

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

API 47-170-06331 County DODDRIDGE District WEST UNION
Quad OXFORD 7.5' Pad Name OXF156 Field/Pool Name _____
Farm name HEASTER, CHARLES P., ET AL Well Number 513142
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 4,342,148 Easting 518,347
Landing Point of Curve Northing 4,342,212 Easting 518,735
Bottom Hole Northing 4,341,138 Easting 519,258

Elevation (ft) 1,202 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)
SBM 11.9ppg – powdered hydrocarbon resin, calcium carbonate, ground almond hulls, barium sulfate, calcium chloride, lecithin liquid, organophilic clay, polyaminated fatty acid, calcium hydroxide, polyimide surfactant, modified fatty acid, dimer.trimer fatty acid, ground walnut hulls, refined base oil.

Date permit issued 11/20/2013 Date drilling commenced 5/7/2014 Date drilling ceased 7/29/2014
Date completion activities began 1/18/2015 Date completion activities ceased 7/29/2015
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 169,216,320,386,462,600,1084 Open mine(s) (Y/N) depths _____
Salt water depth(s) ft 1456 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 1272,1312 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed by:
AL 5/26/15
W.S. 6/12/2015

API 47-170 - 06331 Farm name HEASTER, CHARLES P., ET AL Well number 513142

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"	40'	New	94lb/ft	N/A	Y
Surface	17-1/2"	13-3/8"	1,192'	New	54.5lb/ft	320	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	5,270'	New	40lb/ft	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	11,937'	New	20lb/ft	N/A	N
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	Class A	38	15.6	1.18	44.84	0	8
Surface	Class A	930	15.6	1.18	970	0	8
Coal							
Intermediate 1	Class A 5050 POZ/Class A/Class A	380/310/1115	14.2/15.6/15.6	1.28/1.18/1.18	2168	0	8
Intermediate 2							
Intermediate 3							
Production	Class A/Class H	430/590	14.2/15.2	1.26/1.97	1704	5,260'	72
Tubing							

Drillers TD (ft) 11,940' Loggers TD (ft) _____
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 5,645'

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- N/A
 Surface-Bowspring centralizer on shoe track and every 300' to surface
 Intermediate-Bowspring centralizer on shoe track and every 500' to surface
 Production- Composite bodied centralizers on every joint from Shoe track up to 4,145'

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 _____

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Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	1	1	1,084.00	1,084.00
SAND/SHALE	1,084.00	1,084.00	1,272.00	1,272.00
COAL	1,272.00	1,272.00	1,277.00	1,277.00
SAND/SHALE	1,277.00	1,277.00	1,312.00	1,312.00
COAL	1,312.00	1,312.00	1,318.00	1,318.00
SAND/SHALE	1,318.00	1,318.00	1,513.00	1,513.00
MAXTON	1,513.00	1,513.00	1,865.00	1,865.00
BIG LIME	1,865.00	1,865.00	1,923.00	1,923.00
KEENER	1,923.00	1,923.00	2,163.00	2,162.90
WEIR	2,163.00	2,162.90	2,358.00	2,357.90
BEREA	2,358.00	2,357.90	2,367.00	2,366.90
GANTZ	2,367.00	2,366.90	2,442.00	2,441.90
50F	2,442.00	2,441.90	2,563.00	2,562.90
30F	2,563.00	2,562.90	2,612.00	2,611.90
GORDON	2,612.00	2,611.90	2,710.00	2,709.90
4TH	2,710.00	2,709.90	2,918.00	2,917.90
BAYARD	2,918.00	2,917.90	3,207.00	3,206.90
WARREN	3,207.00	3,206.90	3,293.00	3,292.90
SPEECHLEY	3,293.00	3,292.90	3,796.00	3,795.90
BALLTOWN A	3,796.00	3,795.90	4,023.00	4,022.90
BALLTOWN B	4,023.00	4,022.90	4,183.00	4,182.90
BRADFORD	4,183.00	4,182.90	4,424.00	4,423.80
RILEY	4,424.00	4,423.80	4,871.00	4,870.70
BENSON	4,871.00	4,870.70	5,122.00	5,121.60
ALEXANDER	5,122.00	5,121.60	6,397.00	6,209.70
MIDDLESEX	6,397.00	6,209.70	6,454.00	6,227.10
GENESEE	6,454.00	6,227.10	6,518.00	6,246.70
GENESEO	6,518.00	6,246.70	6,559.00	6,259.60
TULLY	6,559.00	6,259.60	6,584.00	6,267.80
HAMILTON	6,584.00	6,267.80	6,598.00	6,272.60
MARCELLUS	6,598.00	6,272.60	11,940.00	6,597.00

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513139 - 47-017-06328-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	12/21/2014	11,935.50	11,938.07	10	MARCELLUS
1	1/18/2015 23:08	11,811.00	11,863.00	32	MARCELLUS
2	1/23/2015 7:47	11,661.00	11,763.00	40	MARCELLUS
3	1/24/2015 6:17	11,511.00	11,613.00	40	MARCELLUS
4	1/24/2015 12:06	11,361.00	11,463.00	40	MARCELLUS
5	1/25/2015 3:29	11,211.00	11,313.00	40	MARCELLUS
6	1/25/2015 8:45	11,061.00	11,161.00	40	MARCELLUS
7	1/25/2015 13:30	10,911.00	11,013.00	40	MARCELLUS
8	1/25/2015 18:17	10,611.00	10,713.00	40	MARCELLUS
9	1/25/2015 18:17	10,761.00	10,861.00	40	MARCELLUS
10	1/26/2015 2:19	10,461.00	10,563.00	40	MARCELLUS
11	1/27/2015 10:44	10,311.00	10,413.00	40	MARCELLUS
12	1/27/2015 15:05	10,161.00	10,263.00	40	MARCELLUS
13	1/27/2015 19:32	10,011.00	10,113.00	40	MARCELLUS
14	1/27/2015 23:56	9,861.00	9,963.00	40	MARCELLUS
15	1/28/2015 4:18	9,711.00	9,818.00	40	MARCELLUS
16	1/28/2015 8:48	9,561.00	9,663.00	40	MARCELLUS
17	1/28/2015 22:11	9,411.00	9,513.00	40	MARCELLUS
18	1/29/2015 3:47	9,261.00	9,363.00	40	MARCELLUS
19	1/29/2015 6:00	9,111.00	9,213.00	40	MARCELLUS
20	1/29/2015 11:45	8,961.00	9,063.00	40	MARCELLUS
21	1/29/2015 16:16	8,811.00	8,913.00	40	MARCELLUS
22	1/29/2015 19:00	8,661.00	8,765.00	40	MARCELLUS
23	1/29/2015 22:00	8,511.00	8,613.00	40	MARCELLUS
24	1/30/2015 3:25	8,361.00	8,463.00	40	MARCELLUS
25	1/30/2015 6:47	8,211.00	8,313.00	40	MARCELLUS
26	1/30/2015 10:53	8,063.00	8,163.00	40	MARCELLUS
27	1/30/2015 15:02	7,911.00	8,013.00	40	MARCELLUS
28	1/30/2015 18:00	7,761.00	7,863.00	40	MARCELLUS
29	1/31/2015 4:00	7,611.00	7,718.00	40	MARCELLUS

06/12/2015

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/18/2015
Job End Date:	1/31/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06331-00-00
Operator Name:	EQT Production
Well Name and Number:	513142
Longitude:	-80.78760600
Latitude:	39.22834400
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,273
Total Base Water Volume (gal):	7,555,464
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	FTS International	Carrier/Base Fluid	Water	7732-18-5	100.00000	89.56981	None
Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100.00000	10.08924	None
Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.03044	None
FRW-600	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.02162	None
B-10	FTS International	High pH buffer	Ammonium acetate	631-61-8	6.00000	0.00432	None
HVG-2	FTS International	Gelling agent	Potassium carbonate	584-08-7	48.00000	0.00985	None
	FTS International		Potassium hydroxide	1310-58-3	20.00000	0.00410	None
	FTS International		Petroleum distillate	64742-47-8	55.00000	0.00327	None
	FTS International		Guar gum	9000-30-0	50.00000	0.00297	None
	FTS International		Clay	14808-60-7	2.00000	0.00012	None
	FTS International		Surfactant	68439-51-0	2.00000	0.00012	None
	FTS International	Biocide	Dazomet	533-74-4	24.00000	0.00239	None

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CS-500-SI	FTS International	Scale inhibitor	Sodium hydroxide	1310-73-2	4.00000	0.00040	None
CI-150	FTS International	Acid Corrosion Inhibitor	Ethylene glycol	107-21-1	10.00000	0.00244	None
			Organic amine resin salt	Proprietary	30.00000	0.00012	None
			Isopropanol	67-63-0	30.00000	0.00012	None
			Ethylene glycol	107-21-1	30.00000	0.00012	None
			Aromatic aldehyde	Proprietary	10.00000	0.00004	None
			Quaternary ammonium compound	Proprietary	10.00000	0.00004	None
			Dimethylformamide	68-12-2	10.00000	0.00004	None
NE-100	FTS International	Non-emulsifier	2-Butoxyethanol	111-76-2	10.00000	0.00004	None
			2-Propanol	67-63-0	10.00000	0.00004	None
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00002	None
APB-1	FTS International	Breaker	Ammonium persulfate	7727-54-0	95.00000	0.00007	None
FE-100L	FTS International	Iron control	Citric acid	77-92-9	55.00000	0.00005	None
Chlorine Dioxide Solution - SVP-Pure	Neptune	Disinfectant and/or oxidizer	Chlorine dioxide	10049-04-4	0.30000	0.00001	None
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)

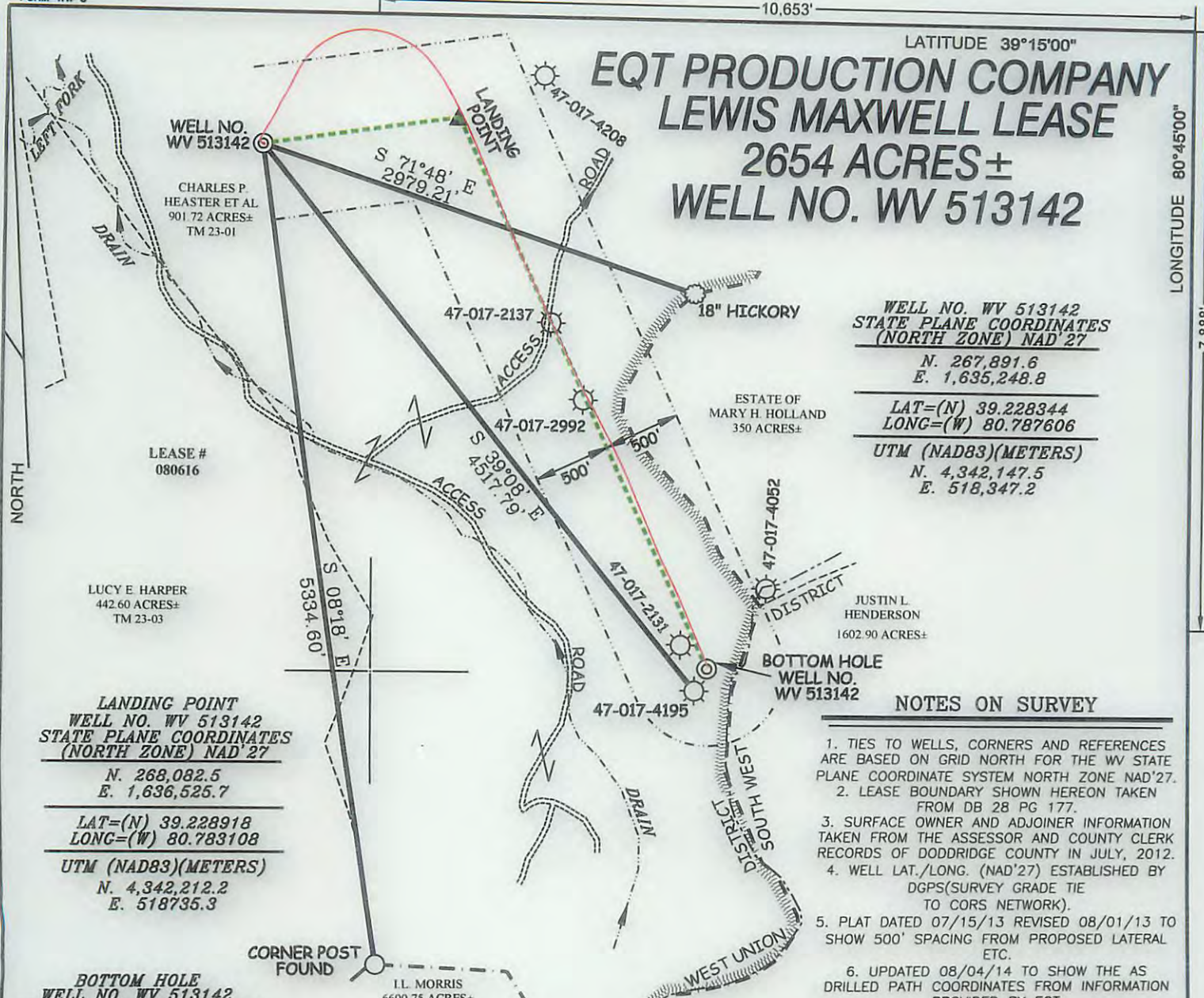
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EQT PRODUCTION COMPANY LEWIS MAXWELL LEASE 2654 ACRES ± WELL NO. WV 513142



WELL NO. WV 513142
STATE PLANE COORDINATES
(NORTH ZONE) NAD'27
 N. 267,891.6
 E. 1,635,248.8
 LAT=(N) 39.228344
 LONG=(W) 80.787606
UTM (NAD83)(METERS)
 N. 4,342,147.5
 E. 518,347.2

LANDING POINT
WELL NO. WV 513142
STATE PLANE COORDINATES
(NORTH ZONE) NAD'27
 N. 268,082.5
 E. 1,636,525.7
 LAT=(N) 39.228918
 LONG=(W) 80.783108
UTM (NAD83)(METERS)
 N. 4,342,212.2
 E. 518735.3

BOTTOM HOLE
WELL NO. WV 513142
STATE PLANE COORDINATES
(NORTH ZONE) NAD'27
 N. 264,529.8
 E. 1,638,182.4
 LAT=(N) 39.219230
 LONG=(W) 80.777083
UTM (NAD83)(METERS)
 N. 4,341,138.3
 E. 519,258.0

LEGEND
 AS DRILLED ———
 PROPOSED - - - - -

NOTES ON SURVEY

1. TIES TO WELLS, CORNERS AND REFERENCES ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD'27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DB 28 PG 177.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF DODDRIDGE COUNTY IN JULY, 2012.
4. WELL LAT./LONG. (NAD'27) ESTABLISHED BY DGPS(SURVEY GRADE TIE TO CORS NETWORK).
5. PLAT DATED 07/15/13 REVISED 08/01/13 TO SHOW 500' SPACING FROM PROPOSED LATERAL ETC.
6. UPDATED 08/04/14 TO SHOW THE AS DRILLED PATH COORDINATES FROM INFORMATION PROVIDED BY EQT.

AS DRILLED COORDINATES FOR WELL NO. WV 513142
 (S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'27 S.P.C.(FT) N. 267,891.6 E. 1,635,248.8
 NAD'27 GEO. LAT=(N) 39.228344 LONG=(W) 80.787606
 NAD'83 UTM (M) N. 4,342,147.5 E. 518,347.2
BOTTOM HOLE
 NAD'27 S.P.C.(FT) N. 264,537.4 E. 1,638,192.7
 NAD'27 GEO. LAT=(N) 39.219251 LONG=(W) 80.777047
 NAD'83 UTM (M) N. 4,341,140.7 E. 519,261.2

Professional Energy Consultants
 A DIVISION OF SMITH LAND SURVEYING, INC.

 SURVEYORS
 ENGINEERS
 ENVIRONMENTAL
 PROJECT MGMT.
 (304) 462-6634 WWW.SLSURVEYS.COM

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. 2288 *Earl N. Thompson*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE AUGUST 1, 2013
 REVISED DATE 08/04/04 & 03/09/15
 OPERATORS WELL NO. WV 513142
 API WELL NO. 47 - 017 - 06331
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 6980ASDRILLED513142R
 PROVEN SOURCE OF ELEVATION DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 1000'

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

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
 LOCATION: ELEVATION 1,244'(GROUND) 1,202'(PROPOSED) WATERSHED LEFT FORK ARNOLDS CREEK
 DISTRICT WEST UNION COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'
 SURFACE OWNER CHARLES P. HEASTER ET AL ACREAGE 901.72 ±
 ROYALTY OWNER LEWIS MAXWELL HRS ACREAGE 2654 ±
 PROPOSED WORK: LEASE NO. 080616
 DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X 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

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

06/12/2015

COUNTY NAME PERMIT