

pm

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

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Office of Oil and Gas

OCT 01 14 2014

WV Department of
Environmental Protection
Environmental Protection

API 47-103-02733 County Wetzel District Grant
Quad Big Run 7.5' Pad Name BIG190 Field/Pool Name _____
Farm name COASTAL LUMBER COMPANY Well Number 513924
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 4378138 Easting 533885
Landing Point of Curve Northing 4378288 Easting 534045
Bottom Hole Northing 4379934 Easting 533482

Elevation (ft) 1473 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 14.2 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 3/12/2012 Date drilling commenced 10/16/2013 Date drilling ceased 1/1/2013
Date completion activities began 5/5/2014 Date completion activities ceased 5/13/2014
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 744' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2163' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 411, 1204, 1222 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: _____
10/31/2014

API 47-103 - 02733 Farm name COASTAL LUMBER COMPANY Well number 513924

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"	844'	New	54.5#/ft	96'	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	2728'	New	40#/ft	950'	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	13814'	New	20#	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	49	15.6	1.18	57.82	0	8
Surface	Class A	775	15.6	1.19	923	0	8
Coal							
Intermediate 1	Class A	1025	15.6	1.18	1210	0	8
Intermediate 2							
Intermediate 3							
Production	Class A/Class H	640/820	15/15.6	1.21/1.83	2269	4855	8
Tubing							

Drillers TD (ft) 13814 Loggers TD (ft) N/A
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 6195

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 804', 885', 527', 411', 293', 174'
 Intermediate-bow spring centralizers set at 2685', 2557', 2431', 2304', 2178', 2052', 1926', 1799', 1674', 1548', 1422', 1296', 1170', 1044', 917', 793', 667', 541', 415', 289', 163', 38'
 Production-composite centralizer ran on every joint from td up to 5311'

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- 103 - 02733 Farm name COASTAL LUMBER COMPANY Well number 513924

PERFORATION RECORD

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

Please insert additional pages as applicable.

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)
								See Attachment

Please insert additional pages as applicable.

API 47- 103 - 02733 Farm name COASTAL LUMBER COMPANY Well number _____

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>7,552</u> TVD	<u>7,938</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2,100 psi Bottom Hole NA psi DURATION OF TEST 96 hrs

OPEN FLOW Gas Oil NGL Water GAS MEASURED BY

9,360 mcfpd 0 bpd 0 bpd 168 bpd Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	<u>0</u>		<u>0</u>		

Please insert additional pages as applicable.

Drilling Contractor Savanna Drilling
Address 2204 Timberloch Place Suite 230 City Woodlands State TX Zip 77380

Logging Company Hoss Co. Services LLC
Address 614 Trotters Lane City Charleston State WV Zip 25312

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

Stimulating Company Nabors Completion and Production Services
Address PO Box 975682 City Dallas State TX Zip 75397 - 5682

Please insert additional pages as applicable.

Completed by James E. Helmick Jr. Telephone 412-395-5518
Signature _____ Title Vice President - Completions Operations Date 10/13/2014

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

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	751	751
Sand / Shale	1	1	411	411
Mapletown Coal	411	411	417	417
Sand / Shale	417	417	1,204.00	1,204.00
Pittsburgh Coal	1,204.00	1,204.00	1,211.00	1,211.00
Sand / Shale	1,211.00	1,211.00	1,222.00	1,222.00
Coal	1,222.00	1,222.00	1,228.00	1,228.00
Sand / Shale	1,228.00	1,228.00	2,269.00	2,268.90
Maxton	2,269.00	2,268.90	2,425.00	2,424.90
Big Lime	2,425.00	2,424.90	2,554.00	2,553.90
Big Injun	2,554.00	2,553.90	2,832.00	2,831.80
Weir	2,832.00	2,831.80	2,999.00	2,998.70
Gantz	2,999.00	2,998.70	3,034.00	3,033.70
Fifty foot	3,034.00	3,033.70	3,129.00	3,128.70
Thirty foot	3,129.00	3,128.70	3,274.00	3,273.60
Gordon	3,274.00	3,273.60	3,347.00	3,346.60
Forth Sand	3,347.00	3,346.60	3,504.00	3,503.60
Bayard	3,504.00	3,503.60	3,887.00	3,886.40
Warren	3,887.00	3,886.40	4,084.00	4,083.40
Speechley	4,084.00	4,083.40	4,455.00	4,454.40
Balltown A	4,455.00	4,454.40	4,912.00	4,911.40
Riley	4,912.00	4,911.40	5,556.00	5,555.10
Benson	5,556.00	5,555.10	6,200.00	6,197.70
Alexander	6,200.00	6,197.70	7,302.00	7,155.00
Sonyea	7,302.00	7,155.00	7,461.00	7,292.60
Middlesex	7,461.00	7,292.60	7,526.00	7,344.70
Genesee	7,526.00	7,344.70	7,638.00	7,422.00
Geneseo	7,638.00	7,422.00	7,676.00	7,444.20
Tully	7,676.00	7,444.20	7,715.00	7,465.10
Hamilton	7,715.00	7,465.10	7,938.00	7,552.20
Marcellus	7,938.00	7,552.20	13,814.00	7,507.09

513924 - Perforations

API 47-103-02733

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	5/5/2014	13,787.00	13,789.00	10	MARCELLUS
1	5/5/2014	13,606.00	13,743.00	32	MARCELLUS
2	5/6/2014	13,382.00	13,564.00	40	MARCELLUS
3	5/7/2014	13,157.00	13,339.00	40	MARCELLUS
4	5/7/2014	12,932.00	13,112.00	40	MARCELLUS
5	5/7/2014	12,707.00	12,889.00	40	MARCELLUS
6	5/8/2014	12,482.00	12,664.00	40	MARCELLUS
7	5/8/2014	12,257.00	12,439.00	40	MARCELLUS
8	5/8/2014	12,032.00	12,214.00	40	MARCELLUS
9	5/8/2014	11,807.00	11,989.00	40	MARCELLUS
10	5/9/2014	11,582.00	11,764.00	40	MARCELLUS
11	5/9/2014	11,357.00	11,539.00	40	MARCELLUS
12	5/9/2014	11,132.00	11,312.00	40	MARCELLUS
13	5/9/2014	10,907.00	11,089.00	40	MARCELLUS
14	5/10/2014	10,682.00	10,864.00	40	MARCELLUS
15	5/10/2014	10,457.00	10,639.00	40	MARCELLUS
16	5/10/2014	10,232.00	10,414.00	40	MARCELLUS
17	5/11/2014	10,007.00	10,189.00	40	MARCELLUS
18	5/11/2014	9,782.00	9,964.00	40	MARCELLUS
19	5/11/2014	9,557.00	9,739.00	40	MARCELLUS
20	5/11/2014	9,332.00	9,514.00	40	MARCELLUS
21	5/11/2014	9,107.00	9,289.00	40	MARCELLUS
22	5/12/2014	8,882.00	9,064.00	40	MARCELLUS
23	5/12/2014	8,657.00	8,839.00	40	MARCELLUS
24	5/13/2014	8,432.00	8,614.00	40	MARCELLUS
25	5/13/2014	8,207.00	8,389.00	40	MARCELLUS
26	5/13/2014	7,982.00	8,164.00	40	MARCELLUS

513924 - Stimulated Stages

API 47-103-02733

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	5/5/2014	11.90	7,243.00	NA	5,397	NA	1,043	0
1	5/6/2014	90.00	8,764.00	6,214.00	4,191	298,900	7,338	0
2	5/7/2014	98.10	8,772.00	6,905.00	4,240	300,300	7,463	0
3	5/7/2014	93.20	8,716.00	6,531.00	4,516	301,500	8,704	0
4	5/7/2014	97.80	8,794.00	6,681.00	5,682	300,400	8,420	0
5	5/7/2014	100.20	8,597.00	6,214.00	4,749	300,600	7,456	0
6	5/8/2014	99.20	8,712.00	6,437.00	4,549	300,300	7,409	0
7	5/8/2014	102.32	8,533.00	6,080.00	4,848	301,600	7,387	0
8	5/8/2014	100.71	8,334.00	6,154.00	4,792	300,900	7,062	0
9	5/8/2014	100.40	8,617.00	6,152.00	5,267	300,500	7,506	0
10	5/9/2014	98.60	8,774.00	6,042.00	5,064	300,900	7,356	0
11	5/9/2014	100.12	8,656.00	6,303.00	5,198	300,800	6,996	0
12	5/9/2014	98.80	8,422.00	6,447.00	5,177	301,000	7,576	0
13	5/9/2014	98.40	8,587.00	6,652.00	5,648	300,700	8,204	0
14	5/10/2014	100.00	8,655.00	5,859.00	5,508	302,300	7,258	0
15	5/10/2014	100.18	8,207.00	6,187.00	5,453	301,000	7,598	0
16	5/10/2014	97.30	8,494.00	5,882.00	5,512	295,800	7,857	0
17	5/11/2014	99.30	8,221.00	6,075.00	5,079	300,400	7,331	0
18	5/11/2014	99.83	8,148.00	6,442.00	4,525	302,500	7,153	0
19	5/11/2014	98.30	8,192.00	6,078.00	5,459	301,900	7,849	0
20	5/11/2014	100.90	7,833.00	6,683.00	5,734	300,500	7,273	0
21	5/12/2014	100.30	7,729.00	5,746.00	5,207	299,800	7,737	0
22	5/12/2014	100.79	7,902.00	5,749.00	5,275	299,600	7,301	0
23	5/12/2014	99.50	7,586.00	5,973.00	5,047	305,700	7,928	0
24	5/13/2014	99.39	8,118.00	6,089.00	5,189	300,300	7,593	0
25	5/13/2014	89.80	8,509.00	6,074.00	4,969	300,700	8,684	0
26	5/13/2014	100.90	8,036.00	6,317.00	4,996	302,700	7,651	0

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/5/2014
Job End Date:	5/13/2014
State:	West Virginia
County:	Wetzel
API Number:	47-103-02733-00-00
Operator Name:	EQT Production
Well Name and Number:	BIG190 - 513924
Longitude:	-80.60561900
Latitude:	39.55205200
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,580
Total Base Water Volume (gal):	8,560,356
Total Base Non Water Volume:	388,914



103-02733

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	Nabors	Carrier	Water	7732-18-5	100.00000	89.73505	
Sand	Nabors	Proppant	Crystalline Silica	14808-60-7	100.00000	9.84285	
MX-5	Halliburton	Biocide	Sodium Nitrate	7631-99-4	60.00000	0.05792	
HCL 15%	Nabors	Acidizing	15% Hydrochloric Acid	7647-01-0	15.00000	0.03100	
LSG-100	Nabors	Gel	Proprietary non-hazardous polymers	Proprietary	65.00000	0.00690	
			Solvent Naphtha, (Petroleum) Heavy Aliphatic	64742-47-8	65.00000	0.00690	
MX-8	Halliburton	Biocide	Bacteria Culture	000-00-0	100.00000	0.00992	
AI-2	Nabors	Acid Inhibitor	Propargyl Alcohol	107-19-7	40.00000	0.00140	
			Glycol Ethers	111-76-2	40.00000	0.00014	
			Isoprpyl Alcohol	67-63-0	40.00000	0.00014	
			Ethoxylated Nonylphenol	68412-54-4	13.00000	0.00005	

			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	10.00000	0.00004	
OB-2 LT	Nabors	Gel Breaker					
			Ammonium Persulfate	7727-54-0	100.00000	0.00015	
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.							
EXP-F1111-13	Nabors	Friction Reducer					
			Anionic Water-Soluble Polymer	NA			Non-Hazardous
Super TSC LT	Nabors	Scale Inhibitor					
			Amine Salts	NA			Non-Hazardous

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

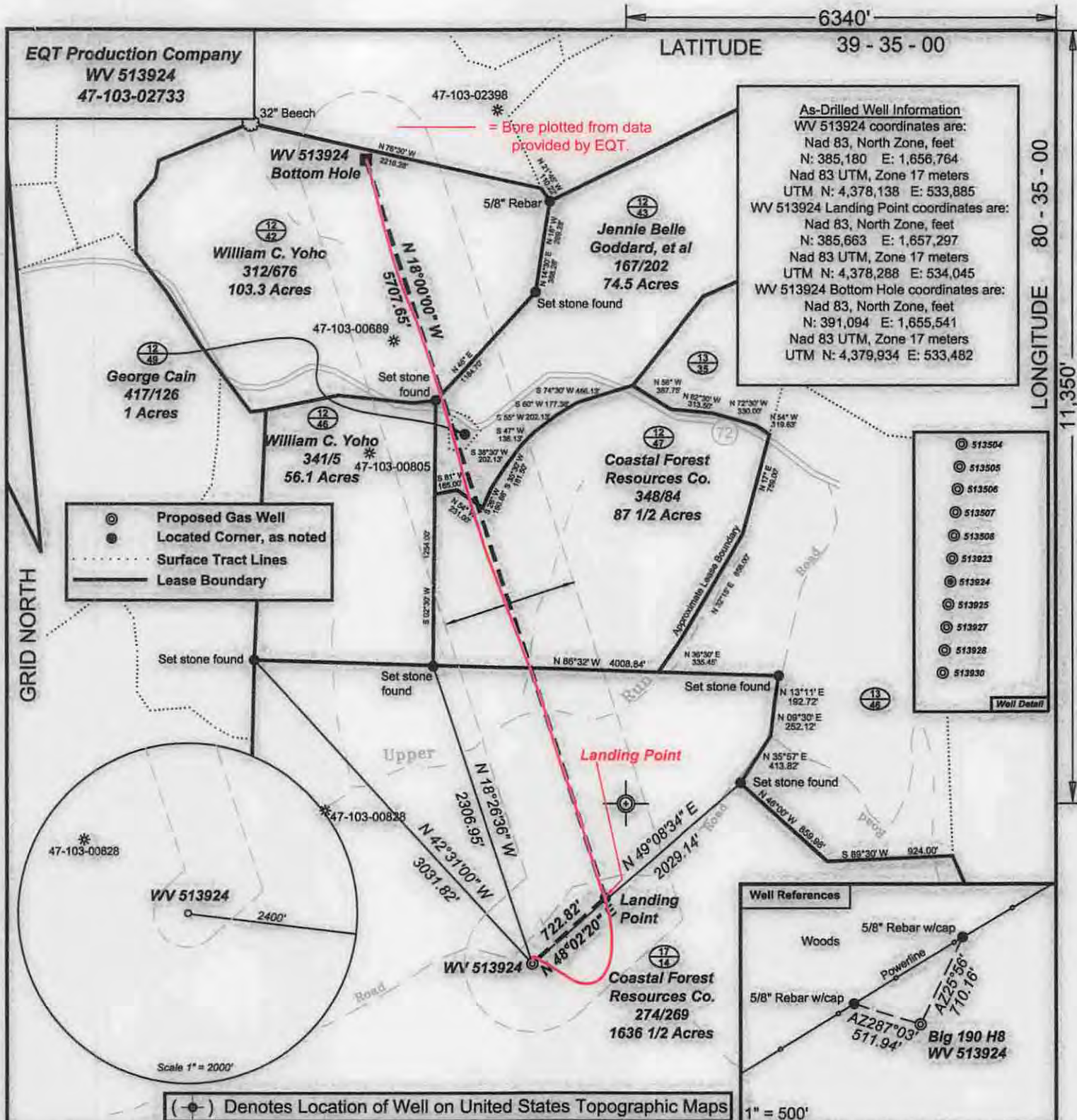
** Information is based on the maximum potential for concentration and thus the total may be over 100%

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)

103-02783

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 AUG 12 2014
 MN Department of
 Environmental Protection



As-Drilled Well Information
 WV 513924 coordinates are:
 Nad 83, North Zone, feet
 N: 385,180 E: 1,656,764
 Nad 83 UTM, Zone 17 meters
 UTM N: 4,378,138 E: 533,885
 WV 513924 Landing Point coordinates are:
 Nad 83, North Zone, feet
 N: 385,663 E: 1,657,297
 Nad 83 UTM, Zone 17 meters
 UTM N: 4,378,288 E: 534,045
 WV 513924 Bottom Hole coordinates are:
 Nad 83, North Zone, feet
 N: 391,094 E: 1,655,541
 Nad 83 UTM, Zone 17 meters
 UTM N: 4,379,934 E: 533,482

⊙ Proposed Gas Well
 ● Located Corner, as noted
 - - - Surface Tract Lines
 — Lease Boundary

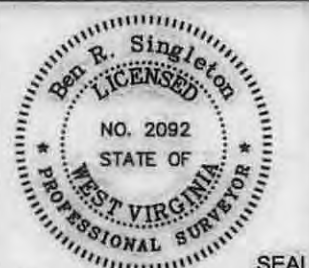
- ⊙ 513504
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 - ⊙ 513506
 - ⊙ 513507
 - ⊙ 513508
 - ⊙ 513923
 - ⊙ 513924
 - ⊙ 513925
 - ⊙ 513927
 - ⊙ 513928
 - ⊙ 513930
- Well Detail

(⊙) 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 R. Singleton
 P.S. 2092



FILE NO: 196-34-G-10
 DRAWING NO: 196-10 Big 190 H8 Plat As Drilled.dwg
 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: July 10 20 14
 OPERATOR'S WELL NO. WV 513924
 API WELL NO
 47 - 103 - 02733
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: 1473.5' (As-built) WATERSHED Upper Run and North Fork QUADRANGLE: Big Run
 DISTRICT: Grant COUNTY: Wetzel
 SURFACE OWNER: Coastal Forest Resources Co. f/k/a Coastal Lumber Company ACREAGE: 1,636.5
 ROYALTY OWNER: Mills-Wetzel Land, Inc., Piney Holdings Inc. et. al., Barbara Ann Roche et. al., James Douglas White et. al. LEASE NO: 988530, 988625, 993291, 300710 ACREAGE: 659, 87.5, 74.5, 103.3
 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=7,800 MD=15,250

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

10/31/2014