

APPROVED

NAME: Paul Flaherty

DATE: 1/27/16 **WR-35 Correction Report**

Operator: EQT Production Company

Well API Number: 47-017-06393

Date: 10-28-2015

Updates Needed:

- Correction to casing info. No production casing information provided*
- No freshwater or salt water depths reported. _____
- No open flow data reported. _____
- No details of perforated intervals submitted, or reported with insufficient detail.
- Partial or no Lithology log reported. No geology log**
- Well e- log submitted (deep well only). _____
- Drilled as deep well but permitted as shallow. _____
- Old WR-35 form used. Updated WR-35 form is available on WVDEP webpage.

Horizontal H6A Well Deficiencies

- As-Drilled Plat (mylar) and profile not included. _____
- Frac Focus chemical list needed. _____
- Computer file of well profile needed.
- Perforation and Stimulation record is incomplete. _____
- See Edited WR-35 form. _____
- OTHER:

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Mark as "Deep" or "Shallow" on page 2.
* We need production casing information
** Need geology log from surface to TD

Well Operator's Report of Well Work



Well Number: 512479

API: 47 - 017 - 6393

Submission: Initial Amended

Notes: *Correction to casing info.
Correction to geology log*

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

API 47 - 017 - 6393 County Doddridge District 8
Quad Oxford Pad Name OXF149 Field/Pool Name _____
Farm name Harper, Lucy E. Well Number 512479
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 4,341,354 Easting 517,196
Landing Point of Curve Northing 4,341,315 Easting 516,865
Bottom Hole Northing 4,342,011 Easting 516,527

Elevation (ft) 1240 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 13.5 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 01/21/2014 Date drilling commenced 7/07/2014 Date drilling ceased 11/16/2014
Date completion activities began 5/9/2015 Date completion activities ceased 5/14/2015
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

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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 438 Open mine(s) (Y/N) depths No
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths No
Coal depth(s) ft 642 Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by: _____

02/05/2016

API 47-017 - 6393 Farm name Harper, Lucy E. Well number 512479

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	MC-50, 81 #/ft	N/A	Yes
Surface	17-1/2	13-3/8	933	New	J-55, 54.5 #/ft	N/A	Yes
Coal							
Intermediate 1	12-3/8	9-5/8	3137	New	A-500, 40 #/ft	1405	Yes
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	9,650'	New	P-110, 20#/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	18.4	Surface	8
Surface	Class A	698	15.6	1.18	823	Surface	8
Coal							
Intermediate 1	Class A / Class A	895 / 240	15.6 / 15.6	1.18 / 1.18	938 / 283	Surface	8
Intermediate 2							
Intermediate 3							
Production	Class A / Class H	670 / 335	14.2 / 15.2	1.26 / 1.97	1504.15	3,282'	24
Tubing							

Drillers TD (ft) 9,663' Loggers TD (ft) N/A
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure _____

Kick off depth (ft) 5,406'

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 _____

20" Conductor - N/A
 13-3/8" Surface - 165 ftKB, 538 ftKB, 930 ftKB
 9-5/8" Intermediate - 381 ftKB, 844 ftKB, 1,309ftKB, 1,773 ftKB, 2,237 ftKB, 2,701 ftKB, 3,134 ftKB
 5-1/2" Production - Composite Body Spiral Centralizers run every joint from TD to 3,930'

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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 _____

API 47- 017 - 6393 Farm name Harper, Lucy E. Well number 512479

Drilling Contractor Patterson UTI
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company Gyrodata Inc
Address 601 MAYER ST City BRIDGEVILLE State PA Zip 15017

Logging Company Peak Completion Technologies
Address P.O Box 5768 City Midland State TX Zip 79704

Cementing Company Nabors
Address 2504 Smith Creek Road City Waynesburg State PA Zip 15370

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512479 Final Formations (API #47-17006393)				
Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	1		438	
SANDSTONE/SHALE	1		642	
COAL	642		645	
SANDSTONE/SHALE	645		1,518.00	
MAXTON	1,518.00		1,863.00	
BIG LIME	1,863.00		1,923.00	
KEENER	1,923.00		2,153.00	
WEIR	2,153.00		2,353.00	
BEREA	2,353.00		2,365.00	
GANTZ	2,365.00		2,448.00	
50F	2,448.00		2,557.00	
30F	2,557.00		2,596.00	
GORDON	2,596.00		2,702.00	
4TH	2,702.00		2,839.00	
5TH	2,839.00		2,878.00	
BAYARD	2,878.00		3,213.00	
WARREN	3,213.00		3,283.00	
SPEECHLEY	3,283.00		3,810.00	
BALLTOWN A	3,810.00		3,965.00	
BALLTOWN B	3,965.00		4,160.00	
BRADFORD	4,160.00		4,405.00	
RILEY	4,405.00		4,837.00	
BENSON	4,837.00		5,099.00	
ALEXANDER	5,099.00		5,792.00	5,769.30
RHINESTREET	5,792.00	5,769.30	6,056.00	5,968.30
RHINESTREET UPPER	6,056.00	5,968.30	6,556.00	6,333.70
SONYEA	6,556.00	6,333.70	6,742.00	6,460.20
MIDDLESEX	6,742.00	6,460.20	6,828.00	6,515.60
GENESSEE	6,828.00	6,515.60	6,971.00	6,599.40
GENESEO	6,971.00	6,599.40	7,117.00	6,667.80
TULLY	7,117.00	6,667.80	7,174.00	6,688.00
HAMILTON	7,174.00	6,688.00	7,244.00	6,707.60
MARCELLUS	7,244.00	6,707.60		

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512479 47-017-06393-0000 - 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	5/11/2015	13.3	8,726.00	9,192.00	4,308.00	0	1094	0
1	5/11/2015	100.1	7,737.00	8,459.00	4,280.00	202,643	5525	0
2	5/11/2015	97.9	7,270.00	7,650.00	4,822.00	201,414	5365	0
3	5/12/2015	100.5	7,781.00	8,413.00	4,636.00	203,743	5526	0
4	5/12/2015	100.4	7,955.00	8,375.00	4,594.00	202,074	5561	0
5	5/12/2015	100.5	7,785.00	8,498.00	4,412.00	200,174	5343	0
6	5/12/2015	100.6	7,697.00	8,271.00	5,055.00	200,238	5284	0
7	5/13/2015	100.4	7,838.00	8,073.00	4,781.00	202,874	5296	0
8	5/13/2015	100.4	8,021.00	8,813.00	4,083.00	201,778	5110	0
9	5/13/2015	97.1	7,969.00	9,157.00	5,113.00	202,122	5217	0
10	5/13/2015	96	8,197.00	9,039.00	4,686.00	198,254	5045	0
11	5/13/2015	100.7	7,812.00	8,149.00	5,127.00	198,799	5192	0
12	5/14/2015	101.3	7,227.00	7,684.00	5,180.00	202,475	5249	0
13	5/14/2015	101.4	7,304.00	8,080.00	4,807.00	203,576	4964	0
14	5/14/2015	97.4	7,279.00	8,634.00	5,287.00	202,107	5160	0
15	5/14/2015	100.4	7,589.00	8,496.00	5,267.00	203,806	4706	0
16	5/14/2015	98.3	7,755.00	8,933.00	4,839.00	200,911	5236	0

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512479 47-017-06393-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	5/9/2015	9,648.00	9,650.00	10	MARCELLUS
1	5/11/2015	9,504.00	9,594.00	32	MARCELLUS
2	5/11/2015	9,354.00	9,474.00	40	MARCELLUS
3	5/12/2015	9,204.00	9,324.00	40	MARCELLUS
4	5/12/2015	9,054.00	9,170.00	40	MARCELLUS
5	5/12/2015	8,904.00	9,024.00	40	MARCELLUS
6	5/12/2015	8,754.00	8,874.00	40	MARCELLUS
7	5/13/2015	8,608.00	8,742.00	40	MARCELLUS
8	5/13/2015	8,454.00	8,573.00	40	MARCELLUS
9	5/13/2015	8,304.00	8,426.00	40	MARCELLUS
10	5/13/2015	8,154.00	8,276.00	40	MARCELLUS
11	5/13/2015	8,004.00	8,126.00	40	MARCELLUS
12	5/14/2015	7,854.00	7,975.00	40	MARCELLUS
13	5/14/2015	7,704.00	7,825.00	40	MARCELLUS
14	5/14/2015	7,554.00	7,676.00	40	MARCELLUS
15	5/14/2015	7,404.00	7,526.00	40	MARCELLUS
16	5/14/2015	7,254.00	7,376.00	40	MARCELLUS

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Hydraulic Fracturing Fluid Product Component Information Disclosure



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Job Start Date:	5/9/2015
Job End Date:	5/14/2015
State:	West Virginia
County:	Doddridge
API Number:	47-017-06393-00-00
Operator Name:	EQT Production
Well Name and Number:	512479
Longitude:	-80.80096500
Latitude:	39.22121400
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,410
Total Base Water Volume (gal):	3,564,669
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	96.85734	None
Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100.00000	2.62108	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution	Calcium nitrate	10124-37-5	60.00000	0.06216	None
Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.04688	None
FRW-900	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.02283	None
			Alkyl Alcohol	Proprietary	10.00000	0.00761	None
			Oxyalkylated alcohol A	Proprietary	5.00000	0.00381	None
CS-500-SI	FTS International	Scale inhibitor	Ethylene glycol	107-21-1	10.00000	0.00263	None
FE-100L	FTS International	Iron control	Citric acid	77-92-9	55.00000	0.00106	None
CI-150	FTS International	Acid Corrosion Inhibitor	Organic amine resin salt	Proprietary	30.00000	0.00018	None

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			Isopropanol	67-63-0	30.00000	0.00018	None
			Ethylene glycol	107-21-1	30.00000	0.00018	None
			Quaternary ammonium compound	Proprietary	10.00000	0.00006	None
			Aromatic aldehyde	Proprietary	10.00000	0.00006	None
			Dimethylformamide	68-12-2	10.00000	0.00006	None
NE-100	FTS International	Non-emulsifier					
			2-Propanol	67-63-0	10.00000	0.00005	None
			2-Butoxyethanol	111-76-2	10.00000	0.00005	None
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00002	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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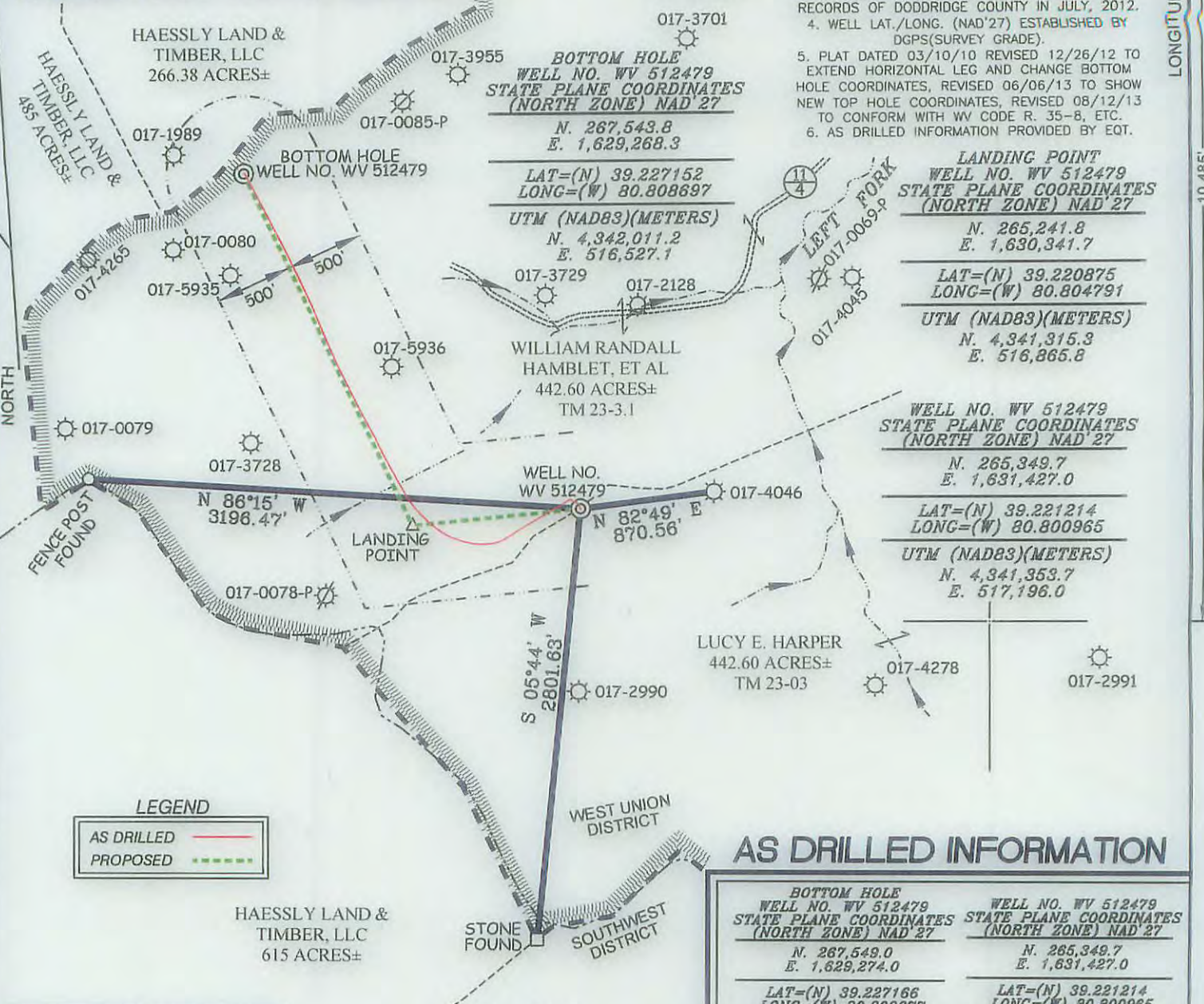
LEWIS MAXWELL LEASE

2654 ACRES±

WELL NO. WV 512479

NOTES ON SURVEY

1. TIES TO WELLS, REFERENCES AND CORNERS ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD'27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM DEED BOOK 28 PAGE 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).
5. PLAT DATED 03/10/10 REVISED 12/26/12 TO EXTEND HORIZONTAL LEG AND CHANGE BOTTOM HOLE COORDINATES, REVISED 06/06/13 TO SHOW NEW TOP HOLE COORDINATES, REVISED 08/12/13 TO CONFORM WITH WV CODE R. 35-8, ETC.
6. AS DRILLED INFORMATION PROVIDED BY EQT.



LANDING POINT
WELL NO. WV 512479
STATE PLANE COORDINATES (NORTH ZONE) NAD'27
N. 265,241.8
E. 1,630,341.7

LAT=(N) 39.220875
LONG=(W) 80.804791

UTM (NAD83)(METERS)
N. 4,341,315.3
E. 516,865.8

WELL NO. WV 512479
STATE PLANE COORDINATES (NORTH ZONE) NAD'27
N. 265,349.7
E. 1,631,427.0

LAT=(N) 39.221214
LONG=(W) 80.800965

UTM (NAD83)(METERS)
N. 4,341,353.7
E. 517,196.0

LEGEND

AS DRILLED —

PROPOSED - - -

AS DRILLED INFORMATION

BOTTOM HOLE WELL NO. WV 512479 STATE PLANE COORDINATES (NORTH ZONE) NAD'27	WELL NO. WV 512479 STATE PLANE COORDINATES (NORTH ZONE) NAD'27
N. 267,549.0 E. 1,629,274.0	N. 265,349.7 E. 1,631,427.0
LAT=(N) 39.227166 LONG=(W) 80.808677	LAT=(N) 39.221214 LONG=(W) 80.800965
UTM (NAD83)(METERS) N. 4,342,012.8 E. 516,528.8	UTM (NAD83)(METERS) N. 4,341,353.7 E. 517,196.0

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. *Gregory A. Smith*
677



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

DATE AUGUST 29, 20 13

REVISED DATE NOVEMBER 24, 20 14

OPERATORS WELL NO. WV 512479

API WELL NO. 47 - 017 - 6393

STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200

FILE NO. 6980ASDRILLED512479

PROVEN SOURCE OF ELEVATION DGPS (SURVEY GRADE TIES TO CORS NETWORK)

SCALE 1" = 1,000'

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: ELEVATION 1,240' (GROUND) 1,242.5' (PROPOSED) WATERSHED LEFT FORK

DISTRICT WEST UNION COUNTY DODDRIDGE QUADRANGLE OXFORD 7.5'

SURFACE OWNER LUCY E. HARPER ACREAGE 442.6±

ROYALTY OWNER LEWIS MAXWELL HEIRS LEASE ACREAGE 2,654± LEASE NO. 080616

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

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. 280 BRIDGEPORT, WV 26330



02/05/2016

COUNTY NAME PERMIT