

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 514419

API: 47 - 103 - 03036

Submission: Initial Amended

Notes: Add'l Injection Tests
29.01, 37.01

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WV Department of
Environmental Protection

02/12/2016

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

API 47-103-03036 County Wetzel District GRANT
Quad BIG RUN Pad Name BIG333 Field/Pool Name _____
Farm name COASTAL FOREST RESOURCES Well Number 514419
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 4,375,079.63 Easting 535,101.58
Landing Point of Curve Northing 4,375,201.76 Easting 534,942.48
Bottom Hole Northing 4,377,347.07 Easting 534,328.97

Elevation (ft) 1452 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 13.0 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 12/26/2014 Date drilling commenced 1/14/2015 Date drilling ceased 9/17/2015
Date completion activities began 10/15/2015 Date completion activities ceased 10/30/2015
Verbal plugging (Y/N) N 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 581', 753' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2,257', 2,370', 2,657' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 743', 883', 919', 1,011', 1,240', 1,333' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed by:

D. H. H.
02/12/2016

API 47-103 - 03036 Farm name COASTAL FOREST RESOURCES Well number 514419

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	30"	26"	80'	NEW	A-500 94LB/FT	NONE	Y
Surface	17.5"	13.375"	997'	NEW	J-55 54.5LB/FT	NONE	Y
Coal							
Intermediate 1	12.375"	9.625"	3,011'	NEW	A-500 40LB/FT	NONE	Y
Intermediate 2							
Intermediate 3							
Production	8.5"	5.5"	13,355'	NEW	P-110 20LB/FT	NONE	N
Tubing							
Packer type and depth set							

Comment Details N/A

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	98	15.6	1.18	115.64	0	8
Surface	CLASS A	959	15.6	1.20	1150.8	0	8
Coal							
Intermediate 1	CLASS A	1,194	15.6	1.18	1,408.9	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS H / CLASS H	576 / 927	15.2 / 15.6	1.25 / 2.06	2629.6	4,565'	24
Tubing							

Drillers TD (ft) 15,365' MD Loggers TD (ft) N/A

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

Plug back procedure _____

Kick off depth (ft) 6,612' MD

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- NONE

SURFACE- JOINTS: 1,12,22

INTERMEDIATE- 8 CENTRALIZERS RAN AT LEAST EVERY 500' FEET

PRODUCTION- Composite body spiral centralizers run every joint from TD to 5,074 RMD.

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS JAN 27 2016

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS WV Department of Environmental Protection

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

API 47- 103 - 03036 Farm name COASTAL FOREST RESOURCES Well number 514419

Drilling Contractor Savanna Drilling Rig 654
Address 125 Industry Road City Rices Landing State PA Zip 15357

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

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

Cementing Company Baker Hughes Oil Field Operations
Address 837 Phillippi Pike City Clarksburg State WV Zip 26301

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514419 - 47-103-03036-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	9/25/2015	15,353.00	15,355.00	10	MARCELLUS
1	10/15/2015	15,208.00	15,300.00	32	MARCELLUS
2	10/15/2015	15,060.00	15,180.00	40	MARCELLUS
3	10/16/2015	14,908.00	15,030.00	40	MARCELLUS
4	10/16/2015	14,758.00	14,880.00	40	MARCELLUS
5	10/16/2015	14,608.00	14,730.00	40	MARCELLUS
6	10/17/2015	14,458.00	14,574.00	40	MARCELLUS
7	10/17/2015	14,308.00	14,430.00	40	MARCELLUS
8	10/17/2015	14,158.00	14,280.00	40	MARCELLUS
9	10/18/2015	14,008.00	14,130.00	40	MARCELLUS
10	10/18/2015	13,858.00	13,980.00	40	MARCELLUS
11	10/18/2015	13,708.00	13,830.00	40	MARCELLUS
12	10/19/2015	13,558.00	13,678.00	40	MARCELLUS
13	10/19/2015	13,408.00	13,529.00	40	MARCELLUS
14	10/19/2015	13,258.00	13,380.00	40	MARCELLUS
15	10/20/2015	13,108.00	13,228.00	40	MARCELLUS
16	10/20/2015	12,958.00	13,080.00	40	MARCELLUS
17	10/20/2015	12,808.00	12,930.00	40	MARCELLUS
18	10/20/2015	12,660.00	12,780.00	40	MARCELLUS
19	10/21/2015	12,508.00	12,630.00	40	MARCELLUS
20	10/21/2015	12,358.00	12,478.00	40	MARCELLUS
21	10/21/2015	12,208.00	12,330.00	40	MARCELLUS
22	10/22/2015	12,058.00	12,181.00	40	MARCELLUS
23	10/22/2015	11,908.00	12,030.00	40	MARCELLUS
24	10/22/2015	11,758.00	11,880.00	40	MARCELLUS
25	10/23/2015	11,609.00	11,730.00	40	MARCELLUS
26	10/24/2015	11,458.00	11,580.00	40	MARCELLUS
27	10/24/2015	11,308.00	11,430.00	40	MARCELLUS
28	10/24/2015	11,158.00	11,280.00	40	MARCELLUS
29	10/24/2015	11,008.00	11,130.00	40	MARCELLUS
30	10/25/2015	10,858.00	10,980.00	40	MARCELLUS
31	10/25/2015	10,708.00	10,830.00	40	MARCELLUS
32	10/25/2015	10,558.00	10,680.00	40	MARCELLUS
33	10/26/2015	10,408.00	10,530.00	40	MARCELLUS
34	10/26/2015	10,258.00	10,378.00	40	MARCELLUS
35	10/26/2015	10,108.00	10,230.00	40	MARCELLUS
36	10/27/2015	9,958.00	10,080.00	40	MARCELLUS
37	10/27/2015	9,806.00	9,928.00	40	MARCELLUS
38	10/27/2015	9,658.00	9,780.00	40	MARCELLUS
39	10/28/2015	9,508.00	9,628.00	40	MARCELLUS
40	10/28/2015	9,358.00	9,480.00	40	MARCELLUS
41	10/28/2015	9,208.00	9,328.00	40	MARCELLUS
42	10/28/2015	9,058.00	9,180.00	40	MARCELLUS
43	10/28/2015	8,908.00	9,030.00	40	MARCELLUS
44	10/29/2015	8,761.00	8,880.00	40	MARCELLUS
45	10/29/2015	8,608.00	8,730.00	40	MARCELLUS
46	10/29/2015	8,458.00	8,580.00	40	MARCELLUS
47	10/29/2015	8,308.00	8,430.00	40	MARCELLUS
48	10/30/2015	8,158.00	8,279.00	40	MARCELLUS
49	10/30/2015	8008	8130	40	MARCELLUS
50	10/30/2015	7858	7978	40	MARCELLUS

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514419 - 47-103-03036-0000 - 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	10/15/2015	15.40	7,271.00	8,555.00	5,258.00	0	757	0
1	10/15/2015	94.70	8,988.00	9,329.00	5,011.00	249,375	7130	0
2	10/16/2015	97.70	8,982.00	9,228.00	5,036.00	250,280	6849	0
3	10/16/2015	94.40	8,872.00	9,117.00	4,077.00	250,080	6644	0
4	10/16/2015	97.80	9,024.00	9,242.00	4,547.00	250,290	6749	0
5	10/17/2015	93.70	8,967.00	9,179.00	4,309.00	250,018	6279	0
6	10/17/2015	94.50	8,977.00	9,200.00	4,555.00	250,249	7045	0
7	10/17/2015	92.80	9,057.00	9,240.00	4,959.00	250,242	7134	0
8	10/17/2015	91.10	9,016.00	9,265.00	5,318.00	248,653	7708	0
9	10/18/2015	91.90	9,060.00	9,386.00	5,067.00	250,784	6468	0
10	10/18/2015	88.40	8,729.00	9,336.00	4,720.00	250,913	6532	0
11	10/19/2015	92.70	9,016.00	9,307.00	5,229.00	250,680	7022	0
12	10/19/2015	89.40	8,981.00	9,339.00	4,546.00	249,735	6848	0
13	10/19/2015	85.80	9,046.00	9,626.00	4,319.00	249,860	6328	0
14	10/20/2015	99.80	9,002.00	9,212.00	4,533.00	250,373	6367	0
15	10/20/2015	101.50	8,906.00	9,147.00	4,829.00	250,629	6528	0
16	10/20/2015	97.60	9,164.00	9,147.00	9,362.00	250,383	6400	0
17	10/20/2015	95.40	8,993.00	9,256.00	4,741.00	251,424	6303	0
18	10/21/2015	98.70	9,154.00	9,324.00	5,192.00	251,309	6,306	0
19	10/21/2015	96.30	8,861.00	9,559.00	4,695.00	250,152	7,291	0
20	10/21/2015	98.50	8,998.00	9,165.00	4,541.00	249,850	6,279	0
21	10/21/2015	100.80	8,890.00	9,130.00	5,129.00	249,502	6,507	0
22	10/22/2015	90.80	8,996.00	9,279.00	5,013.00	251,497	6,483	0
23	10/22/2015	100.90	9,025.00	9,291.00	5,466.00	248,849	5,849	0
24	10/23/2015	101.00	8,415.00	9,094.00	5,308.00	248,442	6180	0
25	10/24/2015	101.60	8,262.00	9,019.00	5,647.00	248,526	6152	0
26	10/24/2015	102.30	8,376.00	9,026.00	4,842.00	248,713	5824	0
27	10/24/2015	100.30	8,453.00	8,692.00	4,761.00	250,508	5696	0
28	10/24/2015	101.20	8,534.00	8,758.00	4,403.00	250,081	5645	0
29	10/24/2015	100.10	8,459.00	9,822.00	5,031.00	250,523	5516	0
29.01	10/25/2015	9.70	5,408.00	6,124.00	5,494.00	0	2534	0
30	10/25/2015	99.70	8,760.00	9,176.00	4,841.00	250,407	6171	0
31	10/25/2015	100.70	8,652.00	9,150.00	4,771.00	249,156	6119	0
32	10/25/2015	101.30	8,424.00	8,607.00	4,662.00	250,437	5664	0
33	10/26/2015	100.40	8,641.00	8,967.00	4,746.00	251,201	5925	0
34	10/26/2015	100.30	8,309.00	8,788.00	5,275.00	251,193	5511	0
35	10/26/2015	100.80	8,232.00	8,351.00	4,952.00	251,523	5427	0
36	10/27/2015	100.60	8,163.00	8,978.00	5,172.00	250,365	5,784	0
37	10/27/2015	100.60	8,036.00	10,203.00	5,447.00	249,734	5,827	0
37.01	10/27/2015	10.50	5,237.00	5,924.00	5,091.00	0	2,445	0
38	10/27/2015	100.50	8,120.00	8,345.00	4,952.00	249,664	5,880	0
39	10/28/2015	101.70	8,334.00	8,502.00	5,036.00	250,465	5785	0
40	10/28/2015	100.50	8,370.00	8,839.00	4,635.00	250,186	5806	0
41	10/28/2015	101.30	8,118.00	8,562.00	5,523.00	250,363	5678	0
42	10/28/2015	102.90	8,006.00	8,187.00	5,153.00	249,628	4280	0
43	10/29/2015	102.10	8,250.00	8,582.00	4,952.00	249,986	5813	0
44	10/29/2015	100.30	8,852.00	9,314.00	5,004.00	213,026	5481	0
45	10/29/2015	101.50	8,801.00	9,076.00	5,198.00	255,457	5897	0
46	10/29/2015	100.90	8,656.00	8,896.00	5,011.00	249,198	5548	0
47	10/30/2015	101.40	8,648.00	9,041.00	5,268.00	248,019	5459	0
48	10/30/2015	101.00	8,607.00	9,086.00	5,405.00	249,765	5563	0
49	10/30/2015	101.90	8,404.00	8,971.00	5,688.00	251,330	5481	0
50	10/30/2015	101.30	8,425.00	8,909.00	4,681.00	243,267	5341	0

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/15/2015
Job End Date:	10/30/2015
State:	West Virginia
County:	Wetzel
API Number:	47-103-03036-00-00
Operator Name:	EQT Production
Well Name and Number:	514419
Longitude:	-80.59178200
Latitude:	39.52456500
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,581
Total Base Water Volume (gal):	13,113,996
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	89.43977	None
Sand (Proppant)	FTS International	Proppant	Crystalline Silica	14808-60-7	100.00000	10.18841	None
MC MX 437-5	Multi-Chem	Calcium nitrate solution	Calcium nitrate	10124-37-5	60.00000	0.05665	None
Hydrochloric Acid (15%)	FTS International	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.02956	None
FRW-900	FTS International	Friction reducer	Hydrotreated light distillate	64742-47-8	30.00000	0.01625	None
			Alkyl Alcohol	Proprietary	10.00000	0.00542	None
			Oxyalkylated alcohol	Proprietary	5.00000	0.00271	None
CS-500-SI	FTS International	Scale inhibitor	Ethylene glycol	107-21-1	10.00000	0.00250	None
CI-150	FTS International	Acid Corrosion Inhibitor	Organic amine resin salt	Proprietary	30.00000	0.00011	None
			Ethylene glycol	107-21-1	30.00000	0.00011	None
			Isopropanol	67-63-0	30.00000	0.00011	None

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			Quaternary ammonium compound	Proprietary	10.00000	0.00004	None
			Aromatic aldehyde	Proprietary	10.00000	0.00004	None
			Dimethylformamide	68-12-2	10.00000	0.00004	None
HVG-1	FTS International	Gelling agent					
			Petroleum distillate	64742-47-8	55.00000	0.00022	None
			Guar gum	9000-30-0	50.00000	0.00020	None
			Clay	14808-60-7	2.00000	0.00001	None
			Surfactant	68439-51-0	2.00000	0.00001	None
NE-100	FTS International	Non-emulsifier					
			2-Propanol	67-63-0	10.00000	0.00003	None
			2-Butoxyethanol	111-76-2	10.00000	0.00003	None
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00002	None
FE-100L	FTS International	Iron control					
			Citric acid	77-92-9	55.00000	0.00005	None
APB-1	FTS International	Breaker					
			Ammonium persulfate	7727-54-0	95.00000	0.00000	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.

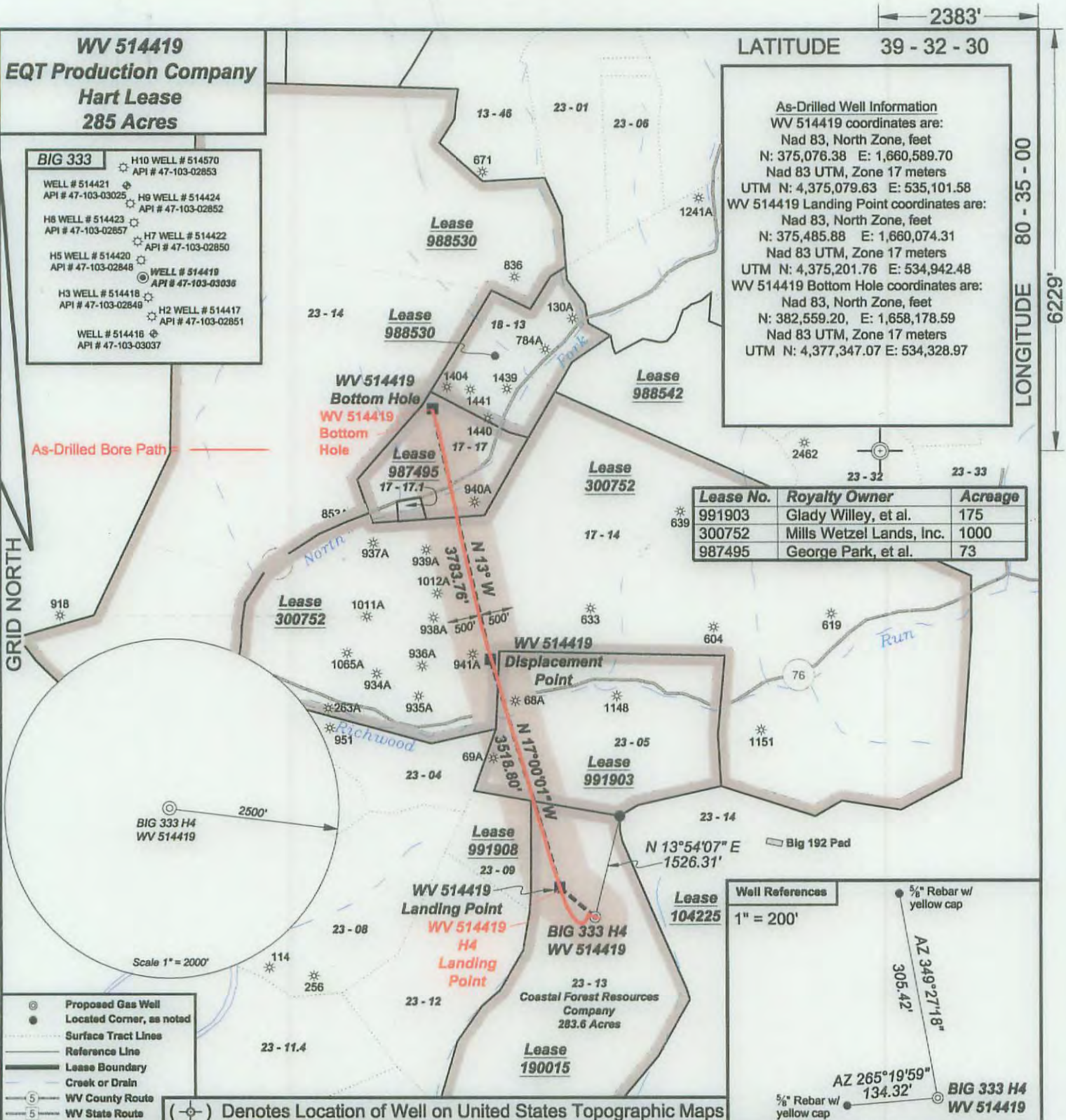
* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** 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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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: 33-15
 DRAWING NO: 33-15 BIG 333 H4
 SCALE: 1" = 2000'
 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: November 5 20 15
 OPERATOR'S WELL NO.: 514419
 API WELL NO
 47 - 103 - 03036
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: As-Built - 1452' WATERSHED: Aunty Run of South Fork Fishing Creek QUADRANGLE: Big Run
 DISTRICT: Grant COUNTY: Wetzel
 SURFACE OWNER: Coastal Forest Resources Co., d/b/a Coastal Timberlands Co. ACREAGE: 283.6±
 ROYALTY OWNER: Alex Hart, et al. LEASE NO: 190015 ACREAGE: 285±
 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 6,602'

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

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