

JR

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 47-103-02872 County Wetzel District Grant  
Quad Pine Grove Pad Name PNG129 Field/Pool Name \_\_\_\_\_  
Farm name Coastal Lumber Company Well Number 514374  
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 4,378,141 Easting 530,865  
Landing Point of Curve Northing 4,378,121 Easting 531,152  
Bottom Hole Northing 4,379,478 Easting 530,401

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, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 05/22/2013 Date drilling commenced 08/27/2013 Date drilling ceased 4/17/2014  
Date completion activities began 9/3/2014 Date completion activities ceased 9/9/2014  
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 - 02872

Farm name Coastal Lumber Company

Well number 514374

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"	963'	New	54.5#/ft	639', 112'	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	3402'	New	40#/ft	1123', 1713'	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	12747'	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	870	15.6	1.19	1035.30	0	8
Coal							
Intermediate 1	Class A	1410	15.6	1.18	1663.8	0	8
Intermediate 2							
Intermediate 3							
Production	Class A/Class H	665/675	15.2/15.6	1.07/1.86	1967.05	5000	8
Tubing							

Drillers TD (ft) 12765'

Loggers TD (ft) N/A

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 5405'

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 923', 600', 316'

Intermediate-bow spring centralizers set at 3358', 2852', 2346', 1882', 1377', 871', 365'

Production-composite centralizer ran on every joint from td up to 4142'

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	1.00	1.00	734.00	734.00
Coal	686.00	686.00	688.00	688.00
Sand / Shale	688.00	688.00	968.00	968.00
Coal	968.00	968.00	969.00	969.00
Sand / Shale	969.00	969.00	1038.00	1038.00
Coal	1038.00	1038.00	1045.00	1045.00
Sand / Shale	1045.00	1045.00	1052.00	1052.00
Coal	1052.00	1052.00	1054.00	1054.00
Sand / Shale	1054.00	1054.00	1080.00	1080.00
Coal	1080.00	1080.00	1086.00	1086.00
Sand / Shale	1086.00	1086.00	2183.00	2183.00
Maxton	2183.00	2183.00	2419.00	2419.00
Big Lime	2419.00	2419.00	2658.00	2658.00
Weir	2658.00	2658.00	2856.00	2856.00
Gantz	2856.00	2856.00	2972.00	2972.00
Fifty foot	2972.00	2972.00	3045.00	3045.00
Thirty foot	3045.00	3045.00	3092.00	3092.00
Gordon	3092.00	3092.00	3212.00	3212.00
Forth Sand	3212.00	3212.00	3347.00	3347.00
Bayard	3347.00	3347.00	3763.00	3763.00
Warren	3763.00	3763.00	3889.00	3889.00
Speechley	3889.00	3889.00	4763.00	4763.00
Riley	4763.00	4763.00	5379.00	5377.50
Benson	5379.00	5377.50	5772.00	5744.90
Alexander	5772.00	5744.90	7401.00	7054.90
Middlesex	7401.00	7054.90	7453.00	7096.00
Genesee	7453.00	7096.00	7570.00	7178.40
Geneseo	7570.00	7178.40	7614.00	7204.20
Tully	7614.00	7204.20	7657.00	7227.00
Hamilton	7657.00	7227.00	7863.00	7303.80
Marcellus	7863.00	7303.80	12765.00	7307.00

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**514374 - 47-103-02872-0000 - 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>	9/3/2014	12,720.00	12,722.00	10	MARCELLUS
<b>1</b>	9/3/2014	12,598.00	12,658.00	28	MARCELLUS
<b>2</b>	9/3/2014	12,418.00	12,542.00	42	MARCELLUS
<b>3</b>	9/3/2014	12,238.00	12,354.00	42	MARCELLUS
<b>4</b>	9/4/2014	12,058.00	12,178.00	42	MARCELLUS
<b>5</b>	9/4/2014	11,880.00	11,998.00	42	MARCELLUS
<b>6</b>	9/4/2014	11,702.00	11,818.00	42	MARCELLUS
<b>7</b>	9/4/2014	11,515.00	11,638.00	42	MARCELLUS
<b>8</b>	9/4/2014	11,338.00	11,458.00	42	MARCELLUS
<b>9</b>	9/5/2014	11,158.00	11,278.00	42	MARCELLUS
<b>10</b>	9/5/2014	10,978.00	11,130.00	42	MARCELLUS
<b>11</b>	9/5/2014	10,798.00	10,918.00	42	MARCELLUS
<b>12</b>	9/5/2014	10,618.00	10,738.00	42	MARCELLUS
<b>13</b>	9/5/2014	10,438.00	10,558.00	42	MARCELLUS
<b>14</b>	9/6/2014	10,258.00	10,378.00	42	MARCELLUS
<b>15</b>	9/6/2014	10,078.00	10,202.00	42	MARCELLUS
<b>16</b>	9/6/2014	9,898.00	10,015.00	42	MARCELLUS
<b>17</b>	9/6/2014	9,718.00	9,838.00	42	MARCELLUS
<b>18</b>	9/7/2014	9,541.00	9,658.00	42	MARCELLUS
<b>19</b>	9/7/2014	9,353.00	9,478.00	42	MARCELLUS
<b>20</b>	9/7/2014	9,178.00	9,298.00	42	MARCELLUS
<b>21</b>	9/7/2014	8,998.00	9,118.00	42	MARCELLUS
<b>22</b>	9/8/2014	8,818.00	8,938.00	42	MARCELLUS
<b>23</b>	9/8/2014	8,638.00	8,758.00	42	MARCELLUS
<b>24</b>	9/8/2014	8,458.00	8,578.00	42	MARCELLUS
<b>25</b>	9/8/2014	8,278.00	8,398.00	42	MARCELLUS
<b>26</b>	9/8/2014	8,098.00	8,221.00	42	MARCELLUS
<b>27</b>	9/9/2014	7,918.00	8,033.00	42	MARCELLUS

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**514374 - 47-103-02872-0000 - Stimulated Stages**

<b>Stage Number</b>	<b>Stimulation Date</b>	<b>Ave Pump Rate (BPM)</b>	<b>Ave Treatment Pressure (PSI)</b>	<b>Max Breakdown Pressure (PSI)</b>	<b>ISIP (PSI)</b>	<b>Amount of Proppant (lbs)</b>	<b>Amount of Water (bbls)</b>	<b>Amount of Nitrogen/other (units)</b>
<b>Initiation Sleeve</b>	9/3/2014	20.00	7,600.00	9,232.00	4,423	0	623	0
<b>1</b>	9/3/2014	100.40	8,502.00	8,845.00	4,215	227,245	6,093	0
<b>2</b>	9/3/2014	96.50	8,336.00	8,700.00	4,424	235,500	6,057	0
<b>3</b>	9/4/2014	91.30	8,496.00	8,943.00	4,378	224,500	5,997	0
<b>4</b>	9/4/2014	86.50	8,096.00	8,702.00	4,670	224,286	5,962	0
<b>5</b>	9/4/2014	99.20	8,654.00	9,038.00	5,082	222,630	5,909	0
<b>6</b>	9/4/2014	78.20	8,301.00	9,093.00	4,699	224,746	9,254	0
<b>7</b>	9/4/2014	93.40	8,328.00	8,659.00	4,767	226,300	6,387	0
<b>8</b>	9/5/2014	93.70	8,464.00	8,820.00	5,437	224,000	5,979	0
<b>9</b>	9/5/2014	98.10	8,346.00	8,575.00	4,859	224,396	6,153	0
<b>10</b>	9/5/2014	100.00	8,223.00	8,529.00	5,051	224,575	5,924	0
<b>11</b>	9/5/2014	98.70	8,235.00	8,884.00	4,685	224,764	6,181	0
<b>12</b>	9/5/2014	96.30	8,482.00	8,790.00	4,677	225,000	6,079	0
<b>13</b>	9/5/2014	99.30	8,354.00	8,684.00	4,686	221,300	5,768	0
<b>14</b>	9/6/2014	100.10	8,259.00	8,661.00	4,600	227,000	5,937	0
<b>15</b>	9/6/2014	92.10	8,567.00	9,113.00	4,548	223,952	5,987	0
<b>16</b>	9/6/2014	100.10	8,628.00	8,798.00	4,549	224,848	6,018	0
<b>17</b>	9/7/2014	91.80	8,435.00	9,005.00	4,466	221,647	6,052	0
<b>18</b>	9/7/2014	94.90	7,936.00	8,632.00	4,442	225,582	5,975	0
<b>19</b>	9/7/2014	100.00	7,909.00	8,141.00	5,053	225,677	5,939	0
<b>20</b>	9/7/2014	95.60	8,090.00	9,194.00	4,728	223,541	5,861	0
<b>Injection Test</b>	9/7/2014	15.00	5,500.00	6,482.00	5,140	0	1,928	0
<b>21</b>	9/8/2014	98.10	7,875.00	8,740.00	4,659	221,897	5,801	0
<b>22</b>	9/8/2014	100.60	7,756.00	8,052.00	4,791	222,897	5,975	0
<b>23</b>	9/8/2014	100.10	7,819.00	8,253.00	4,642	223,358	5,953	0
<b>24</b>	9/8/2014	101.00	7,876.00	8,276.00	4,756	225,477	5,902	0
<b>25</b>	9/8/2014	91.30	7,823.00	9,023.00	4,774	221,449	8,876	0
<b>26</b>	9/9/2014	99.10	7,704.00	7,984.00	4,649	219,990	5,703	0
<b>27</b>	9/9/2014	98.90	7,641.00	7,870.00	4,984	223,158	5,866	0

103-02872  
 Prepared  
 Office of Oil & Gas

DEC 18 2014



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/3/2014
Job End Date:	9/9/2014
State:	West Virginia
County:	Wetzel
API Number:	47-103-02872-00-00
Operator Name:	EQT Production
Well Name and Number:	PNG129 - 514374
Longitude:	-80.64875300
Latitude:	39.55239700
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,329
Total Base Water Volume (gal):	7,331,537
Total Base Non Water Volume:	301,159

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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	90.63280	
Sand	FTSI	Proppant	Crystalline Silica	14808-60-7	100.00000	8.99285	
Hydrochloric Acid 15%	FTSI	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.03763	
FRW-600	FTSI	Friction Reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.02338	
			Ammonium acetate	631-61-8	6.00000	0.00468	
B-10	FTSI	Buffer Agent	Potassium carbonate	584-08-7	48.00000	0.00590	
			Potassium hydroxide	1310-58-3	20.00000	0.00246	
HVG-1	FTSI	Gel	Petroleum Distillate	64742-47-8	55.00000	0.00359	
			Guar Gum	9000-30-0	50.00000	0.00327	
			Clay	14808-60-7	2.00000	0.00013	
			Surfactant	68439-51-0	2.00000	0.00013	
CS-500-SI	FTSI	Scale Inhibitor	Ethylene Glycol	107-21-1	10.00000	0.00243	

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CIO2	Neptune	Biocide				
			Chlorine Dioxide	10049-04-4	100.00000	0.00066
CI-150	FTSI	Corrosion Inhibitor				
			Isopropanol	67-63-0	30.00000	0.00013
			Organic amine resin salt	Proprietary	30.00000	0.00013
			Ethylene Glycol	107-21-1	30.00000	0.00013
			Aromatic aldehyde	Proprietary	10.00000	0.00004
			Quaternary ammonium compound	Proprietary	10.00000	0.00004
			Dimethylformamide	68-12-2	10.00000	0.00004
FE-100L	FTSI	Iron Control				
			Citric Acid	77-92-9	55.00000	0.00050
APB-1	FTSI	Gel Breaker				
			Ammonium Persulfate	7727-54-0	95.00000	0.00008
NE-100	FTSI	Non-Emulsifier				
			2-Butoxyethanol	111-76-2	10.00000	0.00003
			2-Propanol	67-63-0	10.00000	0.00003
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00002

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.

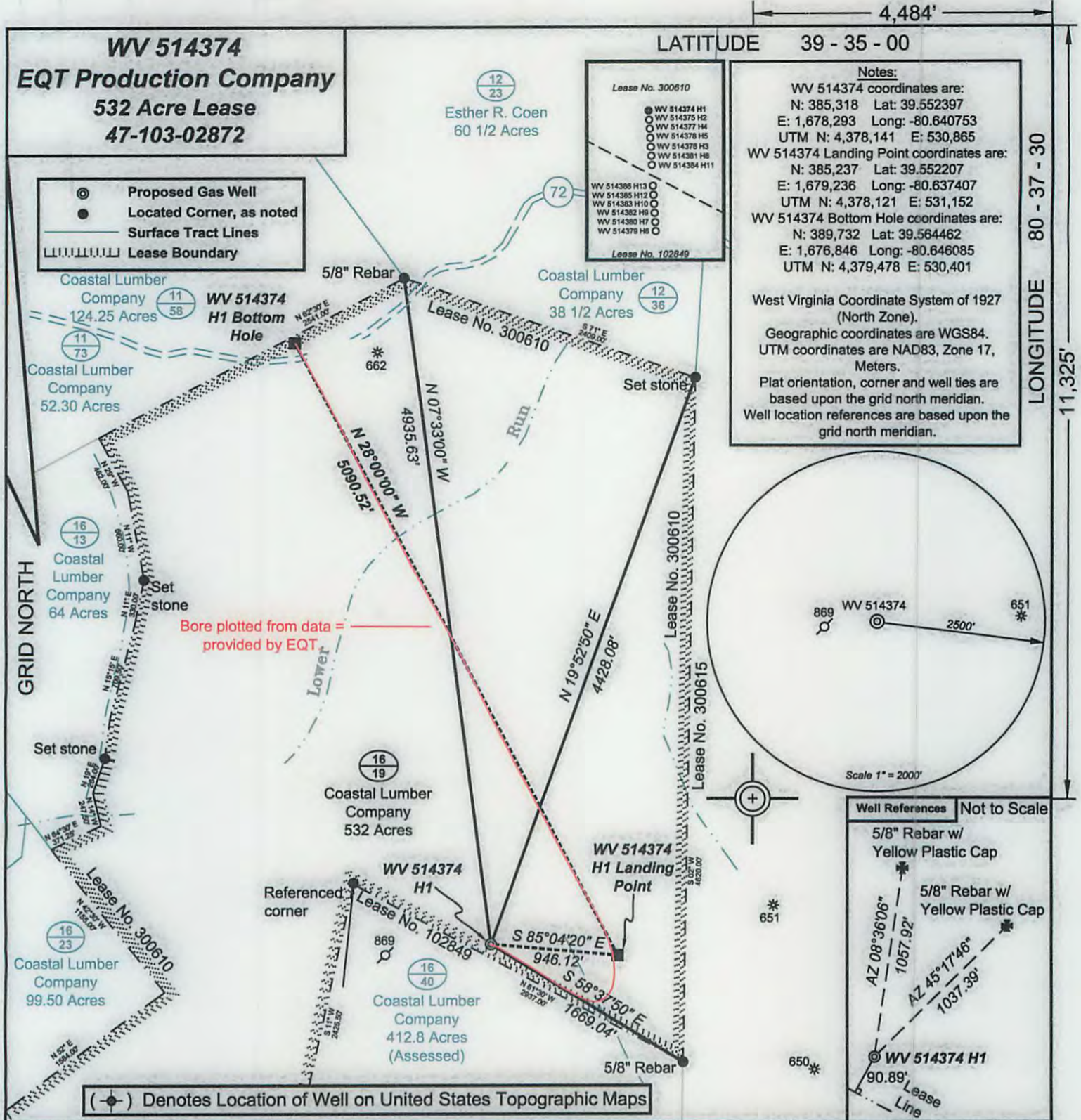
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

Office of Oil & Gas

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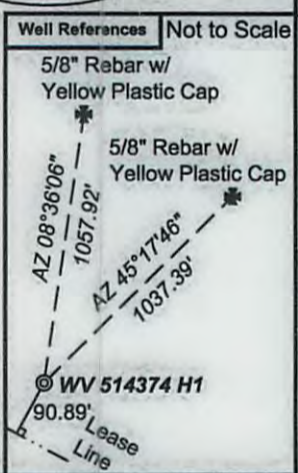
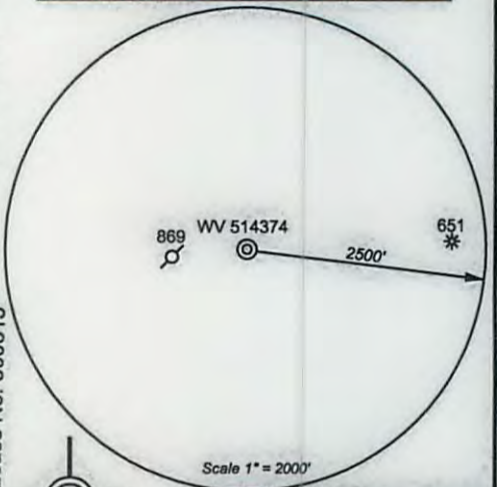
103-02872





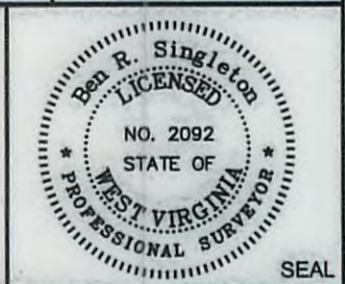
Notes:  
 WV 514374 coordinates are:  
 N: 385,318 Lat: 39.552397  
 E: 1,678,293 Long: -80.640753  
 UTM N: 4,378,141 E: 530,865  
 WV 514374 Landing Point coordinates are:  
 N: 385,237 Lat: 39.552207  
 E: 1,679,236 Long: -80.637407  
 UTM N: 4,378,121 E: 531,152  
 WV 514374 Bottom Hole coordinates are:  
 N: 389,732 Lat: 39.564462  
 E: 1,676,846 Long: -80.646085  
 UTM N: 4,379,478 E: 530,401

West Virginia Coordinate System of 1927 (North Zone).  
 Geographic coordinates are WGS84.  
 UTM coordinates are NAD83, Zone 17, Meters.  
 Plat orientation, corner and well ties are based upon the grid north meridian.  
 Well location references are based upon the grid north meridian.



*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 Singleton*  
 P.S. 2092



FILE NO: 204-34-G-12 EQT PNG 129  
 DRAWING NO: 204-12 PNG 129 H1  
 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

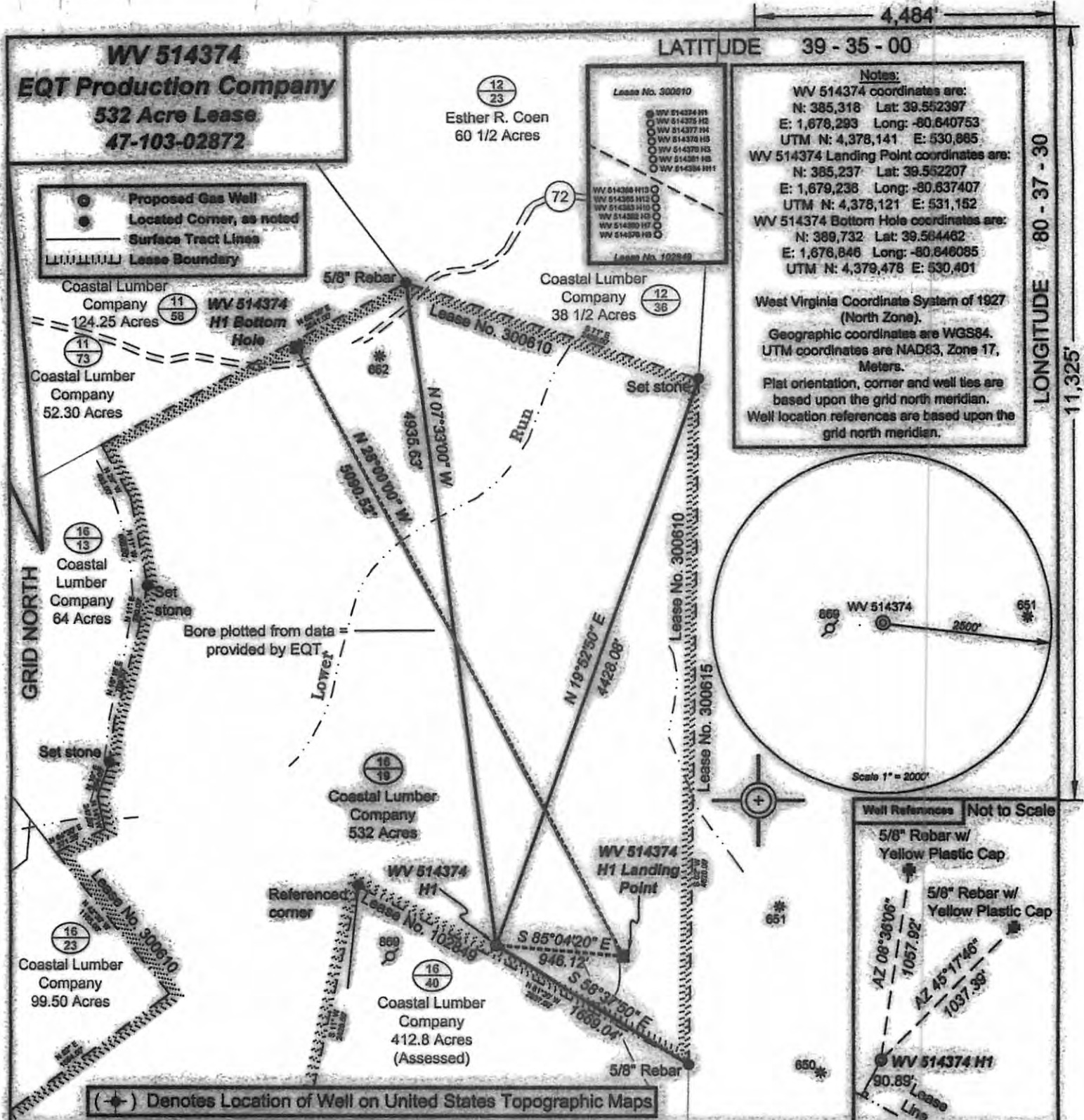
DATE: April 29 20 14  
 OPERATOR'S WELL NO. WV 514374  
 API WELL NO  
 47 - 103 - 02872  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: Ground: 1366' 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 14,750'

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

01/16/2015





**Notes:**  
 WV 514374 coordinates are:  
 N: 385,318 Lat: 39.552397  
 E: 1,676,293 Long: -80.640753  
 UTM N: 4,378,141 E: 530,865  
 WV 514374 Landing Point coordinates are:  
 N: 385,237 Lat: 39.552207  
 E: 1,679,238 Long: -80.637407  
 UTM N: 4,378,121 E: 531,152  
 WV 514374 Bottom Hole coordinates are:  
 N: 389,732 Lat: 39.584462  
 E: 1,676,846 Long: -80.640885  
 UTM N: 4,379,478 E: 530,401

West Virginia Coordinate System of 1927 (North Zone).  
 Geographic coordinates are WGS84.  
 UTM coordinates are NAD83, Zone 17, Meters.  
 Plat orientation, corner and well ties are based upon the grid north meridian.  
 Well location references are based upon the grid north meridian.



(+) Denotes Location of Well on United States Topographic Maps



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 Singleton*  
 P.S. 2092



FILE NO: 204-34-G-12 EQT PNG 129  
 DRAWING NO: 204-12 PNG 129 H1  
 SCALE: 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY: 1:2500  
 PROVEN SOURCE OF ELEVATION: NGS CORS Station



DATE: April 29 20 14  
 OPERATOR'S WELL NO. WV 514374  
 API WELL NO  
 47 - 103 - 02872  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: Proposed: 1329.50' Ground: 1368' 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: 7,700' MD 14,750'  
 WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Rex C. Ray  
 ADDRESS: 1710 Pennsylvania Avenue ADDRESS: 1710 Pennsylvania Avenue  
Charleston, WV 25302 Charleston, WV 25302

01/16/2015