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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 - 103 - 02874 County Wetzel District Grant  
Quad Pine Grove Pad Name PNG129 Field/Pool Name \_\_\_\_\_  
Farm name Coastal Lumber Company Well Number 514377  
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 4,378,132 Easting 530,865  
Landing Point of Curve Northing 4,378,219 Easting 530,837  
Bottom Hole Northing 4,379,368 Easting 530,200

Elevation (ft) 1330 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 14.0 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, ferrocchrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 05/29/2013 Date drilling commenced 08/27/2013 Date drilling ceased 3/27/2014  
Date completion activities began 8/19/2014 Date completion activities ceased 8/25/2014  
Verbal plugging (Y/N) n/a 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 734' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 2016', 2365' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 686', 968', 1038', 1052', 1080' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

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Reviewed by: \_\_\_\_\_

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API 47-103 - 02874

Farm name Coastal Lumber Company

Well number 514377

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	28"	26"	40'	New	82.6#/ft	n/a	Y
Surface	17-1/2"	13-3/8"	988'	New	54.5#/ft	398', 795'	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	3393'	New	40#/ft	112', 323'	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	12019'	New	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 <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	49	15.6	1.18	57.82	0	8
Surface	Class A	845	15.6	1.19	1005.55	0	8
Coal							
Intermediate 1	Class A	1265	15.6	1.18	1492.7	0	8
Intermediate 2							
Intermediate 3							
Production	Class A/Class H	565/645	15.2/15.6	1.07/1.86	1804.25	5000	8
Tubing							

Drillers TD (ft) 12056'      Loggers TD (ft) N/A  
 Deepest formation penetrated Marcellus      Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5989'

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-bow spring centralizers set at 910', 667'  
Intermediate-bow spring centralizers set at 3358', 2893', 2387', 1839', 1334', 829'  
Production-composite centralizer ran on every joint from td up to 5356.23'

WAS WELL COMPLETED AS SHOT HOLE     Yes     No      DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?     Yes     No      DETAILS \_\_\_\_\_

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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	734	734
Coal	686	686	688	688
Sand / Shale	688	688	968	968
Coal	968	968	969	969
Sand / Shale	969	969	1038	1038
Coal	1038	1038	1045	1045
Sand / Shale	1045	1045	1052	1052
Coal	1052	1052	1054	1054
Sand / Shale	1054	1054	1080	1080
Coal	1080	1080	1086	1086
Sand / Shale	1086	1086	2183	2183
Maxton	2183	2183	2419	2419
Big Lime	2419	2419	2658	2658
Weir	2658	2658	2856	2856
Gantz	2856	2856	2972	2972
Fifty foot	2972	2972	3045	3045
Thirty foot	3045	3045	3092	3092
Gordon	3092	3092	3212	3212
Forth Sand	3212	3212	3347	3347
Bayard	3347	3347	3763	3763
Warren	3763	3763	3889	3889
Speechley	3889	3889	4763	4763
Riley	4763	4763	5374	5374
Benson	5374	5374	5747	5747
Alexander	5747	5747	7145	7052
Middlesex	7145	7052	7194	7092
Genesee	7194	7092	7307	7173
Genesee	7307	7173	7346	7197
Tully	7346	7197	7383	7218
Hamilton	7383	7218	7559	7296
Marcellus	7559	7296	12056	7329

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**514377 - 47-103-02874-0000 - Perforations**

<b>Stage Number</b>	<b>Perforation Date</b>	<b>Top Perf Depth (ftKB)</b>	<b>Bottom Perf Depth (ftKB)</b>	<b>Number of Shots</b>	<b>Formation</b>
<b>Initiation Sleeve</b>	8/18/2014	11,991.00	11,994.00	10	MARCELLUS
<b>1</b>	8/20/2014	11,810.00	11,947.00	32	MARCELLUS
<b>2</b>	8/20/2014	11,586.00	11,769.00	40	MARCELLUS
<b>2.1 (Re-Perf)</b>	8/20/2014	11,562.00	11,652.50	24	MARCELLUS
<b>3</b>	8/21/2014	11,361.00	11,543.00	40	MARCELLUS
<b>4</b>	8/21/2014	11,136.00	11,318.00	40	MARCELLUS
<b>5</b>	8/21/2014	10,911.00	11,093.00	40	MARCELLUS
<b>6</b>	8/21/2014	10,686.00	10,868.00	40	MARCELLUS
<b>7</b>	8/22/2014	10,462.00	10,643.00	40	MARCELLUS
<b>8</b>	8/22/2014	10,236.00	10,421.00	40	MARCELLUS
<b>9</b>	8/22/2014	10,011.00	10,193.00	40	MARCELLUS
<b>10</b>	8/23/2014	9,786.00	9,968.00	40	MARCELLUS
<b>11</b>	8/23/2014	9,561.00	9,743.00	40	MARCELLUS
<b>12</b>	8/23/2014	9,336.00	9,518.00	40	MARCELLUS
<b>13</b>	8/23/2014	9,111.00	9,293.00	40	MARCELLUS
<b>14</b>	8/24/2014	8,886.00	9,068.00	40	MARCELLUS
<b>15</b>	8/24/2014	8,661.00	8,843.00	40	MARCELLUS
<b>16</b>	8/24/2014	8,436.00	8,618.00	40	MARCELLUS
<b>17</b>	8/25/2014	8,211.00	8,393.00	40	MARCELLUS
<b>18</b>	8/25/2014	7,986.00	8,168.00	40	MARCELLUS
<b>19</b>	8/25/2014	7,761.00	7,943.00	40	MARCELLUS

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**514377 - 47-103-02874-0000 - 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	8/19/2014	11.20	8,565.00	10,108.00	5,518	NA	1,076	0
Injection Test	8/19/2014	15.40	8,296.00	9,324.00	4,868	NA	1,021	0
1	8/20/2014	94.70	8,647.00	9,164.00	4,590	378,904	9,400	0
2	8/20/2014	45.50	8,243.00	9,300.00	5,479	8,001	4,568	0
2.1 (Re-Perf)	8/20/2014	79.40	8,535.00	9,783.00	5,479	246,594	6,726	0
Injection Test	8/20/2014	20.00	6,700.00	NA	5,165	NA	1,935	0
3	8/21/2014	101.00	8,316.00	8,837.00	5,400	376,787	9,496	0
4	8/21/2014	100.40	8,029.00	8,980.00	5,564	376,485	10,910	0
5	8/21/2014	101.50	8,509.00	8,905.00	4,996	376,607	10,195	0
6	8/21/2014	98.30	8,785.00	9,094.00	4,767	377,283	9,384	0
7	8/22/2014	100.40	8,107.00	9,046.00	5,056	376,382	9,838	0
8	8/22/2014	100.60	8,432.00	8,778.00	5,472	375,769	9,735	0
9	8/22/2014	99.50	7,939.00	8,784.00	5,606	378,200	9,535	0
10	8/23/2014	100.20	7,729.00	8,315.00	5,516	377,128	9,485	0
11	8/23/2014	99.90	8,492.00	9,147.00	5,580	374,390	9,939	0
12	8/23/2014	98.50	8,486.00	9,112.00	4,711	374,736	9,711	0
13	8/23/2014	98.50	7,991.00	8,851.00	4,956	377,574	9,301	0
14	8/24/2014	100.20	7,867.00	8,202.00	5,067	375,866	9,015	0
15	8/24/2014	100.20	7,897.00	8,939.00	5,124	374,333	9,340	0
16	8/24/2014	98.07	8,054.00	8,592.00	5,373	378,673	9,577	0
17	8/25/2014	97.60	7,830.00	8,510.00	5,581	377,040	9,529	0
18	8/25/2014	98.60	8,034.00	8,947.00	5,204	388,900	9,589	0
19	8/25/2014	101.90	7,410.00	8,321.00	4,899	384,617	9,526	0

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/18/2014
Job End Date:	8/25/2014
State:	West Virginia
County:	Wetzel
API Number:	47-103-02874-00-00
Operator Name:	EQT Production
Well Name and Number:	PNG129 - 514377
Longitude:	-80.64074600
Latitude:	39.55231500
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,338
Total Base Water Volume (gal):	7,906,454
Total Base Non Water Volume:	342,965

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## 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	FTSI	Carrier	Water	7732-18-5	100.00000	90.05309	
Sand	FTSI	Proppant	Crystalline Silica	14808-60-7	100.00000	9.64548	
FRW-600	FTSI	Friction Reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.02366	
			Ammonium acetate	631-61-8	6.00000	0.00473	
Hydrochloric Acid 15%	FTSI	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.02477	
B-10	FTSI	Buffer Agent	Potassium carbonate	584-08-7	48.00000	0.00603	
			Potassium hydroxide	1310-58-3	20.00000	0.00251	
CS-500-SI	FTSI	Scale Inhibitor	Ethylene Glycol	107-21-1	10.00000	0.00398	
HVG-1	FTSI	Gel	Petroleum Distillate	64742-47-8	55.00000	0.00190	
			Guar Gum	9000-30-0	50.00000	0.00173	
			Surfactant	68439-51-0	2.00000	0.00007	
			Clay	14808-60-7	2.00000	0.00007	



CIO2	Neptune	Biocide				
			Chlorine Dioxide	10049-04-4	100.00000	0.00051
CI-150	FTSI	Corrosion Inhibitor				
			Ethylene Glycol	107-21-1	30.00000	0.00008
			Organic amine resin salt	Proprietary	30.00000	0.00008
			Isopropanol	67-63-0	30.00000	0.00008
			Aromatic aldehyde	Proprietary	10.00000	0.00003
			Quaternary ammonium compound	Proprietary	10.00000	0.00003
			Dimethylformamide	68-12-2	10.00000	0.00003
FE-100L	FTSI	Iron Control				
			Citric Acid	77-92-9	55.00000	0.00032
NE-100	FTSI	Non-Emulsifier				
			2-Butoxyethanol	111-76-2	10.00000	0.00002
			2-Propanol	67-63-0	10.00000	0.00002
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00001
APB-1	FTSI	Gel Breaker				
			Ammonium Persulfate	7727-54-0	95.00000	0.00005

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%

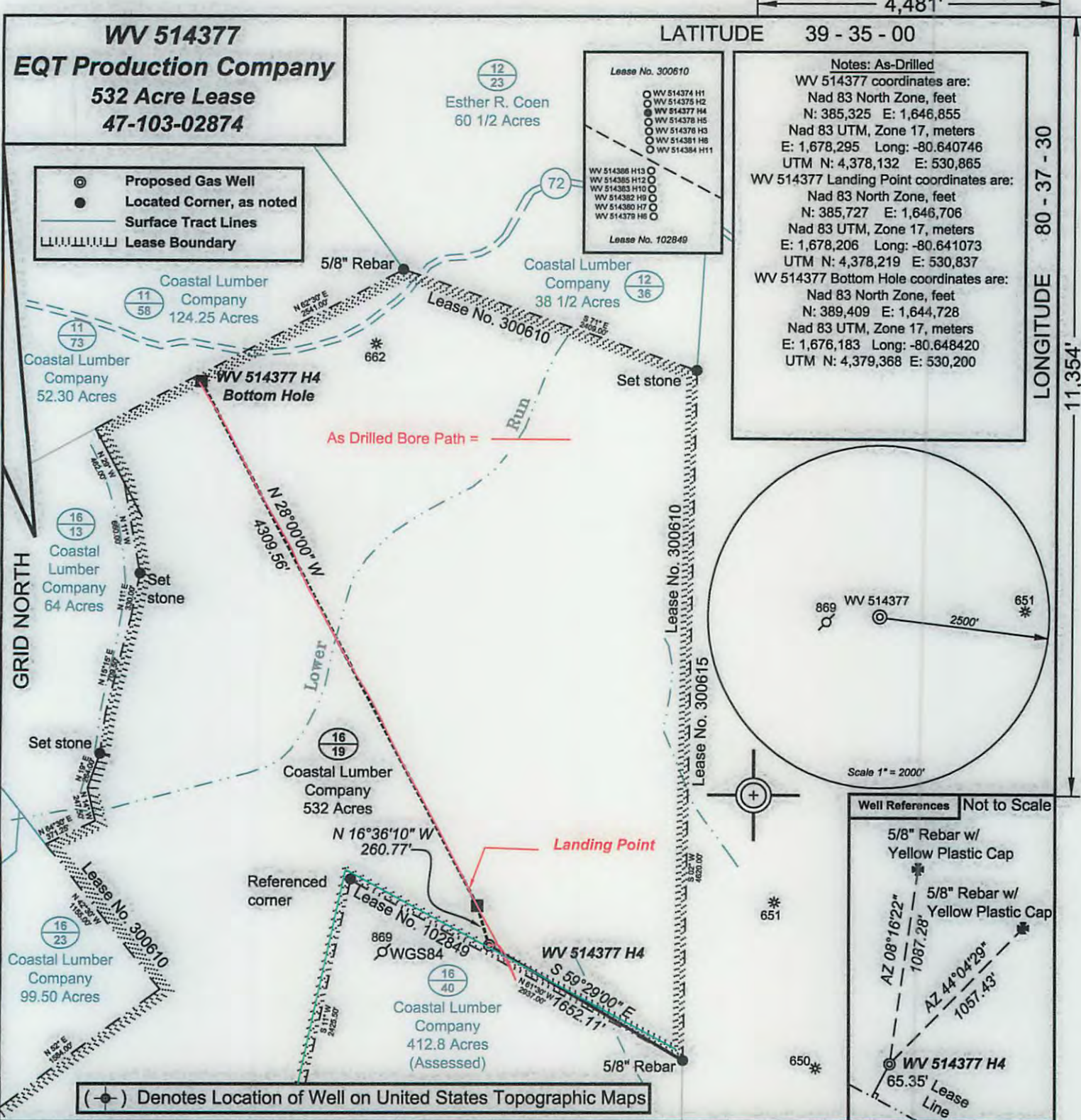
Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

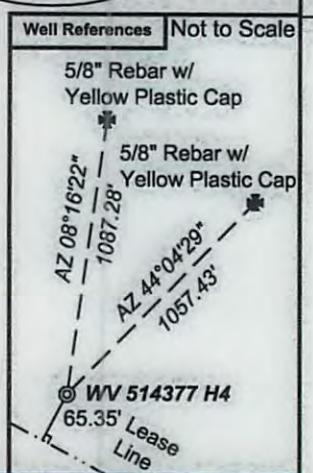
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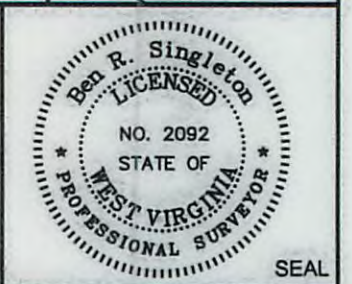


**Notes: As-Drilled**  
 WV 514377 coordinates are:  
 Nad 83 North Zone, feet  
 N: 385,325 E: 1,646,855  
 Nad 83 UTM, Zone 17, meters  
 E: 1,678,295 Long: -80.640746  
 UTM N: 4,378,132 E: 530,865  
 WV 514377 Landing Point coordinates are:  
 Nad 83 North Zone, feet  
 N: 385,727 E: 1,646,706  
 Nad 83 UTM, Zone 17, meters  
 E: 1,678,206 Long: -80.641073  
 UTM N: 4,378,219 E: 530,837  
 WV 514377 Bottom Hole coordinates are:  
 Nad 83 North Zone, feet  
 N: 389,409 E: 1,644,728  
 Nad 83 UTM, Zone 17, meters  
 E: 1,676,183 Long: -80.648420  
 UTM N: 4,379,368 E: 530,200



*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 Department of Environmental Protection.*

*Ben R. Singleton*  
 P.S. 2092



FILE NO: 204-34-G-12 EQT PNG 129  
 DRAWING NO: 204-12 PNG 129 H4  
 SCALE: 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY: 1:2500  
 PROVEN SOURCE OF ELEVATION: NGS CORS Station

**STATE OF WEST VIRGINIA**  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**OIL AND GAS DIVISION**

DATE: April 21 20 14  
 OPERATOR'S WELL NO. WV 514377  
 API WELL NO  
 47 - 103 - 02874  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: Ground: 1362.50' Proposed: 1329.50' WATERSHED Upper Run of South Fork of Fishing Creek QUADRANGLE: Pine Grove  
 DISTRICT: Grant COUNTY: Wetzel  
 SURFACE OWNER: Coastal Lumber Company ACREAGE: 532  
 ROYALTY OWNER: Waco Oil & Gas Co., Inc. LEASE NO: 300610 ACREAGE: 532  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY)  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus ESTIMATED DEPTH: TVD: 7,700' MD 13,300'

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Rex C. Ray  
 ADDRESS: 1710 Pennsylvania Avenue ADDRESS: 1710 Pennsylvania Avenue  
 Charleston, WV 25302 Charleston, WV 25302



