

Well Operator's Report of Well Work



Where energy meets innovation.

Well Number: 515108

API: 47 - 103 - 03159

Submission: Initial Amended

Final

Notes: ~~Initial Report w/ Flowback~~

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State of West Virginia
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Well Operator's Report of Well Work

API 47 - 103 - 03159 County WETZEL District GRANT
Quad BIG RUN Pad Name BIG360 Field/Pool Name N/A
Farm name COASTAL FOREST RESOURCES d/b/a COASTAL TIMBERLANDS COMPANY Well Number 515108
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 4,375,979.73 Easting 532,982.78
Landing Point of Curve Northing 4,376,040.63 Easting 533,021.73
Bottom Hole Northing 4,377,542.15 Easting 532,633.90

Elevation (ft) 999' 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)

Synthetic Base Mud 13.4 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 11/30/2016 Date drilling commenced 5/30/2017 Date drilling ceased 10/27/2017
Date completion activities began 11/7/2017 Date completion activities ceased 11/30/2017
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 291,353 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1972 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 280,440,661,763 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed

Reviewed by: DH

See in file 5-10-18

API 47- 103 - 03159 Farm name COASTAL FOREST RESOURCES dba COASTAL TIMBERLANDS COMPANY Well number 515108

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"	40'	NEW	A-500	N/A	Y
Surface	17 1/2"	13 3/8"	856'	NEW	J-55	N/A	Y
Coal							
Intermediate 1	12 3/8"	9 5/8"	2453'	NEW	A-500	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	12806'	NEW	P-110	N/A	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	49	15.6	1.18	57.8	0	8
Surface	CLASS A	850	15.6	1.20	1020	0	8
Coal							
Intermediate 1	CLASS A / CLASS A	735 / 225	15.6 / 15.6	1.18 / 1.2	1137.3	0	8
Intermediate 2							
Intermediate 3							
Production	CLASS H / CLASS H	182 / 669	15.2 / 15.6	1.25 / 2.06	16.05.6	5824	72+
Tubing							

Drillers TD (ft) 12821' Loggers TD (ft) N/A

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

Plug back procedure N/A

Kick off depth (ft) 5191'

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: NONE

INTERMEDIATE: 6 CENTRALIZERS PLACED EVERY 500'

PRODUCTION: 181 Spiral body composite centralizers placed every joint from 12794' to 5138' MD.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

API 47- 103 - 03159 Farm name COASTAL FOREST RESOURCES dba COASTAL TIMBERLANDS COMPANY Well number 515108

Drilling Contractor Savanna Drilling (Rig 803)
Address 125 Industry Road City Waynesburg State PA Zip 15370

Logging Company Phoenix Technology Services
Address 1805 Brittmoore Road City Houston State TX Zip 77043

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Final Formations Well #515108 API #47-103-03159

Formation Name	Drill Top MD (ftKB)	Drill Top (TVD) (ftKB)	Drill Btm MD (ftKB)	Drill Btm (TVD) (ftKB)
SAND / SHALE	1	1	280	280
WASHINGTON COAL	280	280	282	282
SAND / SHALE	282	282	440	440
COAL	440	440	444	444
SAND / SHALE	444	444	661	661
SEWICKLEY COAL	661	661	662	662
SAND / SHALE	662	662	763	763
PITTSBURGH COAL	763	763	767	767
SAND / SHALE	767	767	1792	1792
MAXTON	1792	1792	1809	1809
SAND / SHALE	1809	1809	1943	1943
BIG LIME	1943	1943	2082	2082
SAND / SHALE	2082	2082	2105	2105
BIG INJUN	2105	2105	2206	2206
SAND / SHALE	2206	2206	2372	2372
WEIR	2372	2372	2441	2441
SAND / SHALE	2441	2441	2523	2523
GANTZ	2523	2523	2558	2558
SAND / SHALE	2558	2558	2628	2628
FIFTY FOOT	2628	2628	2656	2656
SAND / SHALE	2656	2656	2784	2784
THIRTY FOOT	2784	2784	2798	2798
SAND / SHALE	2798	2798	2800	2800
GORDON	2800	2800	2846	2846
SAND / SHALE	2846	2846	2886	2886
FORTH SAND	2886	2886	2897	2897
SAND / SHALE	2897	2897	3018	3018
BAYARD	3018	3018	3043	3043
SAND / SHALE	3043	3043	3466	3466
WARREN	3466	3466	3523	3523
SAND / SHALE	3523	3523	3620	3620
SPEECHLEY	3620	3620	3654	3654
SAND / SHALE	3654	3654	3973	3973
BALLTOWN A	3973	3973	4339	4339
SAND / SHALE	4339	4339	4461	4461
RILEY	4461	4461	4500	4500
BENSON	5116	5116	5168	5168
SAND / SHALE	5168	5168	5494	5485
ALEXANDER	5494	5485	6865	6643
ELKS	6865	6643	6926	6699
SONYEA	6926	6699	7074	6825
MIDDLESEX	7074	6825	7153	6886
GENESEE	7153	6886	7266	6962
GENESEO	7266	6962	7321	6993
TULLY	7321	6993	7355	7012
HAMILTON	7355	7012	7587	7095
MARCELLUS	7587	7095	12821	7070

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EQT PRODUCTION

Wetzel County, WV

BIG 360

Well #515108 -MRC - Slot 515108

API# 47-103-03159

Main

Design: 515108 As Drilled

Standard Survey Report

24 October, 2017

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PHOENIX
TECHNOLOGY SERVICES



Phoenix Technology Services LP
Survey Report



Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #515108 -MRC - Slot 515108
Project:	Wetzel County, WV	TVD Reference:	KB @23' @ 1022.0usft
Site:	BIG 360	MD Reference:	KB @23' @ 1022.0usft
Well:	Well #515108 -MRC	North Reference:	Grid
Wellbore:	Main	Survey Calculation Method:	Minimum Curvature
Design:	515108 As Drilled	Database:	Compass 5000 NER

Project	Wetzel County, WV		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	West Virginia North 4701		

Site	BIG 360				
Site Position:	Northing:	378,106.49 usft	Latitude:	39° 31' 57.892 N	
From: Map	Easting:	1,684,996.84 usft	Longitude:	80° 37' 0.648 W	
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.71 °

Well	Well #515108 -MRC - Slot 515108					
Well Position	+N/-S	0.0 usft	Northing:	378,111.72 usft	Latitude:	39° 31' 57.942 N
	+E/-W	0.0 usft	Easting:	1,684,982.78 usft	Longitude:	80° 37' 0.828 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	999.0 usft	

Wellbore	Main				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/13/2017	-8.20	66.85	52,299

Design	515108 As Drilled				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	349.92	

Survey Program	Date	10/24/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	5,102.0	Gyrodata Gyros (Main)	GYD_DP_MS	Gyrodata gyro-compassing and drop	
5,183.0	12,821.0	Phoenix MWD Surveys (Main)	MWD+HDGM	OWSG Rev.2 MWD + HDGM	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.23	95.15	100.0	0.0	0.2	-0.1	0.23	0.23	0.00
200.0	0.25	72.25	200.0	0.0	0.6	-0.1	0.10	0.02	-22.90
300.0	0.12	72.64	300.0	0.1	0.9	0.0	0.13	-0.13	0.39
400.0	0.19	41.09	400.0	0.3	1.1	0.1	0.11	0.07	-31.55
500.0	0.12	45.60	500.0	0.5	1.3	0.2	0.07	-0.07	4.51
600.0	0.07	21.15	600.0	0.6	1.4	0.4	0.06	-0.05	-24.45
700.0	0.07	319.11	700.0	0.7	1.4	0.5	0.07	0.00	-62.04
800.0	0.08	35.14	800.0	0.8	1.4	0.6	0.09	0.01	76.03
900.0	0.44	144.04	900.0	0.6	1.7	0.3	0.47	0.36	108.90

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Project:	Wetzel County, WV	TVD Reference:	KB @23' @ 1022.0usft
Site:	BIG 360	MD Reference:	KB @23' @ 1022.0usft
Well:	Well #515108 -MRC	North Reference:	Grid
Wellbore:	Main	Survey Calculation Method:	Minimum Curvature
Design:	515108 As Drilled	Database:	Compass 5000 NER

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,000.0	0.59	149.76	1,000.0	-0.2	2.1	-0.6	0.16	0.15	5.72	
1,100.0	0.59	147.04	1,100.0	-1.1	2.7	-1.5	0.03	0.00	-2.72	
1,200.0	0.51	143.17	1,200.0	-1.9	3.2	-2.4	0.09	-0.08	-3.87	
1,300.0	0.51	151.48	1,300.0	-2.6	3.7	-3.2	0.07	0.00	8.31	
1,400.0	0.55	142.40	1,400.0	-3.4	4.2	-4.1	0.09	0.04	-9.08	
1,500.0	0.63	143.92	1,500.0	-4.2	4.8	-5.0	0.08	0.08	1.52	
1,600.0	0.71	149.95	1,600.0	-5.2	5.5	-6.1	0.11	0.08	6.03	
1,700.0	0.77	151.09	1,700.0	-6.3	6.1	-7.3	0.06	0.06	1.14	
1,800.0	0.63	155.35	1,799.9	-7.4	6.6	-8.4	0.15	-0.14	4.26	
1,900.0	0.62	159.93	1,899.9	-8.4	7.1	-9.5	0.05	-0.01	4.58	
2,000.0	0.57	163.90	1,999.9	-9.4	7.4	-10.5	0.06	-0.05	3.97	
2,100.0	0.47	174.70	2,099.9	-10.3	7.6	-11.4	0.14	-0.10	10.80	
2,200.0	0.38	179.60	2,199.9	-11.0	7.6	-12.2	0.10	-0.09	4.90	
2,300.0	0.32	187.61	2,299.9	-11.6	7.6	-12.8	0.08	-0.06	8.01	
2,400.0	0.31	201.00	2,399.9	-12.1	7.4	-13.3	0.07	-0.01	13.39	
2,500.0	0.38	219.94	2,499.9	-12.7	7.1	-13.7	0.13	0.07	18.94	
2,600.0	0.42	261.50	2,599.9	-13.0	6.5	-13.9	0.29	0.04	41.56	
2,700.0	0.56	284.11	2,699.9	-12.9	5.7	-13.7	0.24	0.14	22.61	
2,800.0	0.61	293.50	2,799.9	-12.6	4.8	-13.2	0.11	0.05	9.39	
2,900.0	0.68	304.49	2,899.9	-12.0	3.8	-12.5	0.14	0.07	10.99	
3,000.0	0.69	301.81	2,999.9	-11.4	2.8	-11.7	0.03	0.01	-2.68	
3,100.0	0.70	304.28	3,099.9	-10.7	1.8	-10.8	0.03	0.01	2.47	
3,200.0	0.66	308.52	3,199.9	-10.0	0.8	-10.0	0.06	-0.04	4.24	
3,300.0	0.66	310.75	3,299.9	-9.3	-0.1	-9.1	0.03	0.00	2.23	
3,400.0	0.55	316.75	3,399.9	-8.5	-0.9	-8.3	0.13	-0.11	6.00	
3,500.0	0.63	319.99	3,499.9	-7.8	-1.5	-7.4	0.09	0.08	3.24	
3,600.0	0.58	315.88	3,599.9	-7.0	-2.2	-6.5	0.07	-0.05	-4.11	
3,700.0	0.60	309.67	3,699.9	-6.3	-3.0	-5.7	0.07	0.02	-6.21	
3,800.0	0.74	308.30	3,799.8	-5.6	-3.9	-4.8	0.14	0.14	-1.37	
3,900.0	0.76	309.93	3,899.8	-4.7	-4.9	-3.8	0.03	0.02	1.63	
4,000.0	0.65	310.40	3,999.8	-3.9	-5.9	-2.8	0.11	-0.11	0.47	
4,100.0	0.54	311.93	4,099.8	-3.3	-6.6	-2.0	0.11	-0.11	1.53	
4,200.0	0.22	327.24	4,199.8	-2.8	-7.1	-1.5	0.33	-0.32	15.31	
4,300.0	0.26	23.56	4,299.8	-2.4	-7.1	-1.1	0.23	0.04	56.32	
4,400.0	0.34	41.46	4,399.8	-2.0	-6.8	-0.8	0.12	0.08	17.90	
4,500.0	0.66	93.05	4,499.8	-1.8	-6.1	-0.7	0.52	0.32	51.59	
4,600.0	0.69	96.89	4,599.8	-1.9	-4.9	-1.0	0.05	0.03	3.84	
4,700.0	0.42	87.54	4,699.8	-1.9	-3.9	-1.2	0.28	-0.27	-9.35	
4,800.0	0.28	79.87	4,799.8	-1.9	-3.3	-1.3	0.15	-0.14	-7.67	
4,900.0	0.38	81.70	4,899.8	-1.8	-2.7	-1.3	0.10	0.10	1.83	
5,000.0	0.44	124.67	4,999.8	-2.0	-2.1	-1.6	0.31	0.06	42.97	
5,100.0	0.71	164.06	5,099.8	-2.8	-1.6	-2.5	0.46	0.27	39.39	
5,102.0	0.72	165.26	5,101.8	-2.8	-1.6	-2.5	0.90	0.50	60.00	

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Survey Report



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Well:	Well #515108 -MRC	North Reference:	Grid
Wellbore:	Main	Survey Calculation Method:	Minimum Curvature
Design:	515108 As Drilled	Database:	Compass 5000 NER

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
Tie In										
5,183.0	0.53	225.50	5,182.8	-3.6	-1.7	-3.2	0.80	-0.23	74.37	
First Phoenix MWD Survey										
5,214.0	0.69	219.42	5,213.8	-3.8	-2.0	-3.4	0.56	0.52	-19.61	
5,226.0	1.20	212.80	5,225.8	-4.0	-2.1	-3.5	4.31	4.22	-55.20	
As-Drilled KOP:5226'MD/5225.8'TVD										
5,245.0	2.01	209.20	5,244.8	-4.4	-2.3	-3.9	4.31	4.28	-18.92	
5,277.0	4.68	190.12	5,276.7	-6.2	-2.8	-5.6	8.93	8.34	-59.63	
5,308.0	7.78	175.82	5,307.5	-9.5	-2.9	-8.9	11.11	10.00	-46.13	
5,340.0	10.61	165.60	5,339.1	-14.6	-2.0	-14.0	10.18	8.84	-31.94	
5,371.0	13.39	157.40	5,369.4	-20.6	0.1	-20.3	10.50	8.97	-26.45	
5,403.0	17.09	159.09	5,400.3	-28.4	3.2	-28.6	11.64	11.56	5.28	
5,434.0	20.21	159.77	5,429.7	-37.7	6.6	-38.3	10.09	10.06	2.19	
5,465.0	23.33	160.28	5,458.5	-48.5	10.6	-49.6	10.08	10.06	1.65	
5,497.0	26.55	159.91	5,487.5	-61.2	15.2	-62.9	10.07	10.06	-1.16	
5,528.0	29.37	156.44	5,514.9	-74.7	20.6	-77.1	10.50	9.10	-11.19	
5,560.0	33.32	153.26	5,542.2	-89.7	27.7	-93.2	13.38	12.34	-9.94	
5,591.0	37.92	151.26	5,567.4	-105.7	36.1	-110.4	15.31	14.84	-6.45	
5,623.0	41.75	151.19	5,592.0	-123.7	46.0	-129.8	11.97	11.97	-0.22	
5,654.0	44.23	151.00	5,614.6	-142.2	56.2	-149.8	8.01	8.00	-0.61	
5,749.0	44.43	149.51	5,682.6	-199.8	89.1	-212.3	1.12	0.21	-1.57	
5,843.0	43.16	151.60	5,750.4	-256.4	121.1	-273.7	2.05	-1.35	2.22	
5,937.0	41.60	154.54	5,819.9	-312.9	149.8	-334.3	2.68	-1.66	3.13	
6,032.0	40.73	152.66	5,891.4	-368.9	177.6	-394.3	1.59	-0.92	-1.98	
6,126.0	39.65	153.13	5,963.2	-422.9	205.2	-452.3	1.19	-1.15	0.50	
6,158.0	38.84	152.23	5,988.0	-440.9	214.5	-471.6	3.09	-2.53	-2.81	
6,189.0	36.06	149.44	6,012.6	-457.4	223.7	-489.4	10.50	-8.97	-9.00	
6,220.0	33.86	146.33	6,038.0	-472.4	233.1	-505.9	9.13	-7.10	-10.03	
6,252.0	31.55	143.00	6,064.9	-486.5	243.1	-521.6	9.15	-7.22	-10.41	
6,283.0	28.53	142.26	6,091.8	-498.9	252.5	-535.3	9.81	-9.74	-2.38	
6,315.0	25.04	138.85	6,120.3	-510.0	261.7	-547.9	11.91	-10.91	-10.66	
6,346.0	22.13	135.29	6,148.7	-519.1	270.1	-558.3	10.45	-9.39	-11.46	
6,378.0	19.05	130.57	6,178.7	-526.8	278.3	-567.3	10.93	-9.63	-14.75	
6,409.0	16.70	124.17	6,208.2	-532.6	285.8	-574.4	9.87	-7.58	-20.65	
6,440.0	15.67	116.68	6,238.0	-537.0	293.3	-580.0	7.50	-3.32	-24.16	
6,472.0	15.86	110.33	6,268.8	-540.4	301.2	-584.8	5.42	0.59	-19.84	
6,503.0	15.93	102.33	6,298.6	-542.8	309.4	-588.5	7.07	0.23	-25.81	
6,534.0	15.45	90.08	6,328.4	-543.7	317.6	-590.9	10.78	-1.55	-39.52	
6,566.0	14.99	75.88	6,359.3	-542.7	325.9	-591.4	11.71	-1.44	-44.38	
6,597.0	15.00	62.68	6,389.3	-539.9	333.4	-589.9	10.99	0.03	-42.58	
6,629.0	15.30	47.08	6,420.2	-535.1	340.1	-586.4	12.74	0.94	-48.75	
6,660.0	16.18	33.85	6,450.0	-528.7	345.5	-581.0	11.89	2.84	-42.68	
6,692.0	17.70	27.89	6,480.6	-520.7	350.3	-574.0	7.21	4.75	-18.63	
6,723.0	18.68	22.73	6,510.1	-512.0	354.4	-566.1	6.08	3.16	-16.65	

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Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #515108 -MRC - Slot 515108
Project:	Wetzel County, WV	TVD Reference:	KB @23' @ 1022.0usft
Site:	BIG 360	MD Reference:	KB @23' @ 1022.0usft
Well:	Well #515108 -MRC	North Reference:	Grid
Wellbore:	Main	Survey Calculation Method:	Minimum Curvature
Design:	515108 As Drilled	Database:	Compass 5000 NER

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
6,755.0	19.21	15.54	6,540.4	-502.2	357.8	-557.0	7.48	1.66	-22.47	
6,786.0	20.14	8.55	6,569.6	-492.0	360.0	-547.4	8.16	3.00	-22.55	
6,818.0	21.53	3.63	6,599.5	-480.7	361.2	-536.5	6.98	4.34	-15.38	
6,849.0	22.85	0.48	6,628.2	-469.0	361.6	-525.0	5.73	4.26	-10.16	
6,881.0	23.23	357.95	6,657.6	-456.5	361.4	-512.7	3.31	1.19	-7.91	
6,912.0	24.61	357.86	6,686.0	-443.9	361.0	-500.2	4.45	4.45	-0.29	
6,944.0	26.60	357.68	6,714.8	-430.1	360.4	-486.5	6.22	6.22	-0.56	
6,975.0	28.45	356.93	6,742.3	-415.8	359.7	-472.3	6.07	5.97	-2.42	
7,007.0	31.22	356.86	6,770.1	-399.9	358.9	-456.5	8.66	8.66	-0.22	
7,038.0	34.21	357.44	6,796.1	-383.1	358.0	-439.9	9.70	9.65	1.87	
7,069.0	37.33	356.83	6,821.3	-365.1	357.1	-421.9	10.13	10.06	-1.97	
7,101.0	39.14	356.77	6,846.4	-345.3	356.0	-402.2	5.66	5.66	-0.19	
7,132.0	41.07	356.59	6,870.1	-325.3	354.9	-382.4	6.24	6.23	-0.58	
7,164.0	42.85	356.02	6,893.9	-304.0	353.5	-361.1	5.69	5.56	-1.78	
7,195.0	45.91	354.88	6,916.1	-282.4	351.8	-339.6	10.20	9.87	-3.68	
7,227.0	49.40	353.60	6,937.6	-258.9	349.4	-316.0	11.30	10.91	-4.00	
7,258.0	52.60	352.87	6,957.1	-234.9	346.5	-291.9	10.48	10.32	-2.35	
7,289.0	55.33	352.41	6,975.4	-210.1	343.3	-266.9	8.89	8.81	-1.48	
7,321.0	56.51	352.07	6,993.3	-183.8	339.8	-240.4	3.79	3.69	-1.06	
7,352.0	58.00	351.65	7,010.1	-158.0	336.1	-214.4	4.94	4.81	-1.35	
7,384.0	60.78	351.55	7,026.4	-130.8	332.0	-186.8	8.69	8.69	-0.31	
7,415.0	63.97	352.18	7,040.7	-103.6	328.2	-159.4	10.45	10.29	2.03	
7,447.0	67.46	352.51	7,053.9	-74.7	324.3	-130.3	10.95	10.91	1.03	
7,478.0	69.71	352.87	7,065.2	-46.1	320.6	-101.4	7.34	7.26	1.16	
7,510.0	71.92	352.30	7,075.7	-16.1	316.7	-71.2	7.11	6.91	-1.78	
7,541.0	74.29	351.17	7,084.7	13.3	312.4	-41.6	8.40	7.65	-3.65	
7,573.0	77.65	349.73	7,092.5	43.9	307.3	-10.6	11.37	10.50	-4.50	
7,604.0	81.07	348.50	7,098.2	73.8	301.5	19.9	11.70	11.03	-3.97	
7,635.0	83.69	347.78	7,102.3	103.9	295.2	50.6	8.76	8.45	-2.32	
7,667.0	85.80	346.87	7,105.3	134.9	288.2	82.4	7.18	6.59	-2.84	
7,698.0	86.40	347.19	7,107.4	165.1	281.3	113.3	2.19	1.94	1.03	
7,729.0	87.73	347.53	7,109.0	195.3	274.5	144.3	4.43	4.29	1.10	
As-Drilled LP:7729'MD/7109'TVD - Cherry Valley Target										
7,824.0	88.67	347.43	7,111.9	288.0	253.9	239.1	1.00	0.99	-0.11	
7,918.0	88.95	346.87	7,113.9	379.6	233.0	333.0	0.67	0.30	-0.60	
8,013.0	90.84	347.21	7,114.1	472.2	211.7	427.9	2.02	1.99	0.36	
Deepest Point @ 8013'MD/7114.1'TVD										
8,107.0	91.13	346.84	7,112.5	563.8	190.6	521.7	0.50	0.31	-0.39	
8,201.0	91.78	347.40	7,110.1	655.4	169.7	615.6	0.91	0.69	0.60	
8,296.0	93.11	346.55	7,106.0	747.8	148.3	710.4	1.66	1.40	-0.89	
8,389.0	91.53	346.00	7,102.2	838.1	126.2	803.1	1.80	-1.70	-0.59	
8,484.0	88.61	344.88	7,102.1	930.0	102.3	897.8	3.29	-3.07	-1.18	
8,578.0	88.99	345.33	7,104.1	1,020.9	78.2	991.4	0.63	0.40	0.48	

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Phoenix Technology Services LP
Survey Report



Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #515108 -MRC - Slot 515108
Project:	Wetzel County, WV	TVD Reference:	KB @23' @ 1022.0usft
Site:	BIG 360	MD Reference:	KB @23' @ 1022.0usft
Well:	Well #515108 -MRC	North Reference:	Grid
Wellbore:	Main	Survey Calculation Method:	Minimum Curvature
Design:	515108 As Drilled	Database:	Compass 5000 NER

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,672.0	89.12	345.83	7,105.7	1,111.9	54.8	1,085.2	0.55	0.14	0.53	
8,766.0	89.38	346.17	7,106.9	1,203.1	32.0	1,178.9	0.46	0.28	0.36	
8,860.0	89.38	346.25	7,107.9	1,294.4	9.6	1,272.7	0.09	0.00	0.09	
8,955.0	91.33	345.71	7,107.3	1,386.5	-13.4	1,367.5	2.13	2.05	-0.57	
9,049.0	91.67	345.78	7,104.8	1,477.6	-36.5	1,461.2	0.37	0.36	0.07	
9,143.0	92.05	345.90	7,101.8	1,568.7	-59.5	1,554.9	0.42	0.40	0.13	
9,238.0	92.45	345.11	7,098.1	1,660.6	-83.3	1,649.6	0.93	0.42	-0.83	
9,332.0	91.02	346.44	7,095.2	1,751.7	-106.3	1,743.3	2.08	-1.52	1.41	
9,427.0	91.38	346.22	7,093.2	1,844.0	-128.8	1,838.1	0.44	0.38	-0.23	
9,521.0	89.78	346.89	7,092.3	1,935.4	-150.6	1,931.9	1.85	-1.70	0.71	
9,615.0	89.65	346.25	7,092.7	2,026.8	-172.5	2,025.7	0.69	-0.14	-0.68	
9,710.0	89.75	346.61	7,093.2	2,119.2	-194.8	2,120.6	0.39	0.11	0.38	
9,805.0	89.99	345.62	7,093.5	2,211.4	-217.6	2,215.3	1.07	0.25	-1.04	
9,899.0	90.58	345.24	7,093.0	2,302.4	-241.2	2,309.1	0.75	0.63	-0.40	
9,993.0	88.98	347.91	7,093.4	2,393.8	-263.0	2,402.9	3.31	-1.70	2.84	
10,088.0	88.98	347.71	7,095.0	2,486.6	-283.1	2,497.8	0.21	0.00	-0.21	
10,182.0	89.29	346.78	7,096.5	2,578.3	-303.8	2,591.7	1.04	0.33	-0.99	
10,276.0	89.44	345.78	7,097.5	2,669.6	-326.1	2,685.5	1.08	0.16	-1.06	
10,370.0	91.34	346.39	7,096.9	2,760.8	-348.7	2,779.3	2.12	2.02	0.65	
10,465.0	92.07	345.25	7,094.0	2,852.9	-372.0	2,874.0	1.42	0.77	-1.20	
10,559.0	93.73	344.66	7,089.3	2,943.6	-396.4	2,967.5	1.87	1.77	-0.63	
10,653.0	91.95	346.51	7,084.6	3,034.5	-419.7	3,061.1	2.73	-1.89	1.97	
10,748.0	90.72	348.43	7,082.4	3,127.2	-440.3	3,156.0	2.40	-1.29	2.02	
10,842.0	91.41	348.42	7,080.7	3,219.3	-459.2	3,250.0	0.73	0.73	-0.01	
10,937.0	89.56	347.85	7,079.9	3,312.2	-478.7	3,344.9	2.04	-1.95	-0.60	
11,031.0	90.04	348.22	7,080.2	3,404.2	-498.2	3,438.8	0.64	0.51	0.39	
11,125.0	89.76	347.97	7,080.4	3,496.2	-517.6	3,532.8	0.40	-0.30	-0.27	
11,219.0	87.47	347.98	7,082.6	3,588.1	-537.2	3,626.7	2.44	-2.44	-0.12	
11,313.0	87.69	347.87	7,086.6	3,679.9	-556.8	3,720.6	0.26	0.23	-0.12	
11,408.0	89.96	348.01	7,088.5	3,772.8	-576.7	3,815.5	2.39	2.39	0.15	
11,502.0	90.27	348.05	7,088.4	3,864.7	-596.2	3,909.4	0.33	0.33	0.04	
11,596.0	90.90	348.93	7,087.4	3,956.8	-614.9	4,003.4	1.15	0.67	0.94	
11,690.0	90.39	345.66	7,086.3	4,048.5	-635.6	4,097.3	3.52	-0.54	-3.48	
11,784.0	90.16	344.76	7,085.9	4,139.4	-659.6	4,191.0	0.99	-0.24	-0.96	
11,879.0	91.12	343.16	7,084.8	4,230.7	-685.8	4,285.4	1.96	1.01	-1.68	
11,973.0	93.21	343.89	7,081.3	4,320.8	-712.5	4,378.8	2.35	2.22	0.78	
12,067.0	92.08	346.13	7,076.9	4,411.5	-736.7	4,472.3	2.67	-1.20	2.38	
12,161.0	90.10	346.27	7,075.1	4,502.7	-759.2	4,566.1	2.11	-2.11	0.15	
12,256.0	90.33	346.08	7,074.8	4,595.0	-781.9	4,660.9	0.31	0.24	-0.20	
12,351.0	90.82	345.54	7,073.8	4,687.1	-805.2	4,755.6	0.77	0.52	-0.57	
12,445.0	91.47	344.75	7,072.0	4,777.9	-829.2	4,849.3	1.09	0.69	-0.84	
12,540.0	89.72	346.75	7,071.0	4,870.0	-852.6	4,944.0	2.80	-1.84	2.11	
12,634.0	90.12	347.03	7,071.1	4,961.5	-874.0	5,037.9	0.52	0.43	0.30	
12,728.0	90.36	347.04	7,070.7	5,053.1	-895.0	5,131.8	0.26	0.26	0.01	

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Company:	EQT PRODUCTION	Local Co-ordinate Reference:	Well Well #515108 -MRC - Slot 515108
Project:	Wetzel County, WV	TVD Reference:	KB @23' @ 1022.0usft
Site:	BIG 360	MD Reference:	KB @23' @ 1022.0usft
Well:	Well #515108 -MRC	North Reference:	Grid
Wellbore:	Main	Survey Calculation Method:	Minimum Curvature
Design:	515108 As Drilled	Database:	Compass 5000 NER

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,744.0	90.42	346.92	7,070.6	5,068.7	-898.6	5,147.8	0.84	0.38	-0.75
Final Phoenix MWD Survey									
12,821.0	90.42	346.92	7,070.0	5,143.7	-916.1	5,224.7	0.00	0.00	0.00
PTBIAs-Drilled TD:12821'MD/7070'TVD									

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
515108 - As-Drilled KOF - actual wellpath hits target center - Point	0.00	0.00	5,225.8	-4.0	-2.1	378,107.76	1,684,980.70	39° 31' 57.903 N	80° 37' 0.854 W
515108 - As-Drilled TD - actual wellpath hits target center - Point	0.00	360.00	7,070.0	5,143.7	-916.1	383,255.44	1,684,066.71	39° 32' 48.666 N	80° 37' 13.338 W
515108 - As-Drilled LP - actual wellpath hits target center - Point	0.00	0.00	7,109.0	195.3	274.5	378,307.01	1,685,257.28	39° 31' 59.906 N	80° 36' 57.356 W

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,102.0	5,101.8	-2.8	-1.6	Tie In
5,183.0	5,182.8	-3.6	-1.7	First Phoenix MWD Survey
5,226.0	5,225.8	-4.0	-2.1	As-Drilled KOP:5226'MD/5225.8'TVD
7,729.0	7,109.0	195.3	274.5	As-Drilled LP:7729'MD/7109'TVD
7,729.0	7,109.0	195.3	274.5	Cherry Valley Target
8,013.0	7,114.1	472.2	211.7	Deepest Point @ 8013'MD/7114.1'TVD
12,744.0	7,070.6	5,068.7	-898.6	Final Phoenix MWD Survey
12,821.0	7,070.0	5,143.7	-916.1	PTBIAs-Drilled TD:12821'MD/7070'TVD

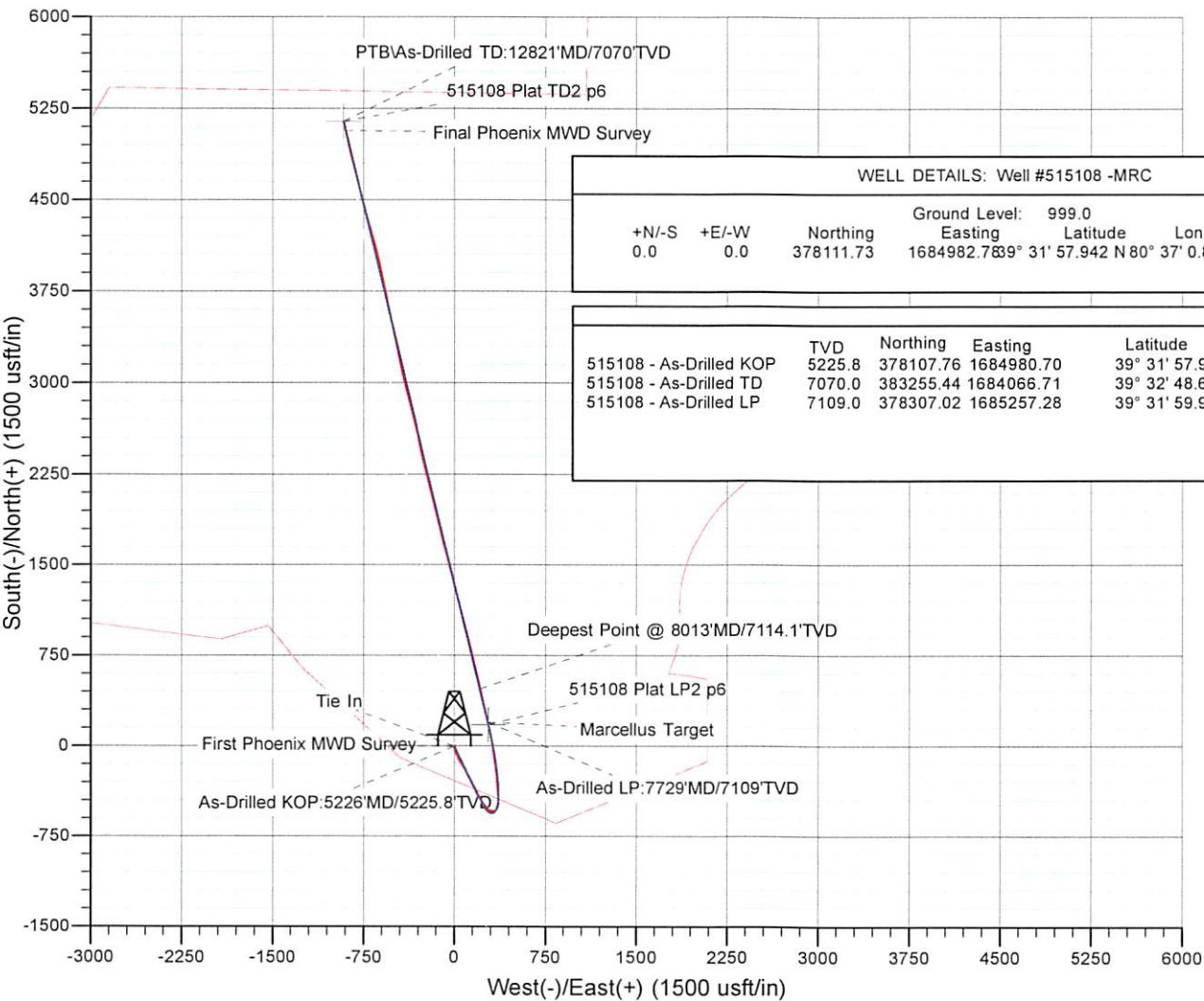
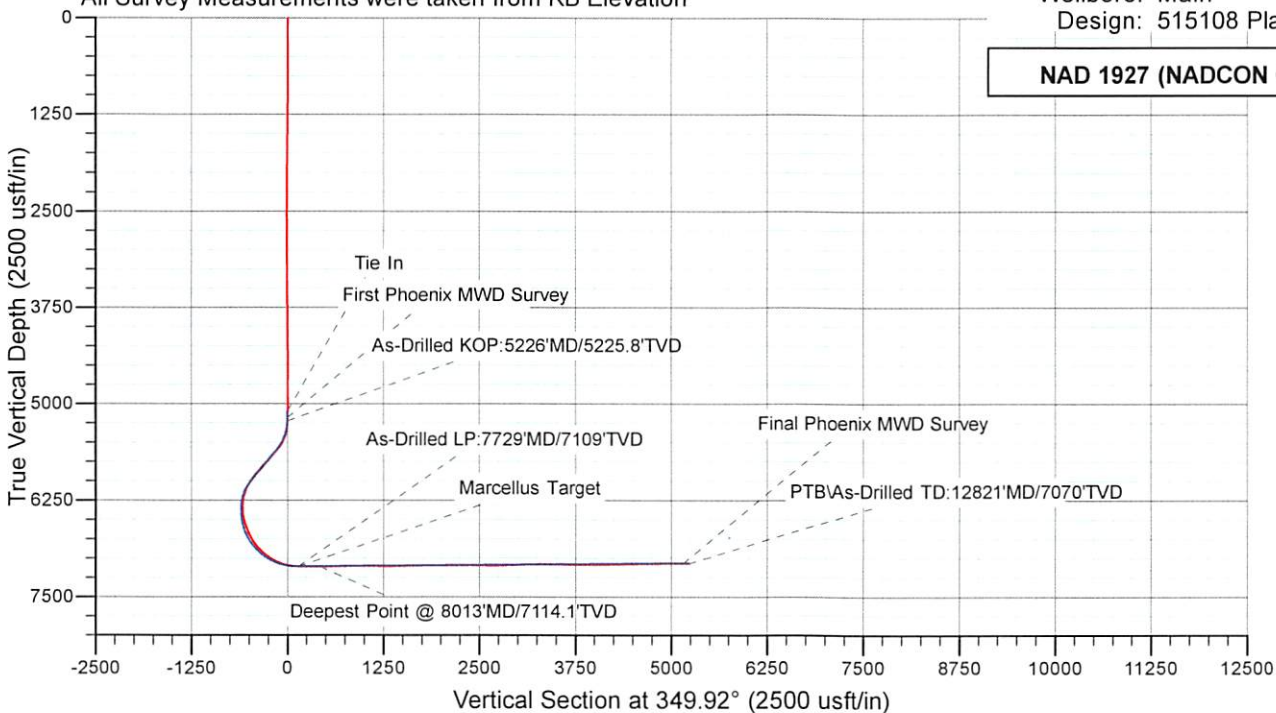
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KB Elevation=1319 FT
Ground Elevation=1296 FT

Project: Wetzel County, WV
Site: BIG 360
Well: Well #515108 -MRC
Wellbore: Main
Design: 515108 Plan 10

All Survey Measurements were taken from KB Elevation

NAD 1927 (NADCON CONUS)



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PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION

ROYALTY OWNER: Mills-Wetzel Land, Inc. LEASE NO: 988530 ACREAGE: 659

SURFACE OWNER: Coastal Forest Resources Company d/b/a Coastal Timberlands Company ACREAGE: 1,636.5

DISTRICT: Grant COUNTY: Wetzel

LOCATION: ELEVATION: Proposed Ground = 998' WATERSHED: Richwood Run QUADRANGLE: Big Run
Original Ground = 1008'

(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL

FILE NO: 174-13
DRAWING NO: 174-13 Big 360 H1
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1:2500
PROVEN SOURCE OF ELEVATION: NGS CORS Station

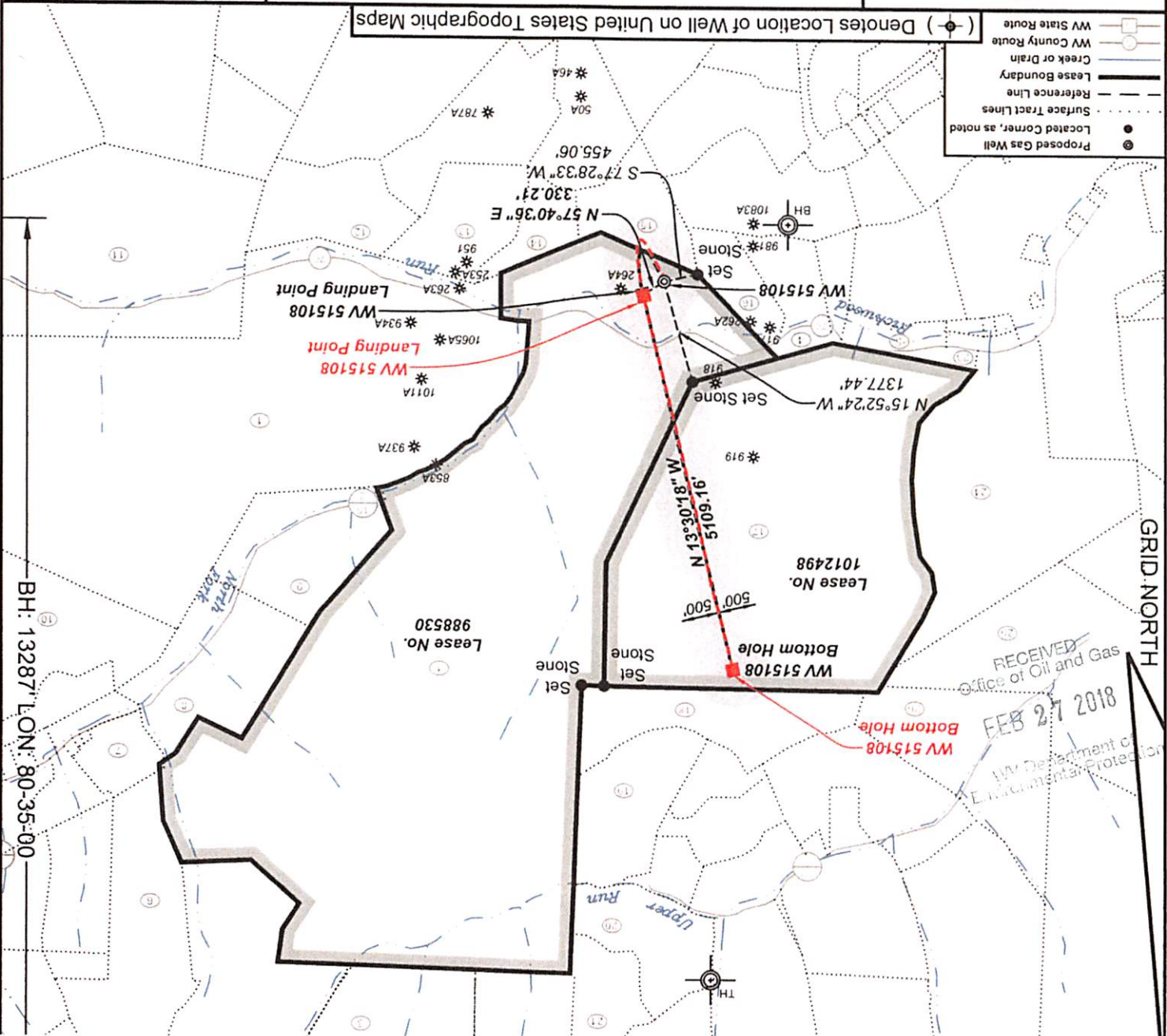
STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: October 25 20 17
OPERATORS WELL NO. 515108
API WELL NO
STATE 47 COUNTY 103 PERMIT 03159



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

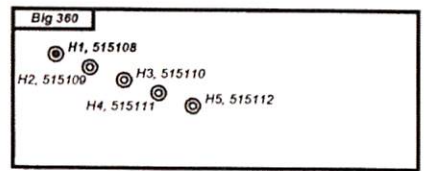


BH: 13287' LON: 80-35-00
LON: 80-35-00

3	12	47	Wetzel	Grant	Coastal Forest Resources Co.	87.50
4	22	12	Wetzel	Grant	James Jones, et al.	18.67
5	22	11	Wetzel	Grant	Mary M. Snodgrass	10.14
6	18	1	Wetzel	Grant	McKinley E. Calvert Heirs	100.00
7	18	14	Wetzel	Grant	Frank M. & Frankie L. Dulaney	9.55
8	18	13	Wetzel	Grant	Ralph G. Dulaney	87.50
9	18	17	Wetzel	Grant	Alan D. & Diana L. Barr	13.00
10	18	22	Wetzel	Grant	Karen R. Dennison, et al.	111.40
11	23	5	Wetzel	Grant	Thomas E. Wyatt, et al.	174.68
12	23	4	Wetzel	Grant	Dallison Lumber Inc.	36.10
13	23	2	Wetzel	Grant	Billy D. Arnolds, Jr.	38.80
14	23	1	Wetzel	Grant	Billy D. Arnolds, Jr.	16.50
15	22	27	Wetzel	Grant	Dallison Lumber Inc.	31.35
16	22	13	Wetzel	Grant	James Jones, et al.	16.75
17	17	16	Wetzel	Grant	David A. Arnolds	402.61
18	17	13	Wetzel	Grant	David A. Arnolds	62.25
19	17	12	Wetzel	Grant	Rhonda K. Spencer	57.20
20	17	4	Wetzel	Grant	George W. Cain	42.60
21	12	45	Wetzel	Grant	Jimmy L & James C. Yoho	44.10
22	12	46	Wetzel	Grant	Jimmy L & James C. Yoho	56.10
23	22	7	Wetzel	Grant	Billy D. Arnolds	5.20
24	17	16.1	Wetzel	Grant	Coastal Forest Resources Co.	137.39
25	16	40	Wetzel	Grant	Coastal Forest Resources Co.	412.80
26	17	6	Wetzel	Grant	Georgia Ann Smith	0.55

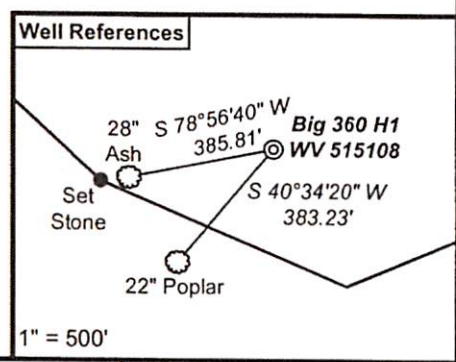
NAD 27 N: 383,255.44 E: 1,684,066.71
 NAD 83 UTM N: 4,377,542.15 E: 532,633.90

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

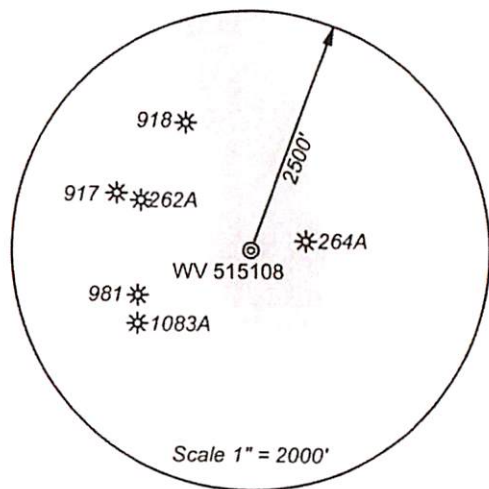


Lease No.	Acres	Owner
1012498	514	Kenneth R. Mason, et al.

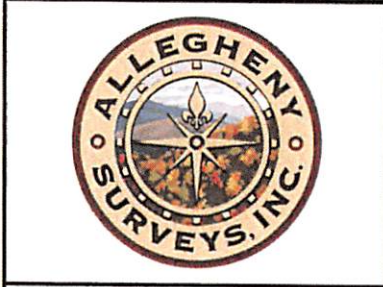
Sub Surface Tract	Acres	Owner
15	31.35	Dallison Lumber Inc.



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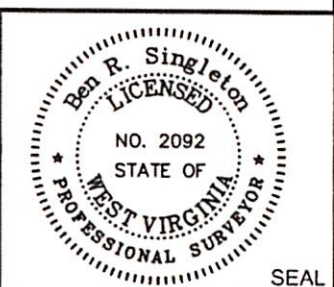


- Proposed Gas Well
- Located Corner, as noted
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FILE NO: 174-13
 DRAWING NO: 174-13 Big 360 H1
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1:2500
 PROVEN SOURCE OF ELEVATION: NGS CORS Station

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

DATE: October 25 20 17
 OPERATOR'S WELL NO. 515108
 API WELL NO
 47 - 103 - 03159
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: Original Ground = 1008' Proposed Ground = 998' WATERSHED Richwood Run QUADRANGLE: Big Run
 DISTRICT: Grant COUNTY: Wetzel
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 PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION

515108 47-103-03159-0000 - Perforations

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Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	11/2/2017	12,779	12,806	10	Marcellus
1	11/7/2017	12,719	12,751	16	Marcellus
1	11/8/2017	12,659	12,691	16	Marcellus
2	11/9/2017	12,509	12,631	40	Marcellus
3	11/9/2017	12,309	12,471	40	Marcellus
4	11/11/2017	12,109	12,271	40	Marcellus
5	11/12/2017	11,909	12,071	40	Marcellus
6	11/13/2017	11,709	11,871	40	Marcellus
7	11/13/2017	11,509	11,671	40	Marcellus
8	11/14/2017	11,309	11,471	40	Marcellus
9	11/16/2017	11,109	11,271	40	Marcellus
10	11/16/2017	10,909	11,071	40	Marcellus
11	11/17/2017	10,709	10,871	40	Marcellus
12	11/18/2017	10,509	10,671	40	Marcellus
13	11/19/2017	10,309	10,471	40	Marcellus
14	11/19/2017	10,109	10,271	40	Marcellus
15	11/20/2017	9,909	10,071	40	Marcellus
16	11/21/2017	9,709	9,871	40	Marcellus
17	11/22/2017	9,509	9,671	40	Marcellus
18	11/23/2017	9,309	9,471	40	Marcellus
19	11/24/2017	9,109	9,271	40	Marcellus
20	11/25/2017	8,909	9,071	40	Marcellus
21	11/25/2017	8,709	8,871	40	Marcellus
22	11/27/2017	8,509	8,671	40	Marcellus
23	11/27/2017	8,309	8,471	40	Marcellus
24	11/28/2017	8,109	8,271	40	Marcellus
25	11/29/2017	7,909	8,071	40	Marcellus
26	11/29/2017	7,709	7,871	40	Marcellus

515108 47-103-03159-0000 - Stimulated Stages

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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)
1.01	11/7/2017	13	7,535	8,897	5,087	0	7,254	0
1	11/8/2017	93	8,935	9,260	4,344	451,522	8,326	0
2	11/9/2017	94	9,008	9,362	4,281	450,842	7,614	0
3	11/11/2017	90	8,905	9,458	4,679	450,253	8,431	0
4	11/12/2017	90	8,865	9,391	4,563	448,920	7,660	0
5	11/12/2017	92	8,654	9,291	4,562	451,007	7,625	0
6	11/13/2017	92	8,746	9,254	4,805	450,083	7,717	0
7	11/14/2017	97	8,781	9,232	4,742	451,228	7,542	0
8	11/16/2017	97	8,783	9,119	4,738	458,840	7,684	0
9	11/16/2017	90	8,906	9,267	4,628	450,798	8,453	0
10	11/17/2017	97	8,753	9,231	4,491	450,870	7,526	0
11	11/18/2017	96	8,903	9,089	4,957	450,797	7,329	0
12	11/18/2017	92	9,034	9,403	4,314	450,944	7,733	0
13	11/19/2017	99	8,613	9,095	4,406	449,180	7,554	0
14	11/20/2017	100	8,661	8,946	4,476	450,787	7,515	0
15	11/21/2017	84	8,954	9,321	4,151	450,196	9,291	0
16	11/22/2017	100	8,962	9,271	4,774	449,968	7,493	0
17	11/23/2017	94	8,869	9,421	4,412	450,714	7,784	0
18	11/24/2017	91	9,036	9,378	4,336	450,283	8,137	0
19	11/25/2017	101	8,483	8,786	4,522	450,577	7,437	0
20	11/25/2017	99	8,798	9,365	4,565	451,354	8,633	0
21	11/26/2017	100	8,442	8,885	4,351	449,421	7,186	0
22	11/27/2017	100	8,540	9,081	4,156	449,632	7,472	0
23	11/28/2017	100	8,542	9,097	4,365	451,112	7,118	0
24	11/29/2017	99	8,467	9,250	4,274	450,556	7,196	0
25	11/29/2017	96	8,347	9,240	4,390	448,876	7,212	0
26	11/30/2017	102	8,216	8,729	4,534	450,493	7,196	0

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/7/2017
Job End Date:	11/30/2017
State:	West Virginia
County:	Wetzel
API Number:	47-103-03159-00-00
Operator Name:	EQT Production
Well Name and Number:	515108
Latitude:	39.53276000
Longitude:	-80.61690000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,095
Total Base Water Volume (gal):	8,467,956
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	85.44735	None
CS-500-SI	FTS International	Scale Inhibitor					
				Listed Below			

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Hydrochloric Acid (15%)	FTS International	Acidizing					
				Listed Below			
FRW-1450	FTS International	Mixture					
				Listed Below			
HVG-14.0	FTS International	Gelling Agent					
				Listed Below			
MX-8-2544	Multi-Chem	Bacteria Treatment					
				Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List					
				Listed Below			
MX-5-3886	Multi-Chem	Bacteria Treatment					
				Listed Below			
ABP-1	FTS International	Breaker					
				Listed Below			
CI-150	FTS International	Acid Corrosion Inhibitor					
				Listed Below			
Sand (Proppant)	FTS International	Proppant					

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				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Silica Substrate	14808-60-7	100.00000	14.17077	None
			Calcium Nitrate.4H2O	13477-34-4	100.00000	0.10480	
			Calcium Nitrate.4H2O	13477-34-4	100.00000	0.10480	None
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.02447	None
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.02447	
			Hydrochloric Acid	7647-01-0	15.00000	0.02429	None
			Sodium Chloride	7647-14-5	100.00000	0.00925	
			Sodium Chloride	7647-14-5	100.00000	0.00925	None
			Alcohols. C-11-14-iso, C13-rich, ethoxylated	78330-21-9	5.00000	0.00408	
			Alcohols. C-11-14-iso, C13-rich, ethoxylated	78330-21-9	5.00000	0.00408	None
			Ethylene Glycol	107-21-1	10.00000	0.00239	None
			Ethylene Glycol	107-21-1	10.00000	0.00239	
			Sodium Nitrate	7631-99-4	5.00000	0.00046	None
			Sodium Nitrate	7631-99-4	5.00000	0.00046	
			Ethylene Glycol	107-21-1	30.00000	0.00009	None
			Organic Amine Resin Salt	Proprietary	30.00000	0.00009	None
			Isopropanol	67-63-0	30.00000	0.00009	None
			Raffinates, Sorption Process	64741-85-1	55.00000	0.00006	None
			Raffinates, Sorption Process	64741-85-1	55.00000	0.00006	
			Guar Gum	9000-30-0	50.00000	0.00005	
			Guar Gum	9000-30-0	50.00000	0.00005	None
			Ammonium Persulfate	7727-54-0	95.00000	0.00004	None
			Dimethylformamide	68-12-2	10.00000	0.00003	None
			Aromatic Aldehyde	Proprietary	10.00000	0.00003	None

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			Quaternary Ammonium Compound	Proprietary	10.00000	0.00003	None
			Quartz	14808-60-7	4.00000	0.00000	
			Quartz	14808-60-7	4.00000	0.00000	None
			Isotridecanol, ethoxylated	9043-30-5	2.00000	0.00000	
			Isotridecanol, ethoxylated	9043-30-5	2.00000	0.00000	None

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

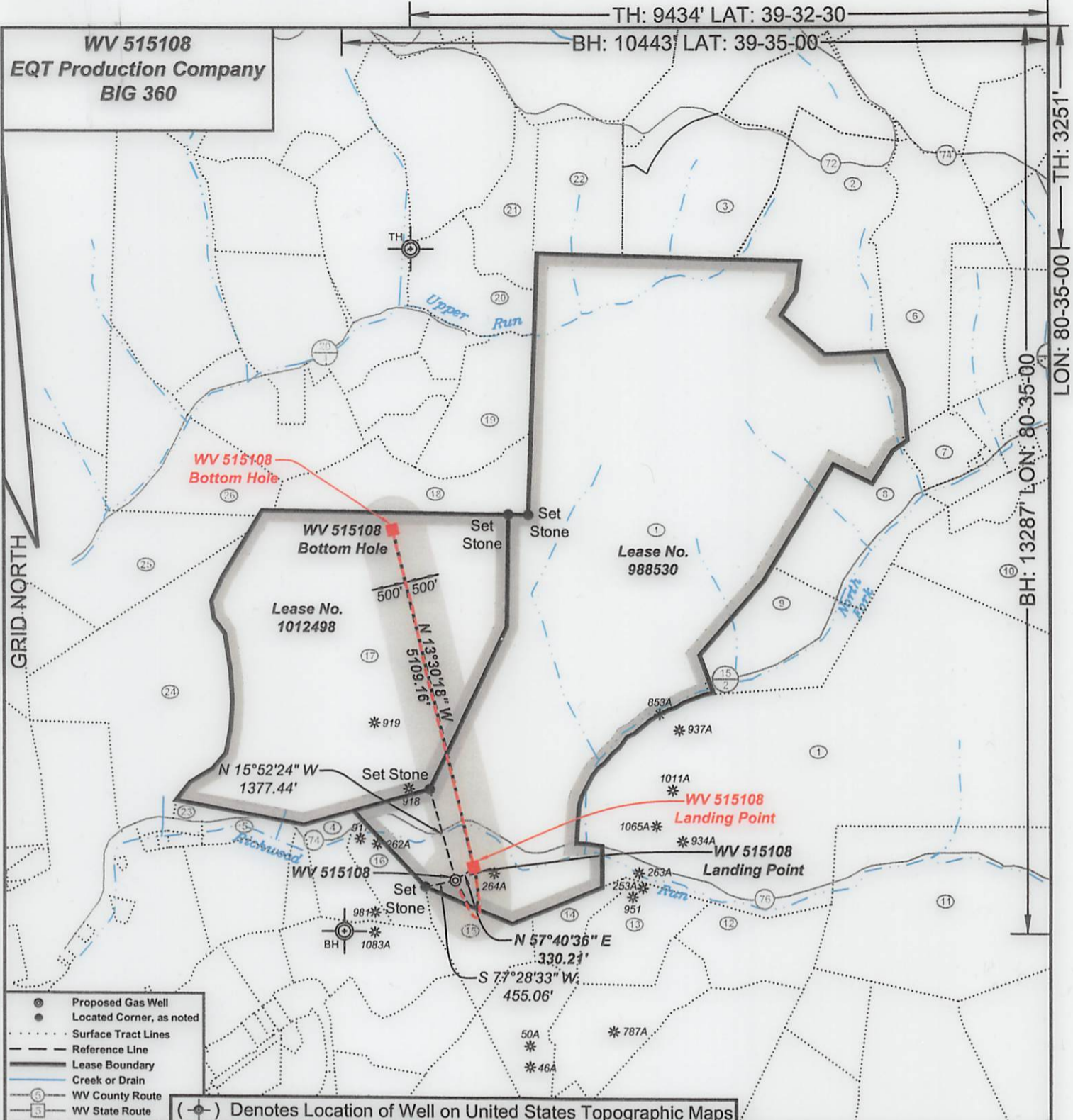
** Information is based on the maximum potential for concentration and thus the total may be over 100%

*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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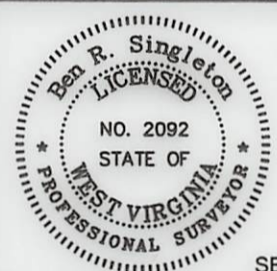
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(⊙) Denotes Location of Well on United States Topographic Maps



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Ben R. Singleton
P.S. 2092



SEAL

FILE NO: 174-13
DRAWING NO: 174-13 Big 360 H1
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1:2500
PROVEN SOURCE OF ELEVATION: NGS CORS Station

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OIL AND GAS DIVISION

DATE: October 25 20 17
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API WELL NO
47 - 103 - 03159
STATE COUNTY PERMIT

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(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

LOCATION: ELEVATION: Original Ground = 1008' Proposed Ground = 998' WATERSHED Richwood Run QUADRANGLE: Big Run
DISTRICT: Grant COUNTY: Wetzel

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ROYALTY OWNER: Mills-Wetzel Land, Inc. LEASE NO: 988530 ACREAGE: 659

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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: 7,064'

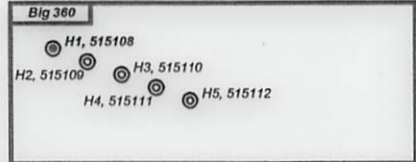
WELL OPERATOR: EQT Production Company DESIGNATED AGENT: Rex C. Ray
ADDRESS: 115 Professional Place PO Box 280 ADDRESS: 115 Professional Place PO Box 280
Bridgeport, WV 26330 Bridgeport, WV 26330

WV 515108
EQT Production Company
BIG 360

Tract I.D.	Tax Map No.	Parcel No.	County	District	Surface Tract Owner	Acres
1	17	14	Wetzel	Grant	Coastal Forest Resources Co.	1627.60
2	13	46	Wetzel	Grant	Burl Henthorn Est, et al.	99.00
3	12	47	Wetzel	Grant	Coastal Forest Resources Co.	87.50
4	22	12	Wetzel	Grant	James Jones, et al.	18.67
5	22	11	Wetzel	Grant	Mary M. Snodgrass	10.14
6	18	1	Wetzel	Grant	McKinley E. Calvert Heirs	100.00
7	18	14	Wetzel	Grant	Frank M. & Frankie L. Dulaney	9.55
8	18	13	Wetzel	Grant	Ralph G. Dulaney	87.50
9	18	17	Wetzel	Grant	Alan D. & Diana L. Barr	13.00
10	18	22	Wetzel	Grant	Karen R. Dennison, et al.	111.40
11	23	5	Wetzel	Grant	Thomas E. Wyatt, et al.	174.68
12	23	4	Wetzel	Grant	Dallison Lumber Inc.	36.10
13	23	2	Wetzel	Grant	Billy D. Arnolds, Jr.	38.80
14	23	1	Wetzel	Grant	Billy D. Arnolds, Jr.	16.50
15	22	27	Wetzel	Grant	Dallison Lumber Inc.	31.35
16	22	13	Wetzel	Grant	James Jones, et al.	16.75
17	17	16	Wetzel	Grant	David A. Arnolds	402.61
18	17	13	Wetzel	Grant	David A. Arnolds	62.25
19	17	12	Wetzel	Grant	Rhonda K. Spencer	57.20
20	17	4	Wetzel	Grant	George W. Cain	42.60
21	12	45	Wetzel	Grant	Jimmy L & James C. Yoho	44.10
22	12	46	Wetzel	Grant	Jimmy L & James C. Yoho	56.10
23	22	7	Wetzel	Grant	Billy D. Arnolds	5.20
24	17	16.1	Wetzel	Grant	Coastal Forest Resources Co.	137.39
25	16	40	Wetzel	Grant	Coastal Forest Resources Co.	412.80
26	17	6	Wetzel	Grant	Georgia Ann Smith	0.55

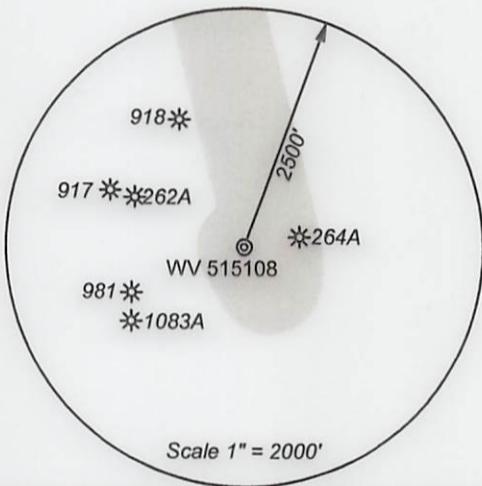
As-Drilled Well Information:
WV 515108 coordinates:
 NAD 27 N: 378,111.73 E: 1,684,982.78
 NAD 83 UTM N: 4,375,979.73 E: 532,939.09
WV 515108 Landing Point coordinates:
 NAD 27 N: 378,307.02 E: 1,685,257.28
 NAD 83 UTM N: 4,376,040.63 E: 533,021.73
WV 515108 Bottom Hole coordinates:
 NAD 27 N: 383,255.44 E: 1,684,066.71
 NAD 83 UTM N: 4,377,542.15 E: 532,633.90

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

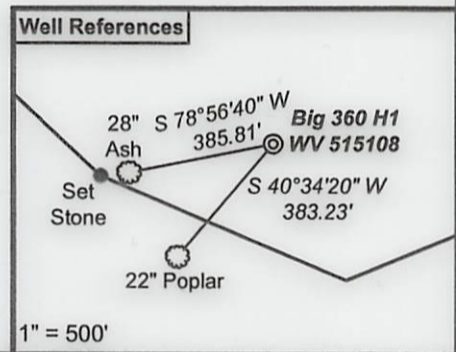


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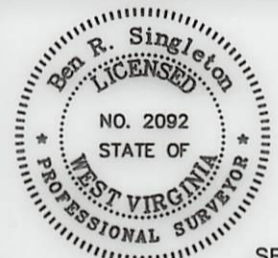


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