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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 - 02968 County Wetzel District Grant  
Quad Pine Grove Pad Name PNG129 Field/Pool Name \_\_\_\_\_  
Farm name Lacock Well Number 514376  
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 4378122.9 N Easting 530865.9 E  
Landing Point of Curve Northing 4378869.9 N Easting 531261.4 E  
Bottom Hole Northing 4379532.2 N Easting 530889.2 E

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 12/04/2013 Date drilling commenced 12/12/2013 Date drilling ceased 3/6/2014  
Date completion activities began 8/5/2014 Date completion activities ceased 8/8/2014  
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 683', 965', 1035', 1049', 1077' 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 - 02968

Farm name Lacock

Well number 514376

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"	955'	New	54.5#/ft	112', 391'	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	3405'	New	40#/ft	112', 323'	N
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	11103'	New	20#/ft	N/A	N
Tubing							
Packer type and depth set							

Comment Details CBL verified cement into surface casing. Approval from Derek Haight to proceed.

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	790	15.6	1.19	940	0	8
Coal							
Intermediate 1	Class A	1190	15.6	1.18	1404.2	950	8
Intermediate 2							
Intermediate 3							
Production	Class A/Class H	860/410	15.2/15.6	1.07/1.86	1682.8	5000	8
Tubing							

Drillers TD (ft) 11,120' Loggers TD (ft) N/A

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 4205'

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 3425'

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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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 - 02968 Farm name Lacock Well number \_\_\_\_\_

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>7,303</u> TVD	<u>8,409</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 2,450 psi Bottom Hole NA psi DURATION OF TEST 103.5 hrs

OPEN FLOW Gas 1,235 mcfpd Oil 0 bpd NGL 32.4 bpd Water 144 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

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

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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 FTS International Services, LLC  
Address 301 East 18th Street City Cisco State TX Zip 76437

Please insert additional pages as applicable.

Completed by James Abbott Telephone 412-553-5996  
Signature [Signature] Title Director - Completions Operations Date 12/17/2014

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

103-02968

Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
SAND / SHALE	0	0	683	683
FRESH WATER ZONE	1	1	734	734
COAL	683	683	688	688
SAND / SHALE	688	688	965	965
COAL	965	965	969	969
SAND / SHALE	969	969	1,035.00	1,035.00
COAL	1,035.00	1,035.00	1,045.00	1,045.00
SAND / SHALE	1,045.00	1,045.00	1,049.00	1,049.00
COAL	1,049.00	1,049.00	1,054.00	1,054.00
SAND / SHALE	1,054.00	1,054.00	1,077.00	1,077.00
COAL	1,077.00	1,077.00	1,086.00	1,086.00
SAND / SHALE	1,086.00	1,086.00	2,183.00	2,183.00
MAXTON	2,183.00	2,183.00	2,419.00	2,419.00
BIG LIME	2,419.00	2,419.00	2,658.00	2,658.00
WEIR	2,658.00	2,658.00	2,856.00	2,856.00
GANTZ	2,856.00	2,856.00	2,972.00	2,972.00
50F	2,972.00	2,972.00	3,045.00	3,045.00
30F	3,045.00	3,045.00	3,092.00	3,092.00
GORDON	3,092.00	3,092.00	3,212.00	3,212.00
4TH	3,212.00	3,212.00	3,347.00	3,347.00
BAYARD	3,347.00	3,347.00	3,763.00	3,763.00
WARREN	3,763.00	3,763.00	3,889.00	3,889.00
SPEECHLEY	3,889.00	3,889.00	4,855.00	4,763.20
RILEY	4,855.00	4,763.20	5,680.00	5,373.60
BENSON	5,680.00	5,373.60	6,159.00	5,741.70
ALEXANDER	6,159.00	5,741.70	7,909.00	7,056.60
MIDDLESEX	7,909.00	7,056.60	7,966.00	7,096.40
GENESSEE	7,966.00	7,096.40	8,100.00	7,178.60
GENESE0	8,100.00	7,178.60	8,143.00	7,201.50
TULLY	8,143.00	7,201.50	8,192.00	7,225.70
HAMILTON	8,192.00	7,225.70	8,409.00	7,303.70
MARCELLUS	8,409.00	7,303.70	11,120.00	7,316.00

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Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 514376

API: 47 - 103 - 02968

Submission:  Initial  Amended

Notes: Amended with FB Data

Stimulation Notes:  
Re-perforated stage 6 (6.1)  
Combined stages 6, 6.1, and 7

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**514376 - 47-103-02968-0000 - 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>	8/5/2014	11,073.00	11,076.00	10	MARCELLUS
<b>1</b>	8/5/2014	10,892.00	11,027.00	32	MARCELLUS
<b>2</b>	8/6/2014	10,668.00	10,900.00	40	MARCELLUS
<b>3</b>	8/6/2014	10,443.00	10,625.00	40	MARCELLUS
<b>4</b>	8/6/2014	10,218.00	10,398.00	40	MARCELLUS
<b>5</b>	8/7/2014	10,173.00	9,993.00	40	MARCELLUS
<b>6</b>	8/7/2014	9,948.00	9,768.00	40	MARCELLUS
<b>6.1 (Re-Perf)</b>	8/7/2014	9,786.00	9,922.00	32	MARCELLUS
<b>7</b>	8/8/2014	9,543.00	9,723.00	40	MARCELLUS
<b>8</b>	8/8/2014	9,318.00	9,500.00	40	MARCELLUS
<b>9</b>	8/8/2014	9,093.00	9,273.00	40	MARCELLUS
<b>10</b>	8/9/2014	9,093.00	9,273.00	40	MARCELLUS
<b>11</b>	8/9/2014	8,643.00	8,823.00	40	MARCELLUS
<b>12</b>	8/9/2014	8,459.00	8,418.00	40	MARCELLUS

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**514376 - 47-103-02968-0000 - 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>	8/5/2014	27.50	8,767.00	8,767.00	4,228	0	634	0
<b>1</b>	8/5/2014	90.10	8,624.00	9,047.00	4,575	373,300	10,459	0
<b>2</b>	8/6/2014	93.90	8,370.00	9,175.00	4,875	374,936	9,087	0
<b>3</b>	8/6/2014	97.90	8,350.00	8,929.00	4,957	376,163	9,138	0
<b>4</b>	8/6/2014	94.30	8,510.00	9,057.00	4,866	374,500	9,182	0
<b>5</b>	8/7/204	100.10	8,202.00	9,081.00	4,752	376,217	10,080	0
<b>6</b>	8/8/2014	101.10	7,570.00	7,950.00	4,609	563,582	16,887	0
<b>6.1 (Re-Perf)</b>								
<b>7</b>								
<b>8</b>	8/8/2014	98.50	8,205.00	9,082.00	5,126	375,710	9,204	0
<b>9</b>	8/8/2014	100.20	7,848.00	8,455.00	4,747	379,400	8,452	0
<b>10</b>	8/9/2014	100.30	7,675.00	8,357.00	4,907	377,991	8,803	0
<b>11</b>	8/9/2014	98.30	7,767.00	8,872.00	5,011	373,000	9,209	0
<b>12</b>	8/9/2014	101.30	7,428.00	8,714.00	4,607	372,500	8,589	0

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/5/2014
Job End Date:	8/9/2014
State:	West Virginia
County:	Wetzel
API Number:	47-103-02968-00-00
Operator Name:	EQT Production
Well Name and Number:	PNG129 - 514376
Longitude:	-80.64055540
Latitude:	39.55231380
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,332
Total Base Water Volume (gal):	4,702,719
Total Base Non Water Volume:	211,722

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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	89.75960	
Sand	FTSI	Proppant	Crystalline Silica	14808-60-7	100.00000	9.89234	
Hydrochloric Acid 15%	FTSI	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.03486	
FRW-600	FTSI	Friction Reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.02262	
			Ammonium acetate	631-61-8	6.00000	0.00452	
HVG-1	FTSI	Gel	Petroleum Distillate	64742-47-8	55.00000	0.00503	
			Guar Gum	9000-30-0	50.00000	0.00457	
			Clay	14808-60-7	2.00000	0.00018	
			Surfactant	68439-51-0	2.00000	0.00018	
B-10	FTSI	Buffer Agent	Potassium carbonate	584-08-7	48.00000	0.00209	
			Potassium hydroxide	1310-58-3	20.00000	0.00087	
CS-500-SI	FTSI	Scale Inhibitor	Ethylene Glycol	107-21-1	10.00000	0.00246	

ClO2	Neptune	Biocide				
			Chlorine Dioxide	10049-04-4	100.00000	0.00053
Cl-150	FTSI	Corrosion Inhibitor				
			Ethylene Glycol	107-21-1	30.00000	0.00012
			Organic amine resin salt	Proprietary	30.00000	0.00012
			Isopropanol	67-63-0	30.00000	0.00012
			Dimethylformamide	68-12-2	10.00000	0.00004
			Aromatic aldehyde	Proprietary	10.00000	0.00004
			Quaternary ammonium compound	Proprietary	10.00000	0.00004
FE-100L	FTSI	Iron Control				
			Citric Acid	77-92-9	55.00000	0.00043
APB-1	FTSI	Gel Breaker				
			Ammonium Persulfate	7727-54-0	95.00000	0.00017
NE-100	FTSI	Non-Emulsifier				
			2-Propanol	67-63-0	10.00000	0.00003
			2-Butoxyethanol	111-76-2	10.00000	0.00003
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00001

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

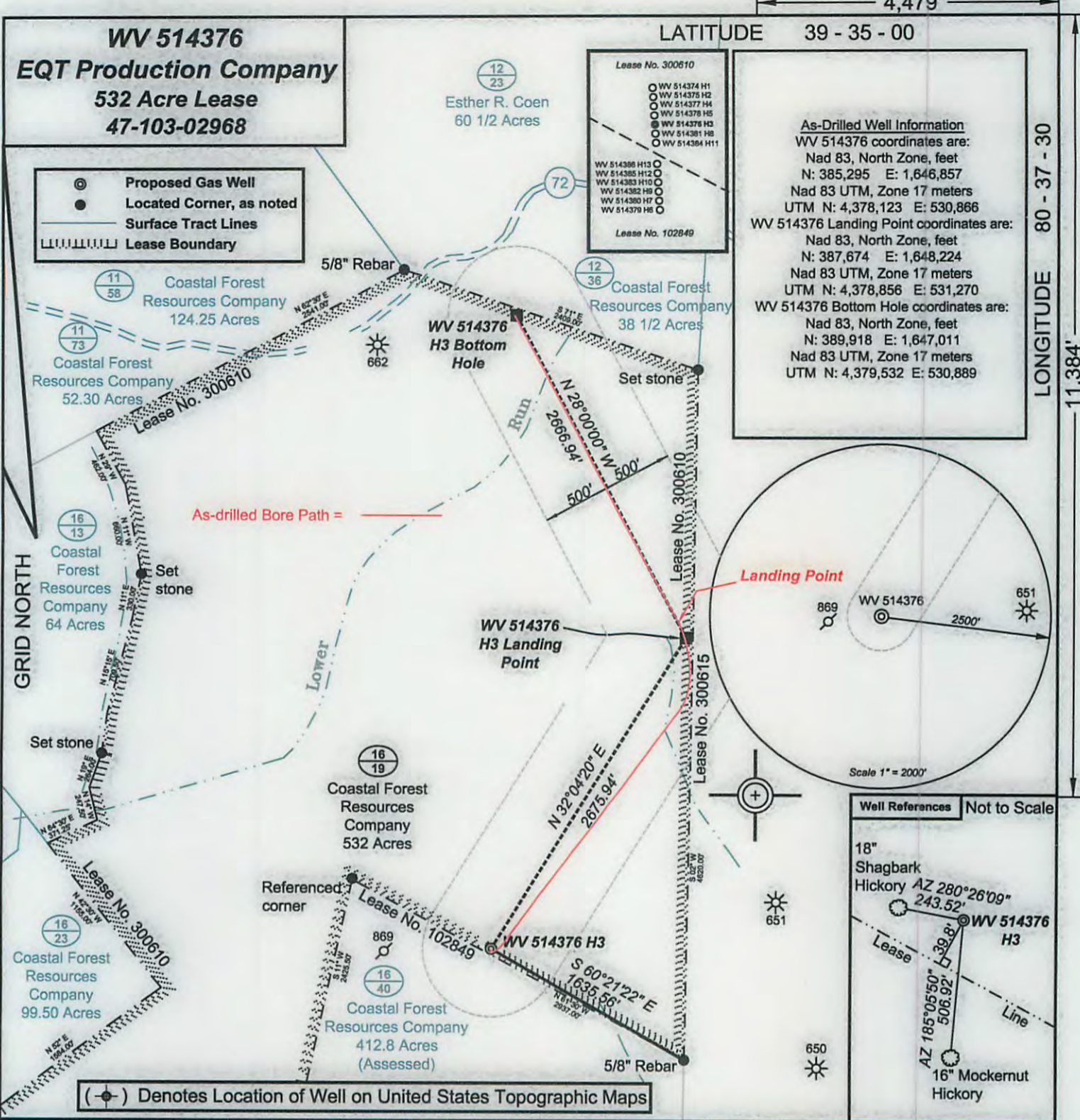
\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

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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**As-Drilled Well Information**  
 WV 514376 coordinates are:  
 Nad 83, North Zone, feet  
 N: 385,295 E: 1,646,857  
 Nad 83 UTM, Zone 17 meters  
 UTM N: 4,378,123 E: 530,866  
 WV 514376 Landing Point coordinates are:  
 Nad 83, North Zone, feet  
 N: 387,674 E: 1,648,224  
 Nad 83 UTM, Zone 17 meters  
 UTM N: 4,378,856 E: 531,270  
 WV 514376 Bottom Hole coordinates are:  
 Nad 83, North Zone, feet  
 N: 389,918 E: 1,647,011  
 Nad 83 UTM, Zone 17 meters  
 UTM N: 4,379,532 E: 530,889



*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



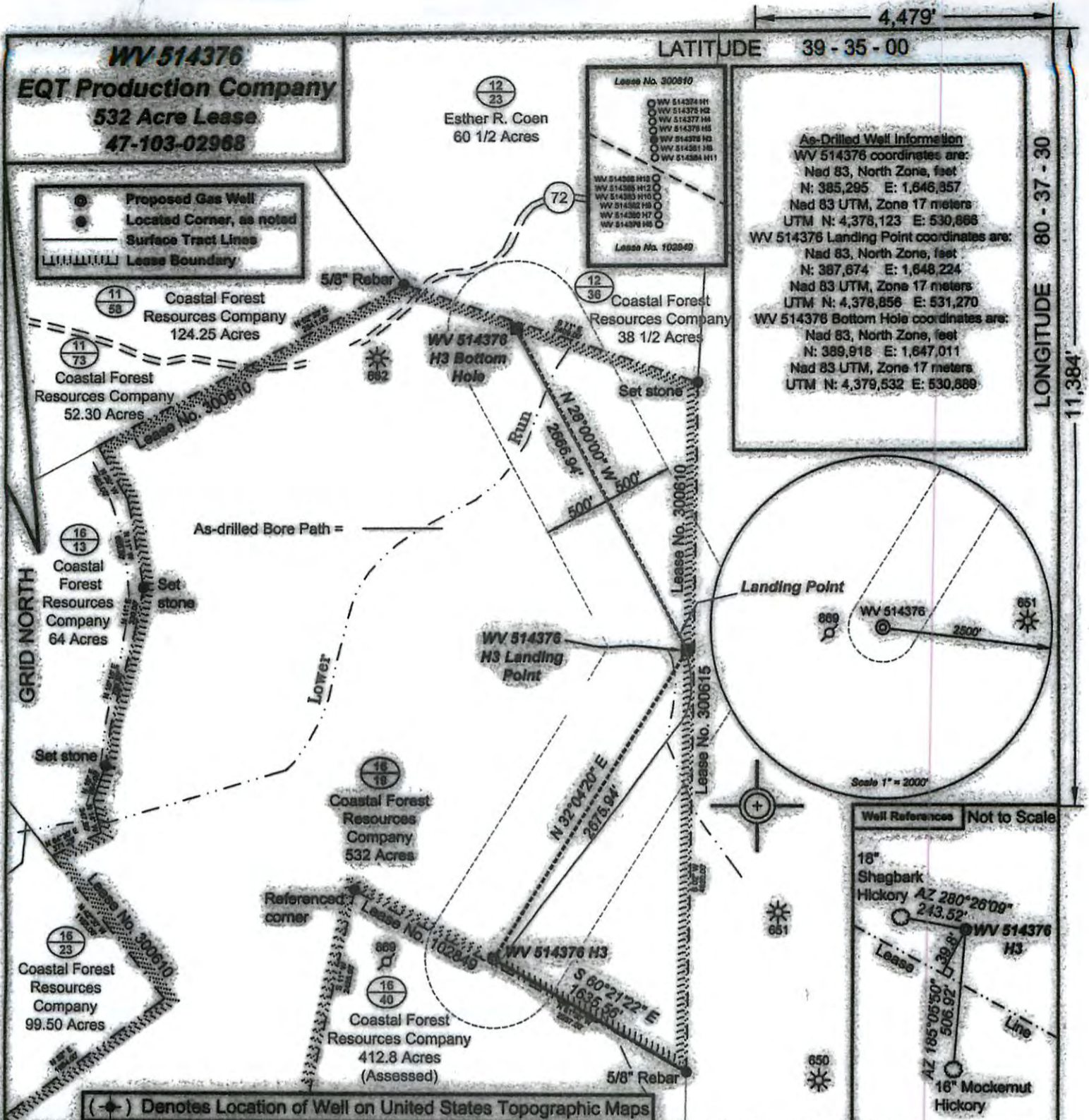
FILE NO: 204-34-G-12 EQT PNG 129  
 DRAWING NO: 204-12 PNG 129 H3  
 SCALE: 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY: 1:2500  
 PROVEN SOURCE OF ELEVATION: NGS CORS Station

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

DATE: June 23 20 14  
 OPERATOR'S WELL NO. WV 514376  
 API WELL NO  
 47 - 103 - 02968  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: 1328' WATERSHED Upper Run of South Fork of Fishing Creek QUADRANGLE: Pine Grove  
 DISTRICT: Grant COUNTY: Wetzel  
 SURFACE OWNER: Coastal Forest Resources Company F.K.A. 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: 14,050'

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Rex C. Ray  
 ADDRESS: 115 Professional Place P.O. Box 280 ADDRESS: 115 Professional Place P.O. Box 280  
 Bridgeport, WV 26330 Bridgeport, WV 26330



*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



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DRAWING NO: 204-12 PNG 129 H3  
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: June 23 20 14  
OPERATOR'S WELL NO. WV 514376  
API WELL NO. 47 - 103 - 02968  
STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
(IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
LOCATION: ELEVATION: 1328' WATERSHED Upper Run of South Fork of Fishing Creek QUADRANGLE: Pine Grove  
DISTRICT: Grant COUNTY: Weitzel  
SURFACE OWNER: Coastal Forest Resources Company F.K.A. Coastal Lumber Company ACREAGE: 532  
ROYALTY OWNER: Waco Oil & Gas Co., Inc. LEASE NO: 300610 ACREAGE: 532  
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 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY)  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus ESTIMATED DEPTH: TWD: 7,700' NO 14,097'

WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Rex C. Ray  
ADDRESS: 115 Professional Place P.O. Box 280 ADDRESS: 115 Professional Place P.O. Box 280  
Bridgeport, WV 26330 Bridgeport, WV 26330

01/16/2015