

APPROVED

NAME: *Julian*

DATE: *8/16/17*

Well Operator's Report of Well Work



Where energy meets innovation.

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JUL 20 2017

WV Department of
Environmental Protection

Well Number: 513775

API: 47 - 017 - 06769

Submission: Initial Amended

Notes: -Revised Frac Focus Chemical
Disclosure
-Original Mylar Plat sent with initial
report

09/15/2017

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

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JUL 20 2017

WV Department of
Environmental Protection

API 47 - 017 - 06769 County Doddridge District Southwest
Quad Oxford Pad Name OXF160 Field/Pool Name _____
Farm name Ronald Hart and Jeffery Hart Well Number 513775
Operator (as registered with the OOG) EQT Production Company
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,336,947.27 Easting 517,357.69
Landing Point of Curve Northing 4,336,692.68 Easting 516,756.91
Bottom Hole Northing 4,335,821.67 Easting 516,994.53

Elevation (ft) 1220 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)

Water base Mud 12.5 ppg barium sulfate, sodium chloride, xanthan gum, polyanionic cellulose, modified starch, sodium hydroxide, phosphonates and alkyl phosphates, glutaraldehyde solution, calcium hydroxide, partially hydrolyzed polyacrylamide
polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 6/15/2016 Date drilling commenced 10/21/2016 Date drilling ceased 12/19/2016
Date completion activities began 2/14/2017 Date completion activities ceased 2/22/2017
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

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

Freshwater depth(s) ft 31',215',262',358',578' Open mine(s) (Y/N) depths N
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths N
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

09/15/2017

API 47-017 - 06769 Farm name Ronald Hart and Jeffery Hart Well number 513775

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	24"	20"	93'	NEW	A-500 78.5LB/FT	NONE	Y
Surface	17.5"	13.375"	679'	NEW	J-55 54.5LB/FT	NONE	Y
Coal							
Intermediate 1	12.375"	9.625"	3074'	NEW	A-500 40LB/FT	NONE	Y
Intermediate 2							
Intermediate 3							
Production	8.75" / 8.5"	5.5"	10753'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set							

Comment Details _____

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CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WV Department of Environmental Protection (ft)
Conductor	CLASS A	77	15.6	1.18	90.86	0	8+
Surface	CLASS A	586	15.6	1.20	703.2	0	8
Coal							
Intermediate 1	Class A / Class A	208 / 870	15.4 / 15.6	1.18 / 1.20	1289.44	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS A / CLASS H	700 / 450	15.2 / 15.6	1.12 / 1.85	1616.5	4600	72+
Tubing							

Drillers TD (ft) 10756' Loggers TD (ft) N/A

Deepest formation penetrated MARCELLUS Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 3878'

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 _____

CONDUCTOR- NONE
 SURFACE- RAN AT LEAST EVERY 500' FEET
 INTERMEDIATE- RAN AT LEAST EVERY 500' FEET
 PRODUCTION- COMPOSITE BODY CENTRALIZERS RAN EVERY JOINT FROM SHOE TO KOP

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

09/15/2017

API 47- 017 - 06769 Farm name Ronald Hart and Jeffery Hart Well number 513775

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
					Please See Attached

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Please insert additional pages as applicable.

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STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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)
						Please	See	Attached

Please insert additional pages as applicable.

09/15/2017

API 47- 017 - 06769 Farm name Ronald Hart and Jeffery Hart Well number 513775

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>6,598.80</u> TVD	<u>7,592.00</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

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Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1,929 psi Bottom Hole N/A psi DURATION OF TEST 37.00 hrs

OPEN FLOW Gas 3,061 mcfpd Oil N/A bpd NGL 20 bpd Water 791 bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</u>	
	<u>0</u>		<u>0</u>		

Please insert additional pages as applicable.

Drilling Contractor Decker Drilling
Address 11565 State Route 676 City Vicent State OH Zip 45784

Logging Company GYRODATA INC.
Address 601 MAYER ST. City BRIDGEVILLE State PA Zip 15017

Cementing Company Allied Oil & Gas
Address 1036 E Main St City Bridgeport State WV Zip 26330

Stimulating Company C&J Energy Services
Address 3990 Rogerdale Road City Houston State TX Zip 77042

Please insert additional pages as applicable.

Completed by James Abbott Telephone (412) 553-5996
Signature [Signature] Title Dir Completions Date 7/19/2017

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

API 47- 017 - 06769 Farm name Ronald Hart and Jeffery Hart Well number 513775

Drilling Contractor Savanna Drilling
Address 125 Industry Road City Waynesburg State PA Zip 15370

Logging Company Scientific Drilling International
Address 124 Vista Drive City Charleroi State PA Zip 15022

Logging Company PROFESSIONAL DIRECTIONAL
Address 750 Conroe Park North Dr. City Conroe State TX Zip 77303

Cementing Company Halliburton Energy Services
Address 121 Champion Way City Canonsburg State PA Zip 15317

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Well #513775 Final Formations API#47-017-06769

Formation Name	Final Top MD (ftGL) (ft)	Final Top (TVD) (ft)	Final Btm MD (ftGL) (ft)	Final Btm (TVD) (ft)
SAND/SHALE	1	1	1,740.00	1,739.90
MAXTON	1,740.00	1,739.90	1,904.00	1,903.90
BIG LIME	1,904.00	1,903.90	1,958.00	1,957.90
KEENER	1,958.00	1,957.90	3,270.00	3,269.80
WARREN	3,270.00	3,269.80	3,320.00	3,319.80
SPEECHLEY	3,320.00	3,319.80	3,848.00	3,847.80
BALLTOWN A	3,848.00	3,847.80	4,216.00	4,201.20
BRADFORD	4,216.00	4,201.20	4,779.00	4,642.40
RILEY	4,779.00	4,642.40	4,868.00	4,709.20
BENSON	4,868.00	4,709.20	5,115.00	4,894.60
ALEXANDER	5,115.00	4,894.60	5,828.00	5,431.60
RHINESTREET	5,828.00	5,431.60	6,280.00	5,773.40
SONYEA	6,280.00	5,773.40	7,148.00	6,403.90
MIDDLESEX	7,148.00	6,403.90	7,241.00	6,459.70
GENESSEE	7,241.00	6,459.70	7,369.00	6,526.80
GENESE0	7,369.00	6,526.80	7,481.00	6,570.40
TULLY	7,481.00	6,570.40	7,546.00	6,588.40
HAMILTON	7,546.00	6,588.40	7,592.00	6,598.80
MARCELLUS	7,592.00	6,598.80	10,756.00	6,634.20

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EQT PRODUCTION

Doddridge County, WV

OXF160

Well #513775

Main Wellbore

API #47-017-06769

Design: Well 513775 As Drilled Surveys

Standard Survey Report

20 December, 2016

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OXF160
WV 513775
EQT PRODUCTION COMPANY

2.137'
 3.337'
 LATITUDE 39°12'30"
 LONGITUDE 80°47'30"

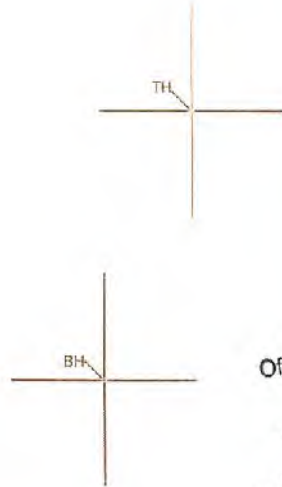
AS DRILLED COORDINATES
 (OXF160 H6)
 (S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD27 S.P.C.(FT)	N. 250,600.72	E. 1,631,716.00
NAD27 GEO.	LAT-(N) 39.181504	LONG-(W) 80.799204
NAD83 UTM (M)	N. 4,336,947.27	E. 517,357.69
LANDING POINT		
NAD27 S.P.C.(FT)	N. 250,078.19	E. 1,629,731.22
NAD27 GEO.	LAT-(N) 39.179222	LONG-(W) 80.806166
NAD83 UTM (M)	N. 4,336,692.08	E. 516,756.91
BOTTOM HOLE		
NAD27 S.P.C.(FT)	N. 247,205.89	E. 1,630,463.28
NAD27 GEO.	LAT-(N) 39.171358	LONG-(W) 80.803437
NAD83 UTM (M)	N. 4,335,821.57	E. 516,994.53

NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS.
2. 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
3. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'.
4. AS DRILLED INFORMATION PROVIDED BY EQT

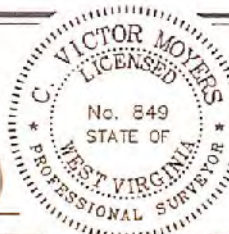
A.	ROBERT BRANNON ET AL	70 ACRES±	SW TM-09-19
B.	RONALD HART & JEFFERY HART	60 ACRES±	SW TM-09-20
C.	LL. MORRIS	6,600.75 ACRES±	SW TM-10-02
D.	ROBERT BRANNON ET AL	25.1 ACRES±	SW TM-13-18
E.	RONALD HART & JEFFERY HART	46 ACRES±	SW TM-13-12
F.	RONALD HART & JEFFERY HART	45 ACRES±	SW TM-09-21
G.	MARIA HRUSCOV	57.5 ACRES±	SW TM-10-01
H.	WILLIAM ARMENTROUT ET AL	44.35 ACRES±	SW TM-14-02
I.	MICHAEL & SUSAN ZORN	52.5 ACRES±	SW TM-14-01
J.	MICHAEL & SUSAN ZORN	47.5 ACRES±	SW TM-14-11
K.	WILLIAM ARMENTROUT ET AL	16.8 ACRES±	SW TM-14-04
L.	EDWARD & GINA BASSETT	41 ACRES±	SW TM-13-39
M.	MARIAN ZORN	34.78 ACRES±	SW TM-13-40
N.	WILLIAM ARMENTROUT ET AL	76 ACRES±	SW TM-13-41
O.	EDWARD & GINA BASSETT	9 ACRES±	SW TM-13-19
P.	ROBERT BRANNON ET AL	37.16 ACRES±	SW TM-13-17



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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. *C. Victor Moyes*
 849

(-) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE MARCH 24, 20 16
 REVISED 04/16/16 & 12/27/15
 OPERATORS WELL NO. WV 513775
 API WELL NO. 47 - 017 - 06769H
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO 7310AD513775
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE SEE NOTE 2

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:
 PAD ELEVATION 1,220' WATERSHED UPPER RUN OF MIDDLE FORK OF SOUTH FORK HUGHES RIVER
 DISTRICT SOUTHWEST COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'

SURFACE OWNER RONALD HART & JEFFERY HART ACREAGE 60±
 ROYALTY OWNER MONA R. CUMBERLEDGE ET AL ACREAGE 205±

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 6,603'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY
 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

COUNTY NAME
 PERMIT

REC
 Office of
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 WV Depar
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09/15/2017

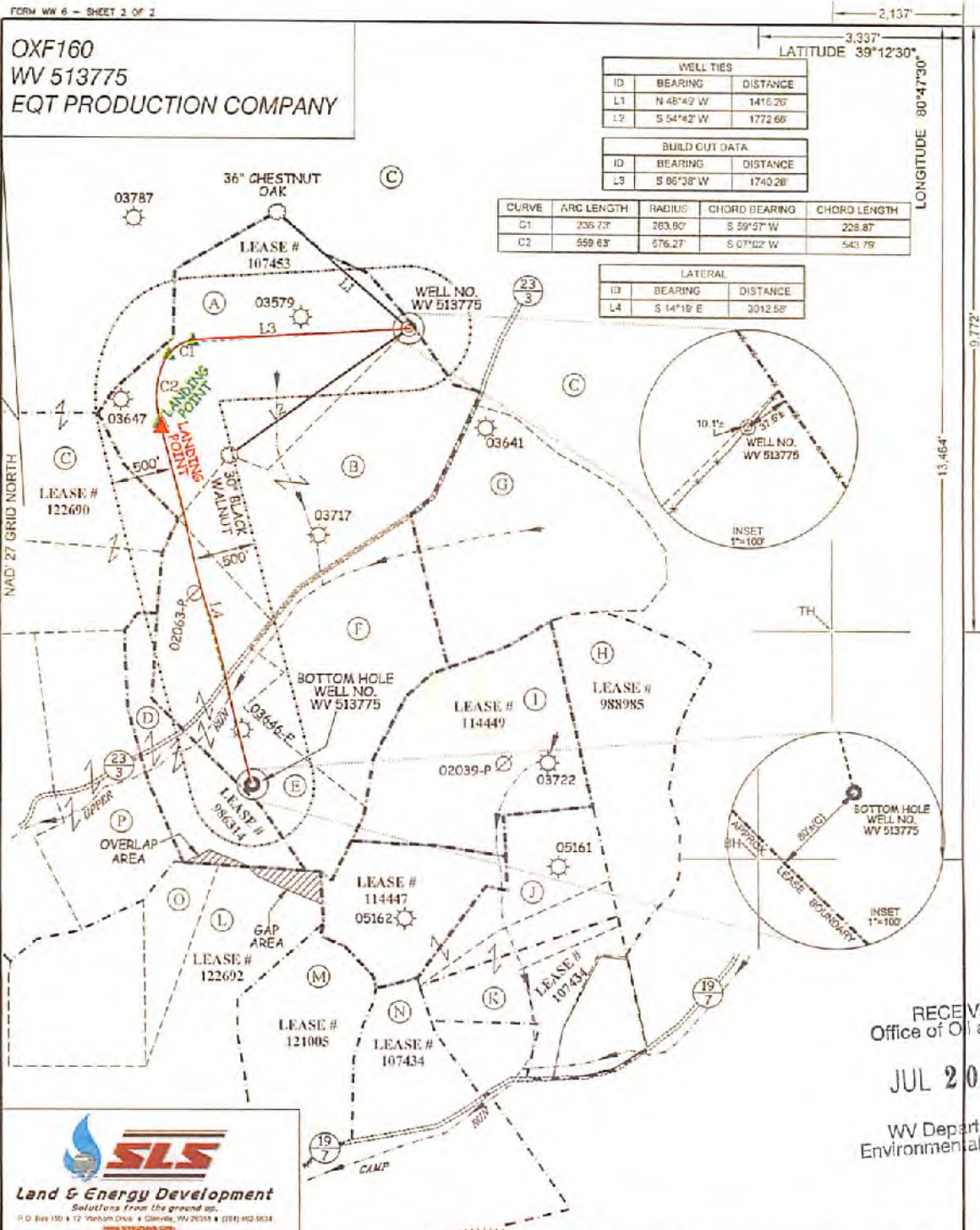
OXF160
WV 513775
EQT PRODUCTION COMPANY

WELL TIES		
ID	BEARING	DISTANCE
L1	N 48°42' W	1416.26'
L2	S 54°42' W	1772.66'

BUILD OUT DATA		
ID	BEARING	DISTANCE
L3	S 86°38' W	1740.26'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	236.73'	263.90'	S 59°57' W	226.87'
C2	559.63'	576.27'	S 07°02' W	543.79'

LATERAL		
ID	BEARING	DISTANCE
L4	S 14°19' E	3012.58'



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www.slsenergy.com

AS DRILLED COORDINATES
(OXF160 H6)
 (S.P.C. NORTH ZONE) (UTM/M ZONE 17 NORTH)
 NAD27 S.P.C.(FT) N: 259,886.72 E: 1,831,716.86
 NAD27 GEO. LAT-(N) 36.181504 LONG-(W) 80.200204
 NAD83 UTM (M) N: 4,336,947.27 E: 517,357.59
LANDING POINT
 NAD27 S.P.C.(FT) N: 259,078.19 E: 1,629,731.22
 NAD27 GEO. LAT-(N) 36.177022 LONG-(W) 80.205186
 NAD83 UTM (M) N: 4,336,092.68 E: 516,756.91
BOTTOM HOLE
 NAD27 S.P.C.(FT) N: 247,208.09 E: 1,630,463.09
 NAD27 GEO. LAT-(N) 36.171398 LONG-(W) 80.200427
 NAD83 UTM (M) N: 4,336,621.67 E: 516,904.59

SCALE 1" = 1000'
 DATE MARCH 24, 2016
 REVISED 04/16/16 & 12/27/16
 OPERATORS WELL NO. WV 513775
 API WELL NO. **47-017-06769H**
 NO. STATE COUNTY PERMIT

VICTOR MOYERS
 LICENSED
 No. 849
 STATE OF WEST VIRGINIA
 PROFESSIONAL SURVEYOR
 12-27-2016

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

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

LEGEND

- LEASE LINE: Dashed line
- SURFACE LINE: Dotted line
- PROPOSED PATH: Solid line with green dashes
- AS DRILLED PATH: Solid line with red dashes
- OFFSET LINE: Dashed line with red dashes
- TIE LINE: Dotted line
- CREEK: Dashed line with wavy pattern
- ROAD: Solid line with double dashes
- COUNTY ROUTE: Circle with 'R'
- PROPOSED WELL: Circle with 'P'
- EXISTING WELL: Circle with 'E'
- PERMITTED WELL: Circle with 'P' and 'E'
- SOUTH WEST DISTRICT TAX MAP-PARCEL: SW-00-00

WELL OPERATOR **EQT PRODUCTION COMPANY** DESIGNATED AGENT **REX C. RAY**
 ADDRESS **115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330** ADDRESS **115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330**

09/15/2017

513775- 47-017-06769-0000- Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	2/7/2017	10,727	10,753	10	MARCELLUS
1	2/15/2017	10,606	10,688	32	MARCELLUS
2	2/15/2017	10,366	10,528	40	MARCELLUS
3	2/16/2017	10,165	10,328	40	MARCELLUS
4	2/16/2017	9,966	10,128	40	MARCELLUS
5	2/17/2017	9,766	9,928	40	MARCELLUS
6	2/17/2017	9,566	9,728	40	MARCELLUS
7	2/18/2017	9,366	9,528	40	MARCELLUS
8	2/18/2017	9,166	9,328	40	MARCELLUS
9	2/18/2017	8,966	9,128	40	MARCELLUS
10	2/19/2017	8,766	8,928	40	MARCELLUS
11	2/19/2017	8,566	8,728	40	MARCELLUS
12	2/20/2017	8,366	8,528	40	MARCELLUS
13	2/20/2017	8,166	8,328	40	MARCELLUS
14	2/21/2017	7,966	8,128	40	MARCELLUS
15	2/21/2017	7,766	7,928	40	MARCELLUS
16	2/21/2017	7,566	7,728	40	MARCELLUS

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513775- 47-017-06769-0000 - Stimulated Stages

Stage Number	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)
Initiation Sleeve	2/14/2017	29	8,610	9,343	4,053	0	973	0
1	2/15/2017	16	6,463	8,182	4,059	0	638	0
1	2/15/2017	96	7,874	8,572	3,806	456,020.00	9,647	0
2	2/15/2017	101	7,964	8,335	4,232	448,740.00	9,668	0
3	2/16/2017	100	7,899	8,639	4,531	444,220.00	10,455	0
4	2/16/2017	100	8,310	9,088	4,586	451,520.00	11,989	0
5	2/17/2017	99	8,098	8,958	4,305	450,952.00	9,331	0
6	2/17/2017	97	8,383	9,228	3,685	443,560.00	9,347	0
7	2/18/2017	100	8,191	9,251	3,854	447,780.00	9,053	0
8	2/18/2017	100	7,512	9,805	4,784	446,660.00	10,422	0
9	2/19/2017	97	7,833	9,416	3,916	446,360.00	10,780	0
10	2/19/2017	100	7,653	8,703	4,158	447,440.00	9,516	0
11	2/19/2017	99	7,676	8,766	3,997	447,880.00	9,098	0
12	2/20/2017	100	7,303	9,014	5,237	449,320.00	10,005	0
13	2/20/2017	97	7,450	7,974	5,138	449,520.00	9,535	0
14	2/21/2017	99	7,849	8,573	3,376	450,760.00	9,276	0
15	2/21/2017	99	7,229	8,293	4,266	444,760.00	10,121	0
16	2/21/2017	93	8,180	9,333	4,094	450,380.00	10,747	0

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/14/2017
Job End Date:	2/22/2017
State:	West Virginia
County:	Doddridge
API Number:	47-017-06769-00-00
Operator Name:	EQT Production
Well Name and Number:	513775
Latitude:	39.18150400
Longitude:	-80.79920400
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,599
Total Base Water Volume (gal):	6,745,242
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	C and J Energy Services	Carrier/Base Fluid					
				Listed Below			
BR-11	C and J Energy Services	Gel Breaker					
				Listed Below			

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GA-7A	C and J Energy Services	Gelling Agent					
				Listed Below			
Sand (Proppant)	C and J Energy Services	Proppant					
				Listed Below			
SI-6	C and J Energy Services	Scale Inhibitor					
				Listed Below			
MC MX 8-2544	Multi-Chem Group	Live Culture - Nitrate Reducing Bacteria					
				Listed Below			
MC MX 5-3886	Multi-Chem Group	Specialty Brine					
				Listed Below			
CI-3	C and J Energy Services	Corrosion Inhibitor					
				Listed Below			
Hydrochloric Acid (15%)	C and J Energy Services	Acidizing					
				Listed Below			
NI-200	ECM Supply	Friction Reducing Agent					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Water	7732-18-5	100.00000	88.44883	None

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			Silica Substrate	14808-60-7	100.00000	11.27568	None
			Water	7732-18-5	50.00000	0.03545	
			Water	7732-18-5	50.00000	0.03545	None
			Hydrochloric Acid	7647-01-0	15.00000	0.02420	None
			Copolymer of Two Propenamide	69418-26-4	30.00000	0.02127	None
			Copolymer of Two Propenamide	69418-26-4	30.00000	0.02127	
			Petroleum Distillate	64742-47-8	20.00000	0.01418	None
			Petroleum Distillate	64742-47-8	20.00000	0.01418	
			Sodium chloride	7647-14-5	100.00000	0.00949	
			Sodium chloride	7647-14-5	100.00000	0.00949	None
			Calcium nitrate.4H2O	13477-34-4	100.00000	0.00888	None
			Calcium nitrate.4H2O	13477-34-4	100.00000	0.00888	
			Trade Secret	Proprietary	7.00000	0.00171	None
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00142	
			Oleic Acid Diethanolamide	93-83-4	2.00000	0.00142	None
			Alcohols, C-12-16, Ethoxylated	68551-12-2	2.00000	0.00142	
			Alcohols, C-12-16, Ethoxylated	68551-12-2	2.00000	0.00142	None
			Ammonium Chloride ((NH4)Cl)	12125-02-9	1.00000	0.00071	
			Ammonium Chloride ((NH4)Cl)	12125-02-9	1.00000	0.00071	None
			Monoethanolamine hydrochloride	2002-24-6	2.00000	0.00049	None
			Ammonium Chloride	12125-02-9	2.00000	0.00049	None
			Sodium nitrate	7631-99-4	5.00000	0.00047	None
			Sodium nitrate	7631-99-4	5.00000	0.00047	
			Methanol	67-56-1	1.00000	0.00024	None
			Ethylene Glycol	107-21-1	40.00000	0.00013	None
			Dimethylformamide	68-12-2	20.00000	0.00006	None

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			Cinnamaldehyde	104-55-2	15.00000	0.00005	None
			2-butoxyethanol	111-76-2	15.00000	0.00005	None
			Tar Bases, Quinoline Derivs., Benzyl Chloride-quaternized	72480-70-7	15.00000	0.00005	
			Tar Bases, Quinoline Derivs., Benzyl Chloride-quaternized	72480-70-7	15.00000	0.00005	None
			Cinnamaldehyde	104-55-2	15.00000	0.00005	
			Distillates (petroleum), Hydrotreated Light	64742-47-8	60.00000	0.00004	
			Guar Gum	9000-30-0	60.00000	0.00004	
			Distillates (petroleum), Hydrotreated Light	64742-47-8	60.00000	0.00004	None
			Guar Gum	9000-30-0	60.00000	0.00004	None
			Ammonium Persulfate	7727-54-0	85.00000	0.00002	None
			Ammonium Persulfate	7727-54-0	85.00000	0.00002	
			4-nonylphenol, Branched, Ethoxylated	127087-87-0	5.00000	0.00002	None
			1-decanol	112-30-1	5.00000	0.00002	
			1-decanol	112-30-1	5.00000	0.00002	None
			4-nonylphenol, Branched, Ethoxylated	127087-87-0	5.00000	0.00002	
			1-octanol	111-87-5	2.50000	0.00001	None
			Isopropanol	67-63-0	2.50000	0.00001	
			Triethyl Phosphate	78-40-0	2.50000	0.00001	None
			Triethyl Phosphate	78-40-0	2.50000	0.00001	
			1-octanol	111-87-5	2.50000	0.00001	
			Isopropanol	67-63-0	2.50000	0.00001	None
			Surfactants	Proprietary	10.00000	0.00001	
			Surfactants	Proprietary	10.00000	0.00001	None
			Cured Resin	Proprietary	13.00000	0.00000	
			Cured Resin	Proprietary	13.00000	0.00000	None
			Silica - Crystalline, Quartz	14808-60-7	1.00000	0.00000	

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				14808-60-7	1.00000	0.00000	None
				Silica - Crystalline, Quartz			

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

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OXF160
WV 513775
EQT PRODUCTION COMPANY

2,137'
 3,337'
 LATITUDE 39°12'30"
 LONGITUDE 80°47'30"

AS DRILLED COORDINATES
(OXF160 H6)

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

NAD'27 S.P.C.(FT) N. 250,880.72 E. 1,631,716.68
 NAD'27 GEO. LAT-(N) 39.181504 LONG-(W) 80.799204
 NAD'83 UTM (M) N. 4,336,947.27 E. 517,357.69

LANDING POINT

NAD'27 S.P.C.(FT) N. 250,078.19 E. 1,629,731.22
 NAD'27 GEO. LAT-(N) 39.179222 LONG-(W) 80.806166
 NAD'83 UTM (M) N. 4,336,692.68 E. 516,756.91

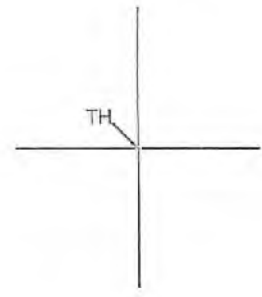
BOTTOM HOLE

NAD'27 S.P.C.(FT) N. 247,206.89 E. 1,630,463.26
 NAD'27 GEO. LAT-(N) 39.171368 LONG-(W) 80.803437
 NAD'83 UTM (M) N. 4,335,821.57 E. 516,994.53

NOTES ON SURVEY

1. 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.
2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'.
3. AS DRILLED INFORMATION PROVIDED BY EQT.

A	ROBERT BRANNON ET AL	70 ACRES±	SW TM-09-19
B	RONALD HART & JEFFERY HART	60 ACRES±	SW TM-09-20
C	I.L. MORRIS	5,600.75 ACRES±	SW TM-10-02
D	ROBERT BRANNON ET AL	25.1 ACRES±	SW TM-13-18
E	RONALD HART & JEFFERY HART	46 ACRES±	SW TM-13-12
F	RONALD HART & JEFFERY HART	45 ACRES±	SW TM-09-21
G	MARIA HRUSCOV	57.5 ACRES±	SW TM-10-01
H	WILLIAM ARMENTROUT ET AL	44.35 ACRES±	SW TM-14-02
I	MICHAEL & SUSAN ZORN	52.5 ACRES±	SW TM-14-01
J	MICHAEL & SUSAN ZORN	47.5 ACRES±	SW TM-14-1.1
K	WILLIAM ARMENTROUT ET AL	16.8 ACRES±	SW TM-14-04
L	EDWARD & GINA BASSETT	41 ACRES±	SW TM-13-39
M	MARIAN ZORN	34.78 ACRES±	SW TM-13-40
N	WILLIAM ARMENTROUT ET AL	76 ACRES±	SW TM-13-41
O	EDWARD & GINA BASSETT	9 ACRES±	SW TM-13-19
P	ROBERT BRANNON ET AL	37.16 ACRES±	SW TM-13-17



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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. 849 *C. Victor Moyers*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE MARCH 24, 20 16
 REVISED 04/16/16 & 12/27/16
 OPERATORS WELL NO. WV 513775
 API WELL NO. 47 - 017 - 06769H
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 7310AD513775
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE SEE NOTE 2

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:
 PAD ELEVATION 1,220' WATERSHED UPPER RUN OF MIDDLE FORK OF SOUTH FORK HUGHES RIVER
 DISTRICT SOUTHWEST COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'

SURFACE OWNER RONALD HART & JEFFERY HART ACREAGE 60±
 ROYALTY OWNER MONA R. CUMBERLEDGE ET AL ACREAGE 206±

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 6,603'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY
 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

9,772'
13,454'

09/15/2017

COUNTY NAME
PERMIT

OXF160
WV 513775
EQT PRODUCTION COMPANY

LATITUDE 39°12'30"

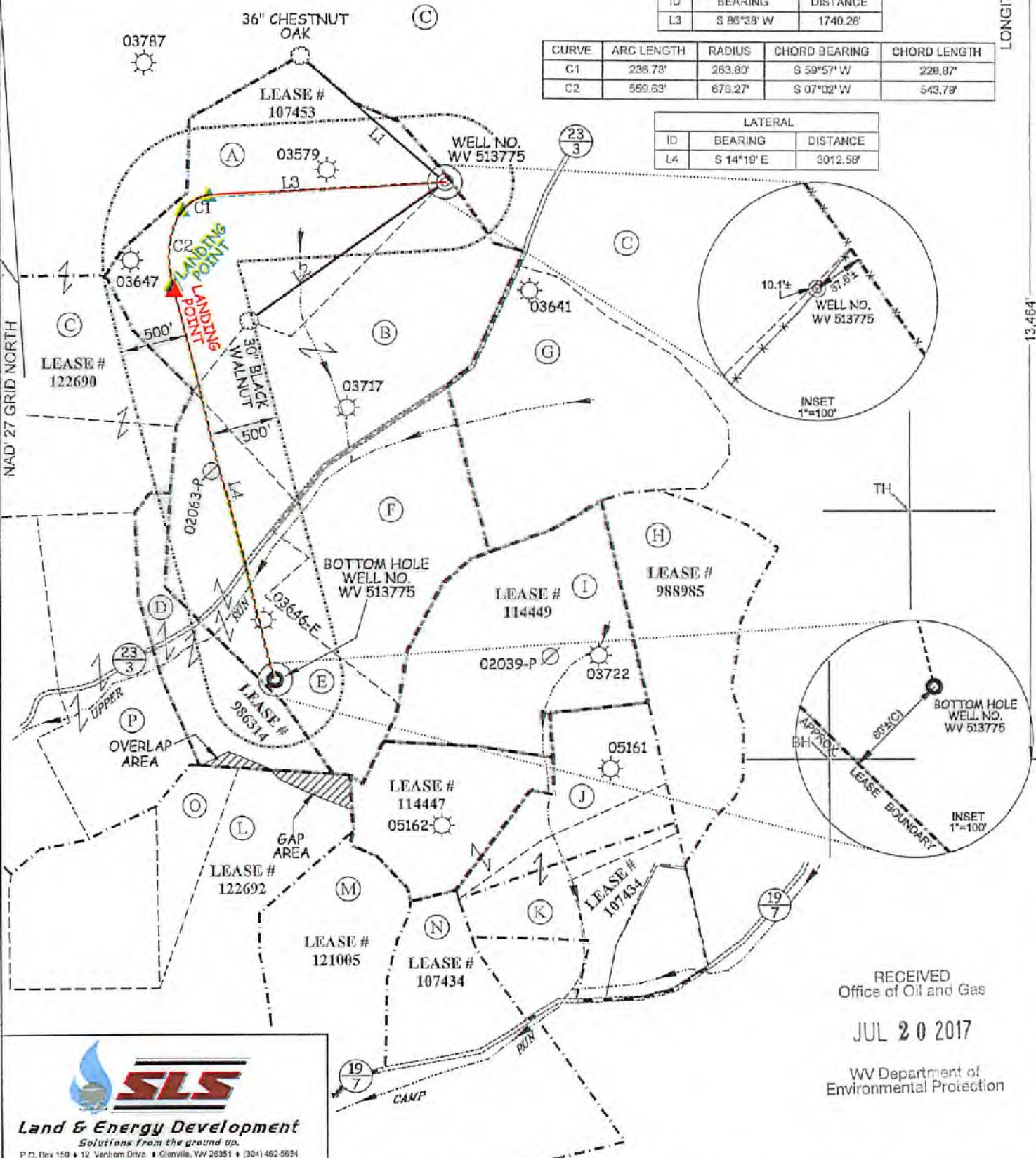
LONGITUDE 80°47'30"

WELL TIES		
ID	BEARING	DISTANCE
L1	N 48°49' W	1416.26'
L2	S 54°42' W	1772.86'

BUILD OUT DATA		
ID	BEARING	DISTANCE
L3	S 86°38' W	1740.26'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	236.73'	263.80'	S 59°57' W	228.87'
C2	559.53'	675.27'	S 07°02' W	543.79'

LATERAL		
ID	BEARING	DISTANCE
L4	S 14°19' E	3012.58'



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 Land & Energy Development
 Solutions from the ground up.
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www.slsenergy.com

AS DRILLED COORDINATES (OXF160 H6)		
<i>(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)</i>		
NAD27 S.P.C.(FT)	N. 250,890.72	E. 1,531,718.58
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NAD83 UTM (M)	N. 4,335,821.67	E. 516,994.53
SCALE	1" = 1000'	
DATE	MARCH 24, 2016	
REVISED	04/16/16 & 12/27/16	
OPERATORS WELL NO.	WV 513775	
API WELL NO.	47 - 017 - 06769H	
NO.	STATE	COUNTY
		PERMIT

VICTOR MOYERS
 LICENSED
 No. 849
 STATE OF
 WEST VIRGINIA
 PROFESSIONAL SURVEYOR
 C-12-27-16

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

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

LEGEND

- LEASE LINE
- SURFACE LINE
- PROPOSED PATH
- AS DRILLED PATH
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- SOUTH WEST DISTRICT TAX MAP-PARCEL

SW-00-00

09/15/2017

WELL OPERATOR	EQT PRODUCTION COMPANY	DESIGNATED AGENT	REX C. RAY
ADDRESS	115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330	ADDRESS	115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330