.00	
31	7/28/2018	85	8,162.30	7,643.10	5,674.00	398,480.00	11,402.00	
32	7/28/2018	85.6	8,045.10	7,235.40	6,135.00	350,920.00	10,804.00	
33	7/28/2018	84.9	8,005.60	7,482.60	5,114.00	398,920.00	11,419.00	
34	7/29/2018	85.9	8,158.50	7,208.90	6,265.00	404,900.00	11,703.00	
35	7/29/2018	84.5	8,089.00	7,452.40	5,309.00	400,200.00	11,299.00	
36	7/29/2018	85.2	8,100.10	8,126.00	5,404.00	398,720.00	11,264.00	
37	7/29/2018	85.4	8,102.90	7,536.60	5,341.00	397,960.00	11,409.00	
38	7/30/2018	84.9	8,342.00	7,907.90	5,269.00	279,020.00	9,931.00	
39	7/30/2018	85.7	7,936.00	7,574.30	5,480.00	401,160.00	11,623.00	
40	7/30/2018	83.8	7,948.60	8,000.50	5,269.00	406,460.00	12,230.00	
41	7/30/2018	83.5	7,598.50	7,613.20	5,353.00	401,220.00	11,952.00	

RECEIVED
Office of Oil and Gas

OCT 26 2018

WV Department of
Environmental Protection

API 47- 049 - 02423 Farm name XTO Energy Inc. Well number Worthington C 6H

PRODUCING FORMATION(S)	DEPTHS		
Marcellus	7,615	TVD	17,462' MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2025 psi Bottom Hole 5589 psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 4264 mcfpd Oil 0 bpd NGL 0 bpd Water 517 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		
	See	attached			

Please insert additional pages as applicable.

Drilling Contractor Patterson-UTI Drilling
Address 207 Carlton Dr. City Eighty Four State PA Zip 15330

Logging Company Baker Hughes
Address 400 Technology Dr. Ste 120 City Canonsburg State PA Zip 15317

Cementing Company C&J Energy Services
Address 380 Southepoint Blvd Ste. 210 City Canonsburg State PA Zip 15317

Stimulating Company C&J Energy Services
Address 8300 Route 119 North City Black Lick State PA Zip 15716

Please insert additional pages as applicable.

Completed by Tim Sands Telephone 304-884-6000
Signature [Signature] Title Regulatory Coordinator Date 10/24/18

RECEIVED
Office of Oil and Gas
OCT 26 2018
WV Department of
Environmental Protection

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

Lithology Worthington C 6H 47-049-02423

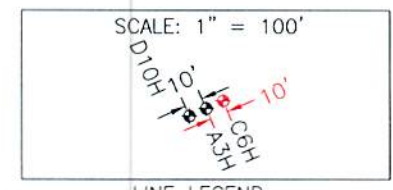
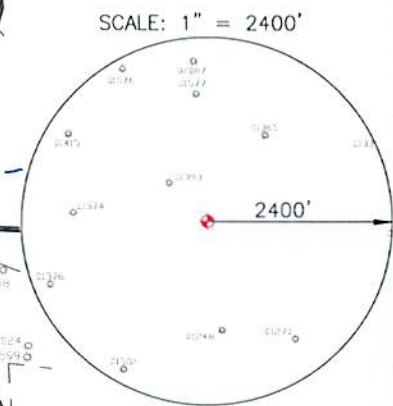
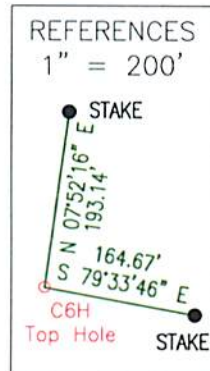
Lithology / Formation Name	Top Depth in FT TVD	Bottom Depth in FT TVD	Top Depth in FT MD	Bottom Depth in FT MD	Describe Rock Type and Record Quantity and Type of Fluid (Freshwater, Brine, Oil, Gas, H2S, ETC)
sdv shale	40	110	40	110	
sand	110	140	110	140	
shale	140	195	140	195	
sdv shale	195	203	195	203	
coal	203	208	203	208	
sdv shale	208	222	208	222	
coal	222	226	222	226	
sdv shale	226	257	226	257	
sand	257	270	257	270	
sdv shale	270	350	270	350	
shale	350	375	350	375	
sdv shale	375	390	375	390	
shale	390	397	390	397	
sdv shale	397	410	397	410	
shale	410	469	410	469	
open mine	469	479	469	479	
shale	479	591	479	591	
sand	591	619	591	619	
shale	619	790	619	790	
sand	790	842	790	842	
sandy shale	842	980	842	980	
shale	980	1070	980	1070	
sand	1070	1116	1070	1116	
shale	1116	1180	1116	1180	
red rock	1180	1200	1180	1200	
sand	1200	1245	1200	1245	
sandy shale	1245	1570	1245	1570	
shale	1570	1694	1570	1694	
red rock	1694	1736	1694	1736	
sandy shale	1736	1952	1736	1952	
sand	1952	1981	1952	1981	
sandy shale	1981	2478	1981	2478	
shale	2478	2950	2478	2950	
sand	2950	3420	2950	3420	
shale	3420	3705	3420	3705	
sand	3705	3765	3705	3765	
shale	3765	4000	3765	4000	
silt stone	4000	4310	4000	4310	
shale	4310	7362	4310	8473	
Hamilton	7362	7421	8473	8578	
Upper Marcellus	7421	7527	8578	9003	
Lower Marcellus	7527	7615	9003	17462	

WORTHINGTON C 6H

LATITUDE: 39°32'30"
SCALE: 1" = 3000'

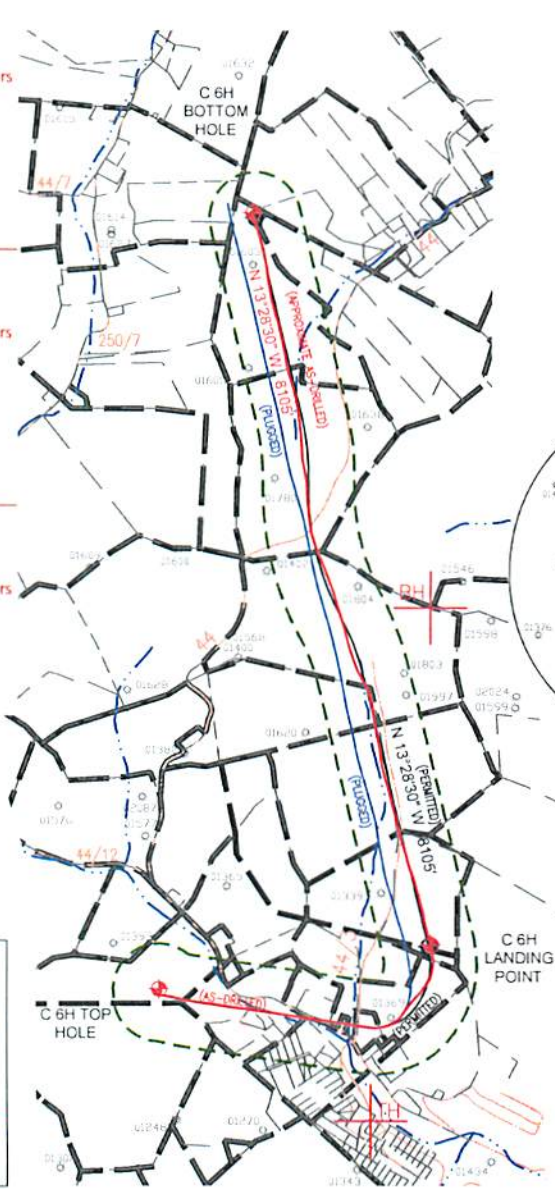
SCALE: 1" = 3000'
LONGITUDE: 80°17'30"

PERMITTED	AS-DRILLED
State Plane Coordinate West Virginia North	State Plane Coordinate West Virginia North
Top Hole Location	Top Hole Location
NAD 27 Feet N: 359392.650 E: 1768065.186	NAD 27 Feet N: 359392.650 E: 1768065.186
UTM Zone 17 (SPCS83) Meters N: 4370699.207 E: 558346.378 NAD 27 N 39.4838320 W 080.3217395	UTM Zone 17 (SPCS83) Meters N: 4370699.207 E: 558346.378 NAD 27 N 39.4838320 W 080.3217395
Landing Point Location	Landing Point Location
NAD 27 Feet N: 359857.680 E: 1771005.730	NAD 27 Feet N: 359873.023 E: 1771036.175
UTM Zone 17 (SPCS83) Meters N: 4370855.822 E: 559239.907 NAD 27 N 39.4851821 W 080.3113367	UTM Zone 17 (SPCS83) Meters N: 4370860.651 E: 559249.105 NAD 27 N 39.4852250 W 080.3112293
Bottom Hole Location	Bottom Hole Location
NAD 27 Feet N: 367740.040 E: 1769116.840	NAD 27 Feet N: 367794.627 E: 1769090.629
UTM Zone 17 (SPCS83) Meters N: 4373247.706 E: 558624.415 NAD 27 N 39.5067755 W 080.3182831	UTM Zone 17 (SPCS83) Meters N: 4373264.204 E: 558616.153 NAD 27 N 39.5069247 W 080.3183778



LINE LEGEND

LEASE BOUNDARY	---
SURFACE BOUNDARY	- - - -
CREEK / STREAM	~ ~ ~ ~
ROADS	— — — —
PROPOSED LATERAL	— — — —
APPROXIMATE CURVE	- - - -
AS-DRILLED LATERAL	— — — —
500' LATERAL OFFSET	- - - -
EXISTING GAS WELL	⊙



- NOTES ON SURVEY
1. NO DWELLINGS WITHIN 625' WERE FOUND.
 2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
 3. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH W/ NORTH ZONE NAD 83.
 4. WELL ELEVATION ESTABLISHED BY RTK GPS NAVD 88.
 5. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF MARION COUNTY IN MAY 2016 AND FILES PROVIDED BY XTO ENERGY, INC.
 6. WELLS SHOWN ARE TAKEN FROM RECORDS OF WDEP.



2402 PENNSYLVANIA 66 DELMONT, PA 15626
(724) 757 - 2417 www.jonesconsultant.com

SHEET 1 OF 2

FILE #: JC2016-37
DRAWING #: WORTHINGTON C 6H WELL
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1:2500
PROVEN SOURCE OF ELEVATION: RTK GPS

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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: *Ryan Jones*
R.P.E.: _____ P.S.: 2165



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



DATE: 07/31/2018
OPERATOR'S WELL #: WORTHINGTON C 6H
API WELL #: 47 049 0242
STATE COUNTY PERMIT

RECEIVED
Office of Oil and Gas
OCT 26 2018
WV Department of Environmental Protection

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

WATERSHED: LOWER WEST FORK RIVER (0502000206) ELEVATION: 1,194' FINISH GRADE
COUNTY/DISTRICT: MARION / LINCOLN QUADRANGLE: SHINNSTON 7.5'
SURFACE OWNER: XTO ENERGY INC ACREAGE: 104.40±
OIL & GAS ROYALTY OWNER: RADDISH, ET AL ACREAGE: 465±

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: 7,615' (TVD), 17,462' (TMD)

WELL OPERATOR: XTO ENERGY INC. Address: 190 THORN HILL ROAD City: WARRENDALE State: PA Zip Code: 15086
DESIGNATED AGENT: GARY BEALL Address: P.O. BOX 1008 City: JANE LEW State: WV Zip Code: 26378

WORTHINGTON C 6H

LINE LEGEND

LEASE BOUNDARY	— — — — —
SURFACE BOUNDARY	- - - - -
CREEK / STREAM	— · — · — ·
ROADS	— — — — —
PROPOSED LATERAL	— — — — —
APPROXIMATE CURVE	— · — · — ·
AS-DRILLED LATERAL	— — — — —
500' LATERAL OFFSET	— · — · — ·
EXISTING GAS WELL	⊙

WORTHINGTON C 6H		
LEASE	LESSOR	MINERAL ACREAGE
1)	JAMES RUDOLPH HEATER LIVING TRUST, ET AL.	19.6598
2)	RICHARD BELL, ET AL	21.607
3)	SUSAN A. ULAVOIS, ET AL	21.613
4)	FERRARI V I O G, LLC, ET AL	2.035
5)	NATHAN BARNETT	2.181
6)	HERBERT B. BARNETT, ET AL	17.5
7)	FERRARI V I O G, LLC, ET AL	1.586
8)	H.T. ROBY	39.36875
9)	H.T. ROBY	61.83125
10)	DENNIS BOMBARDIERE, ET AL	30.3744
11)	A. ETHEL BROWN, ET AL	69.9
12)	FERRARI V I O G, LLC, ET AL	62.5
13)	WACO OIL AND GAS COMPANY, INC.	37.25
14)	MIKE ROSS, INC, ET AL	77.44

LETTER	SURFACE OWNER	TAX PARCEL
A	ERNEST W. SMITH, ET AL	11-28-14
B	FEDERAL HOME LOAN MORTGAGE CORPORATION	11-28-18
C	FEDERAL HOME LOAN MORTGAGE CORPORATION	11-28-17
D	WACO OIL & GAS CO INC	12-69-3.2
E	ERNEST E. GLOVER, ET UX	12-69-3
F	ROBERT L. LEASURE, ET UX	11-25-4.2
G	DONALD L. EDWARDS	11-27-40
H	DONALD L. EDWARDS	11-27-39
I	STANISLAW R. BUBNOWSKI	11-56-3
J	ROCHESTER & PITTSBURGH COAL COMPANY	11-29-3
K	FOUR STATES TABERNACLE	11-28-19
L	RONDELL M. RADDISH	11-28-18.1
M	FEDERAL HOME LOAN MORTGAGE CORPORATION	11-28-20

AS-DRILLED
 State Plane Coordinate
 West Virginia North
Top Hole Location
 NAD 27 Feet
 N: 359392.650
 E: 1768065.186
UTM Zone 17 (SPCS83) Meters
 N: 4370699.207
 E: 558346.378
 NAD 27
 N 39.4838320
 W 080.3217395

Landing Point Location
 NAD 27 Feet
 N: 359873.023
 E: 1771036.175
UTM Zone 17 (SPCS83) Meters
 N: 4370860.651
 E: 559249.105
 NAD 27
 N 39.4852250
 W 080.3112293

Bottom Hole Location
 NAD 27 Feet
 N: 367794.627
 E: 1769090.629
UTM Zone 17 (SPCS83) Meters
 N: 4373264.204
 E: 558616.153
 NAD 27
 N 39.5069247
 W 080.3183778

PERMITTED
 State Plane Coordinate
 West Virginia North
Top Hole Location
 NAD 27 Feet
 N: 359392.650
 E: 1768065.186
UTM Zone 17 (SPCS83) Meters
 N: 4370699.207
 E: 558346.378
 NAD 27
 N 39.4838320
 W 080.3217395

Landing Point Location
 NAD 27 Feet
 N: 359857.680
 E: 1771005.730
UTM Zone 17 (SPCS83) Meters
 N: 4370855.822
 E: 559239.907
 NAD 27
 N 39.4851821
 W 080.3113367

Bottom Hole Location
 NAD 27 Feet
 N: 367740.040
 E: 1769116.840
UTM Zone 17 (SPCS83) Meters
 N: 4373247.706
 E: 558624.415
 NAD 27
 N 39.5067755
 W 080.3182831

NOTES ON SURVEY

1. NO DWELLINGS WITHIN 625' WERE FOUND.
2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
3. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD 83.
4. WELL ELEVATION ESTABLISHED BY RTK GPS NAVD 88.
5. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF MARION COUNTY IN MAY 2016 AND FILES PROVIDED BY XTO ENERGY, INC.
6. WELLS SHOWN ARE TAKEN FROM RECORDS OF WDEP.

JONES CONSULTANTS, LLC

SURVEYING • MAPPING • LAND • GAS WELL • PIPELINE
 2402 PENNSYLVANIA 66 DELMONT, PA 15626
 (724) 757 - 2417 www.jonesconsultant.com



XTO ENERGY
 190 THORN HILL ROAD
 WARRENDALE, PA 15086

0' 1200'



SUPPLEMENTAL SURFACE AND LESSOR EXHIBIT		
WORTHINGTON C 6H		
Drawn By: RJ	Date: 07/31/18	LINCOLN DISTRICT MARION COUNTY, WEST VIRGINIA
Scale: 1" = 1200'	Sheet: SHEET 2 OF 2	File No.: JC2016-37
A/E # 1304380		

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/27/2018
Job End Date:	7/30/2018
State:	West Virginia
County:	Marion
API Number:	47-049-02423-00-00
Operator Name:	XTO Energy/ExxonMobil
Well Name and Number:	Worthington C6H
Latitude:	39.48391600
Longitude:	-80.32154800
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,436
Total Base Water Volume (gal):	20,192,718
Total Base Non Water Volume:	0



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
Water	XTO Energy/ExxonMobil	Carrier Fluid					
			Water	7732-18-5	100.00000	90.91146	
Sand	C&J Energy Services	Sand - Bulk - Pennsylvania					
				Listed Below			

RECEIVED
Office of Oil and Gas
OCT 26 2018
WV Department of
Environmental Protection

BR-11	C&J Energy Services	Gel Breakers											
					Listed Below								
CI-3	C&J Energy Services	Acid Corrosion Inhibitors											
					Listed Below								
Sand	C&J Energy Services	Sand - Bulk - Pennsylvania											
					Listed Below								
FR-16	C&J Energy Services	Friction Reducer											
					Listed Below								
BIO-CLEAR 2000	C&J Energy Services	Biocides											
					Listed Below								
SI-6	C&J Energy Services	Paraffin & Scale Additives											
					Listed Below								
GA-7F	C&J Energy Services	Gelling Agents											
					Listed Below								
HC-7.5	C&J Energy Services	Bulk Acid											
					Listed Below								
Items above are Trade Names with the exception of Base Water - Items below are the individual ingredients.													
					Crystalline Silica, quartz	14808-60-7	99.90000	7.34973					
					Crystalline Silica, quartz	14808-60-7	99.90000	0.92336					

RECEIVED
Office of Oil and Gas
OCT 26 2018
WV Department of
Environmental Protection

					Water	7732-18-5	92.50000	0.61947	
					Aluminum Oxide	1344-28-1	1.10000	0.08093	
					Hydrochloric Acid	7647-01-0	7.50000	0.05023	
					Water	7732-18-5	96.00000	0.02310	
					Distillates (Petroleum), Hydrotreated Light	64742-47-8	35.00000	0.02036	
					Water	7732-18-5	30.00000	0.01745	
					2-Propenoic acid, polymer with 2-propenamides, sodium salt	25987-30-8	30.00000	0.01745	
					Polyethylene glycol	25322-68-3	50.00000	0.01595	
					Distillates (Petroleum), Hydrotreated Light	64742-47-8	60.00000	0.01300	
					Guar Gum	9000-30-0	60.00000	0.01300	
					Aluminum Oxide	1344-28-1	1.10000	0.01017	
					2,2-Dibromo-3-nitrilopropionamide (DBNPA)	10222-01-2	30.00000	0.00957	
					Water	7732-18-5	28.50000	0.00909	
					Iron Oxide	1309-37-1	0.10000	0.00736	
					Titanium Oxide	13463-67-7	0.10000	0.00736	
					Ethylene Glycol	107-21-1	5.00000	0.00291	
					Sodium Acetate Anhydrous	127-09-3	3.00000	0.00175	
					Phosphonic Acid Salt	Proprietary	6.00000	0.00144	
					Poly(oxy-1,2-ethandiyl), alpha-isodecyl-omega-hydroxy-phosphate	108818-88-8	2.00000	0.00116	
					Alcohols, C12-15-branched and linear, ethoxylated propoxylated	120313-48-6	2.00000	0.00116	
					Sorbitan Monooleate	1338-43-8	2.00000	0.00116	
					Bentonite	1302-78-9	5.00000	0.00108	
					Titanium Oxide	13463-67-7	0.10000	0.00092	
					Iron Oxide	1309-37-1	0.10000	0.00092	

RECEIVED
Office of Oil and Gas
OCT 26 2018
WV Department of
Environmental Protection

				Alcohols, C9-11-iso-, C10-rich, ethoxylated propoxylated	68002-97-1	3.00000	0.00065	
				Ethoxylated Sorbitan Monooleate	9005-65-6	1.00000	0.00058	
				Ethylene Glycol	107-21-1	40.00000	0.00048	
				Monoethanolamine hydrochloride	2002-24-6	2.00000	0.00048	
				Ammonium Chloride	12125-02-9	2.00000	0.00048	
				Ammonium Persulfate	7727-54-0	100.00000	0.00047	
				Water	7732-18-5	30.00000	0.00036	
				Dimethylformamide	68-12-2	20.00000	0.00024	
				Methanol	67-56-1	1.00000	0.00024	
				Cinnamaldehyde	104-55-2	15.00000	0.00018	
				2-Butoxyethanol	111-76-2	15.00000	0.00018	
				Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	15.00000	0.00018	
				1-DECANOL	112-30-1	5.00000	0.00006	
				Poly(oxy-1,2-ethanediy), alpha-(4-nonylphenyl)-omega hydroxy-, branched	127087-87-0	5.00000	0.00006	
				2-Propenamide as residual	79-06-1	0.10000	0.00006	
				Cured Resin	25038-72-6	10.00000	0.00005	
				Isopropanol	67-63-0	2.50000	0.00003	
				Triethyl Phosphate	78-40-0	2.50000	0.00003	
				1-OCTANOL	111-87-5	2.50000	0.00003	
				Tar Bases, Quinoline Derivs.	68513-87-1	1.00000	0.00001	
				Hydrated magnesium silicate	14807-96-6	1.00000	0.00001	
				Poly(tetrafluoroethylene)	9002-84-0	0.70000	0.00000	
				CRYSTALLINE QUARTZ	14808-60-7	0.01000	0.00000	

RECEIVED
Office of Oil and Gas
OCT 26 2018
WV Department of
Environmental Protection

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%
*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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(f) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

RECEIVED
Office of Oil and Gas
OCT 26 2018
WV Department of
Environmental Protection

WORTHINGTON C 6H

LATITUDE: 39°32'30"
SCALE: 1" = 3000'

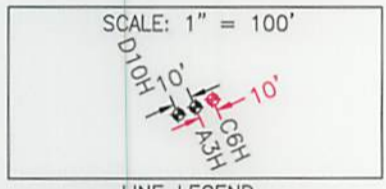
PERMITTED	AS-DRILLED
State Plane Coordinate West Virginia North Top Hole Location	State Plane Coordinate West Virginia North Top Hole Location
NAD 27 Feet N: 359392.650 E: 1768065.186	NAD 27 Feet N: 359392.650 E: 1768065.186
UTM Zone 17 (SPCS83) Meters N: 4370699.207 E: 558346.378 NAD 27 N 39.4838320 W 080.3217395	UTM Zone 17 (SPCS83) Meters N: 4370699.207 E: 558346.378 NAD 27 N 39.4838320 W 080.3217395
Landing Point Location	Landing Point Location
NAD 27 Feet N: 359857.680 E: 1771005.730	NAD 27 Feet N: 359873.023 E: 1771036.175
UTM Zone 17 (SPCS83) Meters N: 4370855.822 E: 559239.907 NAD 27 N 39.4851821 W 080.3113367	UTM Zone 17 (SPCS83) Meters N: 4370860.651 E: 559249.105 NAD 27 N 39.4852250 W 080.3112293
Bottom Hole Location	Bottom Hole Location
NAD 27 Feet N: 367740.040 E: 1769116.840	NAD 27 Feet N: 367794.627 E: 1769090.629
UTM Zone 17 (SPCS83) Meters N: 4373247.706 E: 558624.415 NAD 27 N 39.5067755 W 080.3182831	UTM Zone 17 (SPCS83) Meters N: 4373264.204 E: 558616.153 NAD 27 N 39.5069247 W 080.3183778



SCALE: 1" = 3000'
LONGITUDE: 80°17'30"



SCALE: 1" = 2400'



LINE LEGEND

LEASE BOUNDARY	---
SURFACE BOUNDARY	- - - -
CREEK / STREAM	~ ~ ~ ~
ROADS	— · — · —
PROPOSED LATERAL	—
APPROXIMATE CURVE	- · - · -
AS-DRILLED LATERAL	— (red) —
500' LATERAL OFFSET	- · - · - (dashed)
EXISTING GAS WELL	⊙

- NOTES ON SURVEY**
- NO DWELLINGS WITHIN 625' WERE FOUND.
 - NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
 - TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH W/ NORTH ZONE NAD 83.
 - WELL ELEVATION ESTABLISHED BY RTK GPS NAVD 88.
 - SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF MARION COUNTY IN MAY 2016 AND FILES PROVIDED BY XTO ENERGY, INC.
 - WELLS SHOWN ARE TAKEN FROM RECORDS OF WDEP.



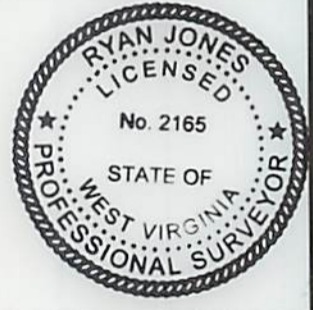
2402 PENNSYLVANIA 66 DELMONT, PA 15626
(724) 757 - 2417 www.jonesconsultant.com

SHEET 1 OF 2

FILE #: JC2016-37
DRAWING #: WORTHINGTON C 6H WELL
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1:2500
PROVEN SOURCE OF ELEVATION: RTK GPS

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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: _____
R.P.E.: _____ P.S.: 2165



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



DATE: 05/29/2019
OPERATOR'S WELL #: WORTHINGTON C 6H
API WELL #: 47 049 02423
STATE COUNTY PERMIT

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

WATERSHED: LOWER WEST FORK RIVER (0502000206)
COUNTY/DISTRICT: MARION / LINCOLN
SURFACE OWNER: XTO ENERGY INC
OIL & GAS ROYALTY OWNER: RADDISH, ET AL

ELEVATION: 1,194' FINISH GRADE
QUADRANGLE: SHINNSTON 7.5'
ACREAGE: 104.40±
ACREAGE: 465±

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: 7,615' (TVD), 17,462' (TMD)

WELL OPERATOR: XTO ENERGY INC. DESIGNATED AGENT: GARY BEALL
Address: 190 THORN HILL ROAD Address: P.O. BOX 1008
City: WARRENDALE State: PA Zip Code: 15086 City: JANE LEW State: WV Zip Code: 26378

City: WARRENDALE State: PA Zip Code: 15088
 WELL OPERATOR: XTO ENERGY INC.
 Address: 190 THORN HILL ROAD

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



DATE: 05/29/2019
 OPERATOR'S WELL #: WORTHINGTON C 6H
 API WELL #: 47 STATE COUNTY PERMIT 02423

WELL OPERATOR: XTO ENERGY INC.
 Address: 190 THORN HILL ROAD
 City: WARRENDALE State: PA Zip Code: 15088
 TARGET FORMATION: MARCELLUS
 ESTIMATED DEPTH: 7,615' (TVD), 17,465' (TMD)
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY):
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 SURFACE OWNER: XTO ENERGY INC
 COUNTY/DISTRICT: MARION / LINCOLN
 WATERSHED: LOWER WEST FORK RIVER (0502000206)
 Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

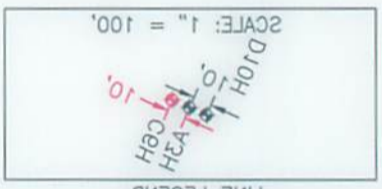
OF ELEVATION: RTK GPS
 PROVEN SOURCE
 OF ACCURACY: 1:2500
 MINIMUM DEGREE
 SCALE: 1" = 2000'
 DRAWING #: WORTHINGTON C 6H WELL
 FILE #: 102016-37

R.P.E.: _____ P.S.: 2165
 Signed: _____
 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 THE RULES ISSUED AND PRESCRIBED BY
 THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



LINE LEGEND

	LEASE BOUNDARY
	SURFACE BOUNDARY
	CREEK / STREAM
	ROADS
	PROPOSED LATERAL
	APPROXIMATE CURVE
	AS-DRIILLED LATERAL
	500' LATERAL OFFSET
	EXISTING GAS WELL



Bottom Hole Location

W 080 312328	N 39 508327	NAD 23
E: 25816 123	N: 432564 204	UTM Zone 17 (29C283) Meters
E: 176090 629	N: 367294 627	NAD 23 Feet
E: 176090 629	N: 357294 627	NAD 23 Feet

Landing Point Location

W 080 312328	N 39 482220	NAD 23
E: 252193 102	N: 437086 621	UTM Zone 17 (29C283) Meters
E: 1771096 125	N: 35873 023	NAD 23 Feet
E: 1771096 125	N: 35873 023	NAD 23 Feet

AS-DRIILLED

W 080 312328	N 39 483820	NAD 23
E: 25816 123	N: 437086 621	UTM Zone 17 (29C283) Meters
E: 25816 123	N: 437086 621	UTM Zone 17 (29C283) Meters
E: 176090 629	N: 357294 627	NAD 23 Feet
E: 176090 629	N: 357294 627	NAD 23 Feet

WORTHINGTON C 6H

SCALE: 1" = 3000'
 LATITUDE: 39.33'30"
 LONGITUDE: 80.17'30"



NOTES ON SURVEY

- NO DWELLINGS WITHIN 625' WERE FOUND.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
- TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH W/ NORTH ZONE NAD 83.
- WELL ELEVATION ESTABLISHED BY RTK GPS NAD 88.
- SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF MARION COUNTY IN MAY 2018 AND FILES PROVIDED BY XTO ENERGY, INC.
- WELLS SHOWN ARE TAKEN FROM RECORDS OF WDEP.



2402 PENNSYLVANIA 66 DELMONT, PA 15626
 (724) 757 - 2417 www.jonesconsultant.com

SHEET 1 OF 2

WORTHINGTON C 6H

LETTER	SURFACE OWNER	TAX PARCEL
A	ERNEST W. SMITH ET AL.	11-28-14
B	FEDERAL HOME LOAN MORTGAGE CORPORATION	11-28-18
C	FEDERAL HOME LOAN MORTGAGE CORPORATION	11-28-17
D	WACO OIL & GAS CO INC	12-09-3
E	ERNEST E. GLOVER ET UX	12-09-3
F	ROBERT L. LEASURE ET UX	11-25-4-2
G	DONALD J. EDWARDS	11-27-40
H	DONALD J. EDWARDS	11-27-39
I	STANISLAW R. SUBOWSKI	11-28-3
J	ROCHESTER & PITTSBURGH COAL COMPANY	11-29-3
K	FOUR STATES TABERNACLE	11-28-19
L	RONDELL M. RADOSH	11-28-18-1
M	FEDERAL HOME LOAN MORTGAGE CORPORATION	11-28-20



LINE LEGEND

- LEASE BOUNDARY
- SURFACE BOUNDARY
- CREEK / STREAM
- ROADS
- PROPOSED LATERAL
- APPROXIMATE CURVE
- AS-DRILLED LATERAL
- 500' LATERAL OFFSET
- EXISTING GAS WELL

WORTHINGTON C 6H

LEASE	LESSOR	MINERAL ACREAGE
1	JAMES RUDOLPH HEATER LIVING TRUST ET AL.	29.8288
2	RICHARD BELL ET AL.	21.602
3	SUZANA A. LIVAVOIS ET AL.	21.813
4	FERRARI VI OG, LLC ET AL.	2.032
5	NATHAN BARNETT	2.181
6	HERBERT B. BARNETT ET AL.	17.2
7	FERRARI VI OG, LLC ET AL.	1.288
8	H.T. ROBEY	39.38873
9	H.T. ROBEY	61.8122
10	DENNIS BOMBARDIERE ET AL.	30.3744
11	A. ETHEL BROWN ET AL.	69.9
12	FERRARI VI OG, LLC ET AL.	62.2
13	WACO OIL AND GAS COMPANY, INC.	37.22
14	MIKE ROSS, INC. ET AL.	27.44

PERMITTED

State Plane Coordinate
West Virginia North
Top Hole Location

NAD 23 Feet
N: 329325.620
E: 178082.186
UTM Zone 17 (29C283) Meters
N: 437089.202
E: 228346.378

LANDING POINT

NAD 23
N 39.483320
W 080.312392

Bottom Hole Location
NAD 23 Feet
N: 367340.040
E: 178018.840
UTM Zone 17 (29C283) Meters
N: 437247.708
E: 228624.412

JONES CONSULTANTS, LLC

SURVEYING • MAPPING • LAND • GAS WELL • PIPELINE
2402 PENNSYLVANIA 66 DELMONT, PA 15826
www.jonesconsultants.com (724) 757-2417

SUPPLEMENTAL SURFACE AND LESSOR EXHIBIT

WORTHINGTON C 6H

Drawn By: RJ	Date: 07/21/18
Scale: 1" = 150'	Sheet: 2 OF 2
File No: 1304380	Project No: 15018-37

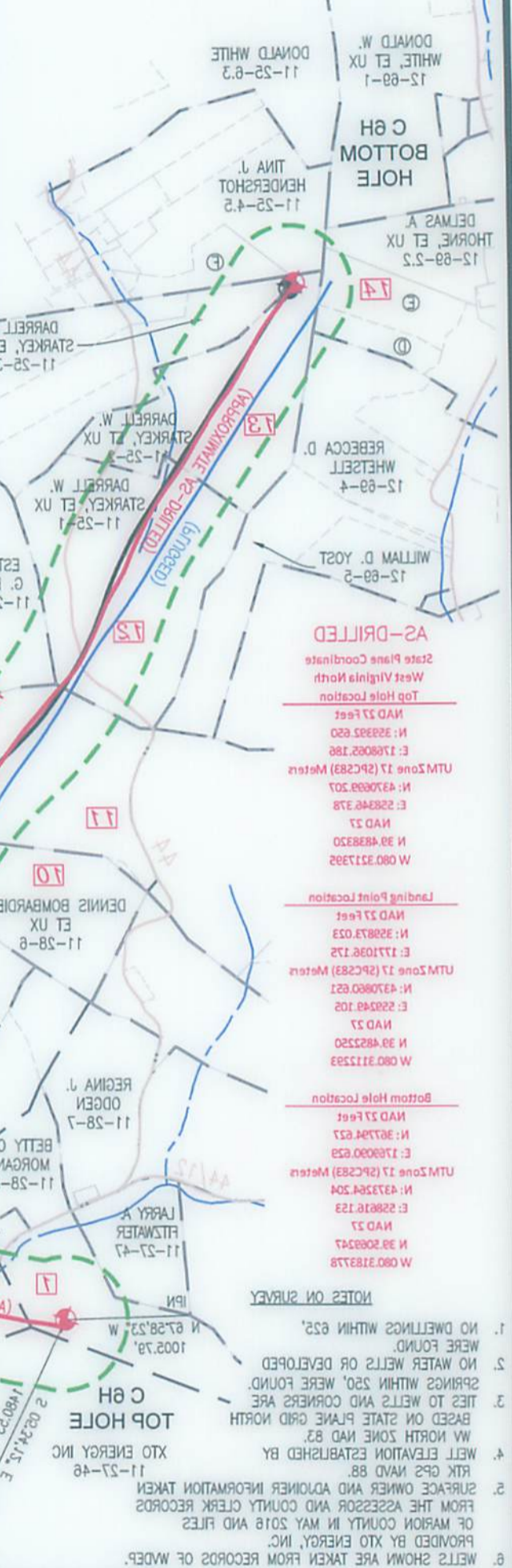
MARION COUNTY, WEST VIRGINIA
LINCOLN DISTRICT

XTO ENERGY

150 THORN HILL ROAD
WARRENDALE, PA 15086

0' 1500'

3602 GRID NORTH ZONE



AS-DRILLED

State Plane Coordinate
West Virginia North
Top Hole Location

NAD 23 Feet
N: 329325.620
E: 178082.186
UTM Zone 17 (29C283) Meters
N: 437089.202
E: 228346.378

Bottom Hole Location
NAD 23 Feet
N: 367340.040
E: 178018.840
UTM Zone 17 (29C283) Meters
N: 437247.708
E: 228624.412

- NOTES ON SURVEY**
1. NO DWELLINGS WITHIN 625' WERE FOUND.
 2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
 3. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH W/ NORTH ZONE 17.
 4. WELL ELEVATION ESTABLISHED BY RTK GPS NAVD 88.
 5. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF MARION COUNTY IN MAY 2018 AND FILES PROVIDED BY XTO ENERGY, INC.
 6. WELLS SHOWN ARE TAKEN FROM RECORDS OF WDEP.